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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 II, Budget Activity 4

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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

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	Se c
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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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
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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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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56	04	0603619A	Landmine Warfare and Barrier - Adv Dev.....	28
57	04	0603627A	Smoke, Obscurant and Target Defeating Sys-Adv Dev.....	40
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62	04	0603774A	Night Vision Systems Advanced Development.....	150
63	04	0603779A	Environmental Quality Technology - Dem/Val.....	159
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Budget Activity 04: Advanced Component Development & Prototypes (ACD&P)
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72	04	0604115A	TECHNOLOGY MATURATION INITIATIVES.....	354
73	04	0604120A	Assured Positioning, Navigation and Timing (PNT).....	363
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Logistics and Engineer Equipment - Adv Dev	0603804A	67	04.....	228
Medical Systems - Adv Dev	0603807A	68	04.....	278
NATO Research and Development	0603790A	65	04.....	197
Night Vision Systems Advanced Development	0603774A	62	04.....	150
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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 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 0603305A / <i>Army Missile Defense Systems Integration</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	-	23.117	25.795	10.347	-	10.347	9.725	9.638	11.040	12.295	Continuing	Continuing
TR5: <i>Missile Defense Battlelab</i>	-	23.117	25.795	10.347	-	10.347	9.725	9.638	11.040	12.295	Continuing	Continuing

Note

FY15 Congressional Add - Program Increase

A. Mission Description and Budget Item Justification

This Program Element funds missile defense systems integration efforts for both the US Army Space and Missile Defense Command/Army Forces Strategic Command (USASMDC/ARSTRAT).

USASMDC/ARSTRAT: Headquarters, Department of the Army General Order 37, dated 16 October 2006, designated USASMDC/ARSTRAT as the Army proponent for space and ground-based midcourse defense (GMD), the Army integrator for global missile defense, and the Army Service Component Command (ASCC) of the U.S. Strategic Command (USSTRATCOM). Army Regulation (AR) 10-87 Army Commands, Army Service Component Commands, and Direct Reporting Units, dated 4 September 2007 and AR 5-22 The Army Force Modernization Proponent System dated 19 August 2009 designates USASMDC/ARSTRAT as the Army specified proponent for Global Missile Defense and Space/High Altitude capabilities. As the Army proponent for space, high altitude and GMD, USASMDC/ARSTRAT is responsible for developing warfighting concepts, conduct warfighting experiments to validate those concepts, identify capabilities needed to implement the validated concepts, and develop Doctrine, Organizations, Training, Material, Leadership & Education, Personnel, Facilities and Policy (DOTMLPF-P) solutions to realize the GMD capabilities. As the Army integrator for global missile defense, USASMDC/ARSTRAT is responsible for reviewing programs managed by the Army, other Services, Defense agencies and National agencies to ensure that they are correctly synchronized and will ultimately provide the capabilities required by USSTRATCOM to execute its global missile defense responsibilities.

Project TR5 funds United States Army Space and Missile Defense Command/ Army Strategic Command (USASMDC/ARSTRAT) efforts to develop the associated operational prototyping, experimentation, operational analysis, and modeling and simulation in support of current and future Forces.

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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 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 0603305A / <i>Army Missile Defense Systems Integration</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	23.289	12.797	12.203	-	12.203
Current President's Budget	23.117	25.795	10.347	-	10.347
Total Adjustments	-0.172	12.998	-1.856	-	-1.856
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	13.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.172	-			
• Other Adjustments 1	-	-0.002	-1.856	-	-1.856

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

Project: TR5: *Missile Defense Battlelab*

Congressional Add: *Thermal Management Systems Prototypes*

	FY 2014	FY 2015
	-	13.000
Congressional Add Subtotals for Project: TR5	-	13.000
Congressional Add Totals for all Projects	-	13.000

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 4					R-1 Program Element (Number/Name) PE 0603305A / Army Missile Defense Systems Integration				Project (Number/Name) TR5 / Missile Defense Battlelab			
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
TR5: <i>Missile Defense Battlelab</i>	-	23.117	25.795	10.347	-	10.347	9.725	9.638	11.040	12.295	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Program Element funds missile defense systems integration efforts for both the US Army Space and Missile Defense Command/Army Forces Strategic Command (USASMDC/ARSTRAT).

USASMDC/ARSTRAT: Headquarters, Department of the Army General Order 37, dated 16 October 2006, designated USASMDC/ARSTRAT as the Army proponent for space and ground-based midcourse defense (GMD), the Army integrator for global missile defense, and the Army Service Component Command (ASCC) of the U.S. Strategic Command (USSTRATCOM). Army Regulation (AR) 10-87 Army Commands, Army Service Component Commands, and Direct Reporting Units, dated 4 September 2007 and AR 5-22 The Army Force Modernization Proponent System dated 19 August 2009 designates USASMDC/ARSTRAT as the Army specified proponent for Global Missile Defense and Space/High Altitude capabilities. As the Army proponent for space, high altitude and GMD, USASMDC/ARSTRAT is responsible for developing warfighting concepts, conduct warfighting experiments to validate those concepts, identify capabilities needed to implement the validated concepts, and develop Doctrine, Organizations, Training, Material, Leadership & Education, Personnel, Facilities and Policy (DOTMLPF-P) solutions to realize the GMD capabilities. As the Army integrator for global missile defense, USASMDC/ARSTRAT is responsible for reviewing programs managed by the Army, other Services, Defense agencies and National agencies to ensure that they are correctly synchronized and will ultimately provide the capabilities required by USSTRATCOM to execute its global missile defense responsibilities.

Project TR5 funds United States Army Space and Missile Defense Command/ Army Strategic Command (USASMDC/ARSTRAT) efforts to develop the associated operational prototyping, experimentation, operational analysis, and modeling and simulation in support of current and future Forces.

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

	FY 2014	FY 2015	FY 2016
Title: Prototypes	17.094	7.626	6.200
Description: Funding is provided for the following efforts			
FY 2014 Accomplishments:			
Took the lessons learned from the FY13 efforts to continue to evaluate new technologies in realistic operating environments. This was accomplished by participating in and providing support to Unified Quest wargames and experiments to analyze and integrate technology to identify the feasibility integration into Army space, missile defense, and high altitude systems. The Space and Missile Defense Command participated and supported biennial rewrites of Army Capstone, Operational and Functional Concepts. Continued to provide operational manager support to STRATCOM, NORTHCOM and SOCOM Joint Technical Capability Demonstrations to ensure Army space, missile defense, and high altitude equities are represented in advanced			

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603305A / Army Missile Defense Systems Integration	Project (Number/Name) TR5 / Missile Defense Battlelab

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

	FY 2014	FY 2015	FY 2016
<p>technology developments by demonstrating military utility when applied to military equipment and techniques. Examples included: supporting multi service experiments and capability development of the national-directed Phased Adaptive Approach (PAA) for Ballistic Missile Defense (BMD) as it is applied to each of the regional COCOMs; and experimenting with operationally responsive space, space control, and high altitude capabilities to ensure the broader Army enterprises can leverage the advantages of these platforms for communications, Intelligence Surveillance and Reconnaissance (ISR), position navigation, missile warning and command and control. Continued to develop mitigation strategies for Army forces to operate effectively in contested space, missile defense and cyber environments. Developing effective Integrated Missile Defense concepts for Army support to the Phased Adaptive Approach (PAA) being implemented within each regional COCOM. Based on the successful evaluation of Air/Event Information Sharing Services into NORTHCOM J6 decision support systems, we supported the transition of the application to a Joint Capabilities Technical Demonstration (JCTD). Supported TRADOC proponents with their responsibilities relative to doctrine, organization, training, material, leader development and education, personnel, and facilities plus related matters to continue leveraging space, missile defense, and high altitude proponent input to Joint Capabilities Integration and Development System, Science and Technology, Concept Development, Capability Development for Rapid Transition, and Capability Gap Analysis Army We sustained our core prototyping platforms, as outlined above. BC3 was upgraded to more realistically address information flows related to Close Air Support. Continued fabrication and test of components to develop a test-bed for enhanced thermal management technologies supporting missiles/TOCS/shelters and other systems utilizing mobile thermal management in realistic operating environments. Selected components were integrated with battlefield applications to support demonstrations of projected efficiencies with identified enhanced thermal management technologies.</p> <p>FY 2015 Plans: Take the lessons learned from the FY14 efforts to continue to evaluate new technologies in realistic operating environments. This is accomplished by participating in and providing support to Unified Quest wargames and experiments to analyze and integrate technology to identify the feasibility integration into Army space, missile defense, and high altitude systems. The Space and Missile Defense Command will participate and support biennial rewrites of Army Capstone, Operational and Functional Concepts. Continue to provide operational manager support to STRATCOM, NORTHCOM and SOCOM Joint Technical Capability Demonstrations to ensure Army space, missile defense, and high altitude equities are represented in advanced technology developments by demonstrating military utility when applied to military equipment and techniques. Examples include: supporting multi service experiments and capability development of the national-directed Phased Adaptive Approach (PAA) for Ballistic Missile Defense (BMD) as it is applied to each of the regional COCOMs; and experimenting with operationally responsive space, space control, and high altitude capabilities to ensure the broader Army enterprises can leverage the advantages of these platforms for communications, Intelligence Surveillance and Reconnaissance (ISR), position navigation, missile warning and command and control. Continue to develop mitigation strategies for Army forces to operate effectively in contested space, missile defense and cyber environments. Developing effective Integrated Missile Defense concepts for Army support to the Phased Adaptive Approach (PAA) being implemented within each regional COCOM. Will support TRADOC proponents with</p>			

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603305A / Army Missile Defense Systems Integration	Project (Number/Name) TR5 / Missile Defense Battlelab

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016
<p>their responsibilities relative to doctrine, organization, training, material, leader development and education, personnel, and facilities plus related matters to continue leveraging space, missile defense, and high altitude proponent input to Joint Capabilities Integration and Development System, Science and Technology, Concept Development, Capability Development for Rapid Transition, and Capability Gap Analysis Army We will sustain our core prototyping platforms, as outlined above. Battlespace Command and Control Center (BC3) will be upgraded to more realistically address information flows related to Close Air Support. Support MDA to Army BMDS element transition and transfer efforts including BMDS sensor deployments. Develop/defend Army requirements development / documentation to MDA spiral/block development.</p> <p>FY 2016 Plans: Take the lessons learned from the FY15 efforts to continue to evaluate new technologies in realistic operating environments. This is accomplished by participating in and providing support to Unified Quest wargames and experiments to analyze and integrate technology to identify the feasibility integration into Army space, missile defense, and high altitude systems. The Space and Missile Defense Command will participate and support biennial rewrites of Army Capstone, Operational and Functional Concepts. Continue to provide operational manager support to STRATCOM, NORTHCOM and SOCOM Joint Technical Capability Demonstrations to ensure Army space, missile defense, and high altitude equities are represented in advanced technology developments by demonstrating military utility when applied to military equipment and techniques. Examples include: supporting multi service experiments and capability development of the national-directed Phased Adaptive Approach (PAA) for Ballistic Missile Defense (BMD) as it is applied to each of the regional COCOMs; and experimenting with operationally responsive space, space control, and high altitude capabilities to ensure the broader Army enterprises can leverage the advantages of these platforms for communications, Intelligence Surveillance and Reconnaissance (ISR), position navigation, missile warning and command and control. Continue to develop mitigation strategies for Army forces to operate effectively in contested space, missile defense and cyber environments. Developing effective Integrated Missile Defense concepts for Army support to the Phased Adaptive Approach (PAA) being implemented within each regional COCOM. Will support TRADOC proponents with their responsibilities relative to doctrine, organization, training, material, leader development and education, personnel, and facilities plus related matters to continue leveraging space, missile defense, and high altitude proponent input to Joint Capabilities Integration and Development System, Science and Technology, Concept Development, Capability Development for Rapid Transition, and Capability Gap Analysis Army We will sustain our core prototyping platforms, as outlined above. Battlespace Command and Control Center (BC3) will be upgraded to more realistically address information flows related to Close Air Support. Support MDA to Army BMDS element transition and transfer efforts including BMDS sensor deployments. Develop/defend Army requirements development / documentation to MDA spiral/block development.</p>			
<p>Title: Analysis, and Models and Simulations (M&S)</p> <p>Description: Funding is provided for the following efforts</p> <p>FY 2014 Accomplishments:</p>	6.023	5.169	4.147

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016
<p>Took the lessons learned from the FY13 efforts to continue to evaluate new technologies in realistic operating environments. This was accomplished by supporting ongoing efforts that provided the most realistic operating environment available to perform technology gap and cost reduction analysis of space, missile defense, and high altitude systems. Realistic operating environments were available to determine the ability of the specific technologies to fill capability gaps in terms of utility to the warfighter. Support of technology demonstrations, Analysis and Demonstration Tools/Test Beds for evolving space superiority and operationally responsive space concepts addressed emerging needs and continued to be expanded to ensure that advanced technology development can adequately enhance space, missile defense and high altitude systems. The Future Warfare Center (FWC) continued to provide program management for maintenance, sustainment, and development for Extended Air Defense Simulation (EADSIM), to provide the required fidelity for a synthetic operating environment to provide the capability to perform system and cost benefit analysis, operational planning, and exercise/experimentation support.</p> <p>FY 2015 Plans: : Take the lessons learned from the FY14 efforts to continue to evaluate new technologies in realistic operating environments. This will be accomplished by supporting ongoing efforts that provide the most realistic operating environment available to perform technology gap and cost reduction analysis of space, missile defense, and high altitude systems. Realistic operating environments will be available to determine the ability of the specific technologies to fill capability gaps in terms of utility to the warfighter. Support of technology demonstrations, Analysis and Demonstration Tools/Test Beds for evolving space superiority and operationally responsive space concepts will address emerging needs and continue to be expanded to ensure that advanced technology development can adequately enhance space, missile defense and high altitude systems. The FWC will continue to provide program management for maintenance, sustainment, and development for EADSIM delivering the required high fidelity synthetic operating environment to provide the capability to perform system and cost benefit analysis, operational planning, and exercise/ experimentation support</p> <p>FY 2016 Plans: :: Take the lessons learned from the FY15 efforts to continue to evaluate new technologies in realistic operating environments. This will be accomplished by supporting ongoing efforts that provide the most realistic operating environment available to perform technology gap and cost reduction analysis of space, missile defense, and high altitude systems. Realistic operating environments will be available to determine the ability of the specific technologies to fill capability gaps in terms of utility to the warfighter. Support of technology demonstrations, Analysis and Demonstration Tools/Test Beds for evolving space superiority and operationally responsive space concepts will address emerging needs and continue to be expanded to ensure that advanced technology development can adequately enhance space, missile defense and high altitude systems. The FWC will continue to provide program management for maintenance, sustainment, and development for Extended Air Defense Simulation (EADSIM) delivering the required high fidelity synthetic operating environment to provide the capability to perform system and cost benefit analysis, operational planning, and exercise/ experimentation support. The FWC will continue to provide program management</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 / 4	R-1 Program Element (Number/Name) PE 0603305A / Army Missile Defense Systems Integration	Project (Number/Name) TR5 / Missile Defense Battlelab
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016
for maintenance, sustainment, and development for Reconfigurable Tactical Operations Simulator (RTOS) delivering operator in the loop capability for air and missile defense simulation in distributed exercises and experiments.			
Accomplishments/Planned Programs Subtotals	23.117	12.795	10.347

	FY 2014	FY 2015
Congressional Add: Thermal Management Systems Prototypes	-	13.000
FY 2015 Plans: Continued development of operational prototypes of several thermal management systems for the Army users. Development includes a rack cooling system for electronics for PATRIOT and the High Energy Laser Mobile Demonstrator (HEL MD); an environmental cooling unit to support field shelters; and a prototype of a directed energy thermal management system, initially designed to support HEL MD applications. Continued development of prototype system to test thermal management systems in a relevant environment prior to delivery to users.		
Congressional Adds Subtotals	-	13.000

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

N/A

Remarks

D. Acquisition Strategy

Not applicable for this item.

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army	Date: February 2015
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Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603305A / Army Missile Defense Systems Integration	Project (Number/Name) TR5 / Missile Defense Battlelab
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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			
Experiments & technology enhancements of prototypes/tools and analysis.	Various	Various Colorado Springs CO and Huntsville AL : Alabama, Colorado Springs	67.577	13.314		15.210		1.537		-		1.537	Continuing	Continuing	Continuing
Govt Support and Support Contracts	Various	Various Colorado Springs CO and Huntsville AL : Alabama, Colorado Springs	92.777	9.803		10.585		8.810		-		8.810	Continuing	Continuing	Continuing
Small Business Innovation Research/Small Business Technology Transfer Program	Various	Various : Various	0.155	-		-		-		-		-	Continuing	Continuing	-
Subtotal			160.509	23.117		25.795		10.347		-		10.347	-	-	-
			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			160.509	23.117		25.795		10.347		-		10.347	-	-	-

Remarks

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603305A / Army Missile Defense Systems Integration	Project (Number/Name) TR5 / Missile Defense Battlelab
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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
Experiments & technology enhancements of prototypes/tools and analy	Eval integration of tech identified in Wargame Campaign Plan and Analysis 12-14																											
Release of Extended Air Defense Simulation Updates																												
Offensive/Defensive Integration																												
Integrated Air and Missile Defense Battle Command System Study																												
Defense Design Shortfalls and Vulnerability																												
Operational Analysis in Support of Joint Functional Component Commar																												
Electric Fires Analysis																												
ENBAD Analysis																												
AN/TPY-2 FBM Transition and Transfer																												
AN/TPY-2 FBM DOTMLPF Integrated Change Recommendation																												
AN/TPY-2 FBM Transition from MDA to Army																												
Enhanced Thermal Management Testbed																												
Missile Defense Simulation Suppt to TRADOC ARCIC Experiment																												

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603305A / Army Missile Defense Systems Integration	Project (Number/Name) TR5 / Missile Defense Battlelab
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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
Joint Capabilities Mix Study (JCM4)																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603305A / <i>Army Missile Defense Systems Integration</i>	Project (Number/Name) TR5 / <i>Missile Defense Battlelab</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Experiments & technology enhancements of prototypes/tools and analysis.	1	2014	4	2020
Release of Extended Air Defense Simulation Updates	4	2014	4	2020
Offensive/Defensive Integration	1	2014	4	2015
Integrated Air and Missile Defense Battle Command System Study	1	2014	2	2014
Defense Design Shortfalls and Vulnerability	1	2014	4	2014
Operational Analysis in Support of Joint Functional Component Command for IMD	1	2014	4	2020
Electric Fires Analysis	1	2014	4	2015
ENBAD Analysis	3	2013	1	2015
AN/TPY-2 FBM Transition and Transfer	3	2014	3	2014
AN/TPY-2 FBM DOTMLPF Integrated Change Recommendation	3	2017	3	2017
AN/TPY-2 FBM Transition from MDA to Army	1	2015	4	2017
Enhanced Thermal Management Testbed	1	2014	1	2016
Missile Defense Simulation Suppt to TRADOC ARCIC Experiment	2	2014	4	2021
Joint Capabilities Mix Study (JCM4)	4	2014	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 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 0603308A / <i>Army Space Systems Integration</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	-	13.448	13.996	25.061	-	25.061	25.296	37.300	53.999	71.489	Continuing	Continuing
990: <i>Space And Missile Defense Integration</i>	-	11.514	10.556	7.238	-	7.238	13.127	16.032	18.227	17.591	Continuing	Continuing
EB7: <i>Army Space System Enhancement/Integration</i>	-	1.934	3.440	17.823	-	17.823	12.169	21.268	35.772	53.898	Continuing	Continuing

Note

FY16 increase in classified research.

A. Mission Description and Budget Item Justification

The program element funds space systems integration efforts performed by the US Army Space and Missile Defense Command/ Army Forces Strategic Command (USASMDC/ARSTRAT) and the Program Executive Office for Intelligence, Electronic Warfare

USASMDC/ARSTRAT: Headquarters, Department of the Army General Order Number 37, dated 16 October 2006, designated USASMDC/ARSTRAT as the Army proponent for space and the Army Service Component Command of U.S. Strategic Command (USSTRATCOM). As such, USASMDC/ARSTRAT is responsible to develop warfighting concepts, conduct warfighting experiments to validate those concepts, identify capabilities needed to implement the validated concepts, and develop Doctrine, Organization, Training, Material, Leadership & Education, Personnel and Facilities (DOTMLPF) solutions to realize those space related capabilities. Army Regulation (AR) 10-87 Army Commands, Army Service Component Commands, and the Direct Reporting Units, dated 4 September 2007 and AR 5-22 The Army Force Modernization Proponent System dated 19 August 2009 designates USASMDC/ARSTRAT as the Army Force Modernization proponent for Space and High Altitude Capabilities.

Project 990 funds USASMDC/ARSTRAT to integrate warfighting concepts and technologies, validate concepts, and identify capabilities needed to implement the validated concepts, and develop DOTMLPF solutions to realize those space and high altitude related capabilities. Provide engineering support to the Joint Friendly Force Tracking (J-FFT) Mission Management Center (MMC) through an associated test-bed for both operational and developmental injection and integration of real-time J-FFT information into the Common Operating Picture (COP) for Combatant Commanders, Joint Task Forces (JTFs), and Coalition Partners. The MMC injects real-time J-FFT information into the Common Operating Picture for COCOMs, JTFs and Coalition partners. USSTRATCOM, in accordance with CJCSI 3910.01 (reference V.4.) is designated one of three coordinating agencies for J-FFT within DoD. CJCSI 3910.01 directs eight Force Modernization tasks to USSTRATCOM. USSTRATCOM SI 534-5 (reference V.6.) and annually published USSTRATCOM operations orders have designated USASMDC/ARSTRAT as the lead USSTRATCOM component command for Friendly Force Tracking (FFT).

Project EB7 funds classified research efforts. The details of the efforts may be provided upon request to appropriately cleared individuals.

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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 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 0603308A / <i>Army Space Systems Integration</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	13.584	13.999	13.450	-	13.450
Current President's Budget	13.448	13.996	25.061	-	25.061
Total Adjustments	-0.136	-0.003	11.611	-	11.611
• Congressional General Reductions	-0.007	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.069	-			
• Adjustments to Budget Years	-	-	11.611	-	11.611
• Other Adjustments 1	-0.060	-0.003	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 4					R-1 Program Element (Number/Name) PE 0603308A / Army Space Systems Integration				Project (Number/Name) 990 / Space And Missile Defense Integration			
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
990: Space And Missile Defense Integration	-	11.514	10.556	7.238	-	7.238	13.127	16.032	18.227	17.591	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Project 990 funds United States Army Space and Missile Command/Army Strategic Command (USASMDC/ARSTRAT) efforts to develop, analyze and mature warfighting concepts, and conduct warfighting experiments for space and high altitude capabilities. The program also funds development and integration of new data sources and data services into the Joint Friendly Force Tracking Mission Management Center. The Mission Management Center (MMC) injects real-time Joint Friendly Force Tracking (J-FFT) information into the Common Operating Picture for Combatant Commands (COCOMs), Joint Task Forces (JTFs) and Coalition partners. USASMDC/ARSTRAT is the proponent for space / high altitude capabilities and is responsible for determining and integrating Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel and Facilities (DOTMLPF-P) for the Army.

USSTRATCOM, in accordance with CJCSI 3910.01 (reference V.4.) is designated one of three coordinating agencies for J-FFT within DOD. CJCSI 3910.01 directs eight Force Modernization tasks to USSTRATCOM. USSTRATCOM SI 534-5 (reference V.6.) and annually published USSTRATCOM operations orders have designated USASMDC/ARSTRAT as the lead USSTRATCOM component command for J-FFT.

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

	FY 2014	FY 2015	FY 2016
Title: Architecture Development, Wargames and Demonstrations	5.680	6.205	6.174
Description: Funding is provided for the following efforts			
FY 2014 Accomplishments:			
Planned, developed, and executed architectures and combat development solutions for Army integration of space systems, space control capabilities and high altitude systems. Represented Army positions and defended Army equities relative in Joint/DoD and inter-Service activities; e.g., Executive Agent for Space Program Assessments, etc. Participated and provided support to wargames and experiments, such as Jericho Thunder, where space and high altitude capabilities and technologies can be integrated and evaluated in the most realistic operating environment possible. This is necessary to ensure that space, high altitude, and cyber capability gaps are identified and capabilities are correctly represented so that the Army's use of these capabilities is explored and where possible, exploited. Developed and maintained One Semi-Automated Force (OneSAF) simulation space updates and provided to PEO STRI to be included in OneSAF baseline. Developed space modernization strategies and sponsored exploration of future space and high altitude warfighting concepts. Continued efforts to enhance the resiliency and effectiveness of critical space-based assets. These efforts were documented in our FY14 task to develop the Space superiority Capability Development Document, requirements development for JTAGS P31/Overhead Persistent Infrared;			

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
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B. Accomplishments/Planned Programs (\$ in Millions)

JCIDS requirements for defensive space control and support transition of RED DOT to an Army program of record. Other planned activities included: participation in OSD Space Experiment Review Board to prioritize Space Test Program launch opportunities and the "Army - Air Force Integration Forum 20"; Lead Space Capability Based Analysis on behalf of TRADOC; Participation in USAF Schriever Wargame 2014 focused on deployment in an Anti-Access / Area Denial environment. SMDC/ARSTRAT led Army Space 2020 & Beyond wargame seminar as part of Unified Quest 2014 and provided a subject matter expert to NASA's Phantom Eye high altitude / long endurance demonstrator program. Experimented with Global Visual Information System (GVIS), when it was integrated into Stryker vehicles and dismounted, at AEWES Spiral 1, and AFRICOM, USAF and Marine Expeditionary Force experiments. USASMDC/ARSTRAT participated in Integrated Distributed Operations in Major Combat Operations SIMEX, hosted by the Fires Battlelab and took Winch Assisted Space Platform prototype to Network Integration Experiment 14.2. SMDC/ARSTRAT transitioned Combat SkySat to 7th Special Forces Group and continued efforts developing Weather Rock (WxRock) with US Army AFRICOM.

FY 2015 Plans:

Will plan, develop, and execute architectures and combat development solutions for Army integration of space systems, space control capabilities, missile defense and high altitude systems. Represent Army positions and defend Army equities relative in Joint/DoD and inter-Service activities; e.g., Executive Agent for Space Program Assessments, etc. Will participate and provide support to wargames and experiments where space and high altitude capabilities and technologies can be integrated and evaluated in the most realistic operating environment possible. This is necessary to ensure that space, high altitude and cyber capability gaps are identified and capabilities are correctly represented so that the Army's use of these capabilities is explored and where possible, exploited. Will develop and maintain One Semi-Automated Force (OneSAF) simulation space updates and provide to PEO STRI to be included in OneSAF baseline. Will develop space modernization strategies and sponsor exploration of future space and high and high altitude warfighting concepts. USASMDC/ARSTRAT will continue efforts to enhance the resiliency and effectiveness of critical space-based assets and JCIDS capability development activities for space superiority, high altitude persistent platforms, nano-satellites and tactical launch systems. Products scheduled to be delivered in FY15 include Overhead Persistence Infrared (OPIR) Analysis of Alternatives; Jericho Thunder Analysis Support; Nanosat Program Capability Development Document; Space Superiority Capability Production Document; Army Cyberspace Analysis; Kestrel Eye Military Utility Analysis; Space Superiority Joint Architecture Analysis, and Phase I Space Superiority Program Analysis of Alternatives and Cost-Benefit Analysis.

FY 2016 Plans:

Will plan, develop, and execute architectures and combat development solutions for Army integration of space systems, space control capabilities, missile defense and high altitude systems. Represent Army positions and defend Army equities relative in Joint/DoD and inter-Service activities; e.g., Executive Agent for Space Program Assessments, etc. Will plan and execute wargames to evaluate emerging concepts within the space and high altitude domains as well as participate and provide support to Army and Joint wargames and experiments where space and high altitude capabilities and technologies can be integrated and

FY 2014	FY 2015	FY 2016

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016
<p>evaluated in the most realistic operating environment possible. This is necessary to ensure that space, high altitude and cyber capability gaps are identified and capabilities are correctly represented so that the Army's use of these capabilities is explored and where possible, exploited. Will develop and maintain One Semi-Automated Force (OneSAF) simulation space updates and provide to PEO STRI to be included in OneSAF baseline. Will develop space modernization strategies and sponsor exploration of future space and high and high altitude warfighting concepts. USASMDC/ARSTRAT will continue efforts to enhance the resiliency and effectiveness of critical space-based assets and JCIDS capability development activities for space superiority, high altitude persistent platforms, nano-satellites and tactical launch systems. Products scheduled to be delivered in FY16 include Army Cyberspace Analysis; Space Superiority Analysis of Alternatives and Cost -Benefit Analysis updates: Overhead Persistence Infrared (OPIR) Analysis; Assessment of Hostile use of Space Force Enhancement; and Position Navigation Timing (PNT) analysis.</p>			
<p>Title: High Energy Laser Technolgy Program Support</p> <p>Description: Funding is provided for the following effort.</p> <p>FY 2014 Accomplishments: Supported SSLT operations at High Energy Laser Systems Test Facility (HELSTF) to evaluate 100kW class SSL performance against a variety of static and dynamic targets of interest to the Army, Navy, Air Force, and OSD at tactical ranges of interest. Supported collection of propagation and lethality data with the SSLT and analyzed results for model comparison. Supported the development of tactics, techniques, and procedures (TTPs) in support of future fielding of HEL weapon system. Supported the initiation of one of the RELI contractors to design and fabricate a 60kW laser for installation into the High Energy Laser Mobile Demonstrator (HELMD) platform in the FY15/16 timeframe by evaluating and assessing the ruggedized efficient high power laser Preliminary Design Review (PDR) and Critical Design Review (CDR). Provided technical support for the integrated testing of a COTS 10kW class fiber laser onboard the HELMD platform to demonstrate high power operation of the HELMD beam control system and to engage mortars and UAVs. Incorporated adaptive optics into the HELMD after the first round of tests to improve performance and increase the range.</p> <p>FY 2015 Plans: Will support the efficient rugged laser program as it goes into the fabrication phase of a 60kW laser system for installation into the HELMD mobile platform; attend efficient rugged laser reviews and technical interchange meetings; conduct trade analysis studies on current and future high power laser concepts; conduct technical assessments of advanced laser technologies; support power and thermal subsystems interface requirements definition and system engineering between the 60 kW class laser, power and thermal subsystem, and the HELMD platform/beam control system; support SSLT operations at High Energy Laser Systems Test</p>	0.770	0.750	0.516

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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016
<p>Facility (HELSTF) to evaluate 1.06um SSL propagation and lethality experiments; support the development of tactics, techniques, and procedures (TTPs) of future fielding of HEL weapon system.</p> <p>FY 2016 Plans: Will support the efficient rugged laser program as it goes into the completion phase of a 60kW laser system for installation into the HELMD mobile platform; support efficient rugged laser reviews and technical interchange meetings; support safety and security assessments and analysis of a potential future laser weapon system; conduct trade analysis studies on current and future high power laser concepts; support conduct of technical assessments of advanced laser technologies and help assess the diode pumped gas laser research effort; support power and thermal subsystems development and system engineering between the 60 kW class laser, power and thermal subsystem, and the HELMD platform/beam control system; support Solids state Laser Testbed (SSLT) operations at the High Energy Laser Systems Test Facility (HELSTF) to evaluate 1.06um SSL propagation and lethality experiments; support the development of tactics, techniques, and procedures (TTPs) of future fielding of HEL weapon system.</p>			
<p>Title: Joint Friendly Force Tracking (J-FFT) Testbed</p> <p>Description: Funding is provided for the following efforts</p> <p>FY 2014 Accomplishments: As enhancements were made to network-enabled command and control systems and other systems including KeyMaker and were integrated into Combat Commanders friendly force tracking requirements, the J-FFT Testbed was used to integrate hardware and software prior to its deployment to the field. USASMDC/ARSTRAT supported development of FFT capabilities for deployed and coalition forces. The Joint Friendly Force Tracking Division coordinated and executed USSTRATCOM-directed FFT tasks in order to assure continuous 24/7 FFT data services support to authorized users to include the Combatant Commands, the Services, agencies, allies, and coalition partners in order to improve their situational awareness (SA), enhance command and control (C2), and reduce fratricide in combat, homeland defense, civil and contingency operations.</p> <p>FY 2015 Plans: As enhancements are made to network-enabled command and control systems and other systems including KeyMaker will be fully integrated into Combat Commanders friendly force tracking requirements the J-FFT Testbed will be used to integrate hardware and software prior to its deployment to the field. USASMDC/ARSTRAT will continue to support development of FFT capabilities for deployed and coalition forces. The Joint Friendly Force Tracking Division coordinates and executes USSTRATCOM-directed FFT tasks in order to assure continuous 24/7 FFT data services support to authorized users to include the Combatant Commands, the Services, agencies, allies, and coalition partners in order to improve their situational awareness (SA), enhance command and control (C2) to reduce fratricide in combat, homeland defense, civil and contingency operations. Will complete transition Force Tracking Advanced Management System (FTAMS) to FFT-MMC.</p> <p>FY 2016 Plans:</p>	5.064	3.601	0.548

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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016
As enhancements are made to network-enabled command and control systems and other systems including KeyMaker will be fully integrated into Combat Commanders friendly force tracking requirements the J-FFT Testbed will be used to integrate hardware and software prior to its deployment to the field. USASMDC/ARSTRAT will continue to support development of FFT capabilities for deployed and coalition forces. The Joint Friendly Force Tracking Division coordinates and executes USSTRATCOM-directed FFT tasks in order to assure continuous 24/7 FFT data services support to authorized users to include the Combatant Commands, the Services, agencies, allies, and coalition partners in order to improve their situational awareness (SA), enhance command and control (C2) to reduce fratricide in combat, homeland defense, civil and contingency operations. Will complete transition Force Tracking Advanced Management System (FTAMS) to FFT-MMC.			
Accomplishments/Planned Programs Subtotals	11.514	10.556	7.238

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

Remarks

D. Acquisition Strategy
Not applicable for this effort.

E. Performance Metrics

Experiments and projects are aligned to operations concepts and capability gaps. SMDC/ARSTRAT is influencing the development critical enabling technologies. Legacy or emerging systems have interoperability solutions identified.

F. Major Performer

Work is currently being performed under the COSMIC Contract Vehicle. The two primes awarded work under COSMIC are BAE Systems (W91260-06-D-0005) and Quantum Research International (QRI) (W91260-06-D-0006). All Task Orders under COSMIC are competed between the two prime contractors. Beginning in FY16 efforts may be competed under the Design, Development Demonstration and Integration (D3I) contract scheduled to be awarded in late FY16.

QRI, as a Prime on contract W91260-06-D-0006, along with its team of sub-contractors, is responsible for the development of software to support integration of new tracking data services into the J-FFT and support special tracking capabilities. This ensures 24/7 J-FFT data is available to support Combatant Commanders as coalition forces and technology change.

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603308A / <i>Army Space Systems Integration</i>	Project (Number/Name) 990 / <i>Space And Missile Defense Integration</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 / 4	R-1 Program Element (Number/Name) PE 0603308A / Army Space Systems Integration	Project (Number/Name) 990 / Space And Missile Defense Integration
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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			
Enhancement of J-FFT	C/CPFF	Colorado Springs : Colorado	23.231	5.135		2.500		-		-		-	Continuing	Continuing	Continuing
Subtotal			23.231	5.135		2.500		-		-		-	-	-	-

Remarks
The prime contractor was awarded a task order contract in September 2006. Multiple follow-on task orders have been awarded under this contract since award of the basic contract. All current task orders are scheduled to expire by the end of FY16.

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			
GOVT SUPPORT & SUPPORT CONTRACTS	C/CPFF	Various in Colorado Springs CO, Washington DC, and Huntsville AL : Various	105.333	6.379		8.056		7.238		-		7.238	Continuing	Continuing	Continuing
Subtotal			105.333	6.379		8.056		7.238		-		7.238	-	-	-

Remarks
The prime contractor was awarded a task order contract in September 2006. Multiple follow-on task orders have been awarded under this contract since award of the basic contract. All current task orders are scheduled to expire by the end of FY16.

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
	128.564	11.514	10.556	7.238	-	7.238	-	-	-

Remarks

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603308A / Army Space Systems Integration	Project (Number/Name) 990 / Space And Missile Defense Integration
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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/synchronization of Army space and BMD DOTMLPF solutions																												
Provide 24/7 support to Friendly Force Tracking.																												
53rd Signal Battalion Analysis																												
Jericho Thunder Analysis Support																												
Wide Field of View Military Utility Analysis																												
SMDC NanoSat Analysis (SNAP, KE)																												
Phase I Space Superiority Program AoA/C-BA.																												
Space Superiority Joint Architecture Analysis																												
Kestrel Eye Military Utility Analysis																												
Overhead Persistent Infrared Sensor Study																												
Army Cyberspace Analysis																												
Overhead Persistence Infrared (OPIR) Analysis of Alternatives																												
Space Superiority Capability Production Document																												

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603308A / <i>Army Space Systems Integration</i>	Project (Number/Name) 990 / <i>Space And Missile Defense 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				
Nanosat Program Capability Development Document																																
Kestral Eye Capability Development Document																																
Integrate KeyMaker into FFT																																
Space Simulation Support to TRADOC ARCIC Experiment																																

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603308A / Army Space Systems Integration	Project (Number/Name) 990 / Space And Missile Defense Integration

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Development/synchronization of Army space and BMD DOTMLPF solutions.	1	2012	4	2020
Provide 24/7 support to Friendly Force Tracking.	1	2012	4	2020
53rd Signal Battalion Analysis	3	2013	3	2014
Jericho Thunder Analysis Support	1	2014	4	2020
Wide Field of View Military Utility Analysis	1	2013	2	2014
SMDC NanoSat Analysis (SNAP, KE)	1	2014	4	2015
Phase I Space Superiority Program AoA/C-BA.	1	2013	4	2015
Space Superiority Joint Architecture Analysis	1	2013	4	2015
Kestrel Eye Military Utility Analysis	1	2013	4	2014
Overhead Persistent Infrared Sensor Study	2	2013	1	2015
Army Cyberspace Analysis	1	2013	4	2015
Overhead Persistence Infrared (OPIR) Analysis of Alternatives	1	2014	3	2015
Space Superiority Capability Production Document	2	2015	2	2015
Nanosat Program Capability Development Document	3	2015	3	2015
Kestrel Eye Capability Development Document	2	2017	2	2017
Integrate KeyMaker into FFT	1	2013	4	2015
Space Simulation Support to TRADOC ARCIC Experiment	2	2014	4	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 4					R-1 Program Element (Number/Name) PE 0603308A / Army Space Systems Integration			Project (Number/Name) EB7 / Army Space System Enhancement/ Integration				
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
EB7: Army Space System Enhancement/Integration	-	1.934	3.440	17.823	-	17.823	12.169	21.268	35.772	53.898	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The purpose of the project is to conduct classified research efforts. The details of the efforts may be provided upon request to appropriately cleared individuals.

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

	FY 2014	FY 2015	FY 2016
Title: Classified	1.934	3.440	17.823
Description: The purpose of this project is to conduct classified research			
FY 2014 Accomplishments: The purpose of this project is to conduct classified research.			
FY 2015 Plans: The purpose of this project is to conduct classified research.			
FY 2016 Plans: The purpose of this project is to conduct classified research.			
Accomplishments/Planned Programs Subtotals	1.934	3.440	17.823

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 / 4	R-1 Program Element (Number/Name) PE 0603308A / Army Space Systems <i>Integration</i>	Project (Number/Name) EB7 / Army Space System Enhancement/ <i>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
Classified prototype hardware and software																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603308A / <i>Army Space Systems Integration</i>	Project (Number/Name) EB7 / <i>Army Space System Enhancement/ Integration</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Classified prototype hardware and software	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 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 0603619A / <i>Landmine Warfare and Barrier - Adv 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	-	-	-	49.636	-	49.636	69.477	69.478	77.454	88.737	-	354.782
606: <i>Cntrmn/Barrier Adv Dev</i>	-	-	-	-	-	-	-	-	3.000	14.285	-	17.285
EK7: <i>Area Denial Capability Development</i>	-	-	-	49.636	-	49.636	69.477	69.478	74.454	74.452	-	337.497

Note

Note

A. Mission Description and Budget Item Justification

This Program Element (PE) provides for the Concept Exploration and Refinement of a Deep-Range employed Networked Obstacle. This PE develops alternatives to the aging inventory of the Family of Scatterable Mines systems.

Project 606 enables component development of improved counter explosive hazard systems that focus on detecting, marking, and neutralizing mines and improvised explosive devices (IED). These capabilities will enhance the effectiveness of the Route Clearance Platoon within the Engineer Company, the Brigade Combat Team as well as other related Army missions.

Project EK7 Area Denial Capability Development will evaluate integrated technologies and prototype systems in a realistic operating environment to expedite technology transition for a Deep-Range employed Networked Obstacle that denies the enemy terrain and freedom of action while allowing friendly forces to maneuver freely within the same battlespace. Area Denial Capability Development provides Man-in-the-Loop (MITL) controlled scalable effects against mounted and dismounted enemy forces that disrupt, turn, fix or block their ability to maneuver. Area Denial Capability Development enables the Combatant Commander to establish early Situational Awareness of an area without exposing friendly forces to enemy engagement, and to actively detect, identify, discriminate, and engage the enemy in order to shape the battlespace at deep operational ranges. Area Denial Capability Development will utilize an open system, modular architecture to facilitate future development, maintenance, repair, and product improvements.

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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 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 0603619A / <i>Landmine Warfare and Barrier - Adv Dev</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	-	-	49.636	-	49.636
Total Adjustments	-	-	49.636	-	49.636
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustments 1	-	-	49.636	-	49.636

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603619A / <i>Landmine Warfare and Barrier - Adv Dev</i>	Project (Number/Name) 606 / <i>Cntrmn/Barrier Adv 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
606: <i>Cntrmn/Barrier Adv Dev</i>	-	-	-	-	-	-	-	-	3.000	14.285	-	17.285
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project enables component development of new counter explosive hazard systems that focus on detecting, marking, and neutralizing mines and improvised explosive devices (IED). These capabilities will enhance the effectiveness of the Route Clearance Platoon within the Engineer Company, the Brigade Combat Team as well as other related Army missions.

The Forward Reconnaissance and Explosive Hazard Detection (FREHD) system will provide a suite of vehicle-mounted capabilities that enable route clearance patrols to achieve higher rates of advance by accurately detecting and adjudicating potential explosive hazards with reduced hazard interrogation time. The system will automatically nominate potential hazards on the move and at standoff distance, and then let route clearance teams decide whether to perform more detailed examinations and identification of those hazards using additional tools within the FREHD suite. FREHD will also provide threat visualization and control capabilities that enable route clearance and allow Explosive Ordnance Disposal (EOD) and related mission personnel to remotely view video feeds of the hazard and remotely control the apparatus. The increased rate of advance will improve route clearance time, while the increased standoff improves force protection.

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

N/A

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>
• Mine Neutralization and Detection: <i>Mine Neutralization and Detection</i>	65.051	47.028	48.143	-	48.143	24.305	5.377	1.014	-	Continuing	Continuing

Remarks

654808/D415 Mine Neutralization and Detection is the engineering development follow on to this funding line. The above profile represents the total line, not only the follow on tasks within this program.

D. Acquisition Strategy

The Acquisition Strategy for the Forward Reconnaissance and Explosive Hazard Detection (FREHD) System will be developed in conjunction with program initiation.

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 / 4					R-1 Program Element (Number/Name) PE 0603619A / <i>Landmine Warfare and Barrier - Adv Dev</i>					Project (Number/Name) 606 / <i>Cntrmn/Barrier Adv Dev</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
FREHD Tech Development	TBD	TBD : TBD	0.001	-		-		-		-		-	Continuing	Continuing	-
Subtotal			0.001	-		-		-		-		-	-	-	-
			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			0.001	-		-		-		-		-	-	-	-
Remarks															

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603619A / <i>Landmine Warfare and Barrier - Adv Dev</i>	Project (Number/Name) 606 / <i>Cntrmn/Barrier Adv Dev</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
x																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603619A / <i>Landmine Warfare and Barrier - Adv Dev</i>	Project (Number/Name) 606 / <i>Cntrmn/Barrier Adv Dev</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
x	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 / 4					R-1 Program Element (Number/Name) PE 0603619A / <i>Landmine Warfare and Barrier - Adv Dev</i>				Project (Number/Name) EK7 / <i>Area Denial Capability 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
<i>EK7: Area Denial Capability Development</i>	-	-	-	49.636	-	49.636	69.477	69.478	74.454	74.452	-	337.497
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

This project is a new start in FY16.

A. Mission Description and Budget Item Justification

This project provides for the Concept Exploration and Refinement of a Deep-Range employed Networked Obstacle. This project develops alternatives to the aging inventory of the Family of Scatterable Mines systems.

Area Denial Capability Development will evaluate integrated technologies and prototype systems in a realistic operating environment to expedite technology transition for a Deep-Range employed Networked Obstacle that denies the enemy terrain and freedom of action while allowing friendly forces to maneuver freely within the same battlespace. Area Denial Capability Development provides Man-in-the-Loop (MITL) controlled scalable effects against mounted and dismounted enemy forces that disrupt, turn, fix or block their ability to maneuver. Area Denial Capability Development enables the Combatant Commander to establish early Situational Awareness of an area without exposing friendly forces to enemy engagement, and to actively detect, identify, discriminate, and engage the enemy in order to shape the battlespace at deep operational ranges. Area Denial Capability Development will utilize an open system, modular architecture to facilitate future development, maintenance, repair, and product improvements.

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

	FY 2014	FY 2015	FY 2016
Title: Area Denial Capability Development Concept Prototype Contracts	-	-	35.000
Description: System level concept prototypes that will be evaluated for affordability and feasibility and inform the Analysis of Alternatives and Technology Maturation and Risk Reduction (TMRR) contract solicitation.			
FY 2016 Plans: Up to 5 contract agreements to build prototypes that represent system level concepts for test and evaluation of potential operational effectiveness, suitability and affordability.			
Title: Engineering Support	-	-	7.878
Description: Provide Engineering Support.			
FY 2016 Plans:			

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603619A / <i>Landmine Warfare and Barrier - Adv Dev</i>	Project (Number/Name) EK7 / <i>Area Denial Capability Development</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016
Engineering support for Analysis of Alternatives, Concept Prototype Contract Award, initial development of Models and Simulations, and Technology Readiness Assessment of Concept Prototypes.			
Title: Test and Evaluation Description: Support Government Test and Evaluation of concept Prototypes in realistic operating environments. FY 2016 Plans: Technical Demonstration and Evaluation of concept Prototypes, initial development of Models and Simulations, and Technology Readiness Assessment.	-	-	3.879
Title: Program Management and Oversight Description: Program Management and Support FY 2016 Plans: Program Management support for Analysis of Alternatives, Test and Evaluation, Modeling and Simulation, and Concept Prototype agreements.	-	-	2.879
Accomplishments/Planned Programs Subtotals	-	-	49.636

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

N/A

Remarks

D. Acquisition Strategy

An Analysis of Alternatives (AoA) will be conducted to assess the feasibility and affordability of various system concepts. The AoA will be informed by previously executed studies and input from Government, Industry and Academia. In parallel to the AoA, up to 5 Concept Prototype awards will be provided to industry to develop representative prototypes (hardware and/or models) that will be used to assess the technology risks and costs associated with multiple system level concepts. The results of the AoA and evaluation of representative prototypes will support a Milestone A Decision and lead to up to 5 Technology Maturation and Risk Reduction (TMRR) contract awards based on Full and Open competition. Technologies that support the selected system level concepts will be matured during TMRR, and a Capability Development Document (CDD) will be developed. At the end of TMRR, and after a successful Milestone B Decision, up to 2 Engineering and Manufacturing Development (EMD) contracts will be awarded to further mature the technology associated with the most affordable and achievable materiel solution(s).

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 / 4	R-1 Program Element (Number/Name) PE 0603619A / Landmine Warfare and Barrier - Adv Dev	Project (Number/Name) EK7 / Area Denial Capability Development
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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 Mgmt	MIPR	PM-CCS : Picatinny Arsenal, NJ	0.000	-		-		2.879		-		2.879	-	2.879	-
Subtotal			0.000	-		-		2.879		-		2.879	-	2.879	-

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			
Prototype Development A	SS/TBD	TBD : TBD	0.000	-		-		7.000		-		7.000	-	7.000	-
Prototype Development B	SS/TBD	TBD : TBD	0.000	-		-		7.000		-		7.000	-	7.000	-
Prototype Development C	SS/TBD	TBD : TBD	0.000	-		-		7.000		-		7.000	-	7.000	-
Prototype Development D	SS/TBD	TBD : TBD	0.000	-		-		7.000		-		7.000	-	7.000	-
Prototype Development E	SS/TBD	TBD : TBD	0.000	-		-		7.000		-		7.000	-	7.000	-
Subtotal			0.000	-		-		35.000		-		35.000	-	35.000	-

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			
ARDEC Engineering Support	MIPR	ARDEC : Picatinny Arsenal, NJ	0.000	-		-		2.164		-		2.164	-	2.164	-
CERDEC Engineering Support	MIPR	CERDEC NVESD : Fort Belvoir, VA	0.000	-		-		1.365		-		1.365	-	1.365	-
Mitre Engineering Support (C4)	MIPR	Mitre : McLean, VA	0.000	-		-		0.780		-		0.780	-	0.780	-
Millenium Program Support	MIPR	Millennium : Arlington, VA	0.000	-		-		0.580		-		0.580	-	0.580	-
ARL Engineering Support	MIPR	ARL : Adelphi, MD	0.000	-		-		0.994		-		0.994	-	0.994	-
AMSAA Engineering Support	MIPR	AMSAA : Aberdeen, MD	0.000	-		-		1.995		-		1.995	-	1.995	-

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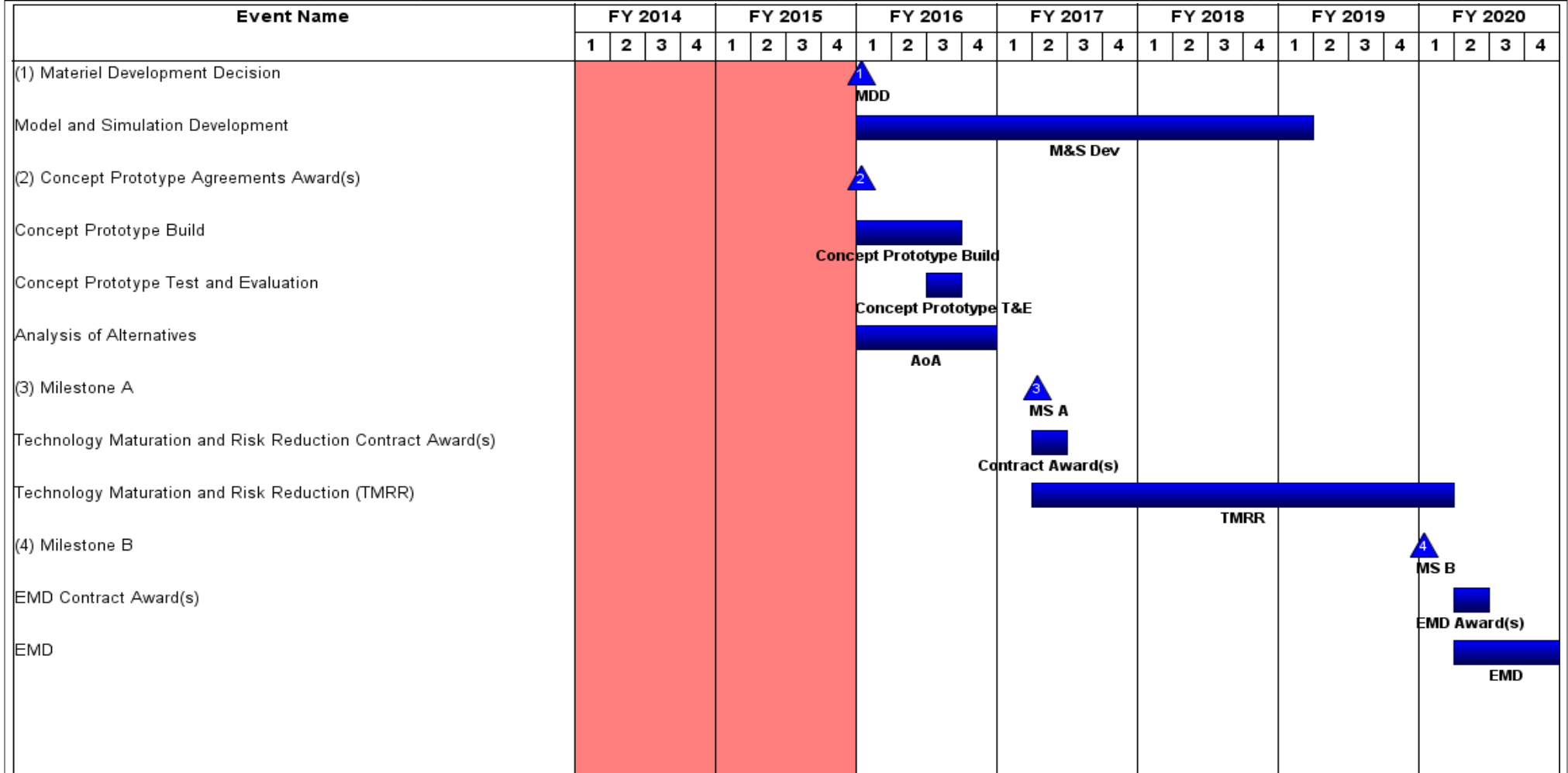
Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army												Date: February 2015			
Appropriation/Budget Activity 2040 / 4						R-1 Program Element (Number/Name) PE 0603619A / Landmine Warfare and Barrier - Adv Dev						Project (Number/Name) EK7 / Area Denial Capability Development			
Support (\$ 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			0.000	-		-		7.878		-		7.878	-	7.878	-
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
Support Government Test Activities	MIPR	AMSAA, ATEC, ARDEC : Various	0.000	-		-		3.879		-		3.879	-	3.879	-
Subtotal			0.000	-		-		3.879		-		3.879	-	3.879	-
Project Cost Totals			0.000	-		-		49.636		-		49.636	-	49.636	-

Remarks

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603619A / <i>Landmine Warfare and Barrier - Adv Dev</i>	Project (Number/Name) EK7 / <i>Area Denial Capability Development</i>
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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603619A / <i>Landmine Warfare and Barrier - Adv Dev</i>	Project (Number/Name) EK7 / <i>Area Denial Capability Development</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Materiel Development Decision	1	2016	1	2016
Model and Simulation Development	1	2016	1	2019
Concept Prototype Agreements Award(s)	1	2016	1	2016
Concept Prototype Build	1	2016	3	2016
Concept Prototype Test and Evaluation	3	2016	3	2016
Analysis of Alternatives	1	2016	4	2016
Milestone A	2	2017	2	2017
Technology Maturation and Risk Reduction Contract Award(s)	2	2017	2	2017
Technology Maturation and Risk Reduction (TMRR)	2	2017	1	2020
Milestone B	1	2020	1	2020
EMD Contract Award(s)	2	2020	2	2020
EMD	2	2020	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 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 0603627A / <i>Smoke, Obscurant and Target Defeating Sys-Adv 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	-	-	-	13.426	-	13.426	13.400	10.775	7.093	-	-	44.694
E79: <i>SMOKE/OBSCURANT SYSTEM</i>	-	-	-	13.426	-	13.426	13.400	10.775	7.093	-	-	44.694

Note

The FY 2016 funding request was reduced for \$4.517 million to account for the availability of prior year execution balances.

A. Mission Description and Budget Item Justification

SOM: US Forces must be able to effectively neutralize and degrade energy weapon systems and electro-optical systems/smart weapons that operate in the full range of the electromagnetic spectrum to improve platform survivability and soldier protection levels of maneuver forces on the battlefield. Improvements are sought across the entire multi-spectral range from visual through infrared (IR) and millimeter wavelengths (MMW) radar for incorporation into self-protection using sustained generated obscuration technology. SOM will be man portable and modular to facilitate quick mounting on manned/unmanned platforms and dismounted operations.

NBCRV: This program upgrades the Stryker Nuclear Biological Chemical Radiological Vehicle Sensor Suite (NBCRVSS) for increased sensitivity, chemical detection at increased maneuver speeds, and increased reliability. The NBCRVSS consists of a chemical point detector for solid, liquid, and vapor Chemical Warfare Agents, a biological point detection system, a Chemical Vapor Sampling System, a Training Aids, Devices, and Simulation System, and the Sensor Processing Group. The NBCRVSS provides the Stryker NBCRV the ability to detect, identify, collect, report, and mark NBC hazards. NBCRVSS funding is expected to move to a separate Program Element during the FY16 President's Budget cycle. It will be reflected under PE 655038, Project Code EQ7.

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	-	-	13.426	-	13.426
Total Adjustments	-	-	13.426	-	13.426
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	13.426	-	13.426

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 4					R-1 Program Element (Number/Name) PE 0603627A / <i>Smoke, Obscurant and Target Defeating Sys-Adv Dev</i>				Project (Number/Name) E79 / <i>SMOKE/OBSCURANT 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
E79: <i>SMOKE/OBSCURANT SYSTEM</i>	-	-	-	13.426	-	13.426	13.400	10.775	7.093	-	-	44.694
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Nuclear Biological Chemical Radiological Vehicle Sensor Suite (NBCRVSS) funding is expected to move to a separate Program Element during the FY16 President's Budget cycle. It will be reflected under PE 655038, Project Code EQ7.

A. Mission Description and Budget Item Justification

Screening Obscuration Module (SOM): US Forces must be able to effectively neutralize and degrade energy weapon systems and electro-optical systems/smart weapons that operate in the full range of the electromagnetic spectrum to improve platform survivability and soldier protection levels of maneuver forces on the battlefield. Improvements are sought across the entire multi-spectral range from visual through infrared (IR) and millimeter wavelengths (MMW) radar for incorporation into self-protection using sustained generated obscuration technology. SOM will be man portable and modular to facilitate quick mounting on manned/unmanned platforms and dismounted operations.

NBCRV: This program upgrades the Stryker Nuclear Biological Chemical Radiological Vehicle Sensor Suite (NBCRVSS) for increased sensitivity, chemical detection at increased maneuver speeds, and increased reliability. The NBCRVSS consists of chemical point detectors, a standoff chemical vapor detector, a biological point detector system, a Chemical Vapor Sampling System (CVSS), a Training Aids, Devices, and Simulation System (TADSS), and the Sensor Processing Group (SPG). The NBCRVSS provides the Stryker NBCRV the ability to detect, identify, collect, report, and mark NBC hazards. NBCRVSS funding is expected to move to a separate Program Element during the FY16 President's Budget cycle. It will be reflected under PE 655038, Project Code EQ7.

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

	FY 2014	FY 2015	FY 2016
Title: SOM: Product Development	-	-	1.700
Description: SOM Development			
FY 2016 Plans: SOM: Initiate design and development of the SOM system.			
Title: SOM: Test and Evaluation of SOM systems	-	-	0.286
Description: Test and Evaluation of SOM systems			
FY 2016 Plans:			

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015		
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603627A / <i>Smoke, Obscurant and Target Defeating Sys-Adv Dev</i>	Project (Number/Name) E79 / <i>SMOKE/OBSCURANT SYSTEM</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2014	FY 2015	FY 2016
SOM: Initiate test and evaluation planning.				
Title: SOM: Project Management		-	-	0.600
Description: Project Management				
FY 2016 Plans: SOM: Initiate Government program management, systems engineering, and Integrated Product Team (IPT) support.				
Title: NBCRV: Engineering and Modeling		-	-	0.700
Description: Provide ILS and Integration support to the sensor suite upgrades.				
FY 2016 Plans: NBCRV: Initiate Integrated Logistics Support (ILS) and Integration support to the sensor suite upgrades.				
Title: NBCRV: Sensor Suite Upgrade Development		-	-	8.140
Description: Sensor suite upgrade development				
FY 2016 Plans: NBCRV: Award contracts for sensor suite development.				
Title: NBCRV: Test & Evaluation		-	-	0.500
Description: NBCRV testing of prototypes				
FY 2016 Plans: NBCRV: Initiate test and evaluation planning and support for sensor suite upgrade prototypes.				
Title: NBCRV: Project Management		-	-	1.500
Description: NBCRV Project Management Labor				
FY 2016 Plans: NBCRV: Initiate Government program management, systems engineering, and Integrated Product Team (IPT) support.				
Accomplishments/Planned Programs Subtotals		-	-	13.426

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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 / 4	R-1 Program Element (Number/Name) PE 0603627A / <i>Smoke, Obscurant and Target Defeating Sys-Adv Dev</i>	Project (Number/Name) E79 / <i>SMOKE/OBSCURANT SYSTEM</i>
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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
• SMOKE/OBSCURANT SYSTEM: <i>Project 200 Smoke, Obscurant and Target Defeating Sys - Eng Dev</i>	-	-	-	-	-	-	-	-	-	-	-
• Target Defeating System: <i>Project 198 Smoke, Obscurant and Target Defeating Sys - Eng Dev</i>	-	-	-	-	-	-	-	-	-	-	-

Remarks

D. Acquisition Strategy

Acquisition Strategy:

NBCRV: The Nuclear Biological Chemical Radiological Vehicle Sensor Suite (NBCRVSS) is a Component of End Item to the Stryker Nuclear Biological Chemical Radiological Vehicle (NBCRV) designed to detect, identify, collect, report, and mark NBC hazards while integrated on the Stryker NBCRV. The NBCRVSS is a single step in the evolutionary acquisition strategy of the Stryker NBCRV. The NBCRVSS program will design, develop, integrate, test, procure, and field systems that will allow increased maneuver speeds when sampling liquid/solid ground contamination, increase chemical point identification sensitivity, lower sustainment costs, and increase reliability. Full and Open competition will be used for the development of the NBCRVSS with options for Low Rate Initial Production and Full Rate Production. The NBCRVSS will utilize competitive prototyping and a best value approach.

SOM: The Screening Obscuration Module (SOM) acquisition strategy is a single step Technology Development (TD) phase leading to a Milestone B/C production decision. The path forward for the TD phase will include the release of a formal request for proposal (RFP) to develop, test, and produce a SOM system capable of obscuring the Visual through Near IR wavelengths of the electromagnetic spectrum. The SOM RFP will utilize a cost plus fixed fee best value contract approach to execute the TD phase and a firm fixed price contract option for production. This acquisition strategy includes system development and demonstration, full system integration, design for producibility and a demonstration of interoperability, safety and utility.

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 / 4				PE 0603627A / Smoke, Obscurant and Target Defeating Sys-Adv Dev				E79 / SMOKE/OBSCURANT SYSTEM								
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	
SOM-Project Management Personnel	MIPR	JPM : NBCCA	5.630	-		-		0.600		-		0.600	Continuing	Continuing	Continuing	
NBCRV-Project Management Personnel	MIPR	JPM NBC CA : Edgewood, MD	0.000	-		-		1.500		-		1.500	-	1.500	-	
Subtotal			5.630	-		-		2.100		-		2.100	-	-	-	
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	
SOM Product Development	C/CPFF	JPM NBCCA, APG MD : Edgewood, MD	21.551	-		-		1.700		-		1.700	Continuing	Continuing	Continuing	
NBCRV Product Development	C/CPFF	JPM NBC CA : Edgewood, MD	0.000	-		-		8.140		-		8.140	-	8.140	-	
Subtotal			21.551	-		-		9.840		-		9.840	-	-	-	
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	
NBCRV Engineering and Modeling	MIPR	PM SBCT : Edgewood, Md	0.000	-		-		0.700		-		0.700	Continuing	Continuing	Continuing	
Subtotal			0.000	-		-		0.700		-		0.700	-	-	-	
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	
SOM Test & Evaluation	MIPR	OGA Various : Various	1.392	-		-		0.286		-		0.286	Continuing	Continuing	Continuing	
NBCRV-Test & Evaluation	MIPR	OGA : Various	0.000	-		-		0.500		-		0.500	-	0.500	-	

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603627A / <i>Smoke, Obscurant and Target Defeating Sys-Adv Dev</i>	Project (Number/Name) E79 / <i>SMOKE/OBSCURANT SYSTEM</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	Cost To Complete			
Subtotal			1.392	-		-		0.786		-		0.786	-	-	-	
Project Cost Totals			28.573	-		-		13.426		-		13.426	-	-	-	

Remarks

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603627A / <i>Smoke, Obscurant and Target Defeating Sys-Adv Dev</i>	Project (Number/Name) E79 / <i>SMOKE/OBSCURANT 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								
SOM Design and Fabrication																																				
SOM Developmental Testing #1																																				
SOM Developmental Testing #2																																				
SOM User Testing																																				
SOM MS B/C/FRP																																				
SOM Production Award																																				
SOM FAT																																				
NBCRV: SS Contract Award																																				
NBCRV: SS Design and Fabrication																																				
NBCRV: SS Developmental Testing																																				
NBCRV: SS Maturation																																				
NBCRV: Operational Test																																				

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603627A / <i>Smoke, Obscurant and Target Defeating Sys-Adv Dev</i>	Project (Number/Name) E79 / <i>SMOKE/OBSCURANT SYSTEM</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
SOM Design and Fabrication	2	2016	1	2018
SOM Developmental Testing #1	4	2017	4	2017
SOM Developmental Testing #2	2	2018	2	2019
SOM User Testing	2	2019	2	2019
SOM MS B/C/FRP	1	2020	1	2020
SOM Production Award	1	2020	1	2020
SOM FAT	2	2020	4	2020
NBCRV: SS Contract Award	1	2016	1	2016
NBCRV: SS Design and Fabrication	1	2016	4	2018
NBCRV: SS Developmental Testing	2	2018	4	2018
NBCRV: SS Maturation	1	2018	4	2019
NBCRV: Operational Test	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: Research, Development, Test & Evaluation, Army / BA 4: Advanced Component Development & Prototypes (ACD&P)	R-1 Program Element (Number/Name) PE 0603639A / Weapons and Munitions Advanced Development
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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	-	31.580	29.318	46.749	-	46.749	42.240	55.550	56.100	12.777	-	274.314
652: M829E4 120mm Cartridge	-	25.925	5.046	-	-	-	-	-	-	-	-	30.971
656: 120mm Cartridge (Advanced Multipurpose-AMP)	-	-	14.740	27.578	-	27.578	31.637	31.655	28.018	-	-	133.628
694: Medium Caliber Ammunition	-	5.655	-	-	-	-	-	8.717	9.912	9.195	-	33.479
EB8: OWL for Small Caliber Ammunition	-	-	1.966	2.500	-	2.500	2.500	2.200	2.400	-	-	11.566
EB9: Tunable Pyrotechnic Aircraft Countermeasure Flares	-	-	0.884	3.000	-	3.000	2.400	-	-	-	-	6.284
EC2: XM1158 for Small Caliber Ammo	-	-	4.913	7.700	-	7.700	-	3.800	-	-	-	16.413
EC3: Ammunition Logistics Prototyping	-	-	1.769	3.571	-	3.571	3.203	3.382	3.901	3.582	-	19.408
EL6: Individual Assault Munition (IAM)	-	-	-	-	-	-	-	1.896	8.469	-	-	10.365
EL7: Reduced Range Small Caliber Training Ammunition	-	-	-	-	-	-	2.500	3.900	3.400	-	-	9.800
EL8: LIGHTWEIGHT CARTRIDGE CASE FOR SMALL CALIBER	-	-	-	2.400	-	2.400	-	-	-	-	-	2.400

Note

In FY 2016, Lightweight Cartridge Case for small caliber PE 643639 Project EL8 is a new start \$2.400 Million.
 In FY 2016, PE 643639 Project EC2 XM1158 for Small Caliber Ammo is a new title. Previous title was Advanced Armor Piercing (ADVAP).
 PE 643639 Project EC2 M829E4 was completed in FY 2015.

A. Mission Description and Budget Item Justification

Title changed from Tank and Medium Caliber Ammunition to Weapons and Munitions Advanced Development.

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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 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 0603639A / <i>Weapons and Munitions Advanced Development</i>
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The Weapons and Munitions Advanced Development Program Element (PE) encompasses a comprehensive program to develop, rapidly transition to production, and field advanced weapons and munitions. These programs will ensure continued battlefield overmatch and lethality of U.S. maneuver forces against the full range of modern battlefield threats. To achieve this, Weapons and Munitions Engineering Development Program will identify and develop promising technologies through competitive development and streamlined acquisition procedures.

M829E4: The M829E4 cartridge is an Abrams delivered Line of Sight (LOS) munition that will provide capability for the current force Armored Brigade Combat Team's (ABCT) commander to conduct decisive operations and destroy current and future enemy Main Battle Tanks (MBTs) equipped with Explosive Reactive Armor (ERA) and Active Protective System (APS) at ranges from 0-2km (T) and 0-4km (O). The M829E4 equips ABCT commanders with a unique capability which will increase the ABCT's lethality and ability to seize the initiative during unified land operations.

One Way Luminescence (OWL): Current legacy small caliber ammunition tracer rounds are comprised of a pyrotechnic tracer mix that allows enemy forces to visually see the trace round and track its trajectory back to the shooter. The objective of the OWL program is to develop and field a full day/night tracer technology to replace the current pyrotechnic trace cartridges, with new trace cartridges that are only visible to the shooter and those soldiers in close proximity, thereby increasing soldier survivability. Additional benefits of the OWL program, depending on the technology that is selected include a possible reduction in unit cost compared to the pyrotechnic trace round and the potential for every round to have a trace capability. 7.62mm will be the critical focus followed by development of 5.56mm and .50 caliber OWL cartridges.

Advanced Multi Purpose (AMP): The Advanced Multi Purpose (AMP) program is a direct fire line of sight 120mm large caliber munition under development for the Abrams Main Battle Tank. It has three modes of operation including point detonate, delay and airburst. AMP is the material solution for breaching reinforced concrete walls and defeating Anti Tank Guided Missile (ATGM) teams from 50m to 2000m (T) and 50m to 4500m (O), a validated gap that cannot currently be met with existing stockpiled ammunition. In addition to added capability, AMP will also consolidate the capabilities of four existing stockpiled 120mm munitions, thereby addressing the users' battlecarry dilemma by allowing them to load a single munition that is capable of defeating multiple targets including ATGM teams, reinforced walls, personnel, light armor, bunkers, and obstacles. The full performance of the AMP is obtained with an Abrams equipped Ammunition Data Link breech modification, the same required by the 120mm M829E4 cartridge that achieved Milestone C in FY 2014. FY 2016 supports multiple contracts with competing prototypes in Phase I of II for Engineering and Manufacturing Development (EMD).

Medium Caliber Ammunition: The Target Practice Day Night Thermal (TP-DNT) cartridges are 40mm grenade training cartridges. The low velocity variant is for training with the M203/M320 grenade launchers; the high velocity variant is for training with the Mk19 grenade machine gun. Both cartridges will provide the Warfighter with a non-dud producing, environmentally friendly training cartridge that provides a visual impact signature seen day or night, by the naked eye, through night vision devices, and thermal weapon sights. These cartridges will replace the 40mm Target Practice, M918/M385A1 (Mixed Belt) cartridges and the 40mm M781 cartridges. It is expected that the unit price for high velocity cartridges will be lower than the Mixed Belt cartridges. Funding for FY 2015 activities transitions to PE 0654802/Project EC1. In FY 2018 funding is in place to start an Increased Range Anti-Personnel (IRAP) Program which will extend the range of conventional 40mm Low Velocity grenades from 300 meters to 600 meters.

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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 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 0603639A / <i>Weapons and Munitions Advanced Development</i>
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Tunable Pyrotechnic Aircraft Countermeasure: This project will support research, development and testing to field new expendable countermeasure munitions that will protect Army aircraft from advanced and current guided-missile threats. Advances in the capability of threat systems necessitate development of new expendable countermeasures decoys. This program is considered essential to provide Army Aircraft and aircrews protection against surface-to-air weapon systems.

Ammunition Logistics Prototyping: This project supports the future force by improving the distribution, management, reliability and survivability of ammunition through the advanced development, integration, and demonstration of logistics system enablers. These enablers will improve the efficiency and effectiveness of ammunition operations, to include retrograde, while reducing the logistics footprint on the battlefield. Technology areas addressed include handling, distribution, and management (strategic and tactical), prognostics, diagnostics, and asset visibility, explosives safety, and adaptive and environmentally friendly packaging and palletization. The efficient deployment and sustainment of reliable ammunition is vital to success on the battlefield. This project enhances the operational effectiveness of the ammunition logistics system to ensure the distribution of reliable ammunition to the warfighter.

Adv Armor Piercing (ADVAP): The overall objective of the XM1158 Small Caliber Ammo program is to develop and field a 7.62mm XM1158 cartridge variant followed by a 5.56mm cartridge variant that will provide overmatch capability to defeat advanced light armored threats within typical machine gun ranges. Current XM1158 ammunition performance has been stagnant over the last 20 years, which has led to known deficiencies against current and future hard target threats. The 7.62mm XM1158 cartridge will be designed specifically for use in the M240 Machine Gun and will replace the older M993 Armor Piercing cartridge.

Lightweight Cartridge Case for Small Caliber: The overall objective of the Lightweight Small Caliber Ammunition (LSCA) program is to develop and field 7.62mm LSCA cartridges that will provide the same capabilities as the M80A1 and M62A1 cartridges while achieving up to twenty percent weight savings at the cartridge level. The LSCA cartridge will be designed to be compatible with all Army 7.62mm weapons, but specifically optimized to work in the M240 Machine Gun. After the 7.62mm cartridge is matured a .50 Caliber variant will be developed.

B. Program Change Summary (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	30.596	29.334	38.611	-	38.611
Current President's Budget	31.580	29.318	46.749	-	46.749
Total Adjustments	0.984	-0.016	8.138	-	8.138
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	8.138	-	8.138
• Other Adjustments 1	0.984	-0.016	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 4					R-1 Program Element (Number/Name) PE 0603639A / <i>Weapons and Munitions Advanced Development</i>				Project (Number/Name) 652 / M829E4 120mm Cartridge			
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
652: M829E4 120mm Cartridge	-	25.925	5.046	-	-	-	-	-	-	-	-	30.971
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The M829E4 cartridge is an Abrams delivered Line of Sight (LOS) munition that will provide capability for the current force Armored Brigade Combat Team's (ABCT) commander to conduct decisive operations and destroy current and future enemy Main Battle Tanks (MBTs) equipped with Explosive Reactive Armor (ERA) and Active Protective System (APS) at ranges from 0-2km (T) and 0-4km (O). The M829E4 equips ABCT commanders with a unique capability which will increase the ABCT's lethality and ability to seize the initiative during unified land operations. After an Engineering and Manufacturing Development (EMD) Phase I competitive shoot off in FY 2011, Alliant Techsystems (ATK) was awarded the option to continue with Phase II until its conclusion in FY 2015. FY 2012 supported the continuation of Phase II of the M829E4 cartridge. FY 2013 funding supported design finalization, design verification, fabrication and initial testing of Developmental Test and Evaluation (DT&E) hardware. The full performance of the M829E4 is obtained with an Abrams equipped with an Ammunition Data Link breach modification. FY 2014 supported hardware and performance testing, mandated Live Fire Test & Evaluation (LFT&E) and completion of Milestone C. FY 2015 supported qualifying a second source for the composite sabot material. The current single source supplier for this material had significantly increased the cost for this material, more than doubled in cost, and expressed intentions of possibly getting out of this business. Qualification of this second source has occurred and has resulted in competitive pricing thus driving down the unit price cost. The aforementioned selection has mitigated the risk of the current supplier exiting as a supplier of this material.

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

	FY 2014	FY 2015	FY 2016
Title: Phase II EMD	12.962	-	-
Description: Funding is provided for the following effort: FY 2014 Accomplishments: Completed DT&E after obtaining Milestone C. This included completing the delivery of DT&E hardware and test, preparing and staffing Milestone C documentation, conducting performance analysis modeling and simulation, TDP review and staffing. Built cartridges with alternate sabot material. Generate fire control solution for Abrams M1A2 SEP (System Enhancement Package) V2 integration, transfer and demilitarization of any residual R&D hardware on the program.			
Title: Developmental Test & Evaluation (DT&E)	12.963	-	-
Description: Funding is provided for the following effort: FY 2014 Accomplishments: Completed DT&E integrated testing with Abrams. Conducted single shot ammunition accuracy test and conducted the mandated Live Fire Testing & Evaluation (LFT&E).			
Title: Sabot Composite Material Qualification	-	5.046	-

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603639A / <i>Weapons and Munitions Advanced Development</i>	Project (Number/Name) 652 / M829E4 120mm Cartridge

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016
Description: Funding is provided for the following effort:			
FY 2015 Plans: FY 2015 qualified a second source for the composite sabot material. The current single source supplier for this material has significantly increased the cost for this material, more than doubled, and expressed intentions of possibly getting out of this business. Qualification of a second source drove down the unit price cost.			
Accomplishments/Planned Programs Subtotals	25.925	5.046	-

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>
• M829E4: M829E4 (SSN: E88106)	30.168	41.235	38.978	-	38.978	43.540	43.902	41.812	43.113	-	282.748

Remarks

D. Acquisition Strategy
 Milestone B Decision was obtained in 4Q FY 2009, and the program entered Engineering and Manufacturing Development (EMD) in FY 2010. EMD consists of two phases; the Phase I contract was awarded in 2Q FY 2010 and Phase II contract was awarded in 3Q FY 2011. During Phase I (15 months), the Government awarded two separate Cost Plus Fixed Fee (CPFF) contracts culminating in a demonstration test and competitive source selection to down select to one contractor for the 31 month Cost Plus Incentive Fee (CPIF) Phase II. The down select was based on the demonstrated performance of the cartridge design, proposed systems engineering and management approach for Phase II, and the total program cost estimate for each contractor at the time of the demonstration test. ATK was awarded the option to continue EMD Phase II until its conclusion in FY 2015. Milestone C was granted on 1 July 2014. RDT&E will be completed in FY 2015 after the qualification of a second source for the production of sabot material. After Milestone C was granted, Low Rate Initial Production (LRIP) option was awarded to ATK on 1 July 2014. The contract also contains options for two additional production years. All production options are Firm Fixed Price (FFP).

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 / 4	R-1 Program Element (Number/Name) PE 0603639A / <i>Weapons and Munitions Advanced Development</i>	Project (Number/Name) 652 / M829E4 120mm Cartridge
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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			
Alliant Tech Systems (ATK) Phase II	C/CPIF	Alliant Tech Systems (ATK) : MN	148.600	13.093		4.046		-		-		-	-	165.739	-
Program Manager - Maneuver Ammunition Systems (PM MAS) - Labor and Travel	MIPR	Program Manager -Maneuver Ammunition Systems (PM MAS) Picatinny Arsenal : NJ	4.196	2.920		0.100		-		-		-	-	7.216	-
General Dynamics - Ordnance & Tactical Systems (GD-OTS)	C/CPFF	General Dynamics - Ordnance & Tactical Systems (GD-OTS) : FL	2.068	-		-		-		-		-	-	2.068	-
Alliant Tech Systems (ATK) Phase 1	C/CPFF	Alliant Tech Systems : MN	5.254	-		-		-		-		-	-	5.254	-
Subtotal			160.118	16.013		4.146		-		-		-	-	180.277	-

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			
Armament Research, Development and Engineering Center (ARDEC)	MIPR	Picatinny : New Jersey	13.446	2.400		0.450		-		-		-	-	16.296	-
Subtotal			13.446	2.400		0.450		-		-		-	-	16.296	-

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			
Aberdeen Test Center (ATC)	MIPR	Aberdeen Proving Ground (APG) : Aberdeen, MD	9.360	2.100		-		-		-		-	-	11.460	-

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603639A / <i>Weapons and Munitions Advanced Development</i>	Project (Number/Name) 652 / <i>M829E4 120mm Cartridge</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			
Yuma Proving Ground (YPG)	MIPR	Yuma Proving Ground (YPG) : Yuma, AZ	11.202	3.412		0.450		-		-		-	-	15.064	-
Army Test and Evaluation Center (ATEC)	MIPR	Army Test and Evaluation Center (ATEC) : Aberdeen, MD	0.400	0.100		-		-		-		-	-	0.500	-
Watervliet	MIPR	Watervliet : Troy, NY	0.868	-		-		-		-		-	-	0.868	-
Joint Munitions Command (JMC)	MIPR	Joint Munitions Command (JMC) : Rock Island, IL	3.000	0.400		-		-		-		-	-	3.400	-
Army Research Lab (ARL)	MIPR	Army Research Lab (ARL) : Aberdeen, Maryland	10.314	1.500		-		-		-		-	-	11.814	-
Subtotal			35.144	7.512		0.450		-		-		-	-	43.106	-

	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		208.708	25.925	5.046	-	-	-	239.679	-

Remarks

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603639A / <i>Weapons and Munitions Advanced Development</i>	Project (Number/Name) 652 / <i>M829E4 120mm Cartridge</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 and Manufacturing Development (EMD)																												
Engineering and Manufacturing Development (EMD) Phase II																												
Developmental Test & Evaluation (DT&E)																												
(1) Milestone C				MS-C ▲																								
(2) Low Rate Initial Production Award				LRIP Award ▲																								
Low Rate Initial Production				LRIP																								
(3) Materiel Release/Full-Rate Production Decision Review												MR/FRPDR ▲																
Sabot Composite Material Qualification																												
Full Rate Production																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603639A / <i>Weapons and Munitions Advanced Development</i>	Project (Number/Name) 652 / <i>M829E4 120mm Cartridge</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Engineering and Manufacturing Development (EMD)	2	2010	3	2014
Engineering and Manufacturing Development (EMD) Phase II	3	2011	3	2014
Developmental Test & Evaluation (DT&E)	1	2014	3	2014
Milestone C	4	2014	4	2014
Low Rate Initial Production Award	4	2014	4	2014
Low Rate Initial Production	4	2014	3	2015
Materiel Release/Full-Rate Production Decision Review	3	2015	3	2015
Sabot Composite Material Qualification	1	2014	3	2015
Full Rate Production	3	2015	1	2022

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 4					R-1 Program Element (Number/Name) PE 0603639A / <i>Weapons and Munitions Advanced Development</i>				Project (Number/Name) 656 / <i>120mm Cartridge (Advanced Multipurpose-AMP)</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
656: <i>120mm Cartridge (Advanced Multipurpose-AMP)</i>	-	-	14.740	27.578	-	27.578	31.637	31.655	28.018	-	-	133.628
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Advanced Multi Purpose (AMP) program is a direct fire line of sight 120mm large caliber munition under development for the Abrams Main Battle Tank. It has three modes of operation including point detonate, delay and airburst. AMP is the material solution for breaching reinforced concrete walls and defeating Anti Tank Guided Missile (ATGM) teams from 50m to 2000m (T) and 50m to 4500m (O), a validated gap that cannot currently be met with existing stockpiled ammunition. In addition to added capability, AMP will also consolidate the capabilities of four existing stockpiled 120mm munitions, thereby addressing the users' battlecarry dilemma by allowing them to load a single munition that is capable of defeating multiple targets including ATGM teams, reinforced walls, personnel, light armor, bunkers, and obstacles. The full performance of the AMP is obtained with an Abrams equipped Ammunition Data Link breach modification, the same required by the 120mm M829E4 cartridge that achieved Milestone C in FY 2014. FY 2016 supports multiple contracts with competing prototypes in Phase I of II for Engineering and Manufacturing Development (EMD).

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

	FY 2014	FY 2015	FY 2016
Title: Phase I Engineering and Manufacturing Development (EMD)	-	14.740	27.578
Description: Funding is provided for the following effort.			
FY 2015 Plans: Initiated EMD Phase I with two contract awards for competing prototypes. Contractors conducted engineering efforts focused on demonstrating cartridge performance requirements. This required hardware design and procurement along with initial component and cartridge level testing.			
FY 2016 Plans: Continue EMD Phase I with competing prototypes. In late FY 2016 conduct competitive shoot-off with demonstrations. Data collected during the shoot-off will be used during downselect to award EMD Phase II contract to a single contractor in FY 2017. Preliminary Design Review will be held in 2Q FY 2016			
Accomplishments/Planned Programs Subtotals	-	14.740	27.578

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603639A / <i>Weapons and Munitions Advanced Development</i>	Project (Number/Name) 656 / <i>120mm Cartridge (Advanced Multipurpose-AMP)</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>
• AMP (SSN: E88105): AMP (SSN: E88105)	-	-	-	-	-	-	-	25.000	50.000	-	75.000

Remarks

D. Acquisition Strategy

The Advanced Multi Purpose Program (AMP) achieved Milestone B and entered Engineering and Manufacturing Development (EMD) in FY 2015. EMD consists of two phases; Phase I consists of awarding two contracts to competitively prototype in FY 2015. A cartridge demonstration test, conducted in late FY 2016, will be used in part to down select to a single contractor for EMD Phase II, followed by Low Rate Initial Production in FY 2019 and two optional years of procurement in FY 2020 and FY 2021.

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 / 4				R-1 Program Element (Number/Name) PE 0603639A / Weapons and Munitions Advanced Development				Project (Number/Name) 656 I 120mm Cartridge (Advanced Multipurpose-AMP)							
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
Contractor 1	C/CPFF	TBD : TBD	0.000	-		5.325		10.900		-		10.900	Continuing	Continuing	Continuing
Contractor 2	C/CPFF	TBD : TBD	0.000	-		5.325		10.900		-		10.900	Continuing	Continuing	Continuing
PM-MAS Labor and Travel	MIPR	Picatinny : NJ	0.009	-		0.740		0.998		-		0.998	Continuing	Continuing	Continuing
Subtotal			0.009	-		11.390		22.798		-		22.798	-	-	-
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	Picatinny Arsenal : NJ	0.000	-		1.500		1.611		-		1.611	Continuing	Continuing	Continuing
Army Research Lab	MIPR	ARL Aberdeen : MD	0.000	-		0.600		0.700		-		0.700	Continuing	Continuing	Continuing
Subtotal			0.000	-		2.100		2.311		-		2.311	-	-	-
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
Yuma Test Center	MIPR	Yuma Proving Ground : AZ	0.000	-		0.750		0.750		-		0.750	Continuing	Continuing	Continuing
Aberdeen Test Center (ATC)	MIPR	Aberdeen Proving Ground : MD	0.000	-		0.500		1.719		-		1.719	Continuing	Continuing	Continuing
Subtotal			0.000	-		1.250		2.469		-		2.469	-	-	-
Project Cost Totals			0.009	-		14.740		27.578		-		27.578	-	-	-
Remarks															

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603639A / Weapons and Munitions Advanced Development	Project (Number/Name) 656 I 120mm Cartridge (Advanced Multipurpose-AMP)
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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	MS B				EMD Contract Phase I Award				EMD Phase I				PDR				EMD Contract Phase II Award				EMD Phase II				CDR				DT&E				MS C			
(2) EMD Contract Phase I Awards																																				
Engineering and Manufacturing Development (EMD) Phase I																																				
(3) Preliminary Design Review (PDR)																																				
(4) EMD Contract Phase II Award																																				
Engineering and Manufacturing Development (EMD) Phase II																																				
(5) Critical Design Review																																				
Developmental Test & Evaluation (DT&E)																																				
(6) Milestone C																																				

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603639A / <i>Weapons and Munitions Advanced Development</i>	Project (Number/Name) 656 / <i>120mm Cartridge (Advanced Multipurpose-AMP)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Milestone B	1	2015	1	2015
EMD Contract Phase I Awards	3	2015	3	2015
Engineering and Manufacturing Development (EMD) Phase I	3	2015	1	2017
Preliminary Design Review (PDR)	2	2016	2	2016
EMD Contract Phase II Award	2	2017	2	2017
Engineering and Manufacturing Development (EMD) Phase II	2	2017	3	2019
Critical Design Review	2	2018	2	2018
Developmental Test & Evaluation (DT&E)	1	2019	3	2019
Milestone C	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 / 4					R-1 Program Element (Number/Name) PE 0603639A / Weapons and Munitions Advanced Development				Project (Number/Name) 694 / Medium Caliber Ammunition			
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
694: Medium Caliber Ammunition	-	5.655	-	-	-	-	-	8.717	9.912	9.195	-	33.479
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 2015 funding transitions from 643639 Project 694 - Tank and Medium Caliber Ammunition to 654802 Project EC1 - 40mm Hi Vel and Low Vel Thermal Training Cartridges.

A. Mission Description and Budget Item Justification

The Target Practice Day Night Thermal (TP-DNT) cartridges are 40mm grenade training cartridges. The low velocity variant is for training with the M203/M320 grenade launchers; the high velocity variant is for training with the Mk19 grenade machine gun. Both cartridges will provide the Warfighter with a non-dud producing, environmentally friendly training cartridge that provides a visual impact signature seen day or night, by the naked eye, through night vision devices, and thermal weapon sights. These cartridges will replace the 40mm Target Practice, M918/M385A1 (Mixed Belt) cartridges and the 40mm M781 cartridges. It is expected that the unit price for high velocity cartridges will be lower than the Mixed Belt cartridges. Funding for FY 2015 activities transitions to PE 0654802/Project EC1. In FY 2018 funding is in place to start an Increased Range Anti-Personnel (IRAP) Program which will extend the range of conventional 40mm Low Velocity grenades from 300 meters to 600 meters.

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

	FY 2014	FY 2015	FY 2016
Title: Target Practice Day Night Thermal cartridges.	5.655	-	-
Description: The Target Practice Day NightThermal (TP-DNT) cartridges are 40mm grenade training cartridges.			
FY 2014 Accomplishments: FY14 primary activities consisted of Milestone B approval, Source Selection Planning, and Bid Sample Test competition.			
Accomplishments/Planned Programs Subtotals	5.655	-	-

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
• 40mm Hi Vel and Low Vel Thermal Trg: 40mm Hi Vel and Low Vel Thermal Trg PE 604802 Project EC1	-	6.960	7.257	-	7.257	-	-	-	-	-	14.217

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603639A / <i>Weapons and Munitions Advanced Development</i>	Project (Number/Name) 694 / <i>Medium Caliber Ammunition</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>
• Target Practice Day Night	40.466	1.972	-	-	-	110.400	116.828	103.329	99.941	Continuing	Continuing
Thermal: <i>Target Practice Day Night Thermal Cartridges Procurement (SSNs: E05610, E05611)</i>											

Remarks

Production dollars will be used to procure 40mm training cartridges. If not 40mm DNT cartridges, 40mm mixed belt cartridges will be procured.

D. Acquisition Strategy

The TP-DNT cartridges will be developed through a competitive Engineering and Manufacturing Development (EMD) program. The EMD phase will develop both High Velocity (HV) and Low Velocity (LV) variants that will most likely utilize the same critical technologies, making concurrent acquisitions a logical approach to reduce overall acquisition costs. As part of the EMD source selection, a Bid Sample shoot-off competition is underway to evaluate potential designs. Within funding constraints, multiple contractor designs will be awarded EMD contracts with intent to down select to one contractor for the HV variant and one contractor for the LV variant. Following the down select, begin Low Rate Initial Production (LRIP) and two production year options. Milestone C scheduled for 3Q 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 2040 / 4	R-1 Program Element (Number/Name) PE 0603639A / <i>Weapons and Munitions Advanced Development</i>	Project (Number/Name) 694 / <i>Medium Caliber Ammunition</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			
Contractor 1 Low Velocity	C/FFP	TBD : TBD	0.000	0.467		-		-		-		-	-	0.467	-
Contractor 2 Low Velocity	C/FFP	TBD : TBD	0.000	0.467		-		-		-		-	-	0.467	-
Contractor 1 High Velocity	C/FFP	TBD : TBD	0.000	0.467		-		-		-		-	-	0.467	-
Contractor 2 High Velocity	C/FFP	TBD : TBD	0.000	0.467		-		-		-		-	-	0.467	-
PM-MAS labor and travel	MIPR	Picatinny Arsenal : NJ	0.000	0.270		-		-		-		-	-	0.270	-
Subtotal			0.000	2.138		-		-		-		-	-	2.138	-

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			
ARDEC	MIPR	Picatinny Arsenal : NJ	0.000	2.631		-		-		-		-	-	2.631	-
Subtotal			0.000	2.631		-		-		-		-	-	2.631	-

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			
ATEC	MIPR	ATEC : Aberdeen, MD	0.000	0.010		-		-		-		-	-	0.010	-
YPG	MIPR	YPG : Yuma, AZ	0.000	0.876		-		-		-		-	-	0.876	-
Subtotal			0.000	0.886		-		-		-		-	-	0.886	-

	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	5.655	-	-	-	-	5.655	-

Remarks

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603639A / Weapons and Munitions Advanced Development	Project (Number/Name) 694 / Medium Caliber Ammunition
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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) MS-B (DNT)	MS-B ▲ ₁																											
Engineering Manufacturing Development	EMD																											
Bid Sample Testing	Bid Testing																											
(2) Test Readiness Review DET I (DNT)					TRR DET 1 ▲ ₂																							
Development Engineering Test Phase I					DET 1																							
(3) Test Readiness Review DET II (DNT)									TRR DET 2 ▲ ₃																			
Development Engineering Test Phase II									DET 2																			
(4) Test Readiness Review DT&E (DNT)													TRR DT&E ▲ ₄															
Developmental Test & Evaluation													DT&E															
(5) MS-C (DNT)													MS-C ▲ ₅															
Production (DNT)													Production															
(6) MS-B (IRAP)																	MS-B ▲ ₆											
Engineering Manufacturing Development (IRAP)																	EMD											

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603639A / <i>Weapons and Munitions Advanced Development</i>	Project (Number/Name) 694 / <i>Medium Caliber Ammunition</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
Developmental Test & Evaluation (IRAP)																					DT&E							

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603639A / <i>Weapons and Munitions Advanced Development</i>	Project (Number/Name) 694 / <i>Medium Caliber Ammunition</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
MS-B (DNT)	3	2014	3	2014
Engineering Manufacturing Development	3	2014	3	2017
Bid Sample Testing	4	2014	1	2015
Test Readiness Review DET I (DNT)	1	2016	1	2016
Development Engineering Test Phase I	1	2016	2	2016
Test Readiness Review DET II (DNT)	3	2016	3	2016
Development Engineering Test Phase II	3	2016	3	2016
Test Readiness Review DT&E (DNT)	2	2017	2	2017
Developmental Test & Evaluation	2	2017	2	2017
MS-C (DNT)	3	2017	3	2017
Production (DNT)	3	2017	4	2020
MS-B (IRAP)	3	2018	3	2018
Engineering Manufacturing Development (IRAP)	3	2018	1	2022
Developmental Test & Evaluation (IRAP)	4	2019	1	2020

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 4					R-1 Program Element (Number/Name) PE 0603639A / <i>Weapons and Munitions Advanced Development</i>				Project (Number/Name) EB8 / <i>OWL for Small Caliber Ammunition</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
EB8: <i>OWL for Small Caliber Ammunition</i>	-	-	1.966	2.500	-	2.500	2.500	2.200	2.400	-	-	11.566
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

This program develops a new tracer technology and applies it to multiple calibers. The initial focus will be on 7.62mm ammunition in FY 2015 followed by 5.56mm in FY 2018 and .50 Caliber ammunition in FY 2019. As the technology matures it will be transitioned to Project 654802 EP4 starting in FY 2018 for 7.62mm, FY 2020 for 5.56mm and .50 Caliber.

A. Mission Description and Budget Item Justification

One Way Luminescence (OWL): Current legacy small caliber ammunition tracer rounds are comprised of a pyrotechnic tracer mix that allows enemy forces to visually see the trace round and track its trajectory back to the shooter. The objective of the OWL program is to develop and field a full day/night tracer technology to replace the current pyrotechnic trace cartridges, with new trace cartridges that are only visible to the shooter and those soldiers in close proximity, thereby increasing soldier survivability. Additional benefits of the OWL program, depending on the technology that is selected include a possible reduction in unit cost compared to the pyrotechnic trace round and the potential for every round to have a trace capability. 7.62mm will be the critical focus followed by development of 5.56mm and .50 caliber OWL cartridges.

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

	FY 2014	FY 2015	FY 2016
Title: One Way Luminescence (OWL)	-	1.966	2.500
Description: One Way Luminescence (OWL) will develop and demonstrate a full day/night tracer technology that eliminates the shortcomings of current legacy tracers.			
FY 2015 Plans: FY 2015 work will include concurrent government and contractor development efforts. The efforts will include procurement, development, and testing of competing material solutions to meet user requirements.			
FY 2016 Plans: FY 2016 work will continue with concurrent government and contractor development efforts to mature technology readiness level. The efforts will include procurement, development, and testing of competing material solutions to meet user requirements.			
Accomplishments/Planned Programs Subtotals	-	1.966	2.500

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603639A / <i>Weapons and Munitions Advanced Development</i>	Project (Number/Name) EB8 / <i>OWL for Small Caliber Ammunition</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
• 654802 Project EP4: <i>PE 654802 Project EP4</i>	-	-	-	-	-	-	3.200	2.900	5.800	-	11.900

Remarks

D. Acquisition Strategy

The OWL concept will be developed through government and industry prototyping efforts. An annual Technology Readiness Assessment (TRA) will be conducted in FY 2015, FY 2016, and FY 2017 to measure the progress of the designs. If the technology matures to a Technology Readiness Level of 6 (prototypes fired from the M240 machine gun) by FY 2017 for 7.62mm, there will be a down select to one design for Engineering and Manufacturing Development (EMD) program. The 5.56mm and .50 Caliber cartridges will follow the 7.62mm schedule with Engineering and Manufacturing Development (EMD) starting at the end of FY 2020. These new tracer cartridges will then replace the old tracers in each of the various small caliber configurations purchased by the Army.

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 / 4				R-1 Program Element (Number/Name) PE 0603639A / Weapons and Munitions Advanced Development				Project (Number/Name) EB8 / OWL for Small Caliber Ammunition								
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	
Contractor 1	TBD	TBD : TBD	0.000	-		0.500		0.500		-		0.500	Continuing	Continuing	-	
Contractor 2	TBD	TBD : TBD	0.000	-		0.500		0.500		-		0.500	Continuing	Continuing	-	
PM MAS Labor & Travel	MIPR	Picatinny Arsenal : New Jersey	0.000	-		0.200		0.200		-		0.200	Continuing	Continuing	-	
Subtotal			0.000	-		1.200		1.200		-		1.200	-	-	-	
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	Picatinny Arsenal : New Jersey	0.000	-		0.366		0.900		-		0.900	Continuing	Continuing	-	
Subtotal			0.000	-		0.366		0.900		-		0.900	-	-	-	
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	
ARL	MIPR	Aberdeen : Maryland	0.000	-		0.200		0.200		-		0.200	Continuing	Continuing	-	
Army Corps of Engineers	MIPR	Ft.Belvoir : Virginia	0.000	-		0.200		0.200		-		0.200	Continuing	Continuing	-	
Subtotal			0.000	-		0.400		0.400		-		0.400	-	-	-	
Project Cost Totals			0.000	-		1.966		2.500		-		2.500	-	-	-	
Remarks																

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603639A / Weapons and Munitions Advanced Development	Project (Number/Name) EB8 / OWL for Small Caliber Ammunition
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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 (MDD)					Materiel Development Decision (MDD)				▲																			
7.62mm Multiple Concept Design Evaluations									7.62mm Multiple Concept Design Evaluations																			
(2) 7.62mm Milestone B (MS-B)																	▲											
7.62mm Engineering and Manufacturing Development (EMD)																					▲							
7.62mm Design Verification Test																					▲				7.62mm EMD			
(3) 7.62mm User Assessment																					▲							
7.62mm User Assessment																					▲							
(4) 7.62mm Preliminary Design Review (PDR)																					▲							
7.62mm Preliminary Design Review (PDR)																					▲							
(5) 7.62mm Critical Design Review (CDR)																									▲			
7.62mm Critical Design Review (CDR)																									▲			
7.62mm Development Test & Evaluation (DT&E)																												
(6) 7.62mm Milestone C																												
7.62mm Milestone C																												
(7) 5.56mm Milestone B (MS-B)																												
5.56mm Milestone B (MS-B)																												
5.56mm Engineering and Manufacturing Development (EMD)																												
5.56mm Engineering and Manufacturing Development (EMD)																												
5.56mm Design Verification Test																												
5.56mm Design Verification Test																												

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603639A / <i>Weapons and Munitions Advanced Development</i>	Project (Number/Name) EB8 / <i>OWL for Small Caliber Ammunition</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) 5.56mm User Assessment																																	▲ 5.56mm Caliber User As				
(2) 5.56mm Preliminary Design Review (PDR)																																					▲ 5.56mm
(3) .50 Caliber Milestone B (MS-B)																																					▲ .50 Caliber MS-B
.50 Caliber Engineering and Manufacturing Development (EMD)																																					■ .50 Caliber EMD
.50 Caliber Design Verification Test																																					■ .50 Caliber DVT
(4) .50 Caliber User Assessment																													▲ .50 Caliber UserASSE								
(5) .50 Caliber Preliminary Design Review (PDR)																													▲ .50 Caliber								

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603639A / <i>Weapons and Munitions Advanced Development</i>	Project (Number/Name) EB8 / <i>OWL for Small Caliber Ammunition</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Material Development Decision (MDD)	1	2016	1	2016
7.62mm Multiple Concept Design Evaluations	1	2015	4	2017
7.62mm Milestone B (MS-B)	1	2018	1	2018
7.62mm Engineering and Manufacturing Development (EMD)	1	2018	4	2020
7.62mm Design Verification Test	2	2018	3	2018
7.62mm User Assessment	3	2018	3	2018
7.62mm Preliminary Design Review (PDR)	4	2018	4	2018
7.62mm Critical Design Review (CDR)	4	2019	4	2019
7.62mm Development Test & Evaluation (DT&E)	1	2020	3	2020
7.62mm Milestone C	4	2020	4	2020
5.56mm Milestone B (MS-B)	1	2020	1	2020
5.56mm Engineering and Manufacturing Development (EMD)	1	2020	4	2021
5.56mm Design Verification Test	2	2020	3	2020
5.56mm User Assessment	3	2020	3	2020
5.56mm Preliminary Design Review (PDR)	4	2020	4	2020
.50 Caliber Milestone B (MS-B)	1	2020	1	2020
.50 Caliber Engineering and Manufacturing Development (EMD)	1	2020	4	2022
.50 Caliber Design Verification Test	2	2020	3	2020
.50 Caliber User Assessment	3	2020	3	2020
.50 Caliber Preliminary Design Review (PDR)	4	2020	4	2020

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 4					R-1 Program Element (Number/Name) PE 0603639A / <i>Weapons and Munitions Advanced Development</i>				Project (Number/Name) EB9 / <i>Tunable Pyrotechnic Aircraft Countermeasure Flares</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
EB9: <i>Tunable Pyrotechnic Aircraft Countermeasure Flares</i>	-	-	0.884	3.000	-	3.000	2.400	-	-	-	-	6.284
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project will support research, development and testing to field new expendable countermeasure munitions that will protect Army aircraft from advanced and current guided-missile threats. Advances in the capability of threat systems necessitate development of new expendable countermeasures decoys. This program is considered essential to provide Army Aircraft and aircrews protection against surface-to-air weapon systems.

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

	FY 2014	FY 2015	FY 2016
Title: Expendable Countermeasures to Guided Missile Threats	-	0.884	3.000
Description: This program will develop expendable countermeasure decoys which will protect Army aircraft from surface-to-air missiles.			
FY 2015 Plans: Develop and prepare documentation for Materiel Development Decision (MDD) approval for the following countermeasure (CM) decoys. These decoys are designed to defeat specific threat types. Details of their operation are classified. a. Cloud CM b. Dazzler CM c. Advanced Seeker CM d. Radar Guided Threat Countermeasures to include improved Chaff and Active Radio Frequency (RF) Expendable Decoy			
FY 2016 Plans: Prepare documentation (scope of work, drawings) to support contract award for advanced component development activities leading to Engineering and Manufacturing Development. Conduct down select of best candidates for Milestone B decision for Cloud countermeasure and radar guided threat countermeasure.			
Accomplishments/Planned Programs Subtotals	-	0.884	3.000

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
• 0604802A - Weapons and Munitions -: EP7 -	-	-	1.000	-	1.000	1.450	4.400	2.000	-	-	8.850

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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 / 4	R-1 Program Element (Number/Name) PE 0603639A / <i>Weapons and Munitions Advanced Development</i>	Project (Number/Name) EB9 / <i>Tunable Pyrotechnic Aircraft Countermeasure Flares</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>
<i>Tunable Pyrotechnic Aircraft Countermeasure Flares</i>											

Remarks

D. Acquisition Strategy

The Acquisition strategy is under development and will be approved by the Milestone Decision Authority (MDA) once complete. It is anticipated that these items will be restricted to the National Technology and Industrial Base (NTIB).

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 / 4	R-1 Program Element (Number/Name) PE 0603639A / <i>Weapons and Munitions Advanced Development</i>	Project (Number/Name) EB9 / <i>Tunable Pyrotechnic Aircraft Countermeasure Flares</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			
Program Management	MIPR	PM Close Combat Systems : Picatinny Arsenal	0.000	-		0.277		0.193		-		0.193	-	0.470	-
Subtotal			0.000	-		0.277		0.193		-		0.193	-	0.470	-

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			
Contract Award	TBD	ACC : Picatinny Arsenal	0.000	-		-		1.300	Apr 2016	-		1.300	-	1.300	-
Subtotal			0.000	-		-		1.300		-		1.300	-	1.300	-

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 Support	MIPR	ARDEC : Picatinny Arsenal	0.000	-		0.607		0.817		-		0.817	-	1.424	-
Subtotal			0.000	-		0.607		0.817		-		0.817	-	1.424	-

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 and Evaluation	MIPR	AED : Redstone Arsenal	0.000	-		-		0.690		-		0.690	-	0.690	-
Subtotal			0.000	-		-		0.690		-		0.690	-	0.690	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army							Date: February 2015				
Appropriation/Budget Activity 2040 / 4			R-1 Program Element (Number/Name) PE 0603639A / Weapons and Munitions Advanced Development			Project (Number/Name) EB9 / Tunable Pyrotechnic Aircraft Countermeasure Flares					
	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	-	0.884		3.000	-		3.000	-	3.884	-

Remarks

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603639A / Weapons and Munitions Advanced Development	Project (Number/Name) EB9 / Tunable Pyrotechnic Aircraft Countermeasure Flares
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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
Material Development Documentation and Decision					MDD																							
Contract preparation (Cloud and Radar guided CM)																												
(1) Contract Award																												
Cloud CM prototyping and developmental testing																												
(2) Milestone B Cloud CM																												
(3) Milestone B DAZZLER CM																												
(4) Milestone B Radar Guided Threat CM																												
(5) Milestone B Advance Seeker CM																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603639A / <i>Weapons and Munitions Advanced Development</i>	Project (Number/Name) EB9 / <i>Tunable Pyrotechnic Aircraft Countermeasure Flares</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Materiel Development Documentation and Decision	2	2015	4	2015
Contract preparation (Cloud and Radar guided CM)	1	2016	2	2016
Contract Award	3	2016	3	2016
Cloud CM prototyping and developmental testing	3	2016	3	2017
Milestone B Cloud CM	1	2018	1	2018
Milestone B DAZZLER CM	4	2018	4	2018
Milestone B Radar Guided Threat CM	1	2019	1	2019
Milestone B Advance Seeker CM	1	2020	1	2020

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603639A / Weapons and Munitions Advanced Development	Project (Number/Name) EC2 / XM1158 for Small Caliber Ammo
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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
EC2: XM1158 for Small Caliber Ammo	-	-	4.913	7.700	-	7.700	-	3.800	-	-	-	16.413
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 2015 Project 643639 EC2 was a new start. In FY 2017 the program will transition to PE 654802 Project EP5. The title for Advanced Armor Piercing (ADVAP) is now titled XM1158.

A. Mission Description and Budget Item Justification

The overall objective of the XM1158 Small Caliber Ammo program is to develop and field a 7.62mm XM1158 cartridge variant followed by a 5.56mm cartridge variant that will provide overmatch capability to defeat advanced light armored threats within typical machine gun ranges. Current XM1158 ammunition performance has been stagnant over the last 20 years, which has led to known deficiencies against current and future hard target threats. The 7.62mm XM1158 cartridge will be designed specifically for use in the M240 Machine Gun and will replace the older M993 Armor Piercing cartridge.

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

	FY 2014	FY 2015	FY 2016
Title: XM1158 Small Caliber Ammo	-	4.913	7.700
Description: Develop, demonstrate, and qualify an XM1158 Small Caliber Ammo 7.62mm and 5.56mm cartridges in order to defeat threat targets and provide overmatch capability versus a broad spectrum of hard targets.			
FY 2015 Plans: FY 2015 work will include optimization of the projectile design through advanced modeling, simulation, and test iterations, along with alternate material studies, manufacturing studies and propellant requirement investigation.			
FY 2016 Plans: FY 2016 work includes maturing cartridge design and manufacturing as well as demonstrating Technology Readiness Level (TRL) 6.			
Accomplishments/Planned Programs Subtotals	-	4.913	7.700

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 654802 Project EP5: PE 654802 Project EP5	-	-	-	-	-	10.600	9.500	13.900	7.200	-	41.200

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603639A / <i>Weapons and Munitions Advanced Development</i>	Project (Number/Name) EC2 / <i>XM1158 for Small Caliber Ammo</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>
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Remarks

D. Acquisition Strategy

The 7.62mm and 5.56mm XM1158 program will use a Government design developed in-house. Multiple component contracts will be awarded to purchase raw materials and propellant. The 7.62mm prototype XM1158 projectiles will be manufactured and tested in FY 2015. In FY 2016, design optimization and prototype manufacturing will occur. Upon successful Technology Readiness Level (TRL) 6 completion, Milestone B (MS-B) will occur in 1st QTR FY 2017 leading to fabrication and testing of qualification hardware. The 5.56mm cartridge will follow in FY 2018 and mirror a similar strategy and schedule as the 7.62mm.

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 / 4	R-1 Program Element (Number/Name) PE 0603639A / <i>Weapons and Munitions Advanced Development</i>	Project (Number/Name) EC2 / <i>XM1158 for Small Caliber Ammo</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			
Raw Materials Contract TBD	C/FFP	TBD : TBD	0.000	-		0.750		1.500		-		1.500	Continuing	Continuing	-
Propellant Contract TBD	C/FFP	TBD : TBD	0.000	-		0.250		0.750		-		0.750	Continuing	Continuing	-
PM-MAS Labor & Travel	MIPR	Picatinny Arsenal : New Jersey	0.000	-		0.200		0.200		-		0.200	Continuing	Continuing	-
Subtotal			0.000	-		1.200		2.450		-		2.450	-	-	-

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			
ARDEC	MIPR	Picatinny Arsenal : New Jersey	0.000	-		1.313		1.944		-		1.944	Continuing	Continuing	-
ARL	MIPR	Aberdeen : Maryland	0.000	-		1.000		1.478		-		1.478	Continuing	Continuing	-
Subtotal			0.000	-		2.313		3.422		-		3.422	-	-	-

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	MIPR	Aberdeen : Maryland	0.000	-		1.400		1.828		-		1.828	Continuing	Continuing	-
Subtotal			0.000	-		1.400		1.828		-		1.828	-	-	-

	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	-	4.913	7.700	7.700	-	-	-

Remarks

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



Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603639A / <i>Weapons and Munitions Advanced Development</i>	Project (Number/Name) EC2 / <i>XM1158 for Small Caliber Ammo</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
7.62mm Advanced Concept Development					7.62mm Advanced Concept Development																							
7.62mm Prototype Test & Evaluation					7.62mm Prototype Test & Evaluation																							
7.62mm Materiel Development Decision (MDD)					7.62mm MDD																							
(1) 7.62mm Milestone B					7.62mm MS-B																							
7.62mm Engineering & Manufacturing Development					7.62mm EMD																							
(2) 7.62mm Preliminary Design Review (PDR)					7.62mm PDR																							
(3) 7.62mm Critical Design Review (CDR)					7.62mm CDR																							
7.62mm Development Test & Evaluation					7.62mm DT&E																							
(4) 7.62mm Milestone C					7.62mm MS-C																							
5.56mm Advanced Concept Development																												
5.56mm Prototype Test & Evaluation	5.56mm Prototype Test & Evaluation																											
(5) 5.56mm Milestone B	5.56mm MS-B																											
5.56mm Engineering & Manufacturing Development	5.56mm EMD																											

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603639A / <i>Weapons and Munitions Advanced Development</i>	Project (Number/Name) EC2 / <i>XM1158 for Small Caliber Ammo</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) 5.56mm Preliminary Design Review (PDR)																					 5.56mm PDR							
(2) 5.56mm Critical Design Review (CDR)																					 5.56mm CDR							

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603639A / <i>Weapons and Munitions Advanced Development</i>	Project (Number/Name) EC2 / <i>XM1158 for Small Caliber Ammo</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
7.62mm Advanced Concept Development	1	2015	4	2016
7.62mm Prototype Test & Evaluation	1	2015	4	2016
7.62mm Materiel Development Decision (MDD)	2	2015	2	2015
7.62mm Milestone B	1	2017	1	2017
7.62mm Engineering & Manufacturing Development	1	2017	1	2020
7.62mm Preliminary Design Review (PDR)	4	2017	4	2017
7.62mm Critical Design Review (CDR)	3	2018	3	2018
7.62mm Development Test & Evaluation	1	2019	3	2019
7.62mm Milestone C	1	2020	1	2020
5.56mm Advanced Concept Development	1	2018	4	2018
5.56mm Prototype Test & Evaluation	1	2018	2	2019
5.56mm Milestone B	1	2019	1	2019
5.56mm Engineering & Manufacturing Development	1	2019	4	2021
5.56mm Preliminary Design Review (PDR)	3	2019	3	2019
5.56mm Critical Design Review (CDR)	3	2020	3	2020

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 4					R-1 Program Element (Number/Name) PE 0603639A / <i>Weapons and Munitions Advanced Development</i>				Project (Number/Name) EC3 / <i>Ammunition Logistics Prototyping</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
EC3: <i>Ammunition Logistics Prototyping</i>	-	-	1.769	3.571	-	3.571	3.203	3.382	3.901	3.582	-	19.408
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY15 Project EC3 is a new start.

A. Mission Description and Budget Item Justification

This project supports the future force by improving the distribution, management, reliability and survivability of ammunition through the advanced development, integration, and demonstration of logistics system enablers. These enablers will improve the efficiency and effectiveness of ammunition operations, to include retrograde, while reducing the logistics footprint on the battlefield. Technology areas addressed include handling, distribution, and management (strategic and tactical), prognostics, diagnostics, and asset visibility, explosives safety, and adaptive and environmentally friendly packaging and palletization. The efficient deployment and sustainment of reliable ammunition is vital to success on the battlefield. This project enhances the operational effectiveness of the ammunition logistics system to ensure the distribution of reliable ammunition to the warfighter.

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

	FY 2014	FY 2015	FY 2016
Title: Munitions Health and Inventory Monitoring Systems	-	1.769	1.390
Description: Performance and reliability of certain munitions can be degraded by the environmental exposure history they have experienced in their lifetime. This program will develop simple to complex environmental health and inventory monitoring systems to improve reliability and asset visibility and enable effective Condition Based Management for Ammunition.			
FY 2015 Plans: Designed prototype components of an ammunition packaging mounted environmental health monitoring system that will facilitate improved ammunition management. Matured passive time/temperature exposure sensor design.			
FY 2016 Plans: Fabricate environmental health monitoring system prototypes and conduct engineering testing. Integrate passive time/temperature exposure sensor with grenade systems and conduct operational demonstration.			
Title: Munitions Containerization Systems	-	-	0.596
Description: For each family of munitions containers, optimize prototype container systems for automation compatibility, combat unit load quantity, sustainability/recyclability, Insensitive Munitions/explosives safety, environmental protection, load			

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015		
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603639A / <i>Weapons and Munitions Advanced Development</i>	Project (Number/Name) EC3 / <i>Ammunition Logistics Prototyping</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2014	FY 2015	FY 2016
reconfiguration, unitization, and standardized interfaces. This will improve ammunition distribution efficiency while minimizing environmental and operational impacts.				
FY 2016 Plans: Mature the design of advanced lightweight cylindrical ammunition container packaging and conduct an operational evaluation.				
Title: Insensitive Munitions (IM) Integration		-	-	1.585
Description: Optimize multiple IM technologies to improve munitions survivability and warfighter safety. Advanced IM Technologies will be developed in the areas of warhead, propulsion and propellants, explosives, packaging, and barriers. Efforts will increase the number of IM compliant ammunition items fielded in order to mitigate munitions reaction to fast cook-off, slow cook-off, fragment impact, sympathetic reaction, bullet impact, and shaped charge jet.				
FY 2016 Plans: Develop IM booster explosives to replace booster materials in fuzes as well as in supplemental and auxiliary charges. Develop IM propellants for Mortar and Tank ammunition and warhead venting technology for the 120mm High Energy Mortar round.				
Accomplishments/Planned Programs Subtotals		-	1.769	3.571
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				R-1 Program Element (Number/Name)				Project (Number/Name)								
2040 / 4				PE 0603639A / Weapons and Munitions Advanced Development				EC3 / Ammunition Logistics Prototyping								
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				
Contractor 1 - RRAPDS	C/CPIF	TBD : TBD	0.000	-		0.675		0.700		-		0.700	-	1.375	-	
Contractor 2 - RRAPDS	C/CPIF	TBD : TBD	0.000	-		0.674		0.700		-		0.700	-	1.374	-	
Contract-Low Cost Thermal Indicator	SS/CPFF	Innosense : Torrance, CA	0.000	-		0.100		-		-		-	-	0.100	-	
Contract-Plastic Cylindrical Container	MIPR	TBD : TBD	0.000	-		-		0.220		-		0.220	-	0.220	-	
Contract-Insensitive Munitions	MIPR	TBD : TBD	0.000	-		-		0.200		-		0.200	-	0.200	-	
Subtotal			0.000	-		1.449		1.820		-		1.820	-	3.269	-	
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				
ARDEC	MIPR	Picatinny Arsenal : NJ	0.000	-		0.320		1.454		-		1.454	-	1.774	-	
Subtotal			0.000	-		0.320		1.454		-		1.454	-	1.774	-	
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				
Aberdeen Test and Evaluation Center (ATEC)	MIPR	Aberdeen : MD	0.000	-		-		0.297		-		0.297	-	0.297	-	
Subtotal			0.000	-		-		0.297		-		0.297	-	0.297	-	
Project Cost Totals			0.000	-		1.769		3.571		-		3.571	-	5.340	-	

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603639A / <i>Weapons and Munitions Advanced Development</i>	Project (Number/Name) EC3 / <i>Ammunition Logistics Prototyping</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
Advanced Concept Development-Munitions Health Monitoring-1																												
Advanced Concept Development-Munitions Health Monitoring-1A																												
Advanced Concept Development-Munitions Health Monitoring-2																												
Advanced Concept Development-Munitions Containerization-1																												
Advanced Concept Development-Munitions Containerization-1A																												
Advanced Concept Development-Munitions Containerization-2																												
Advanced Concept Development-Insensitive Munitions																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603639A / <i>Weapons and Munitions Advanced Development</i>	Project (Number/Name) EC3 / <i>Ammunition Logistics Prototyping</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Advanced Concept Development-Munitions Health Monitoring-1	2	2015	2	2017
Advanced Concept Development-Munitions Health Monitoring-1A	3	2017	4	2019
Advanced Concept Development-Munitions Health Monitoring-2	2	2015	4	2016
Advanced Concept Development-Munitions Containerization-1	2	2016	4	2017
Advanced Concept Development-Munitions Containerization-1A	1	2018	4	2019
Advanced Concept Development-Munitions Containerization-2	1	2017	2	2020
Advanced Concept Development-Insensitive Munitions	2	2016	4	2020

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 4					R-1 Program Element (Number/Name) PE 0603639A / <i>Weapons and Munitions Advanced Development</i>				Project (Number/Name) EL6 / <i>Individual Assault Munition (IAM)</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
EL6: <i>Individual Assault Munition (IAM)</i>	-	-	-	-	-	-	-	1.896	8.469	-	-	10.365
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

N/A

A. Mission Description and Budget Item Justification

N/A

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

N/A

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

N/A

Remarks

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 / 4	R-1 Program Element (Number/Name) PE 0603639A / <i>Weapons and Munitions Advanced Development</i>	Project (Number/Name) EL6 / <i>Individual Assault Munition (IAM)</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
na																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603639A / <i>Weapons and Munitions Advanced Development</i>	Project (Number/Name) EL6 / <i>Individual Assault Munition (IAM)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
na	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 / 4					R-1 Program Element (Number/Name) PE 0603639A / <i>Weapons and Munitions Advanced Development</i>				Project (Number/Name) EL7 / <i>Reduced Range Small Caliber Training Ammunition</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>EL7: Reduced Range Small Caliber Training Ammunition</i>	-	-	-	-	-	-	2.500	3.900	3.400	-	-	9.800
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

N/A

A. Mission Description and Budget Item Justification

N/A

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

N/A

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

N/A

Remarks

D. Acquisition Strategy

Not applicable for this item.

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 / 4	R-1 Program Element (Number/Name) PE 0603639A / <i>Weapons and Munitions Advanced Development</i>	Project (Number/Name) EL7 / <i>Reduced Range Small Caliber Training Ammunition</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			
Reduced Range Small Caliber Training Ammunition	TBD	TBD/TBD : TBD	0.001	-		-		-		-		-	-	0.001	-
Subtotal			0.001	-		-		-		-		-	-	0.001	-

Remarks
N/A

	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	0.001	-	-	-	-	-	-	0.001	-

Remarks

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603639A / <i>Weapons and Munitions Advanced Development</i>	Project (Number/Name) EL7 / <i>Reduced Range Small Caliber Training Ammunition</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) MS-B													MS-B ▲															

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603639A / <i>Weapons and Munitions Advanced Development</i>	Project (Number/Name) EL7 / <i>Reduced Range Small Caliber Training Ammunition</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
MS-B	1	2017	1	2017

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 4					R-1 Program Element (Number/Name) PE 0603639A / <i>Weapons and Munitions Advanced Development</i>				Project (Number/Name) EL8 / <i>LIGHTWEIGHT CARTRIDGE CASE FOR SMALL CALIBER</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
EL8: <i>LIGHTWEIGHT CARTRIDGE CASE FOR SMALL CALIBER</i>	-	-	-	2.400	-	2.400	-	-	-	-	-	2.400
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

This program will be a new start in FY 2016. The program will transition to PE 654802 Project EP6 in FY 2017.

A. Mission Description and Budget Item Justification

The overall objective of the Lightweight Small Caliber Ammunition (LSCA) program is to develop and field 7.62mm LSCA cartridges that will provide the same capabilities as the M80A1 and M62A1 cartridges while achieving up to twenty percent weight savings at the cartridge level. The LSCA cartridge will be designed to be compatible with all Army 7.62mm weapons, but specifically optimized to work in the M240 Machine Gun. After the 7.62mm cartridge is matured a .50 Caliber variant will be developed.

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

	FY 2014	FY 2015	FY 2016
Title: Lightweight Small Caliber Ammunition (LSCA)	-	-	2.400
Description: Develop, demonstrate, and quantify a Lightweight Small Caliber Ammunition (LSCA) 7.62mm capability that will provide an ammunition weight savings of twenty percent to the M240 gunner, assistant gunner and ammo bearer.			
FY 2016 Plans: Mature development and demonstrate (TRL6) M80A1/M62A1 LSCA cartridges. Conduct Materiel Development Decision (MDD), Preliminary Design Review (PDR), and Milestone B (MS-B) preparations.			
Accomplishments/Planned Programs Subtotals	-	-	2.400

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 654802 Project EP6: <i>PE 654802 Project EP6</i>	-	-	-	-	-	4.000	4.400	4.000	2.000	-	14.400

Remarks

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603639A / <i>Weapons and Munitions Advanced Development</i>	Project (Number/Name) EL8 / <i>LIGHTWEIGHT CARTRIDGE CASE FOR SMALL CALIBER</i>

D. Acquisition Strategy

The 7.62mm LSCA cartridge will be a contractor design that the government plans to transition to production at Lake City Army Ammunition Plant after the Full Materiel Release (FMR). The government plans to award up to three contracts for initial prototype evaluation in FY 2016. After Milestone B in 1QTR FY 2017, the government intends to award one contract under full and open competition to complete the development and transition into production. The .50 Caliber program will follow the same strategy but start in 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 / 4				PE 0603639A / Weapons and Munitions Advanced Development				EL8 / LIGHTWEIGHT CARTRIDGE CASE FOR SMALL CALIBER								
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	
Contract 1	TBD	TBD : TBD	0.000	-		-		0.500		-		0.500	-	0.500	-	
Contract 2	TBD	TBD : TBD	0.000	-		-		0.500		-		0.500	-	0.500	-	
Contract 3	TBD	TBD : TBD	0.000	-		-		0.500		-		0.500	-	0.500	-	
PM-MAS Labor and Travel	MIPR	Picatinny Arsenal : New Jersey	0.000	-		-		0.200		-		0.200	-	0.200	-	
Subtotal			0.000	-		-		1.700		-		1.700	-	1.700	-	
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	Picatinny Arsenal : New Jersey	0.000	-		-		0.450		-		0.450	-	0.450	-	
Subtotal			0.000	-		-		0.450		-		0.450	-	0.450	-	
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	
Aberdeen Test Center	MIPR	Aberdeen Proving Grounds : Maryland	0.000	-		-		0.250		-		0.250	-	0.250	-	
Subtotal			0.000	-		-		0.250		-		0.250	-	0.250	-	
Project Cost Totals			0.000	-		-		2.400		-		2.400	-	2.400	-	
Remarks																

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603639A / <i>Weapons and Munitions Advanced Development</i>	Project (Number/Name) EL8 / <i>LIGHTWEIGHT CARTRIDGE CASE FOR SMALL CALIBER</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) 7.62mm Materiel Development Decision (MDD)					▲ 7.62mm MDD																							
7.62mm Prototype Contracts 1-3					▲ 7.62mm Prototype Contracts 1-3																							
7.62mm Prototype Test & Evaluation					▲ 7.62mm Prototype Test & Evaluation																							
(2) 7.62mm Preliminary Design Review (PDR) Contractor 1-3					▲ 7.62mm PDR																							
(3) 7.62mm Preliminary Design Review (PDR) Government					▲ 7.62mm PDR																							
(4) 7.62mm Milestone B (MS-B)					▲ 7.62mm MS-B																							
7.62mm Engineering and Manufacturing Development (EMD)																												
(5) 7.62mm Critical Design Review (CDR)																												
7.62mm Developmental Test and Evaluation (DT&E)																												
(6) 7.62mm Milestone C																									▲ 7.62mm MS-C			
(7) .50 Caliber Materiel Development Decision (MDD)																												
(8) .50 Caliber Milestone B (MS-B)																									▲ .50 Caliber MS-B			
.50 Caliber Engineering and Manufacturing Development (EMD)																												
	▲ .50 Caliber EMD																											

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603639A / <i>Weapons and Munitions Advanced Development</i>	Project (Number/Name) EL8 / <i>LIGHTWEIGHT CARTRIDGE CASE FOR SMALL CALIBER</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) .50 Caliber Preliminary Design Review (PDR)																	▲ .50 Caliber PDR											
(2) .50 Caliber Critical Design Review (CDR)																	▲ .50 Caliber CDR											
.50 Caliber Developmental Test and Evaluation (DT&E)																	■ .50 Caliber DT&E											
(3) .50 Caliber Milestone C																	▲ .50 Caliber MS-											

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603639A / <i>Weapons and Munitions Advanced Development</i>	Project (Number/Name) EL8 / <i>LIGHTWEIGHT CARTRIDGE CASE FOR SMALL CALIBER</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
7.62mm Materiel Development Decision (MDD)	4	2015	4	2015
7.62mm Prototype Contracts 1-3	2	2016	4	2016
7.62mm Prototype Test & Evaluation	3	2016	1	2017
7.62mm Preliminary Design Review (PDR) Contractor 1-3	4	2016	4	2016
7.62mm Preliminary Design Review (PDR) Government	4	2016	4	2016
7.62mm Milestone B (MS-B)	1	2017	1	2017
7.62mm Engineering and Manufacturing Development (EMD)	1	2017	1	2019
7.62mm Critical Design Review (CDR)	4	2017	4	2017
7.62mm Developmental Test and Evaluation (DT&E)	2	2018	4	2018
7.62mm Milestone C	1	2019	1	2019
.50 Caliber Materiel Development Decision (MDD)	1	2017	1	2017
.50 Caliber Milestone B (MS-B)	1	2018	1	2018
.50 Caliber Engineering and Manufacturing Development (EMD)	1	2018	3	2020
.50 Caliber Preliminary Design Review (PDR)	3	2018	3	2018
.50 Caliber Critical Design Review (CDR)	4	2019	4	2019
.50 Caliber Developmental Test and Evaluation (DT&E)	1	2020	2	2020
.50 Caliber Milestone C	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 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 0603653A / <i>Advanced Tank Armament System (ATAS)</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	-	54.259	-	-	-	-	-	-	-	-	-	54.259
C51: <i>STRYKER MODERNIZATION</i>	-	54.259	-	-	-	-	-	-	-	-	-	54.259

A. Mission Description and Budget Item Justification

This Program Element (PE) supports the development of the Stryker Family of vehicles (FOV) in two projects:

The Interim Armored Vehicle Family Project (C03) supports the use of the common platform/common chassis design reducing requirements for repair parts and logistics support in the area of operations.

Engineering Change Proposal 1 (ECP 1) (C51), will enable the Stryker FOV 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 an in-vehicle network, this will ensure the FOV can host the future network while retaining its protection and mobility.

B. Program Change Summary (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	49.963	-	-	-	-
Current President's Budget	54.259	-	-	-	-
Total Adjustments	4.296	-	-	-	-
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	5.956	-			
• SBIR/STTR Transfer	-1.660	-			

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 4					R-1 Program Element (Number/Name) PE 0603653A / <i>Advanced Tank Armament System (ATAS)</i>				Project (Number/Name) C51 / <i>STRYKER 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
C51: <i>STRYKER MODERNIZATION</i>	-	54.259	-	-	-	-	-	-	-	-	-	54.259
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 (FY13) and Project C51 (through FY14).

A. Mission Description and Budget Item Justification

The Stryker ECP 1 effort 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 theater of operations. This ECP 1 will also 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.

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

	FY 2014	FY 2015	FY 2016
<p>Title: Stryker ECP 1 Development (Engineering / Prototypes)</p> <p>Description: Funding is provided for the following efforts</p> <p>FY 2014 Accomplishments: Continued development engineering for the Stryker ECP 1 upgrades. Began prototype procurement for the engine, suspension, alternator and in-vehicle network of the DVH variants.</p>	51.358	-	-
<p>Title: Stryker ECP 1 Testing</p> <p>Description: Funding is provided for the following effort</p> <p>FY 2014 Accomplishments: Began 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) live fire and operational testing.</p>	0.648	-	-
<p>Title: Government Engineering and Program Management</p> <p>Description: Funding is provided for the following effort</p> <p>FY 2014 Accomplishments:</p>	2.253	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603653A / <i>Advanced Tank Armament System (ATAS)</i>	Project (Number/Name) C51 / <i>STRYKER MODERNIZATION</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016
Continued Government Systems Engineering and Program Management which included labor, travel, training, supplies and equipment.			
Accomplishments/Planned Programs Subtotals	54.259	-	-

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
• G85100: <i>Stryker Vehicle (G85100)</i>	419.100	435.110	181.245	-	181.245	72.260	-	-	-	198.820	1,306.535
• GM0100: <i>Stryker MOD (GM0100)</i>	20.522	39.683	74.085	-	74.085	42.150	76.399	506.376	535.815	1,836.776	3,131.806
• G85200: <i>Stryker Upgrade (G85200)</i>	-	-	305.743	-	305.743	418.163	434.585	112.388	77.780	-	1,348.659
• 273735EE2: <i>Stryker Improvement (273735/EE2)</i>	-	119.163	105.789	-	105.789	34.766	23.459	24.847	25.319	-	333.343

Remarks

AAE approval for a 3rd DVH SBCT Brigade of 337 Exchange Vehicles was given on July 26, 2013 (funded in G85100). Funding for the 4th DVH ECP 1 Brigade will begin in FY16 and 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. Beginning in FY15, PE Number 0203735A/Project EE2 will continue to fund the Stryker Engineering Change Proposal (ECP) 1 program.

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, which 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.

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 / 4	R-1 Program Element (Number/Name) PE 0603653A / <i>Advanced Tank Armament System (ATAS)</i>	Project (Number/Name) C51 / <i>STRYKER MODERNIZATION</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 Office (PMO)	Various	TACOM : MI	5.539	2.253	Mar 2014	-		-		-		-	-	7.792	-
Subtotal			5.539	2.253		-		-		-		-	-	7.792	-

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			
Stryker ECP 1 Development	SS/CPIF	GDLS : MI	266.130	51.358	Nov 2013	-		-		-		-	-	317.488	-
Subtotal			266.130	51.358		-		-		-		-	-	317.488	-

Remarks
Funding for the Engineering Change Proposal (ECP) 1 beginning in FY15 was moved to Program Element 0203735A/Project EE2.

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			
Stryker ECP 1 Testing	Various	Various Test Centers : Various	0.906	0.648	Apr 2014	-		-		-		-	-	1.554	-
Contract Support to Test	TBD	GDLS, MI : Various	3.919	-		-		-		-		-	-	3.919	-
Subtotal			4.825	0.648		-		-		-		-	-	5.473	-

			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			276.494	54.259	-	-	-	-	-	330.753	-

Remarks

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603653A / <i>Advanced Tank Armament System (ATAS)</i>	Project (Number/Name) C51 / <i>STRYKER 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
Stryker Engineering Change Proposal (ECP) 1 Phase II (1) ECP 1 Phase II Contract Award	Design/Prototype/Logistics Products				Phase II Contract Award																							

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603653A / <i>Advanced Tank Armament System (ATAS)</i>	Project (Number/Name) C51 / <i>STRYKER MODERNIZATION</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Stryker Engineering Change Proposal (ECP) 1 Phase II	2	2013	4	2014
ECP 1 Phase II Contract Award	1	2014	1	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 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 0603747A / <i>Soldier Support and Survivability</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	-	11.513	8.997	6.258	1.500	7.758	13.528	13.211	11.000	11.178	Continuing	Continuing
610: <i>Food Adv Development</i>	-	5.013	3.480	0.021	-	0.021	5.598	6.803	5.043	4.713	Continuing	Continuing
C08: <i>Rapid Equipping Force</i>	-	6.500	5.517	5.957	1.500	7.457	5.956	5.956	5.957	5.956	Continuing	Continuing
EL1: <i>Army Field Feeding Programs</i>	-	-	-	0.280	-	0.280	1.974	0.452	-	0.509	-	3.215

Note

Note: FY 2013 Previous President's Budget (FY 2014) amount shown in B. Program Change Summary is an electronic error and should be \$10,073.

A. Mission Description and Budget Item Justification

This program element supports component development and prototyping for organizational equipment, improved individual clothing and equipment that enhance Soldier battlefield effectiveness, survivability, and sustainment. This program element also supports the component development and prototyping of joint service food and combat feeding equipment designed to reduce logistics burden.

B. Program Change Summary (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	11.685	9.602	10.582	-	10.582
Current President's Budget	11.513	8.997	6.258	1.500	7.758
Total Adjustments	-0.172	-0.605	-4.324	1.500	-2.824
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-0.172	-0.605	-4.324	1.500	-2.824

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 4					R-1 Program Element (Number/Name) PE 0603747A / <i>Soldier Support and Survivability</i>			Project (Number/Name) 610 / <i>Food Adv 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
610: <i>Food Adv Development</i>	-	5.013	3.480	0.021	-	0.021	5.598	6.803	5.043	4.713	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project provides for the advanced component development and prototyping of joint service food and combat feeding equipment designed to reduce the logistics burden and Operation and Support (O&S) costs of subsistence support to service personnel. Project supports development of rations and rapidly deployable field food service equipment. Project conducts demonstration and validation of improved subsistence and subsistence support items used to enhance soldier effectiveness and quality of life in all four Services, as part of an integrated Department of Defense (DoD) Food Research, Development, Test, Evaluation and Engineering Program. The Program is reviewed and validated twice annually by the DoD Combat Feeding Research and Engineering Board (CFREB) as part of the Joint Service Food Program. This project develops critical enablers that support the Joint Future Force Capabilities and the Joint expeditionary mindset by maintaining readiness through fielding and integrating new equipment. This equipment enhances the field soldier's well-being and provides the soldier with usable equipment, in addition to reducing sustainment requirements, related Combat Support/Combat Service Support (CS/CSS) demands on lift, combat zone footprint, and costs for logistical support.

This PE/Project supports Field Feeding Programs for all the services.

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

	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: Fielded Individual Ration Improvement Project (FIRIP)	0.862	0.600	-	-	-
Description: Continuous product improvement project for the Meal, Ready to Eat (MRE)					
FY 2014 Accomplishments: Continued to conduct in-house product development of food components and identify suitable Commercial Off The Shelf/Non-Developmental Item (COTS/NDI) candidate items for fielded individual operational rations (e.g., Meal, Ready-to-Eat 2016 date of pack (DOP)) to enhance Warfighter acceptability, increase consumption and improve nutritional intake. Conducted pilot scale in-house production to support engineering design, technology insertion, and commercial producibility. Developed, integrated and validated state-of-the-art science and technology, food processing and primary/secondary packaging innovations into individual ration platforms to increase operational effectiveness. Optimized food component processing and packaging to introduce targeted items/capabilities into individual ration platforms for enhanced acceptability, nutrition and performance. Transitioned to 6.5 for testing.					
FY 2015 Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603747A / <i>Soldier Support and Survivability</i>	Project (Number/Name) 610 / <i>Food Adv Development</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Continue to conduct in-house product development of food components and identify suitable COTS/NDI candidate items for fielded individual operational rations (e.g. MRE™ 2018 date of pack) to enhance Warfighter acceptability, increase consumption and improve nutritional intake; conduct pilot scale in-house production to support engineering design, technology insertion, and commercial producibility; develop, integrate and validate state-of-the art science and technology, food processing and primary/secondary packaging innovations into individual ration platforms to increase operational effectiveness; optimize food component processing and packaging to introduce targeted items/capabilities into individual ration platforms for enhanced acceptability, nutrition and performance; transition to 6.5 for testing.					
<p>Title: Assault/Special Purpose Ration Improvement Project (ASPIP)</p> <p>Description: Continuous product improvement of special purpose rations by the insertion of new technologies in nutrition, processing and packaging.</p> <p>FY 2014 Accomplishments: Continued to identify COTS/NDI components for the Meal, Cold Weather/Long Range Patrol and First Strike Ration (FSR) to enhance acceptability, variety, consumption and nutritional value of combat rations. Identified new components based upon user feedback, focus groups, emerging products and technologies and user requirements. Conducted accelerated and long term storage studies on candidate components. Worked with industry partners to facilitate producibility and technology transition. Transitioned to 6.5 for Warfighter testing.</p> <p>FY 2015 Plans: Based on user feedback, focus groups, emerging products and technologies and user requirements, identify COTS/NDI components for the Meal, Cold Weather/Long Range Patrol, First Strike Ration and Modular Operational Ration Enhancement to enhance acceptability, variety, consumption and nutritional value of scenario-specific combat rations. Conduct accelerated and long term storage studies on candidate components. Work with industry partners to facilitate producibility and technology transition.</p>	0.413	0.130	-	-	-
<p>Title: Fielded Group Ration Improvement Project (FGRIP)</p> <p>Description: Continuous product improvement project to continuously update/improve group ration components, menus, and packaging by integrating state-of-the-art military/commercial packaging and technology base transitions.</p> <p>FY 2014 Accomplishments:</p>	0.814	0.208	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603747A / <i>Soldier Support and Survivability</i>	Project (Number/Name) 610 / <i>Food Adv Development</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Continued efforts to update/improve components, menus and packaging to increase consumption and overall nutritional intake of the family of Unitized Group Rations (UGRs) for UGR-A (FY15 menus), B, E and H&S (2015/16 DOP). Identified COTS/NDIs and/or developed new food components in-house, conducted in-house testing, down-selected items and developed test menus for Warfighter evaluation. Developed, integrated and validated state-of-the-art science and technology, food processing and primary/secondary packaging innovations into group ration platforms to increase operational effectiveness, functionality and improve logistics. Transitioned to 6.5 for Warfighter testing. FY 2015 Plans: Continue efforts to update/improve components, menus and packaging to increase consumption and overall nutritional intake of the family of UGRs for UGR-A (FY17 menus), B, M, E and H&S (2016 DOP). Identify COTS/NDIs and/or develop new food components in-house, conduct in-house testing, down-select items and develop test menus for Warfighter evaluation. Develop, integrate and validate state-of-the-art science and technology, food processing and primary/secondary packaging innovations into group ration platforms to increase operational effectiveness, functionality and improve logistics. Transition to 6.5 for Warfighter testing.					
Title: US Navy Standard Core Menu (NSCM) Continuous Product Improvement Project Description: Provide recommendations for upgrading/improving Navy Standard Core Menu components by introducing new preparation techniques to enhance menu acceptance and effectiveness while reducing labor requirements. FY 2014 Accomplishments: Continued to identify and validate COTS and NDI candidate enhancements to the NSCM. Provided recommendations for improving menu components by introducing new commercial items and state-of-the-art food preparation and feeding techniques to enhance menu acceptance and reduce labor requirements. Transitioned product summaries and results/recommendations to Naval Supply Systems Command (NAVSUP) for adoption and procurement. FY 2015 Plans: Continue to identify and validate COTS/NDI candidate enhancement to the NSCM. Provide recommendations for improving menu components by introducing new commercial items and state-of-the-art food preparation and feeding techniques to enhance menu acceptance and reduce labor requirements. Transition product summaries and results/recommendations to NAVSUP for adoption and procurement.	0.220	0.160	-	-	-
Title: Quality Kinetics/Rapid Fielding of Ration Components	0.100	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603747A / <i>Soldier Support and Survivability</i>	Project (Number/Name) 610 / <i>Food Adv Development</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
<p>Description: Confirm or optimize current accelerated storage protocols. Validate a predictive model for food degradation.</p> <p>FY 2014 Accomplishments: Transitioned and implemented quantitative kinetics models utilizing analytical markers (fat oxidation calorimetry, etc) to 6.4 Assault/Special Purpose Ration Improvement Program (ASPIP) and Fielded Individual Ration Improvement Program (FIRIP). Integrated optimized quality kinetics models into current sensory evaluation system and adjusted and optimized storage protocols and conditions using analytical testing/temperature kinetics and defined and recommended guidelines for conduction accelerated storage studies equivalent to Military storage requirements. Streamlined and enhanced evaluation process for identified new ration components (entrees, sides, snacks, bakery items) that fall within guidelines specified by the quality kinetics model, accelerated rapid fielding of specific ration component, decreased/minimized engineering support cases for quality related issues, and enhanced development efficiency. Modified and transitioned technical data to Defense Logistics Agency - Troop Support.</p>					
<p>Title: Barrier Coating for Optimized Package Performance</p> <p>Description: Provides low-cost, non-foil, high performance packaging materials for incorporation into existing and future combat ration packaging systems, such as the Unitized Group Ration (UGR) and Meal, Ready-to-Eat (MRE).</p> <p>FY 2014 Accomplishments: Determined optimal barrier structure and scale-up to pilot-scale production of prototype samples. Evaluated prototype packaging system for barrier and mechanical properties, and shelf life and rough handling.</p> <p>FY 2015 Plans: Deliver prototype entrée and non-retort MRE pouches along with performance documentation/specifications and cost analysis. Present coating technologies to milestone decision authority, Joint Service Operational Ration Forum (JSORF) and the ration supply community for use as an alternative non-foil ration packaging material.</p>	0.140	0.080	-	-	-
<p>Title: Integration of Selected Ration Components Using Novel Food Processing Technology to Individual Ration Platforms</p> <p>Description: Develop operational concept for integration of specific novel processed ration components into individual (as well as group and assault/special purpose) ration platforms. Establish baselines for nutrition retention, producibility and package utility. Evaluate baselines for novel processed components against</p>	0.103	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603747A / <i>Soldier Support and Survivability</i>	Project (Number/Name) 610 / <i>Food Adv Development</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
key performance parameters of known thermally processed ration components. Generate draft technical requirements and/or revised documents for novel processed ration components.					
<p>FY 2014 Accomplishments: Developed operational concept for integration of specific novel processed ration components into individual (as well as group and assault/special purpose) ration platforms. Established baselines for nutrition retention, producibility and package utility. Evaluated baselines for novel processed components against key performance parameters of known thermally processed ration components.</p>					
<p>Title: Containerized Ice Making System</p> <p>Description: Develop a containerized ice making system to support a 600 person base camp for cooling drinking water in extreme arid conditions and support other ice requirements for those on the base camp and for soldiers going out on missions/patrols.</p> <p>FY 2014 Accomplishments: Received procured prototype(s) for production quality testing (PQT) at the Aberdeen Test Center. Used multiple prototypes and modified commercially available equipment to validate the current state of the technology to the user community.</p> <p>FY 2015 Plans: Conduct evaluation of integrated technologies in a realistic operating environment to include: modified commercial items, developmental prototypes and commercial industry technology demonstrators. Mitigate identified weaknesses in transportable ice bagging technologies with development of ruggedized, reliable system.</p>	0.321	0.650	-	-	-
<p>Title: Co-Extruded Alternate Nutrient System (CANS)</p> <p>Description: Provide the Warfighter with functional multi-component bars and single matrices? pastes that serve as vehicles for optimizing nutrient delivery. Develop matrices that are best suited to deliver nutrients/ performance optimizers that are stable, functional and organoleptically appealing. Increase quality and variety of performance bars utilizing co-extrusion technologies.</p> <p>FY 2014 Accomplishments:</p>	0.157	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army				Date: February 2015													
Appropriation/Budget Activity 2040 / 4		R-1 Program Element (Number/Name) PE 0603747A / Soldier Support and Survivability		Project (Number/Name) 610 / Food Adv Development													
B. Accomplishments/Planned Programs (\$ in Millions)																	
Finalized FDA approval of selected performance optimizers. Coordinated remaining field testing with Individual Ration program. Validated manufacturing base and long term shelf life studies in coordination with production base. Generated draft technical requirements.																	
Title: Alternative Polymer Processing Technology (APPT)																	
Description: Improve ration packaging by enhancing package performance through the use of advanced polymer processing technologies, such as orientation, co-extrusion, and layer multiplying co-extrusion. Reduce packaging weight and waste. Improve packaging performance through enhanced mechanical and barrier properties.																	
FY 2014 Accomplishments: Continued producibility studies. Field testing to document Warfighter approval. Granted approval Joint Services Operational Rations Forum, procurement documents were modified/produced and provided to DLA for inclusion in the MRE™, UGR and/or FSR.																	
<table border="1"> <thead> <tr> <th></th> <th>FY 2014</th> <th>FY 2015</th> <th>FY 2016 Base</th> <th>FY 2016 OCO</th> <th>FY 2016 Total</th> </tr> </thead> <tbody> <tr> <td></td> <td>0.100</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> </tr> </tbody> </table>							FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total		0.100	-	-	-	-
	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total												
	0.100	-	-	-	-												
Title: Transition of Advanced Appliances for Field Kitchens																	
Description: Provide the Warfighter with JP-8 fueled appliances that save fuel, are simple to use, provide a safe kitchen environment, and can easily be moved into buildings when necessary. Warfighters benefit from a safer, healthier, more comfortable kitchen environment, and equipment that facilitates preparation of quality A-ration meals. Existing appliances are only about 15-40% efficient; new burner technologies have demonstrated 75% efficiency, typical of stationary gas-fired equipment.																	
FY 2014 Accomplishments: Continued development, integration and test of JP-8 powered burner and appliance interfaces. Developed clear platform requirements for Battlefield Kitchen and continued testing modular appliances for legacy system compatibility.																	
FY 2015 Plans: Perform comprehensive evaluation of appliances integrated with newly developed heating technologies. Verify performance and compatibility with multiple platforms and in dismantled operation. Complete evaluation of appliances mounted on dedicated kitchen platform to prove out component and subsystem maturity.																	
<table border="1"> <tbody> <tr> <td></td> <td>0.388</td> <td>0.360</td> <td>-</td> <td>-</td> <td>-</td> </tr> </tbody> </table>							0.388	0.360	-	-	-						
	0.388	0.360	-	-	-												
Title: Permeability Modeling of Advanced Packaging Systems (PMAPS)																	
<table border="1"> <tbody> <tr> <td></td> <td>0.140</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> </tr> </tbody> </table>							0.140	-	-	-	-						
	0.140	-	-	-	-												

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603747A / <i>Soldier Support and Survivability</i>	Project (Number/Name) 610 / <i>Food Adv Development</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
<p>Description: Expand upon the current film based permeability prediction model to allow for permeability prediction of packaging systems. Determine the total barrier effect of combined packaging technologies developed under research programs.</p> <p>FY 2014 Accomplishments: Conducted pilot-scale production runs to produce packaging films for conversion into pouches and filled with selected food items. Conducted storage study to include sensory and analytical testing such as water activity and headspace analysis to validate model. A validation report was prepared at the end of the storage study.</p>					
<p>Title: Packaging Optimization with Polymeric Microspheres (POPM)</p> <p>Description: Develop production base for polymeric films containing expandable microspheres for use in reduced-weight, high-performance ration packaging applications which will provide reduced density, enhanced thermal properties and cost savings.</p> <p>FY 2014 Accomplishments: Collaboration did occur with industrial partners (material suppliers and converters) to produce material at the pilot-scale level, and to fabricate Flameless Ration Heater pouches and Meal Ready-to-Eat entree bags. Collaboration also occurred between technical teams, DLA-Troop Support, and industrial partners. Cost validation analyses were performed to confirm affordability.</p>	0.100	-	-	-	-
<p>Title: Navy Food Service Analysis Tool</p> <p>Description: Develop a software analysis tool for Navy Foodservice that performs the following tasks: Automatically calculate all storage space factors and requirements for naval vessels based off the specific Navy Standard Core Menu (NSCM), crew size, Naval Ship's Technical Manual 096, Weights and Stability, Naval Vessel Requirements Food Service Facility Design Manual, Build Specifications 671, 672, and Type Commander established endurance levels.</p> <p>FY 2014 Accomplishments: Developed automated subsistence inventory management, tracking and direct routing for all storage areas with mobile scanning technology capability. Conducted in-house tests & evaluation. Coordinated software Navy Advanced Individual Training (AIT) approval/certification</p> <p>FY 2015 Plans:</p>	0.340	0.253	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army			Date: February 2015		
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603747A / <i>Soldier Support and Survivability</i>	Project (Number/Name) 610 / <i>Food Adv Development</i>			
B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Coordinate and conduct shipboard user evaluations with the Navy; complete software Navy AIT approval/certification; transition information to Navy.					
Title: Block Upgrades and Operational Improvements for Expeditionary Field Feeding Equipment. Description: Eliminate the sole sourcing of tray ration heater component parts. Reduce overall water consumption through the use of non-immersive cooking technologies and more efficient ware-washing equipment. Increase Kitchen flexibility through appliance upgrades. To reduce the overall fuel consumption of Expeditionary Field Feeding Equipment by minimizing the production of and making use of the waste heat produced through JP-8 combustion. FY 2015 Plans: Enhance the ability of the USMC to prepare all operational rations during expeditionary operations. Identify, procure, and evaluate candidate burners for tray ration reset; develop kit and procedures for install in Tray Ration Heater (TRH); conduct technical evaluation for heat exchangers in Efficiency Field Kitchen (EFK).	-	0.340	-	-	-
Title: Joint Inter-service Field Feeding Burner Description: Develop a Joint-Service, government owned JP-8 fuel fired burner for field kitchen appliances. Government will control configuration, procurement, and support decisions. Establish parts list using widely supportable supply chain in field operations. FY 2014 Accomplishments: Built Design Validation (DV) units using a supportable, commercial bill of materials. Tested in a high fidelity, realistic operating environment and conducted supportability validation. Prepared Technical Data Package. FY 2015 Plans: Use the burner baseline developed in this program to qualify acceptable appliance designs that interface properly with the burner. Integrate tech data package into appliance configuration control documentation.	0.251	0.143	-	-	-
Title: Defense Logistics Agency (DLA) Description: Support management of the Department of Defense (DoD) Electronic Document Access (EDA) and Wide Area Workflow (WAWF) programs. FY 2014 Accomplishments:	0.564	0.556	0.021	-	0.021

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603747A / <i>Soldier Support and Survivability</i>	Project (Number/Name) 610 / <i>Food Adv Development</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Funded DLA Document Services to support management of the DoD EDA and WAWF programs.					
<i>FY 2015 Plans:</i> Fund DLA Document Services to support management of the DoD EDA and WAWF programs.					
<i>FY 2016 Base Plans:</i> Fund DLA Document Services to support management of the DoD EDA and WAWF programs.					
Accomplishments/Planned Programs Subtotals	5.013	3.480	0.021	-	0.021

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>
• RDT&E 654713.548: <i>Military Subsistence System</i>	1.874	3.034	1.430	-	1.430	0.961	0.550	0.652	1.319	Continuing	Continuing
• RDT&E 654713.EL2: <i>Army Field Feeding Equipment</i>	-	-	0.333	-	0.333	1.505	2.058	1.778	1.138	Continuing	Continuing
• RDT&E 643747.EL1: <i>Army Field Feeding Programs</i>	-	-	0.280	-	0.280	1.974	0.452	-	0.509	Continuing	Continuing
• OPA M65801: <i>Refrigerated Containers</i>	22.112	10.290	9.486	-	9.486	13.150	11.850	11.030	14.967	Continuing	Continuing

Remarks

D. Acquisition Strategy

Project development will transition to Engineering & Manufacturing Development and production.

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 / 4	R-1 Program Element (Number/Name) PE 0603747A / <i>Soldier Support and Survivability</i>	Project (Number/Name) 610 / <i>Food Adv Development</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			
Combat Feeding Program Management	Various	RDECOM, Natick, MA : Natick, MA	4.912	0.516	Apr 2014	0.357		-		-		-	Continuing	Continuing	Continuing
SBIR+STTR	TBD	Various : Various	0.117	-		-		-		-		-	-	0.117	-
DLA Bill Pay	TBD	Various : Various	0.000	0.564		0.556		0.021		-		0.021	-	1.141	-
Subtotal			5.029	1.080		0.913		0.021		-		0.021	-	-	-

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			
Joint Service Food/Combat Feeding Equipment	Various	RDECOM, Natick, MA : Natick, MA	35.789	1.592	Mar 2014	1.028		-		-		-	Continuing	Continuing	Continuing
Joint Service Food/Combat Feeding Equipment	Various	Various : Various	23.930	1.706	Mar 2014	1.106		-		-		-	Continuing	Continuing	Continuing
Subtotal			59.719	3.298		2.134		-		-		-	-	-	-

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			
Joint Service Food/Combat Feeding Equipment	Various	DTC/AEC : National Capitol Region	9.646	0.635	May 2014	0.433		-		-		-	Continuing	Continuing	Continuing
Subtotal			9.646	0.635		0.433		-		-		-	-	-	-

			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			74.394	5.013	3.480	0.021	-	0.021	-	-	-

Remarks

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603747A / <i>Soldier Support and Survivability</i>	Project (Number/Name) 610 / <i>Food Adv 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
Evaluate MRE, FSR, MCW/LRP and MORE improvements																												
Evaluate UGR Enhancements improvements																												
Transition First Strike Ration (FSR) components to EMD																												
Transition advanced development of individual and group ration compone																												
Provide NAVSUP w/CPI, evaluations and menu development to support																												
Conduct DV on JP8 Fired Commercial Appliances																												
USMC Field Kitchen Modernization Effort																												
Barrier Coating prototype Evaluation and Field Test																												
Establish baseline, evaluate and transition novel processed ration comp																												
Transition of Advanced Appliances for Field Kitchens- DV of Prototypes																												
Field evaluation of Alternative Polymer Processing Technology (APPT)																												
(1) Modify Production Change Request (PCR) of APPT and Transition to																												
(2) Draft SOW and award contract for Navy Food Service Analysis Tool																												

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603747A / <i>Soldier Support and Survivability</i>	Project (Number/Name) 610 / <i>Food Adv 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
Conduct in-house tests & evaluation for Navy Food Service Analysis Tool																												
Identify candidate burner technology for potential integration into comm																												
Identify, procure, and evaluate candidate burners for tray ration heater re																												
Technical evaluation for heat exchangers in EFK; procurement of nesting																												
Test Joint Inter-Service Burner in a high fidelity, realistic operating environ																												
(1) Develop Engineering Change Proposal for Diesel/Electric TriCon Refer																												
Build standalone capability for Diesel/Electric powered TRCS																												
Award contract to integrate improved refer unit with MTRCS platform																												
Coordinate packaging specifications with ration assemblers/producers																												
Conduct technology demonstration of Ice Making Systems																												
Develop performance specs based on DV of Ice Making Systems																												
Dem/Val JP8 burners for Enhanced Tray Ration Heater System-USMC																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603747A / <i>Soldier Support and Survivability</i>	Project (Number/Name) 610 / <i>Food Adv Development</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Evaluate MRE, FSR, MCW/LRP and MORE improvements	1	2009	4	2015
Evaluate UGR Enhancements improvements	1	2009	4	2015
Transition First Strike Ration (FSR) components to EMD	1	2009	4	2014
Transition advanced development of individual and group ration components to EMD	1	2009	4	2015
Provide NAVSUP w/CPI, evaluations and menu development to support NSCM upgrades	1	2010	4	2015
Conduct DV on JP8 Fired Commercial Appliances	2	2014	4	2014
USMC Field Kitchen Modernization Effort	1	2014	4	2015
Barrier Coating prototype Evaluation and Field Test	1	2012	4	2014
Establish baseline, evaluate and transition novel processed ration components	1	2013	4	2014
Transition of Advanced Appliances for Field Kitchens- DV of Prototypes	3	2013	4	2015
Field evaluation of Alternative Polymer Processing Technology (APPT)	1	2013	2	2014
Modify Production Change Request (PCR) of APPT and Transition to DLA-TS	4	2014	4	2014
Draft SOW and award contract for Navy Food Service Analysis Tool	3	2014	3	2014
Conduct in-house tests & evaluation for Navy Food Service Analysis Tool	4	2015	4	2015
Identify candidate burner technology for potential integration into comm	1	2015	2	2015
Identify, procure, and evaluate candidate burners for tray ration heater reset	1	2015	2	2015
Technical evaluation for heat exchangers in EFK; procurement of nesting sinks	3	2015	4	2015
Test Joint Inter-Service Burner in a high fidelity, realistic operating environm	3	2014	3	2014
Develop Engineering Change Proposal for Diesel/Electric TriCon Refer System	4	2017	4	2017
Build standalone capability for Diesel/Electric powered TRCS	1	2017	3	2017
Award contract to integrate improved refer unit with MTRCS platform	3	2015	4	2015

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603747A / <i>Soldier Support and Survivability</i>	Project (Number/Name) 610 / <i>Food Adv Development</i>
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Events	Start		End	
	Quarter	Year	Quarter	Year
Coordinate packaging specifications with ration assemblers/producers	3	2014	2	2015
Conduct technology demonstration of Ice Making Systems	1	2014	4	2015
Develop performance specs based on DV of Ice Making Systems	1	2015	3	2015
Dem/Val JP8 burners for Enhanced Tray Ration Heater System-USMC	3	2017	2	2018

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 4					R-1 Program Element (Number/Name) PE 0603747A / <i>Soldier Support and Survivability</i>				Project (Number/Name) C08 / <i>Rapid Equipping Force</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
C08: <i>Rapid Equipping Force</i>	-	6.500	5.517	5.957	1.500	7.457	5.956	5.956	5.957	5.956	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Equipment mix and configuration may change based on changes in operational environment and circumstances.

A. Mission Description and Budget Item Justification

The Rapid Equipping Force (REF) supports Combatant Command (COCOM)/Army Service Component Command (ASCC) based on emerging rapid equipment requirements. The REF is an enduring organization (Base funded) per Headquarters, Department of the Army, memo, SUBJECT: Implementation Plan for Stabilization of the Rapid Equipping Force (REF), signed by the Under Secretary of the Army: Joseph W. Westphal, dated 30 January 2014.

The REF harnesses current and emerging technologies to provide rapid solutions to U.S. Army Forces employed globally. The REF combines and integrates functions that cross several Army staff elements and ASCCs to accelerate materiel solutions and technology insertion to U.S. Army Forces employed globally. The REF is the Army's quick reaction capability with the ability to develop, prototype, acquire, integrate and sustain Commercial-Off-The-Shelf (COTS), Government Off-The-Shelf (GOTS) and Non-Developmental Item (NDI) solutions to meet urgent combat requirements for forces employed globally. It develops and inserts selected future force technologies, capabilities, and surrogate materiel solutions into deployed, deploying, select prepared to deploy, and transformational forces for operational evaluation, assessment, and evolutionary development. The REF plans and executes assessments and studies of Army practices and issues concerning operational needs, desired future force capabilities, and relevant Army business practices to provide feedback to Army Senior Leaders.

The REF bridges the gap between the traditional acquisition process and immediate equipping needs. The REF pursues tangible solutions that can be equipped rapidly with a goal of 180 days. The REF focuses on finding effective game-changing capabilities to increase Soldier effectiveness, protection, and lethality in any operational environment. The REF process provides the mechanism to respond rapidly to an adaptive enemy who changes in days and months, not years. The REF coordinates in theater work with the ASCC of the COCOMs to understand their urgent needs, for which the REF acquisition capability may identify, procure, deliver, and sustain solutions to the deployed units. This fiscal flexibility is significant in that it permits the REF to allocate funds against emerging threats and requirements in the year of fiscal execution.

The REF works directly with Operational Commanders at all levels, but focuses on Brigade level and below to find solutions to identified capability gaps. These solutions may result in procurement of new or existing military/commercial materiel equipment, or accelerated development of a future force materiel solution for insertion into the current force now.

In accordance with Ms. Heidi Shyu (Army Acquisition Executive) Memorandum, Subject: Acquisition Decision Memorandum (ADM) to Change the Milestone Decision Authority (MDA) for the Rapid Equipping Force (REF) Program, dated May 28, 2014, the overarching goal of institutionalizing the acquisition authorities within the REF is to preserve the autonomy of action that has proven successful through the past decade of war. Program Executive Office (PEO) Soldier has been assigned as the MDA

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603747A / <i>Soldier Support and Survivability</i>	Project (Number/Name) C08 / <i>Rapid Equipping Force</i>
<p>to provide proper acquisition oversight while enhancing visibility of these efforts. The MDA will ensure flexibility and speed focused on the needs of Soldiers serviced by the dedicated REF Program Management Office (PMO). A formal reporting scheme leveraging existing venues, (e.g., Program Status Reviews (PSR) Acquisition Category (ACAT) III Reporting, will ensure ASA (ALT) visibility, oversight, and direction.</p> <p>The REF key tasks are:</p> <ul style="list-style-type: none"> - Partner with the Asymmetric Warfare Group (AWG) and the ASCCs to be responsive to tactical unit commanders in a global operating environment. - Bridge specific Operational Needs Statement (ONS)/Joint Urgent Operational Needs Statement (JUONS)/Joint Emergent Operational Needs Statement (JEONS) gaps to meet urgent needs. - Develop materiel solutions to counter emerging global asymmetric threats with reduced Soldiers in the operational environment. - Ensure training, transportation, and sustainment are provided with every capability. - Cultivate and rapidly insert emerging technologies into Soldiers' hands. - Conduct operational assessments to provide useful operator feedback to the Army. - Transition effective projects through the appropriate Army process for long-term sustainment. - Be aggressive and push the acquisition envelope, but operate within the law. - Integrate with existing Army organizations and systems to enable them to recognize and solve problems for tactical units. <p>The current REF Integrated Priority List (RIPL) consists of the REF top priorities based on requirements received from deployed units and drives all REF efforts.</p> <ol style="list-style-type: none"> 1. Dismounted Improvised Explosive Device (IED) Defeat 2. Small Combat Outpost (COP)/Patrol Base (PB) Sustainment 3. Small Combat Outpost (COP)/Patrol Base (PB) Force Protection 4. Dismounted Operations Support 5. Intelligence, Surveillance, and Reconnaissance (ISR) Shortfalls in Environmentally Inhospitable Operational Environments (OEs) 6. Dismounted Blue Force Tracking and Mission Command 7. Other <p>The Army anticipates the REF working similar priorities in FY16 and beyond. The REF average cost per requirement is ~\$1.1 based on historical data.</p> <p>The REF FY16 RDT&E request \$5.957million (Base) and \$1.500 million (OCO) is for system integration, Testing and Evaluation to support project requirements. The REF requires RDT&E funds to test technologies in order to ensure suitability and safety before equipping the Soldier – any modified COTS/GOTS/NDI items have to be tested. RDT&E integrates, modifies, and equips urgent materiel capabilities to units in support of Joint and Army Forces Commanders to enhance the combat effectiveness of the operating force.</p> <p>The RDT&E funding also provides the REF the flexibility to invest in near-term, innovative solutions. RDT&E funds are necessary in the vast majority of all REF projects. REF uses RDT&E funds to work with industry and Other Governmental Agencies (OGAs) in order to further develop high (>6) Technology Readiness Level (TRL)</p>		

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603747A / <i>Soldier Support and Survivability</i>	Project (Number/Name) C08 / <i>Rapid Equipping Force</i>
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systems or advanced technologies that often only need small amounts of funding in order to help them achieve a maturity level that is suitable to solve deployed U.S. Army Forces problems. The REF requires RDT&E funds to integrate several different COTS/GOTS/NDI technologies into one capability that solves the tougher and more complex problems. The REF uses RDT&E funds to conduct demonstrations and tests to validate technology solutions. The REF requires RDT&E funds in order to modify existing technologies that were developed for one purpose, but now may be suitable to solve another problem. The REF Expeditionary Labs use RDT&E funds to develop and adapt technologies that meet immediate requirements forward in the theaters of operation with the active assistance of the Soldier in the solution development process.

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

	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
<p>Title: Rapid Equipping Force</p> <p>Description: Funding is provided for the following effort.</p> <p>FY 2014 Accomplishments: The demand for REF 10-liner requirements has levels based on the increased tempo of transitioning brigades in Operation Enduring Freedom (OEF) with nine (9) month deployments; the expansion of brigades' operational environments (OEs) that required smaller units to operate in more isolated areas; the expansion of Army Special Operation Forces Village Stability Operations (VSO) efforts; and the introduction of Security Force Advisory Assistance Teams (SFAATs) – a new force structure and role in OEF. At the end of FY14, the REF had 554 total requirements -494 were OCO requirements. For FY15 the REF projected 600 requirements (540 Base, 60 OCO). As of 31 Dec 2014, the REF had 180 total requirements – 167 were OCO requirements.</p> <p>FY 2015 Plans: The REF mission expands to perform Direct Support (DS) to globally deployed Soldiers, ASCCs of the Combatant Commands, and regionally aligned Brigade Combat Teams (BCTs). During the same period, the REF expects to see an increase in requirements submitted by Army Special Operations Forces (SOF) in other areas of the world, as well as, from brigades employed in more global roles, such as the regionally aligned BCTs, and their logistical support elements. REF's Expeditionary Labs are deployed to provide engineer support directly to Battalion and Brigade Forward Operating Bases/Combat Outposts/Patrol Bases and work side-by-side with Soldiers as they execute their missions. Engineers connect directly to Army, DoD and National Labs to design and fabricate potential solutions while including the users' immediate feedback. The REF also expects to play a much more deliberate role in providing support to the Army's Global Response Force as they prepare for a wider range of response missions.</p> <p>FY 2016 Base Plans: The REF partners with forces the ASCCs and Army SOF community to perform DS to globally deployed Soldiers and regionally aligned BCTs. The REF anticipates an increased need for flexibility to develop technological</p>	6.500	5.517	5.957	1.500	7.457

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
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B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
<p>solutions supporting the reduced numbers of Soldiers operating globally in order to fill force protection gaps in the face of a smaller and more lethal terrorism threat. The REF expects to increase our engagement with the ASCCs in order to address capability gaps generated by geographical and environmental constraints and improve our understanding of evolving threats and operating conditions within the respective ASCC areas of operations. The REF's Expeditionary Lab is deployed to provide engineer support directly to Soldiers as they execute their missions in austere environments within a smaller logistical footprint. Engineers connect directly to Army, Department of Defense (DoD), and National Labs to conduct design and fabrication while including the user's immediate feedback. The REF expects to insert emerging technologies into ASCC level exercises in order to validate concept of operations (CONOPS) and Tactics, Techniques and Procedures (TTP). The REF also expects to play a much more deliberate role in providing support to the Global Response Force as they prepare for a wider range of response missions. We anticipate increased coordination with various Army technology demonstrations and Joint Capabilities Technology Demonstrations in order to leverage developed residual technologies to rapidly address identified critical capability gaps and gain immediate feedback through limited user evaluations. In accordance with REF's participation in the Office of Secretary of Defense (OSD) led quick reaction capability effort, the Army determined the REF would provide the Army's warm base capability with 71 requirements in FY16 and beyond.</p> <p>For FY16 the REF projects 71 requirements in the following REF Integrated Priority List (RIPL).</p> <ol style="list-style-type: none"> 1. Dismounted Improvised Explosive Device (IED) Defeat (\$220K) 2. Small Combat Outpost (COP)/Patrol Base (PB) Sustainment (\$110K) 3. Small Combat Outpost (COP)/Patrol Base (PB) Force Protection (\$716K) 4. Dismounted Operations Support (\$1,845K) 5. Intelligence, Surveillance, and Reconnaissance (ISR) Shortfalls in Environmentally Inhospitable Operational Environments (OEs) (\$248K) 6. Dismounted Blue Force Tracking and Mission Command (\$55K) 7. Other (\$1,763K) <p>The REF anticipates ATEC testing and evaluation cost of \$1.00M. The REF requires RDT&E funds to test technologies in order to ensure suitability and safety before equipping the Soldier – any modified COTS/GOTS/NDI items has to be tested.</p> <p>FY 2016 OCO Plans:</p>					

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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
For FY16 the REF projects 71 requirements in the following REF Integrated Priority List (RIPL). 1. Dismounted Improvised Explosive Device (IED) Defeat (\$44K) 2. Small Combat Outpost (COP)/Patrol Base (PB) Sustainment (\$22K) 3. Small Combat Outpost (COP)/Patrol Base (PB) Force Protection (\$144K) 4. Dismounted Operations Support (\$373K) 5. Intelligence, Surveillance, and Reconnaissance (ISR) Shortfalls in Environmentally Inhospitable Operational Environments (OEs) (\$50K) 6. Dismounted Blue Force Tracking and Mission Command (\$11K) 7. Other (\$356K)					
The REF anticipates ATEC testing and evaluation cost of \$.500M. The REF requires RDT&E funds to test technologies in order to ensure suitability and safety before equipping the Soldier – any modified COTS/GOTS/NDI items has to be tested.					
Accomplishments/Planned Programs Subtotals	6.500	5.517	5.957	1.500	7.457

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
• M08101: <i>Other Procurement Army</i>	25.000	22.380	17.937	8.500	26.437	4.286	4.611	4.257	4.460	Continuing	Continuing
• 121018000: <i>Operations and Maintenance, Army</i>	103.451	94.358	20.626	-	20.626	20.687	20.826	20.975	-	Continuing	Continuing

Remarks

D. Acquisition Strategy

The REF harnesses current and emerging technologies to provide rapid solutions to the urgently required capabilities of U.S. Army Forces employed globally. The REF focus is on rapidly placing capabilities into Soldiers' hands. This mission is accomplished in one of two ways: rapidly adapting COTS/GOTS/NDI equipment to meet operational needs and developing emerging deployable capability via interaction with research and development organizations and academia. All capabilities are safety tested prior to insertion into operational environments. Training and sustainment are provided for every capability until it is transitioned to an approved acquisition program or terminated through an approved Army process. Operational assessments are conducted to provide feedback in support of Army equipping and fielding decisions. REF capabilities routinely serve to as a bridge to specific ONS, JUONS, and JEONS gaps to meet urgent operational requirements.

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603747A / <i>Soldier Support and Survivability</i>	Project (Number/Name) C08 / <i>Rapid Equipping Force</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				R-1 Program Element (Number/Name)				Project (Number/Name)							
2040 / 4				PE 0603747A / Soldier Support and Survivability				C08 / Rapid Equipping Force							
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
Dismounted Improvised Explosive Device (IED) Defeat	C/FFP	Various : Various	1.916	0.444		0.213		0.220		0.044		0.264	Continuing	Continuing	Continuing
Dismounted Operations Support	C/FFP	Various : Various	2.055	1.113		1.432		1.845		0.373		2.218	Continuing	Continuing	Continuing
Intelligence, Surveillance, and Reconnaissance (ISR) Shortfalls in Environmentally Inhospitable OEs	C/FFP	Various : Various	3.808	0.907		0.554		0.248		0.050		0.298	Continuing	Continuing	Continuing
Small Combat Outpost (COP) / Patrol Base (PB) Force Protection and Sustainment	C/FFP	Various : Various	3.738	-		-		-		-		-	Continuing	Continuing	Continuing
Other-REF RIPL Priorities (5-10)	C/FFP	Various : Various	8.778	-		-		-		-		-	Continuing	Continuing	-
Other	C/FFP	Various : Various	0.000	0.796		1.176		1.763		0.356		2.119	-	4.091	-
Base: Various Projects-Protect the Force in Counter Insurgency	C/FFP	Various : Various	11.841	-		-		-		-		-	-	11.841	-
Small Combat Outpost (COP)/Patrol Base (PB) Sustainment	C/FFP	Various : Various	0.000	0.648		0.384		0.110		0.022		0.132	-	1.164	-
Base: Various Projects-Enhance Intelligence Surveillance Recon	C/FFP	Various : Various	9.009	-		-		-		-		-	-	9.009	-
Small Combat Outpost (COP)/Patrol Base (PB) Force Protection	C/FFP	Various : Various	0.000	0.870		0.605		0.716		0.144		0.860	-	2.335	-
Dismounted Blue Force Tracking and Mission Command	C/FFP	Various : Various	0.000	0.222		0.153		0.055		0.011		0.066	-	0.441	-

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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 / 4				PE 0603747A / Soldier Support and Survivability				C08 / Rapid Equipping Force							
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: Various Projects-Logistics/Medical in Counterinsurgency Ops	C/FFP	Various : Various	1.639	-		-		-		-		-	-	1.639	-
Base: Various Projects-Timeliness of Analysis and Information Dissemination	C/FFP	Various : Various	6.961	-		-		-		-		-	-	6.961	-
Congressional Add-Squad Mission Support System (SMSS)	C/FFP	Various : Various	1.600	-		-		-		-		-	-	1.600	-
SSTR/Economic Assumptions/FFRDC and SBIR	C/FFP	Various : Various	1.090	-		-		-		-		-	-	1.090	-
OCO: Rapid Equipping Force	C/FFP	Various : Various	19.190	-		-		-		-		-	-	19.190	-
Subtotal			71.625	5.000		4.517		4.957		1.000		5.957	-	-	-
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
ATEC (REF Integrated Priority List 1-10)	C/FFP	Various : Various	9.844	1.500		-		-		-		-	Continuing	Continuing	Continuing
ATEC (REF Integrated Priority List 1-7)	C/FFP	Various : Various	0.000	-		1.000		1.000		0.500		1.500	-	2.500	-
Subtotal			9.844	1.500		1.000		1.000		0.500		1.500	-	-	-
Project Cost Totals			81.469	6.500		5.517		5.957		1.500		7.457	-	-	-
Remarks															

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603747A / <i>Soldier Support and Survivability</i>	Project (Number/Name) C08 / <i>Rapid Equipping Force</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
n/a																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603747A / <i>Soldier Support and Survivability</i>	Project (Number/Name) C08 / <i>Rapid Equipping Force</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
n/a	1	2016	4	2017

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 4					R-1 Program Element (Number/Name) PE 0603747A / <i>Soldier Support and Survivability</i>				Project (Number/Name) EL1 / <i>Army Field Feeding 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
EL1: <i>Army Field Feeding Programs</i>	-	-	-	0.280	-	0.280	1.974	0.452	-	0.509	-	3.215
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

2016 shall be the first funded year for the Army Field Feeding Programs Element.

A. Mission Description and Budget Item Justification

This project provides for the advanced component development and prototyping of Army food and combat feeding equipment designed to reduce the logistics burden and Operation and Support (O&S) costs of subsistence support to service personnel. Project supports development of rapidly deployable field food service equipment in coordination with ration development efforts. Project conducts demonstration and validation of improved subsistence support items used to enhance soldier effectiveness and quality of life in the Army and the other military Services, as coordinated with the Department of Defense (DoD) Food Research, Development, Test, Evaluation and Engineering Program. This project develops critical enablers that support the Joint Future Force Capabilities and the Joint expeditionary mindset by maintaining readiness through fielding and integrating new equipment. This equipment enhances the field soldier's well-being and provides the soldier with usable equipment, in addition to reducing sustainment requirements, related Combat Support/Combat Service Support (CS/CSS) demands on lift, combat zone footprint, and costs for logistical support.

This PE/Project supports Field Feeding programs for the Army.

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

	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: Battlefield Kitchen (BK) technology development effort	-	-	0.280	-	0.280
Description: Provide replacement of the obsolete Mobile Kitchen Trailer (MKT) system. The BK shall replace the MKT with a kitchen that provides fuel efficient, thermally controlled, closed combustion appliances within an environmentally controlled workspace. The BK shall provide rations for up to 300 Soldiers within 4 hours of setup. The BK provides refrigeration, running water and a heated serving line using the same off-road prime mover as the MKT as well as transportability by rail, sea, fixed and rotary wing aircraft.					
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 / 4	R-1 Program Element (Number/Name) PE 0603747A / <i>Soldier Support and Survivability</i>	Project (Number/Name) EL1 / <i>Army Field Feeding Programs</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Perform evaluation of appliances integrated with Jet Propellant 8 (JP-8) fired burners developed in the Science and Technology (S&T) phase as culmination of technology transfer agreement. Prepare Milestone B documentation.					
Accomplishments/Planned Programs Subtotals	-	-	0.280	-	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
• RDT&E 654713.548: <i>Military Subsistence System</i>	1.874	3.034	1.430	-	1.430	0.961	0.550	0.652	1.319	Continuing	Continuing
• RDT&E 654713.EL2: <i>Army Field Feeding Equipment</i>	-	-	0.333	-	0.333	1.505	2.058	1.778	1.138	Continuing	Continuing
• RDT&E 643747.610: <i>Food Adv Dev</i>	5.013	3.480	0.021	-	0.021	5.598	6.803	5.043	4.713	Continuing	Continuing
• OPA M65806: <i>Assault Kitchen, Field Feeding</i>	0.423	4.889	3.632	-	3.632	5.167	4.660	4.165	4.605	Continuing	Continuing

Remarks

D. Acquisition Strategy

Project development will transition to System Development & Demonstration and into production after thorough testing.

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army	Date: February 2015
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Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603747A / <i>Soldier Support and Survivability</i>	Project (Number/Name) EL1 / <i>Army Field Feeding Programs</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 Support	Various	PM Force Sustainment : Natick, MA	0.000	-		-		0.150		-		0.150	-	0.150	-
Subtotal			0.000	-		-		0.150		-		0.150	-	0.150	-

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			
Battlefield Kitchen	Various	DTC/AEC PM-FSS, : Natick Ma	0.000	-		-		0.130	Oct 2015	-		0.130	Continuing	Continuing	-
Subtotal			0.000	-		-		0.130		-		0.130	-	-	-

	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 / 4	R-1 Program Element (Number/Name) PE 0603747A / <i>Soldier Support and Survivability</i>	Project (Number/Name) EL1 / <i>Army Field Feeding Programs</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
Conduct advanced component development and demonstration for th BK																												
(1) Complete Milestone B and transition Battlefield Kitchen to EMD																												
Award advanced component development contract for DESERT																												
Conduct advanced component development and demonstration for DESE																												
(2) Complete Milestone B and transition DESERT to EMD																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603747A / <i>Soldier Support and Survivability</i>	Project (Number/Name) EL1 / <i>Army Field Feeding Programs</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Conduct advanced component development and demonstration for th BK	1	2016	4	2017
Complete Milestone B and transition Battlefield Kitchen to EMD	1	2017	1	2017
Award advanced component development contract for DESERT	1	2018	1	2018
Conduct advanced component development and demonstration for DESERT	2	2018	4	2018
Complete Milestone B and transition DESERT to EMD	1	2019	1	2019

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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 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 0603766A / <i>Tactical Electronic Surveillance System - Adv 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	-	10.390	8.953	13.472	-	13.472	16.963	20.952	21.348	21.749	Continuing	Continuing
907: <i>Tactical Exploitation Of National Capabilities-MIP</i>	-	10.390	8.953	13.472	-	13.472	16.963	20.952	21.348	21.749	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Tactical Exploitation of National Capabilities (TENCAP) program serves as the Army's centralized lead to perform National Intelligence cross-agency engineering to evaluate, enhance, prototype, and transition Intelligence, Surveillance, and Reconnaissance (ISR) technologies/capabilities developed by Science and Technology (S&T) and other activities across the National Intelligence Community (IC) into Army systems and architectures. TENCAP (1) ensures continued access to current National and Theater sensors and supporting tactical architectures; and (2) exploits new developments that focus on improving the analysis and tasking, collection, processing, exploitation, dissemination and feedback (TCPEDF) of intelligence data. This includes efforts to: (1) shorten targeting timelines down to Platoon level; (2) enhance target identification; (3) provide better target location (accuracy); (4) provide continued coverage of a target; and (5) develop in-theater analytic tools to enable data exploitation in near-real-time support to contingency operations.

B. Program Change Summary (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	6.890	8.953	8.938	-	8.938
Current President's Budget	10.390	8.953	13.472	-	13.472
Total Adjustments	3.500	-	4.534	-	4.534
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	3.500	-	4.534	-	4.534

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 4					R-1 Program Element (Number/Name) PE 0603766A / <i>Tactical Electronic Surveillance System - Adv Dev</i>				Project (Number/Name) 907 / <i>Tactical Exploitation Of National Capabilities-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
907: <i>Tactical Exploitation Of National Capabilities-MIP</i>	-	10.390	8.953	13.472	-	13.472	16.963	20.952	21.348	21.749	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

0603766A - Tactical Electronic Surveillance System program element develops advanced prototypes and capabilities to meet Army intelligence and operational requirements while protecting Army equity and ensuring continued interoperability through changes and improvements in the National Intelligence Community (IC) systems and architectures.

A. Mission Description and Budget Item Justification

The Tactical Exploitation of National Capabilities (TENCAP) program serves as the Army's centralized lead to perform National Intelligence cross-agency engineering to evaluate, enhance, prototype, and transition Intelligence, Surveillance and Reconnaissance (ISR) technologies/capabilities developed by Science and Technology (S&T) and other activities across the National Intelligence Community (IC) into Army systems and architectures. TENCAP (1) ensures continued access to current National and Theater sensors and supporting tactical architectures; and (2) exploits new developments that focus on improving the analysis and tasking, collection, processing, exploitation, dissemination and feedback (TCPEDF) of intelligence data. This includes efforts to: (1) shorten targeting timelines down to Platoon level; (2) enhance target identification; (3) provide better target location (accuracy); (4) provide continued coverage of a target; and (5) develop in-theater analytic tools to enable data exploitation in near-real-time support to contingency operations.

FY2016 Base funding in the amount of \$13.472 million provides for: (1) engineering and collaborative development on multiple validated National Intelligence Community (IC) advanced developments to ensure continuous Army interoperability with those IC assets and architectures; (2) advanced development of more effective intelligence collection, processing, exploitation and dissemination (PED); and (3) advanced development of sensor capabilities for Air Vigilance (AV) Army Program of Record.

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

	FY 2014	FY 2015	FY 2016
Title: TENCAP Cross-agency Core Engineering activities	6.370	8.453	8.953
Description: Collaborate, develop and exploit emerging multi-intelligence and Space-based technologies to satisfy/accelerate Army Intelligence, Surveillance, Reconnaissance (ISR), Battle Command and Force Protection requirements.			
FY 2014 Accomplishments: Ensure Army requirements in National developments; Ensure Army continued access to sensors and Space-based capabilities; Monitor emerging technologies and systems; Continue to develop and centrally manage the theater net-centric geolocation (TNG)			

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015		
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603766A / <i>Tactical Electronic Surveillance System - Adv Dev</i>	Project (Number/Name) 907 / <i>Tactical Exploitation Of National Capabilities-MIP</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2014	FY 2015	FY 2016
capabilities; Exploit advances in commercial imagery and specific emitter identification technologies; Develop prototypes that improve Army intelligence products. FY 2015 Plans: Ensure Army requirements in National developments; Ensure Army continued access to sensors and Space-based capabilities; Monitor emerging technologies and systems; Exploit advances in commercial imagery and specific emitter identification technologies; Develop prototypes that improve Army intelligence products. FY 2016 Plans: Ensure Army requirements in National developments; Ensure Army continued access to sensors and Space-based capabilities; Monitor emerging technologies and systems; Exploit advances in commercial imagery and signal technologies; Develop prototypes that improve Army intelligence products.				
Title: Air Vigilance Description: Enhanced intelligence, force protection, and indications and warning capability initiated under Army TENCAP program. FY 2014 Accomplishments: Advanced sensor development and enhancements for Air Vigilance (AV) Army Program of Record ingest and continued effectiveness. FY 2015 Plans: Advanced sensor development and enhancements for Air Vigilance (AV) Army Program of Record ingest and continued effectiveness. FY 2016 Plans: Advanced sensor development and enhancements for Air Vigilance (AV) Army Program of Record ingest and continued effectiveness.		0.520	0.500	0.515
Title: Advanced Miniaturized Data Acquisition System(AMDAS)/ AMDAS Dissemination Vehicle (ADV) Description: Advanced engineering efforts to ensure continued interoperability and effectiveness of Army Corp level TENCAP subsystems that provide national data to the tactical warfighter via classified system engineering with intelligence community partners FY 2014 Accomplishments:		3.500	-	4.004

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603766A / <i>Tactical Electronic Surveillance System - Adv Dev</i>	Project (Number/Name) 907 / <i>Tactical Exploitation Of National Capabilities-MIP</i>
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016
AMDAS/ADV: Advanced sensor development and prototyping of TENCAP subsystems to ensure alignment with national architecture enhancements as the National Technical Means (NTM) space-based capabilities progress			
FY 2016 Plans: AMDAS/ADV: Advanced sensor development and prototyping of TENCAP subsystems to ensure alignment with national architecture enhancements as the National Technical Means (NTM) space-based capabilities progress			
Accomplishments/Planned Programs Subtotals	10.390	8.953	13.472

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	Total Cost
• 0605766A RDTE: <i>National Integration To Tactical Systems (MIP), 0605766A</i>	21.132	15.212	10.599	-	10.599	8.970	7.088	8.235	7.216	Continuing	Continuing
• W60001 OPA: <i>Air Vigilance (AV), OPA2 (W60001)</i>	-	7.000	8.224	-	8.224	0.739	1.526	2.485	2.533	Continuing	Continuing

Remarks

D. Acquisition Strategy

The Army Tactical Exploitation of National Capabilities (TENCAP) mission is a Congressionally mandated and chartered enduring requirement to leverage National intelligence capabilities useful to the tactical Army. The Army TENCAP acquisition strategy is driven by an annual TENCAP General Officer Steering Group (TGOSG), co-chaired by the Army G2; Army G8; and the Military Deputy to the Assistant Secretary of the Army for Acquisition, Logistics, and Technology [ASA(ALT)]; and includes representatives from the Army G3; Army G6; Army Training and Doctrine Command (TRADOC); and the Program Executive Office for Intelligence, Electronic Warfare and Sensors (PEO IEW&S). The TGOSG reviews, validates, prioritizes, and guides Army TENCAP efforts, according to Army and Defense strategy. Based on this TGOSG guidance, Army TENCAP invests BA 6.4 RDTE in Intelligence Community (IC) developments during the more cost-effective advanced development phase to ensure Army requirements are met with minimal redundancy. Army TENCAP then uses BA 6.5 RDTE to manage the transition of these advanced development efforts through system development and integration into Army Programs of Record (POR). This strategy ensures these leveraged investments remain viable through multiple budget cycles, significantly increasing successful transition to recipient Army POR. With acquisition discipline and oversight provided by PEO IEW&S, Army TENCAP executes the TGOSG approved efforts through use of multiple contracts and agreements with the military, National agencies, Labs, Industry Partners and Academia for the full duration required to complete development and transition these National capabilities into enduring Army programs.

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 / 4				PE 0603766A / Tactical Electronic Surveillance System - Adv Dev				907 / Tactical Exploitation Of National Capabilities-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	
Intelligence Engineers (SETA)	C/FFP	TASC, Inc. : Alexandria, VA	4.801	3.041	Dec 2013	-		-		-		-	Continuing	Continuing	Continuing	
Intelligence Engineers (SETA)	C/CPFF	TBD : TBD	0.000	-		3.011	Dec 2014	3.563	Dec 2015	-		3.563	Continuing	Continuing	Continuing	
Intelligence Engineers(Matrix Gov)	MIPR	AGC : Alexandria, VA	1.820	0.950	Dec 2013	1.005	Nov 2014	1.028	Nov 2015	-		1.028	Continuing	Continuing	Continuing	
Subtotal			6.621	3.991		4.016		4.591		-		4.591	-	-	-	
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	
TENCAP Core (Focus) Areas	Various	Multiple : Multiple	0.000	-		1.787	Nov 2014	1.130	Dec 2015	-		1.130	Continuing	Continuing	-	
Air Vigilance	MIPR	Classified : MIPR	1.928	0.400	Dec 2013	0.400	Nov 2014	0.515	Nov 2015	-		0.515	Continuing	Continuing	Continuing	
AMDAS/ADV	MIPR	Classified : MIPR	0.000	3.500	Sep 2014	-		4.004	Dec 2015	-		4.004	Continuing	Continuing	Continuing	
Subtotal			1.928	3.900		2.187		5.649		-		5.649	-	-	-	
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	
Prgm Mgmt-Dir Gov,travel,etc.	Allot	Army TENCAP : Alexandria, VA	4.888	1.611	Oct 2013	1.850	Oct 2014	2.156	Oct 2014	-		2.156	Continuing	Continuing	Continuing	
Secured Facilities	MIPR	Army Geospatial : Ft. Belvoir, VA	0.000	0.768	Dec 2013	0.800	Dec 2014	0.656	Nov 2014	-		0.656	Continuing	Continuing	Continuing	
Subtotal			4.888	2.379		2.650		2.812		-		2.812	-	-	-	

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army											Date: February 2015				
Appropriation/Budget Activity 2040 / 4				R-1 Program Element (Number/Name) PE 0603766A / <i>Tactical Electronic Surveillance System - Adv Dev</i>				Project (Number/Name) 907 / <i>Tactical Exploitation Of National Capabilities-MIP</i>							
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
Lab Tests, Exercises, Simulations	MIPR	Multiple : Multiple	0.280	0.120	Dec 2013	0.100	Dec 2014	0.420	Jan 2015	-		0.420	Continuing	Continuing	Continuing
Subtotal			0.280	0.120		0.100		0.420		-		0.420	-	-	-
Project Cost Totals			13.717	10.390		8.953		13.472		-		13.472	-	-	-

Remarks

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603766A / <i>Tactical Electronic Surveillance System - Adv Dev</i>	Project (Number/Name) 907 / <i>Tactical Exploitation Of National Capabilities-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
CORE Cross-Agency Advanced Development and Engineering	Development with Nat Intel Community																											
(1) TENCAP General Officer Steering Group (TGOSG) - annual - guides					▲ 1																							
(2) TENCAP General Officer Steering Group (TGOSG) - annual - guides					▲ 2																							
(3) TENCAP General Officer Steering Group (TGOSG) - annual - guides					▲ 3																							
(4) TENCAP General Officer Steering Group (TGOSG) - annual - guides					▲ 4																							
(5) TENCAP General Officer Steering Group (TGOSG) - annual - guides					▲ 5																							
(6) TENCAP General Officer Steering Group (TGOSG) - annual - guides					▲ 6																							
AMDAS/ADV Advanced Development and Engineering																												
Air Vigilance Advanced Development and System prototype efforts																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603766A / <i>Tactical Electronic Surveillance System - Adv Dev</i>	Project (Number/Name) 907 / <i>Tactical Exploitation Of National Capabilities-MIP</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
CORE Cross-Agency Advanced Development and Engineering	4	2006	4	2020
TENCAP General Officer Steering Group (TGOSG) - annual - guides FY17-21 POM	4	2014	4	2014
TENCAP General Officer Steering Group (TGOSG) - annual - guides FY18-22 POM	4	2015	4	2015
TENCAP General Officer Steering Group (TGOSG) - annual - guides FY19-23 POM	4	2016	4	2016
TENCAP General Officer Steering Group (TGOSG) - annual - guides FY20-24 POM	4	2017	4	2017
TENCAP General Officer Steering Group (TGOSG) - annual - guides FY21-25 POM	4	2018	4	2018
TENCAP General Officer Steering Group (TGOSG) - annual - guides FY22-26 POM	4	2019	4	2019
AMDAS/ADV Advanced Development and Engineering	4	2014	1	2023
Air Vigilance Advanced Development and System prototype efforts	3	2013	1	2023

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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 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 0603774A / <i>Night Vision Systems Advanced Development</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	-	8.760	3.050	7.292	-	7.292	9.152	5.626	4.908	6.949	Continuing	Continuing
VT7: <i>Soldier Maneuver Sensors - Adv Dev</i>	-	8.760	3.050	7.292	-	7.292	9.152	5.626	4.908	6.949	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program element focuses on efforts to evaluate and integrate technologies and representative prototype systems that facilitate the development of Soldier-borne sensor devices transitioning from the laboratory to operational use. Efforts focus on proving out commonality across as broad a spectrum of users as possible to provide enhanced Soldier products, giving them superiority on the battlefield.

Project VT7 (Soldier Maneuver Sensors-Advanced Development): This project supports efforts to evaluate and integrate technologies and representative prototype systems for the development of Soldier-borne sensor devices, transitioning from the Science and Technology (S&T) arena to operational use. Efforts focus on providing enhanced products to give Soldiers superiority on the battlefield by providing the capability to detect enemy snipers using precise target information to mitigate operational risk before sniper fire occurs. This project integrates higher resolution thermal focal plane arrays, integrated ballistic solutions to auto-adjust reticles for range, wireless technology with weapon sights, improved range, performance, and capability, while decreasing system size and weight. These integration efforts enhance Soldier situational awareness, lethality, survivability, mobility, and comfort in combat and training environments.

B. Program Change Summary (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	9.061	3.052	5.181	-	5.181
Current President's Budget	8.760	3.050	7.292	-	7.292
Total Adjustments	-0.301	-0.002	2.111	-	2.111
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustments 1	-0.301	-0.002	2.111	-	2.111

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 4					R-1 Program Element (Number/Name) PE 0603774A / <i>Night Vision Systems Advanced Development</i>				Project (Number/Name) VT7 / <i>Soldier Maneuver Sensors - Adv Dev</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
VT7: <i>Soldier Maneuver Sensors - Adv Dev</i>	-	8.760	3.050	7.292	-	7.292	9.152	5.626	4.908	6.949	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project supports efforts to evaluate and integrate technologies and representative prototype systems for the development of Soldier-borne sensor devices, transitioning from the Science and Technology (S&T) arena to operational use. Efforts focus on providing enhanced products to give Soldiers superiority on the battlefield by providing the capability to detect enemy snipers using precise target information to mitigate operational risk before sniper fire occurs. This project integrates higher resolution thermal focal plane arrays, integrated ballistic solutions to auto-adjust reticles for range, wireless technology with weapon sights, improved range, performance, and capability, while decreasing system size and weight. These integration efforts enhance Soldier situational awareness, lethality, survivability, mobility, and comfort in combat and training environments.

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

	FY 2014	FY 2015	FY 2016
Title: Family of Weapon Sights (FWS)	7.660	1.230	3.616
<p>Description: FWS is a family of weapon sights that enable combat forces to acquire and engage targets with small arms and to conduct surveillance and Enhanced Target Engagement under day/night obscuration, no-light, and adverse weather conditions. The family utilizes advancements in thermal and low light level sensor to produce Individual (I), Crew-Served (CS), and Sniper (S) weapon sights operable in-line with a day optic or in stand-alone mode. This project integrates a smaller pixel focal plane array in multiple large format sizes to improve sensitivity, clarity, and range, while simultaneously reducing the size, weight and power consumption of both the Crew-Served and Sniper variants. The FWS-I variant is a weapon mounted long-wave infrared sensor that enables Soldiers to fire quickly and accurately from any carry position and with significantly reduced exposure to enemy fire by providing a wireless zeroed weapon aimpoint in the Soldier's goggle. Leveraging the success of the Individual variant development, the FWS-CS variant operates as the primary sight; it includes a wireless Helmet Mount Display (HMD) and provides the Soldier, with input from a laser range device, a more accurate aimpoint that adjust automatically for range, ammunition characteristics, and vertical angle. The FWS-S variant will provide Snipers with a large format high-definition display enabling forces to acquire and engage targets faster with small arms at longer ranges.</p> <p>FY 2014 Accomplishments: Continue development of FWS-CS including integration of 12 micron thermal focal plane arrays, integrated ballistic solutions for auto-adjusting reticles, wireless technology, and HMDs resulting in demonstration of these technologies at an Early User Assessment (EUA)</p> <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 / 4	R-1 Program Element (Number/Name) PE 0603774A / <i>Night Vision Systems Advanced Development</i>	Project (Number/Name) VT7 / <i>Soldier Maneuver Sensors - Adv Dev</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2014	FY 2015	FY 2016
Continue Technology Maturation Risk Reduction of the FWS-CS. Continue Technology Maturation Risk Reduction of the FWS-S to integrate sensor and system technologies into a sight that can be clipped onto high magnification sniper day sights and provide increased identification and engagement ranges. FY 2016 Plans: Complete Technology Maturation Risk Reduction of the FWS-CS and FWS-S prototypes. Continue sensor development efforts for P3I of all FWS variants in support of the Fused Vision Mobility Device (FVMD) and initiate the development of digital low-light technologies with the potential to replace analog tubes for night vision.				
Title: Fused Vision Mobility Device Description: The FVMD is the next generation night vision goggle that will reduce the Soldier burden by allowing them to keep hands on their weapons. The FVMD will provide automatic adjustment of imagery and matched sensor Fields of View. It will reduce or eliminate the need to adjust focus and will allow for the transmission of fused imagery throughout the battlefield. FY 2016 Plans: FY16 Description: Post the Materiel Development Decision in 2Q FY16, initiate pre-MS A activities to include the Analysis of Alternatives.		-	-	0.636
Title: Pre-Shot Threat Detection (PTD) Description: PTD provides dismounted units, at the squad level, with pre-shot counter sniper-counter shooter-counter surveillance capabilities. Detecting enemy weapon and surveillance optics increases the dismounted leader's situational awareness/understanding (SA/SU) in complex environments. The objective of PTD is to provide pre-shot threat detection and increase survivability and lethality for dismounted Soldiers through battle systems integration. FY 2014 Accomplishments: Complete Analysis of Alternatives. FY 2015 Plans: Support completion of Performance Specification, multiple contract awards to build technology demonstrators for Pre-Shot Threat Detection. FY 2016 Plans: Continue Technology Maturation Risk Reduction and begin component development. Continue with lab laser development. Begin EUA, with Soldiers, based on the acquisition approach.		1.100	1.820	3.040
Accomplishments/Planned Programs Subtotals		8.760	3.050	7.292

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603774A / <i>Night Vision Systems Advanced Development</i>	Project (Number/Name) VT7 / <i>Soldier Maneuver Sensors - Adv Dev</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
• Night Vision Systems -Eng Dev: <i>Night Vision Systems - Eng Dev (PE 604710 L67)</i>	10.951	15.249	20.440	-	20.440	20.070	19.851	24.549	28.793	Continuing	Continuing
• Helmet Mounted Enhanced Vision Devi: <i>Helmet Mounted Enhanced Vision Devices (HMEVD) (SSN K36400)</i>	109.548	134.365	97.968	-	97.968	133.853	125.149	76.822	91.465	Continuing	Continuing
• Thermal Weapon Sight (TWS): <i>Thermal Weapon Sight (TWS) (SSN K22900)</i>	10.074	2.000	-	-	-	-	-	-	-	-	12.074
• Family of Weapon Sights (FWS) - I: <i>Family of Weapon Sights - Individual (FWS-I) (SSN K22002)</i>	-	29.205	53.453	-	53.453	74.955	75.304	88.454	108.134	Continuing	Continuing
• Family of Weapon Sights (FWS) - CS: <i>Family of Weapon Sights - Crew Served (FWS-CS) (SSN K22003)</i>	-	-	-	-	-	-	35.943	61.502	75.975	Continuing	Continuing
• Family of Weapon Sights (FWS) - S: <i>Family of Weapon Sights - Sniper (FWS-S) (SSN K22004)</i>	-	-	-	-	-	-	10.558	15.620	26.471	Continuing	Continuing

Remarks

D. Acquisition Strategy

The various developmental programs in this project continue to exercise competitively awarded contracts using best value source selection procedures.

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 / 4	R-1 Program Element (Number/Name) PE 0603774A / <i>Night Vision Systems Advanced Development</i>	Project (Number/Name) VT7 / <i>Soldier Maneuver Sensors - Adv Dev</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			
Program Management	Allot	Various : Various	0.336	2.273	Jan 2014	0.331	Jan 2015	1.307	Oct 2015	-		1.307	Continuing	Continuing	-
Subtotal			0.336	2.273		0.331		1.307		-		1.307	-	-	-

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			
Family of Weapon Sights-Crew Served (FWS-CS)	Various	NVESD : FT BELVOIR, VA	7.591	-		-		1.020	Feb 2016	-		1.020	Continuing	Continuing	-
Family of Weapon Sights-Sniper (FWS-S)	MIPR	NVESD : FT BELVOIR, VA	0.000	5.300	Mar 2014	0.123	Jun 2015	0.630	Feb 2016	-		0.630	Continuing	Continuing	-
Fused Vision Mobility Device (FVMD)	MIPR	NVESD : FT BELVOIR, VA	0.000	-		-		0.636	Dec 2015	-		0.636	-	0.636	-
Pre-Shot Threat Detection (PTD)	MIPR	NVESD : FT BELVOIR, VA	0.500	0.809	Jan 2014	1.492	Apr 2015	1.625	Dec 2015	-		1.625	Continuing	Continuing	-
Subtotal			8.091	6.109		1.615		3.911		-		3.911	-	-	-

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	MIPR	NVESD : FT BELVOIR, VA	0.744	0.308	Feb 2014	0.404	Feb 2015	0.674	Dec 2015	-		0.674	Continuing	Continuing	-
Subtotal			0.744	0.308		0.404		0.674		-		0.674	-	-	-

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603774A / <i>Night Vision Systems Advanced Development</i>	Project (Number/Name) VT7 / <i>Soldier Maneuver Sensors - Adv Dev</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
FWS-I Technology Maturation Risk Reduction (TMRR)	TMRR																											
(1) FWS-I MS B	▲																											
FWS-CS Technology Maturation Risk Reduction (TMRR)	TMRR				TMRR																							
(2) FWS-CS MS B									▲																			
FWS-Sniper (S) Technology Maturation Risk Reduction (TMRR)	TMRR				TMRR																							
(3) FWS-S MS B									▲																			
(4) FVMD Materiel Development Decision (MDD)									▲																			
FVMD Analysis of Alternatives (AoA)									AoA																			
(5) FVMD MS A													▲															
FVMD Technology Maturation Risk Reduction (TMRR)													TMRR															
(6) FVMD MS B																	▲											
FVMD Engineering Manufacturing Development (EMD)																					EMD							
(7) PTD MS A																					▲							

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603774A / <i>Night Vision Systems Advanced Development</i>	Project (Number/Name) VT7 / <i>Soldier Maneuver Sensors - Adv Dev</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				
PTD Technology Maturation Risk Reduction (TMRR)									TMRR																							
(1) PTD MS B																	▲															
PTD Engineering Manufacturing Development (EMD)																					EMD											
(2) PTD MS C																									▲							
Sense Through The Wall (STTW) Technology Maturation Risk Reduc																					TMRR											

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603774A / <i>Night Vision Systems Advanced Development</i>	Project (Number/Name) VT7 / <i>Soldier Maneuver Sensors - Adv Dev</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
FWS-I Technology Maturation Risk Reduction (TMRR)	4	2011	3	2014
FWS-I MS B	3	2014	3	2014
FWS-CS Technology Maturation Risk Reduction (TMRR)	4	2011	2	2016
FWS-CS MS B	2	2016	2	2016
FWS-Sniper (S) Technology Maturation Risk Reduction (TMRR)	4	2011	2	2016
FWS-S MS B	2	2016	2	2016
FVMD Materiel Development Decision (MDD)	2	2016	2	2016
FVMD Analysis of Alternatives (AoA)	3	2016	2	2017
FVMD MS A	2	2017	2	2017
FVMD Technology Maturation Risk Reduction (TMRR)	2	2017	2	2019
FVMD MS B	3	2019	3	2019
FVMD Engineering Manufacturing Development (EMD)	3	2019	4	2020
PTD MS A	3	2015	3	2015
PTD Technology Maturation Risk Reduction (TMRR)	3	2015	2	2017
PTD MS B	2	2017	2	2017
PTD Engineering Manufacturing Development (EMD)	2	2017	3	2019
PTD MS C	4	2019	4	2019
Sense Through The Wall (STTW) Technology Maturation Risk Reduction (TMRR)	2	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: <i>Research, Development, Test & Evaluation, Army I BA 4: Advanced Component Development & Prototypes (ACD&P)</i>					R-1 Program Element (Number/Name) PE 0603779A / <i>Environmental Quality Technology - Dem/Val</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	-	2.544	7.826	8.813	-	8.813	9.120	8.468	9.589	9.342	Continuing	Continuing
035: <i>National Defense Cntr For Enviro Excellence</i>	-	2.127	2.578	2.776	-	2.776	4.208	4.029	3.671	3.743	Continuing	Continuing
04E: <i>Environmental Restoration Tech Validation</i>	-	0.417	-	-	-	-	-	0.308	-	-	Continuing	Continuing
E21: <i>POLLUTION PREVENTION TECHNOLOGY DEM/VAL</i>	-	-	5.248	6.037	-	6.037	4.912	4.131	5.918	5.599	Continuing	Continuing

Note

FY 2016 reduction attributed to realignment to other higher priority Army programs.

A. Mission Description and Budget Item Justification

There is a broad application potential for environmental quality technology (EQT) to be applied to multiple Army weapon systems and installations. However technology must be demonstrated and validated (total ownership cost and performance data identified) before potential users will consider exploiting it. This program element includes projects focused on validating the general military utility or cost reduction potential of technology when applied to different types of infrastructure, military equipment or techniques. It may include validations and proof-of-principle demonstrations in field exercises to evaluate upgrades or provide new operational capabilities. The validation of technologies will be in as realistic an operating environment as possible to assess performance or cost reduction potential. EQT demonstration/validation is systemic; i.e., applies to a class of systems (e.g., vehicles or aircraft) or to a Department of Army-wide, multiple site/installation problem (e.g., unexploded ordnance detection and discrimination). This program will address, and eventually resource, programs in each of the Army environmental quality technology pillars (military materials in the environment, sustainable ranges and lands, compliance, and pollution prevention). All work must be endorsed by potential users and supported by a state-of-the-art assessment (i.e., "technology is heading for user to implement").

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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 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 0603779A / <i>Environmental Quality Technology - Dem/Val</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	2.631	7.830	9.988	-	9.988
Current President's Budget	2.544	7.826	8.813	-	8.813
Total Adjustments	-0.087	-0.004	-1.175	-	-1.175
• Congressional General Reductions	-	-0.004			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.087	-			
• Adjustments to Budget Years	-	-	-1.175	-	-1.175

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 4					R-1 Program Element (Number/Name) PE 0603779A / <i>Environmental Quality Technology - Dem/Val</i>				Project (Number/Name) 035 / <i>National Defense Cntr For Enviro Excellence</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
035: <i>National Defense Cntr For Enviro Excellence</i>	-	2.127	2.578	2.776	-	2.776	4.208	4.029	3.671	3.743	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Not applicable for this item.

A. Mission Description and Budget Item Justification

The National Defense Center for Environmental Excellence (NDCEE) was established by Congress in 1990 with a directive to "serve as a national leadership organization to address high priority environmental problems for the Department of Defense (DoD), other government organizations, and the industrial community." The NDCEE Program is a national resource for developing and disseminating advanced environmental technologies. The NDCEE is used to demonstrate environmentally acceptable technology to industry; validate new technology prior to transferring that technology; and assist in the training of potential users as part of that technology transfer process. The NDCEE is a DoD resource for environmental quality management and technology validation. This program is managed by the Army on behalf of the Office of the Assistant Deputy Under Secretary of Defense for Environment. In May 2008, the program name was redesignated from the National Defense for Environmental Excellence to the National Defense Center for Energy and Environment to ensure that the Center's mission recognizes and addresses the strategic interdependence of energy and environmental technology requirements within an overall sustainability framework in support of our installations, weapons systems and war fighters. This name change also directly supports the DoD's proactive implementation of Executive Order 13423, "Strengthening Federal Environmental, Energy and Transportation Management."

Our broadly encompassing and growing mobile, personal and stationary advanced energy technology requirements include infrastructure, alternative and synthetic fuels, surety, renewables, storage, distribution, advanced power, micro-grids, transportation, systems integration and others. Further, to train as we fight, validated energy and environmental technologies need to be available and implemented at our installations. The NDCEE will continue to demonstrate, validate, and transfer these technologies supporting our integrated environment, safety, occupational health and energy objectives with full consideration of the triple bottom line of mission, environment and community.

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

	FY 2014	FY 2015	FY 2016
Title: Management and operations of the NDCEE by the prime contractor.	0.319	0.386	0.335
Description: Consists of the management and operation expenses required by the prime contractor to operate the NDCEE program.			
FY 2014 Accomplishments:			

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015		
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603779A / <i>Environmental Quality Technology - Dem/Val</i>	Project (Number/Name) 035 / <i>National Defense Cntr For Enviro Excellence</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2014	FY 2015	FY 2016
<p>Management and operation of the NDCEE by the prime contractor.</p> <p>FY 2015 Plans: Management and operation of the NDCEE by the prime contractor.</p> <p>FY 2016 Plans: Will consist of management and operation of the NDCEE by the prime contractor.</p>				
<p>Title: Industrial base integration, operation of the NDCEE environmental technology facility, and environmental information analysis.</p> <p>Description: Funds the industrial base integration, operation of the NDCEE environmental technology facility, and environmental information analysis by the NDCEE prime contractor.</p> <p>FY 2014 Accomplishments: Funded the industrial base integration, operation of the NDCEE environmental technology facility, and environmental information analysis.</p> <p>FY 2015 Plans: Funds industrial base integration, operation of the NDCEE environmental technology facility, and environmental information analysis.</p> <p>FY 2016 Plans: Will fund industrial base integration, operation of the NDCEE environmental technology facility, and environmental information analysis.</p>		0.242	0.293	0.268
<p>Title: Conduct demonstration/validation of environmentally acceptable technologies that enhance military readiness and reduce production, operating, and/or disposal costs.</p> <p>Description: Supports the demonstration and validation of environmental, safety, occupational health, and energy technologies that support the Army's Environmental Quality Technology mission. The objective is to determine if the technology is ready for implementation that will enhance military readiness and reduce production, operating, and/or disposal costs.</p> <p>FY 2014 Accomplishments: Conducted demonstration/validation of environmentally acceptable technologies that enhance military readiness and reduce production, operating, and/or disposal costs.</p> <p>FY 2015 Plans:</p>		0.818	0.991	1.441

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015		
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603779A / <i>Environmental Quality Technology - Dem/Val</i>	Project (Number/Name) 035 / <i>National Defense Cntr For Enviro Excellence</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2014	FY 2015	FY 2016
<p>Conduct demonstration/validation of environmentally acceptable technologies that enhance military readiness and reduce production, operating, and/or disposal costs. Technologies demonstrated consist of technologies selected by the NDCEE Technical Working Group and approved by the NDCEE Executive Advisory Board.</p> <p>FY 2016 Plans: Will conduct demonstration/validation of environmentally acceptable technologies that enhance military readiness and reduce production, operating, and/or disposal costs. Technologies to be demonstrated will consist of technologies selected by the NDCEE Technical Working Group and approved by the NDCEE Executive Advisory Board.</p>				
<p>Title: NDCEE Government program management during contract negotiations and during project formulation, execution, and technology transfer.</p> <p>Description: Funds the government program management office for the NDCEE. This consists of personnel assisting in contract negotiations and during project formulation, execution, and technology transfer.</p> <p>FY 2014 Accomplishments: Funded NDCEE Government program management during contract negotiations and execution and during project formulation, execution, and technology transfer.</p> <p>FY 2015 Plans: Fund NDCEE Government program management during contract negotiations and during project formulation, execution, and technology transfer.</p> <p>FY 2016 Plans: Will fund NDCEE Government program management during contract negotiations and during project formulation, execution, and technology transfer.</p>		0.748	0.908	0.732
Accomplishments/Planned Programs Subtotals		2.127	2.578	2.776
C. Other Program Funding Summary (\$ in Millions)				
N/A				
Remarks				
D. Acquisition Strategy				
The NDCEE is a national asset focused on DoD applications that include technology transfer to appropriate DoD organizations. The NDCEE fosters an outreach program to describe its products and capabilities that include publication of results and participation in professional meetings, symposia, conferences, and appropriate coordination with industry. The management strategy for the NDCEE centers on a DoD Executive Advisory Board (EAB) chaired by the DoD NDCEE Executive Agent				

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603779A / <i>Environmental Quality Technology - Dem/Val</i>	Project (Number/Name) 035 / <i>National Defense Cntr For Enviro Excellence</i>

on behalf of the Deputy Undersecretary of Defense for Installations and Environment and composed of senior DoD leadership to oversee NDCEE operations. The EAB is supported by the NDCEE Technical Working Group (TWG) that includes senior level staff members from each of the offices represented on the EAB. The NDCEE TWG coordinates all NDCEE activities, votes on proposed joint NDCEE projects, and reports back to the EAB Principals. Working at the tactical levels, three Focus Groups (environment, safety/occupational health, and energy) were established to develop joint projects. The Army's Environmental Quality Technology Program participating in the the Focus Groups also assists in the formulation of suggested environmental technology projects to be demonstrated within the NDCEE Program. The contracting strategy of the NDCEE is based on using an NDCEE Contracting Officer's Representative to validate all the contractual portions of the NDCEE and by technical monitors (TM) to oversee the technical aspects of each contracted task. A prime contractor operates NDCEE test facility to validate environmentally compatible technologies on a representative "shop floor". The NDCEE accounts for and conducts work for: (1) direct funded Army tasks; (2) reimbursable tasks from within DoD and from other Government agencies; and (3) when applicable Congressionally directed and funded tasks.

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 / 4				PE 0603779A / Environmental Quality Technology - Dem/Val				035 / National Defense Cntr For Enviro Excellence								
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	MIPR	RDECOM : Aberdeen, MD	22.713	0.748	Aug 2014	0.908	Aug 2015	0.732	Aug 2016	-		0.732	Continuing	Continuing	Continuing	
Subtotal			22.713	0.748		0.908		0.732		-		0.732	-	-	-	
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	
To Be Determined	TBD	To Be Determined : To Be Determined	8.797	-		-		-		-		-	Continuing	Continuing	Continuing	
Subtotal			8.797	-		-		-		-		-	-	-	-	
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	
Technical Data	Various	Concurrent Technologies Corporation (CTC) : Johnstown, PA	22.888	0.561	Mar 2014	0.679	Mar 2015	0.603	Mar 2016	-		0.603	Continuing	Continuing	Continuing	
Subtotal			22.888	0.561		0.679		0.603		-		0.603	-	-	-	
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	
Development Testing and Evaluation	Various	Concurrent Technologies Corp. : Johnstown, PA	25.622	0.818	Mar 2014	0.991	Mar 2015	1.441	Mar 2016	-		1.441	Continuing	Continuing	Continuing	
Subtotal			25.622	0.818		0.991		1.441		-		1.441	-	-	-	

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army								Date: February 2015			
Appropriation/Budget Activity 2040 / 4			R-1 Program Element (Number/Name) PE 0603779A / <i>Environmental Quality Technology - Dem/Val</i>				Project (Number/Name) 035 / <i>National Defense Cntr For Enviro Excellence</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	80.020	2.127	2.578		2.776	-		2.776	-	-	-

Remarks

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603779A / <i>Environmental Quality Technology - Dem/Val</i>	Project (Number/Name) 035 / <i>National Defense Cntr For Enviro Excellence</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
NDCEE Management and Operations (Enduring)																												
NDCEE Env, Safety, Occ Health, and Energy Technology Dem/Val (Enduring)																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603779A / <i>Environmental Quality Technology - Dem/Val</i>	Project (Number/Name) 035 / <i>National Defense Cntr For Enviro Excellence</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
NDCEE Management and Operations (Enduring)	1	2014	4	2021
NDCEE Env, Safety, Occ Health, and Energy Technology Dem/Val (Enduring)	1	2014	4	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 4					R-1 Program Element (Number/Name) PE 0603779A / <i>Environmental Quality Technology - Dem/Val</i>				Project (Number/Name) 04E / <i>Environmental Restoration Tech Validation</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
04E: <i>Environmental Restoration Tech Validation</i>	-	0.417	-	-	-	-	-	0.308	-	-	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Environmental Information Technology Management (EITM) includes support for Knowledge Based Corporate Reporting system (KBCRS) and Defense Environmental Network Information Exchange (DENIX). This new request for research, development, test and evaluation (RDTE) is to enhance KBCRS to a net-centric all services transactional system of record and reporting tool set. Also includes EITM upgrades to incorporate new security and other requirements.

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

	FY 2014	FY 2015	FY 2016
Title: Environmental Restoration Technology Validation	0.417	-	-
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 components.			
FY 2014 Accomplishments: Provided 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	0.417	-	-

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
• 0205412A: <i>Environmental Information Tech Modernization (EE6)</i>	-	0.280	-	-	-	-	-	-	-	-	0.280

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 / 4	R-1 Program Element (Number/Name) PE 0603779A / <i>Environmental Quality Technology - Dem/Val</i>	Project (Number/Name) 04E / <i>Environmental Restoration Tech Validation</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-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603779A / <i>Environmental Quality Technology - Dem/Val</i>	Project (Number/Name) 04E / <i>Environmental Restoration Tech Validation</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 2014)																												
System enhancements for KBCRS and DENIX systems (FY 2018)																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603779A / <i>Environmental Quality Technology - Dem/Val</i>	Project (Number/Name) 04E / <i>Environmental Restoration Tech Validation</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
System enhancements for KBCRS and DENIX systems (FY 2014)	4	2014	4	2015
System enhancements for KBCRS and DENIX systems (FY 2018)	4	2018	4	2019

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 4					R-1 Program Element (Number/Name) PE 0603779A / <i>Environmental Quality Technology - Dem/Val</i>				Project (Number/Name) E21 / <i>POLLUTION PREVENTION TECHNOLOGY DEM/VAL</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
E21: <i>POLLUTION PREVENTION TECHNOLOGY DEM/VAL</i>	-	-	5.248	6.037	-	6.037	4.912	4.131	5.918	5.599	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

New Starts FY 2016: Environmental quality technology demonstration and validation: SafePort, ESOH Impacts of Short-Term Noise Assessment Procedures, and Advanced Water Reuse Technology for Fixed Installations.

A. Mission Description and Budget Item Justification

This project supports Advanced Component Development and Prototypes of environmental quality technologies developed within the Army Environmental Quality Technology program. The project increases operational sustainment and warfighter training capabilities by reducing soldier and worker health risks and environmental quality impacts that would otherwise result in restoration needs and compliance enforcement actions against installations while simultaneously increasing performance and standardization across the Army. The project expedites technology transition from the laboratory to operational use by demonstrating new materials and processes to fulfill the performance requirements outlined in Material Specifications, Depot Maintenance Work Requirements, Technical Manuals, Drawings and other technical data. Materials and processes demonstrated under this project are inherently more sustainable than the baseline with respect to environmental, safety and occupational health concerns, thereby reducing life cycle costs incurred by acquisition, industrial base and installation end users.

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

	FY 2014	FY 2015	FY 2016
Title: Environmental quality technology demonstration and validation: Toxic Metal Reduction in Surface Finishing of Army Weapon Systems	-	4.318	2.638
Description: Increase readiness and environmental sustainability of Army depots and maintenance facilities by reducing or eliminating the use of hexavalent chromium, cadmium and associated toxic or carcinogenic materials used in surface finishing processes.			
FY 2015 Plans: Conduct large-scale demonstrations of sustainable alternatives for mixed metal pretreatment, aluminum anodizing and hard chrome electroplating processes.			
FY 2016 Plans: Will conduct large-scale demonstrations of sustainable alternatives for conversion coating, surface activation and copper/silver electroplating processes.			
Title: Environmental quality technology demonstration and validation: Airborne Lead Reduction from Army Weapon Systems	-	0.930	1.467

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015		
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603779A / <i>Environmental Quality Technology - Dem/Val</i>	Project (Number/Name) E21 / <i>POLLUTION PREVENTION TECHNOLOGY DEM/VAL</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2014	FY 2015	FY 2016
<p>Description: Sustain soldier training readiness and ensure compliance at Army installations by reducing or eliminating the use of lead compounds in rocket and missile propellants and primary explosives (primers/detonators/initiators).</p> <p>FY 2015 Plans: Demonstrate large-scale producibility of a promising lead-free primary explosive composition and demonstrate a lead-free stab detonator in a relevant end item configuration.</p> <p>FY 2016 Plans: Will qualify a promising lead-free primary explosive composition and will demonstrate a lead-free percussion primer in a relevant end item configuration.</p>				
<p>Title: Environmental quality technology demonstration and validation: SafePort</p> <p>Description: Demonstrate and validate rapid detection capability of the SafePort portable water analysis system for quantitation of lead, cadmium, and perchlorate as well as dispersed oil detection and pathogenic water organism detection in laboratory and field usage greatly reducing environmental compliance costs using verified techniques.</p> <p>FY 2016 Plans: Will fund the initial field demonstration and performance testing of perchlorate and heavy metal technologies along with data to evaluate comparative costs and compliance detection thresholds. Also will fund continuing field demonstrations and performance testing of perchlorate and heavy metal technologies along with data to evaluate comparative costs and compliance detection thresholds.</p>		-	-	1.062
<p>Title: Environmental quality technology demonstration and validation: ESOH Impacts of Short-Term Noise Assessment Procedures</p> <p>Description: Demonstrate and validate the technologies, including the underlying computational algorithms, for the impact of short-term noise assessment procedures on environmental footprint and Soldier readiness. When completed the program will: 1) have validated short-term noise assessment procedures, including uncertainty metrics and 2) have on-line, self-guided training modules for Sustainable Range Program range officers on performing and interpreting short-term noise assessment results.</p> <p>FY 2016 Plans: Incorporate community response blast noise metrics into all short-term noise assessment tools. Demonstration field studies will commence.</p>		-	-	0.429
<p>Title: Environmental quality technology demonstration and validation: Advanced Water Reuse Technology for Fixed Installations</p>		-	-	0.441

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603779A / <i>Environmental Quality Technology - Dem/Val</i>	Project (Number/Name) E21 / <i>POLLUTION PREVENTION TECHNOLOGY DEM/VAL</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016
<p>Description: Demonstrate and validate advanced water reuse technology for fixed installations and assess ESOH impacts. At the completion of this program, the following will be accomplished: 1) demonstration of energy efficient advanced water reuse technology at installations, 2) ESOH analysis of three water reuse technologies for installations including shower water recycling, distributed water reclamation, and centralized reclamation; 3) reports on best practices for permitting, design, and safe operation of advanced reuse technologies; and 4) marketing materials comparing quality of advanced reuse water to tap and bottled water to support technology adoption campaigns at installations and contingency bases.</p> <p>FY 2016 Plans: Analysis of toxicity and full suite of potential water contaminants (Disinfection By-Products, Pentachlorophenol, viruses, Total Organic Carbon) at Technology Enabled Capabilities Demonstration sites and at active Environmental Security Technology Certification Program demonstration sites; permitting of advanced water reuse technology demonstration; and contracting for a demonstration/validation prototype.</p>			
Accomplishments/Planned Programs Subtotals	-	5.248	6.037

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>
• 0605857A: <i>Pollution Prevention Tech Support (06I)</i>	-	0.272	0.272	-	0.272	0.436	0.533	0.391	0.514	Continuing	Continuing

Remarks

D. Acquisition Strategy
The project ultimately transitions successfully demonstrated environmental quality technologies to Army acquisition, industrial base and installation end users. As part of the Army's Environmental Quality Technology Program, all technology efforts address a valid Army Environmental Requirements and Technology Assessments (AERTA) requirement. The Army's Environmental Technology Integrated Product Team conducts a thorough assessment and makes funding recommendations to senior Army environmental leadership. Efforts approved by senior Army environmental leadership receive Advanced Component Development and Prototype funding to fully demonstrate and validate the technology for transition to end users for follow on implementation.

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 / 4				R-1 Program Element (Number/Name) PE 0603779A / <i>Environmental Quality Technology - Dem/Val</i>				Project (Number/Name) E21 / <i>POLLUTION PREVENTION TECHNOLOGY DEM/VAL</i>								
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	
Conduct Demonstrations	MIPR	Varies : Varies	0.000	-		5.248		6.037		-		6.037	Continuing	Continuing	Continuing	
Subtotal			0.000	-		5.248		6.037		-		6.037	-	-	-	
Project Cost Totals			0.000	-		5.248		6.037		-		6.037	-	-	-	
<u>Remarks</u>																

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603779A / <i>Environmental Quality Technology - Dem/Val</i>	Project (Number/Name) E21 / <i>POLLUTION PREVENTION TECHNOLOGY DEM/VAL</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
Toxic Metals Redution Demonstration/Validation																												
Airborne Lead Reduction Demonstration/Validation																												
SafePort Demonstration/Validation																												
ESOH Impacts of Short-Term Noise Assessment Procedures Demonstration																												
Advanced Water Reuse Technology for Fixed Installations																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603779A / <i>Environmental Quality Technology - Dem/Val</i>	Project (Number/Name) E21 / <i>POLLUTION PREVENTION TECHNOLOGY DEM/VAL</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Toxic Metals Redution Demonstration/Validation	1	2015	4	2021
Airborne Lead Reduction Demonstration/Validation	1	2015	4	2021
SafePort Demonstration/Validation	1	2016	4	2017
ESOH Impacts of Short-Term Noise Assessment Procedures Demonstration/Validation	1	2016	4	2019
Advanced Water Reuse Technology for Fixed Installations	1	2016	4	2019

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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 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 0603782A / <i>Warfighter Information Network-Tactical - DEM/VAL</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	-	118.256	-	-	-	-	-	-	-	-	-	118.256
367: <i>Win-T Increment 2 -Initial Networking</i>	-	1.064	-	-	-	-	-	-	-	-	-	1.064
372: <i>WIN-T Increment 3 - Full Networking</i>	-	117.192	-	-	-	-	-	-	-	-	-	117.192

Note
Inc 2 and Inc 3 efforts were realigned to new PEs in FY15 to reflect correct level of RDTE effort.

Inc 2 PE 0603782/367 was realigned to PE 0300349/EE7.
Inc 3 PE 0603782/372 was realigned to PE 0605350/EE8.

A. Mission Description and Budget Item Justification

The Defense Acquisition Executive (DAE), through the Nunn-McCurdy certification process, certified a restructured WIN-T program on June 5, 2007. The certification Acquisition Decision Memorandum (ADM) stated that the Army will restructure the WIN-T Major Defense Acquisition Program (MDAP) to absorb the former Joint Network Node (JNN) Network program. It further stated that the restructured program will consist of four Increments: Inc 1, Inc 2, Inc 3, and Inc 4.

WIN-T is key to the Army's Network Modernization program. The WIN-T program's focus is to provide tactical network capability that supports the Army's Capability Set fielding.

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	122.319	-	-	-	-
Current President's Budget	118.256	-	-	-	-
Total Adjustments	-4.063	-	-	-	-
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-4.063	-			

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 4					R-1 Program Element (Number/Name) PE 0603782A / Warfighter Information Network-Tactical - DEM/VAL				Project (Number/Name) 367 / 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
367: Win-T Increment 2 -Initial Networking	-	1.064	-	-	-	-	-	-	-	-	-	1.064
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

WIN-T Inc 2 effort was funded under PE 0603782 Project 367 through FY14. This effort is funded under PE 0300349 Project EE7 in FY15 and out.

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 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 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 information sharing between Inc 1b and Inc 2.

WIN-T Inc 3 mature NetOps technologies will be inserted into Increment 2 units.

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

	FY 2014	FY 2015	FY 2016
Title: Test and Evaluation	0.997	-	-
Description: Testing and Evaluation			
FY 2014 Accomplishments: WIN-T Inc 2 supported NIE 14.1 and NIE 14.2 tests.			
Title: Management Services	0.067	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603782A / <i>Warfighter Information Network-Tactical - DEM/VAL</i>	Project (Number/Name) 367 / <i>Win-T Increment 2 -Initial Networking</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016
Description: System Engineering and Program Management Support			
FY 2014 Accomplishments: Program Management support.			
Accomplishments/Planned Programs Subtotals	1.064	-	-

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: <i>Procurement</i>	364.438	361.709	504.463	-	504.463	523.513	617.337	627.618	630.365	-	3,629.443
• Inc 2 Spares: <i>Procurement Spares</i>	21.629	26.100	39.532	-	39.532	22.178	49.562	50.799	124.989	-	334.789
• RDTE Inc 2 PE 370349/ EE7: <i>RDTE PE 370349/EE7</i>	-	3.247	3.800	-	3.800	-	-	-	-	-	7.047
• OMA OCO Inc 2: <i>OMA OCO</i>	6.540	-	-	-	-	-	-	-	-	-	6.540

Remarks

D. Acquisition Strategy

The Defense Acquisition Executive (DAE), through the Nunn-McCurdy certification process, certified a restructured WIN-T program on June 5, 2007. The certification Acquisition Decision Memorandum (ADM) stated that the Army will restructure the WIN-T Major Defense Acquisition Program (MDAP) to absorb the former Joint Network Node (JNN) Network program. It further stated that the restructured program will consist of four Increments: Incs 1, 2, 3, and 4.

The ADM 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 SNEs) and Lot 5 training bases have been procured. Lot 4 SNEs and Lot 5 configuration items will be awarded in May 2015, following a successful Full Rate Production Decision.

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 (NIE) events.

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 / 4				PE 0603782A / Warfighter Information Network-Tactical - DEM/VAL				367 / Win-T Increment 2 -Initial Networking								
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	Various : Various	26.819	-		-		-		-		-	-	26.819	-	
Subtotal			26.819	-		-		-		-		-	-	26.819	-	
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	
Platform Integration	Various	Various : Various	19.641	-		-		-		-		-	-	19.641	-	
WIN-T Contract	Various	General Dynamics C4 Systems Inc : Taunton, MA	138.598	0.067		-		-		-		-	-	138.665	-	
Subtotal			158.239	0.067		-		-		-		-	-	158.306	-	
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	
Technical Engineering Services adn Research Studies	Various	General Dynamics C4 Systems Inc : Taunton, MA	7.086	-		-		-		-		-	-	7.086	-	
Subtotal			7.086	-		-		-		-		-	-	7.086	-	
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	Various	Various : Various	63.295	0.997		-		-		-		-	-	64.292	-	
Subtotal			63.295	0.997		-		-		-		-	-	64.292	-	

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army							Date: February 2015				
Appropriation/Budget Activity 2040 / 4			R-1 Program Element (Number/Name) PE 0603782A / <i>Warfighter Information Network-Tactical - DEM/VAL</i>				Project (Number/Name) 367 / <i>Win-T Increment 2 -Initial Networking</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	255.439	1.064	-		-	-	-	-	256.503	-	

Remarks

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603782A / Warfighter Information Network-Tactical - DEM/VAL	Project (Number/Name) 367 I 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																												
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 / 4	R-1 Program Element (Number/Name) PE 0603782A / Warfighter Information Network-Tactical - DEM/VAL	Project (Number/Name) 367 / 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				
(1) Delivery Order Award 4									DO (Lot 8)				▲ 1																			
(2) Delivery Order Award 5																					DO (Lot 9) ▲ 2											
(3) Contract Award & Delivery Order Award 6																					Contract Award & DO (Lot 10) ▲ 3											
(4) Delivery Order Award 7																									DO (Lot 11) ▲ 4							

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603782A / <i>Warfighter Information Network-Tactical - DEM/VAL</i>	Project (Number/Name) 367 / <i>Win-T Increment 2 -Initial Networking</i>

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
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-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 4					R-1 Program Element (Number/Name) PE 0603782A / <i>Warfighter Information Network-Tactical - DEM/VAL</i>				Project (Number/Name) 372 / <i>WIN-T Increment 3 - Full 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
372: <i>WIN-T Increment 3 - Full Networking</i>	-	117.192	-	-	-	-	-	-	-	-	-	117.192
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

WIN-T Inc 3 effort was funded under PE 0603782 Project 372 through FY14. This effort is funded under PE 0605350 Project EE8 in FY15 and out.

A. Mission Description and Budget Item Justification

Warfighter Information Network – Tactical (WIN-T) Increment (Inc) 3 develops the Network Operations (NetOps) software to meet the Army's Network Convergence goals. NetOps provides the monitoring, control and planning tools to ensure management of the voice, data and internet transport networks. The NetOps software will also provide Information Assurance and Network Centric Enterprise Services. This allows for seamless integration of the tactical network planning, management, monitoring, and defense for the Signal staff. These NetOps improvements simplify the management of the network and increase the automation of tools and reporting. The developed NetOps software enhancements will be provided as a technical insertion to WIN-T Incs 1 and 2.

Inc 3 also develops the enhanced Net Centric Waveform (NCW) version 10.x for increased throughput capability beyond line of sight (BLOS) satellite communication and the Highband Networking Waveform (HNW) version 3.0 for line of sight (LOS) communications. NCW version 10.x will support Army Strategic Command certification of the waveform for use on Wideband Global Satellites. HNW version 3.0 will be inserted into the Joint Tactical Networking Center Information Repository. Both NCW and HNW provide improved network capacity and robustness.

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

	FY 2014	FY 2015	FY 2016
Title: Product Development	89.867	-	-
Description: Inc 3 Engineering Manufacturing Development (EMD) continues development of Inc 3 system, hardware and software development, and prototype manufacturing of test assets for the Inc 3 system.			
FY 2014 Accomplishments: Completed NetOps Build 3.0 and Waveform Build. Start of NetOps Build 4.0 and HNW integration. Completes initial Condition Based Maintenance Plus (CBM+) effort. Starts further CBM+ integration with NetOps.			
Title: Support Cost	5.878	-	-
Description: Technical Engineering Services and Research Studies			
FY 2014 Accomplishments:			

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603782A / Warfighter Information Network-Tactical - DEM/VAL	Project (Number/Name) 372 / WIN-T Increment 3 - Full Networking

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016
Technical Engineering Services and Research Studies			
Title: Test and Evaluation Description: Testing and Evaluation FY 2014 Accomplishments: Increment 3 continued planning for testing of NetOps and HNW. NetOps build 3.0 was demonstrated at NIE 14.2 with initial capabilities of CBM+.	9.697	-	-
Title: Management Services Description: Provides System Engineering and Program Management Support. FY 2014 Accomplishments: Continued System Engineering and Program Management Support.	11.750	-	-
Accomplishments/Planned Programs Subtotals	117.192	-	-

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
• INC 3: PE 655350/EE8	-	113.155	39.700	-	39.700	-	-	-	-	-	152.855

Remarks

D. Acquisition Strategy

The Defense Acquisition Executive (DAE), through the Nunn-McCurdy certification process, certified a restructured WIN-T program on June 5, 2007. The certification Acquisition Decision Memorandum (ADM) stated that the Army will restructure the WIN-T Major Defense Acquisition Program (MDAP) to absorb the former Joint Network Node (JNN) Network program. It further stated that the restructured program will consist of four Increments: Incs 1, 2, 3, and 4.

An evolutionary acquisition strategy is being utilized to provide for the timely insertion of new technologies into Army communication systems by adhering to the basic principles of the DoD Modular Open Systems Approach (MOSA). This allows the Army to keep pace with changing commercial technology and maintain required interoperability with other joint, strategic and commercial standards-based networks. Applying integrated Network Operations (NetOps) capability, WIN-T provides the capability to manage, prioritize, and protect information. It ensures NetOps commonality with Joint, Allied, Coalition, Current Force, and Commercial voice and data networks.

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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 / 4	PE 0603782A / <i>Warfighter Information Network-Tactical - DEM/VAL</i>	372 / <i>WIN-T Increment 3 - Full Networking</i>

The program is presently in its Engineering, Manufacturing, and Development (EMD) phase. WIN-T Inc 3 technology is being tested and released over time and will be inserted into WIN-T Inc 1 and Inc 2.

The ADM dated 30 May 2014 directed the restructure of the Inc 3 program. Software development for NetOps Build 4/5 and NCW 10.x is to be completed in FY2015 and tested in FY2016. The ADM allowed for the development and demonstration of HNW 3.0. The program will also cease all efforts associated with development of Increment 3 unique hardware items.

An updated Acquisition Program Baseline (APB) was approved by the AAE on 15 Sep 14 and shows no Nunn-McCurdy risk due to the program quantity being zero. Likewise, the Program Acquisition Unit Cost/Average Procurement Unit Cost (PAUC/APUC) are no longer 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				R-1 Program Element (Number/Name)				Project (Number/Name)							
2040 / 4				PE 0603782A / Warfighter Information Network-Tactical - DEM/VAL				372 / WIN-T Increment 3 - Full Networking							
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	Various : Various	102.212	11.750		-		-		-		-	-	113.962	-
Subtotal			102.212	11.750		-		-		-		-	-	113.962	-
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
Inc 3 Engineering Manufacturing and Development	Various	General Dynamics C4 Systems Inc : Taunton, MA	898.087	89.867		-		-		-		-	-	987.954	-
Inc 3 Data Rights	Various	Harris GCSD : Melbourne, FL	4.417	-		-		-		-		-	-	4.417	-
Platform Integration	Various	Various : Various	45.114	-		-		-		-		-	-	45.114	-
Subtotal			947.618	89.867		-		-		-		-	-	1,037.485	-
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
Technical Engineering Services and Research Studies	Various	General Dynamics C4 Systems Inc : Taunton, MA	27.529	5.878		-		-		-		-	-	33.407	-
Subtotal			27.529	5.878		-		-		-		-	-	33.407	-
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	Various	Various : Various	8.480	9.697		-		-		-		-	-	18.177	-
Subtotal			8.480	9.697		-		-		-		-	-	18.177	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army							Date: February 2015				
Appropriation/Budget Activity 2040 / 4			R-1 Program Element (Number/Name) PE 0603782A / Warfighter Information Network-Tactical - DEM/VAL				Project (Number/Name) 372 / WIN-T Increment 3 - Full Networking				
	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	1,085.839	117.192	-		-	-	-	-	1,203.031	-	

Remarks

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603782A / <i>Warfighter Information Network-Tactical - DEM/VAL</i>	Project (Number/Name) 372 / <i>WIN-T Increment 3 - Full Networking</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
NCW 10.x CUT/SWIT	█				█																							
Build 3e (Patches)	█				█																							
HNW 3.0 CUT	█				█																							
NetOps Build 4/5	█				█				█																			
(1) Follow-On Engineering Manufacturing Development Contract Award	█				█																							
(2) Critical Design Review	█				█																							
HNW 3.0 SWIT	█				█																							
NCW 10.x Certification	█				█																							
CBM+	█				█																							
Build 4e (NCW NetOps)	█				█																							
CBM+ Demo at NIE 14.2	█				█																							
NCW DVT	█				█																							
(3) Revised APB	█				█																							

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603782A / <i>Warfighter Information Network-Tactical - DEM/VAL</i>	Project (Number/Name) 372 / <i>WIN-T Increment 3 - Full Networking</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
HNW Demo Prep	HNW Demo Prep				[Bar]																							
FQT 1					FQT 1																							
HNW FQT					HNW FQT																							
(1) Task Order 1					TO 1																							
NCW GDT					NCW GDT																							
(2) Task Order 2					TO 2																							
FQT 2					FQT 2																							
FQT 3									FQT 3																			
HNW Demo									HNW Demo																			
NIE 16.2 (NetOps/NCW)									NIE 16.2 (NetOps/NCW)																			

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603782A / Warfighter Information Network-Tactical - DEM/VAL	Project (Number/Name) 372 / WIN-T Increment 3 - Full Networking

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
NCW 10.x CUT/SWIT	4	2012	1	2014
Build 3e (Patches)	1	2013	2	2014
HNW 3.0 CUT	1	2014	1	2014
NetOps Build 4/5	1	2014	3	2016
Follow-On Engineering Manufacturing Development Contract Award	1	2014	1	2014
Critical Design Review	1	2014	1	2014
HNW 3.0 SWIT	1	2014	1	2015
NCW 10.x Certification	1	2014	3	2015
CBM+	2	2014	3	2014
Build 4e (NCW NetOps)	2	2014	2	2015
CBM+ Demo at NIE 14.2	3	2014	3	2014
NCW DVT	3	2014	4	2014
Revised APB	4	2014	4	2014
HNW Demo Prep	1	2015	2	2016
FQT 1	1	2015	1	2015
HNW FQT	1	2015	1	2015
Task Order 1	1	2015	1	2015
NCW GDT	3	2015	3	2015
Task Order 2	3	2015	3	2015
FQT 2	3	2015	3	2015
FQT 3	1	2016	1	2016
HNW Demo	2	2016	3	2016

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army			Date: February 2015	
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603782A / <i>Warfighter Information Network-Tactical - DEM/VAL</i>	Project (Number/Name) 372 / <i>WIN-T Increment 3 - Full Networking</i>		

Events	Start		End	
	Quarter	Year	Quarter	Year
NIE 16.2 (NetOps/NCW)	3	2016	3	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 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 0603790A / NATO Research and Development
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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	-	3.743	2.952	6.075	-	6.075	6.248	5.319	5.238	5.343	Continuing	Continuing
691: <i>NATO Rsch & Devel</i>	-	3.743	2.952	6.075	-	6.075	6.248	5.319	5.238	5.343	Continuing	Continuing

Note

Reduction attributed to realignment to other higher priority Army programs.

Additional FY16 funds will be used to persue cooperative projects that were postponed or not persue due to funding reductions in previous years such as the Coalition Wideband Networking Waveform Phase II, 5-Power-Net-centric Command and Control Interoperability projects. Land Warfare Concept Experimentation, projects to enhance information processing, exploitation, and dissemination capabilities, and multilateral cooperative projects in electronic warfare.

Technology Research and Development Projects (TRDP) moved under several other programs such as: Aviation Systems Technologies, Soldier Technologies, Missile and Rocket Technologies, Chem/Bio Technologies, and Weapons and Munitions Technologies.

Missile and Rocket technologies will be funded in FY16.

Soldier Technologies includes former Force Protection Projects amd TRDP.

A. Mission Description and Budget Item Justification

This program implements the provisions of Title 10 U.S. Code, Section 2350a, Cooperative Research and Development (R&D) Projects: Allied Countries. The objective is to improve, through the application of emerging technologies, the conventional defense capabilities of the United States and our cooperative partners, including the North Atlantic Treaty Organization (NATO), U.S. major non-NATO allies and Friendly Foreign countries. Through technology sharing and joint equipment development these projects help reduce U.S. acquisition costs and leverage important technologies for the Army Transformation and the development of the Future Combat system. Cooperative efforts also improve multinational force compatibility with potential coalition partners through the development and use of similar equipment and improved interfaces. The program focuses specifically on international cooperative technology demonstration, validation, and interoperability of Army weapon and command, control, communications and information (C3I) systems, including the NATO Defense Against Terrorism initiatives. Projects are implemented through international agreements with foreign partners that define scope, cost and work sharing arrangements, management, contracting, security, data protection and third party transfers. Funds are used to pay for only the U.S. work share that occurs in the United States at U.S. Government and U.S. contractor facilities.

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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 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 0603790A / <i>NATO Research and Development</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	3.872	2.954	6.593	-	6.593
Current President's Budget	3.743	2.952	6.075	-	6.075
Total Adjustments	-0.129	-0.002	-0.518	-	-0.518
• Congressional General Reductions	-	-0.002			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.129	-			
• Adjustments to Budget Years	-	-	-0.518	-	-0.518

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 4					R-1 Program Element (Number/Name) PE 0603790A / NATO Research and Development				Project (Number/Name) 691 / NATO Rsch & Devel			
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
691: NATO Rsch & Devel	-	3.743	2.952	6.075	-	6.075	6.248	5.319	5.238	5.343	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

New bullet for FY 2016 will include: Missile and Rocket Technologies. Communications Interoperability and Electronics Technologies is the result of the combination of Multi-National Network Enable Capabilities, Low Level Air Defense Interoperability, JTRS Combat Identification and Multilateral Interoperability Programs and Artillery Command and Control Interoperability. Soldier Technologies will replace former Force Protection Projects. Technology Research and Development Projects (TRDP) moved under several other programs such as: Aviation Systems Technologies, Soldier Technologies, Missile and Rocket Technologies, Chem/Bio Technologies, and Weapons and Munitions Technologies.

A. Mission Description and Budget Item Justification

This program implements the provisions of Title 10 U.S. Code, Section 2350a, Cooperative Research and Development (R&D) Projects: Allied Countries. The objective is to improve, through the application of emerging technologies, the conventional defense capabilities of the United States and our cooperative partners, including the North Atlantic Treaty Organization (NATO), U.S. major non-NATO allies and Friendly Foreign countries. Through technology sharing and joint equipment development these projects help reduce U.S. acquisition costs and leverage important technologies for the Army Transformation and the development of the Future Combat system. Cooperative efforts also improve multinational force compatibility with potential coalition partners through the development and use of similar equipment and improved interfaces. The program focuses specifically on international cooperative technology demonstration, validation, and interoperability of Army weapon and command, control, communications and information (C3I) systems, including the NATO Defense Against Terrorism initiatives. Projects are implemented through international agreements with foreign partners that define scope, cost and work sharing arrangements, management, contracting, security, data protection and third party transfers. Funds are used to pay for only the U.S. work share that occurs in the United States at U.S. Government and U.S. contractor facilities.

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

	FY 2014	FY 2015	FY 2016
Title: Scientific and Technology Enterprise Management	0.699	-	-
Description: Scientific and Technology Enterprise Management (STEM)/International Online (IOL) Development and Implementation NATO/International Cooperative R&D (AR 70-41) and International Acquisition (AR 70-1, AR 70-3)			
FY 2014 Accomplishments: The goal of this program was to expand worldwide allied standardization and interoperability through cooperative research and development (R&D) and technology sharing per SECDEF guidance and especially in support of the U.S. Army. This program funded the travel costs and administrative support (studies, analysis, interpretation, equipment, etc.) required to participate in internationally, such as the North Atlantic Treaty Organization (NATO) Army Armaments Group (NAAG), Defense Against			

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015		
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603790A / NATO Research and Development	Project (Number/Name) 691 / NATO Rsch & Devel		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2014	FY 2015	FY 2016
Terrorism (DAT) and to pursue new cooperative R&D initiatives and international cooperative agreements such as memoranda of understanding. This program also included: the United States' share of costs of the NATO Civil Budget, Chapter IX, which funds the NATO Industrial Advisory Group (NIAG) and the Special Fund for Cooperative Planning (U. S. Army is Executive Agent for this NATO bill); partially funded the Five Power Senior National Representatives, Army [SNR (A)], the Technical Cooperative Program, Bilateral SNR(A)s, and Army armaments working groups with many nations. Effective FY15, efforts in this area will move to Armaments Cooperation Enterprise Support.				
<p>Title: Armaments Cooperation Enterprise Support</p> <p>Description: Armaments Cooperation Enterprise Support/ International Online (IOL) Development and Implementation NATO/ International Cooperative R&D (AR 70-41) and International Acquisition (AR 70-1, AR 70-3). Prior to FY15, efforts in this area were covered under the area entitled Scientific and Technology Enterprise Management.</p> <p>FY 2015 Plans: The goal of this program is to expand worldwide allied standardization and interoperability through cooperative Research and Development (R&D) and technology sharing per SECDEF guidance and especially in support of the U.S. Army. This program funds the travel costs and administrative support (studies, analysis, interpretation, equipment, etc.) required to participate internationally, such as the North Atlantic Treaty Organization (NATO) Army Armaments Group (NAAG), Defense Against Terrorism (DAT) and to pursue new cooperative R&D initiatives and international cooperative agreements such as memoranda of understanding. This program also includes: the United States' share of costs of the NATO Civil Budget, Chapter IX, which funds the NATO Industrial Advisory Group (NIAG) and the Special Fund for Cooperative Planning (U. S. Army is Executive Agent for this NATO bill); the Technical Cooperation Program, and Army armaments cooperation working groups with many nations.</p> <p>FY 2016 Plans: The goal of this program is to expand worldwide allied standardization and interoperability through cooperative Research and Development (R&D) and technology sharing per SECDEF guidance and especially in support of the U.S. Army. This program will fund the travel costs and administrative support (studies, analysis, interpretation, equipment, etc.) required to participate internationally, such as the North Atlantic Treaty Organization (NATO) Army Armaments Group (NAAG), Defense Against Terrorism (DAT) and to pursue new cooperative R&D initiatives and international cooperative agreements such as memoranda of understanding. Additional funds will allow the coordination for cooperative research, development and evaluation of defense technologies/systems/equipments plus joint production and follow-on support of defense systems or equipment and the procurement of foreign technologies.</p>		-	1.176	1.340
<p>Title: Multilateral Interoperability Program</p> <p>Description: Multilateral Interoperability Program (MIP) (Partners: Germany, France, United Kingdom, Canada, Italy): Continued integration work from the Command and Control Systems Interoperability Program (C2SIP) into an Advanced Concept</p>		0.538	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015		
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603790A / NATO Research and Development	Project (Number/Name) 691 / NATO Rsch & Devel		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2014	FY 2015	FY 2016
Technology Demonstration (ACTD) to achieve NATO levels four (messaging) and five (database) interoperability and also extend the effort into a sustainable program to incorporate lessons learned into national systems (e.g. AFATDS, FADC2).				
FY 2014 Accomplishments: Continued integration work from the Command and Control Systems Interoperability Program into an Advanced Concept Technology Demonstration (ACTD) to achieve NATO levels four (messaging) and five (database) interoperability and will also extend the effort into a sustainable program to incorporate lessons learned into national systems (e.g. AFATDS, FADC2). Effective FY15, MIP efforts will move to Communications, interoperability, and electronics technologies				
Title: Multi-National Network Enabled Capabilities (MNNEC)		0.449	-	-
Description: Multi-National Network Enabled Capabilities (MNNEC) related Command, Control, Communications, Computers, Intelligence Surveillance and Reconnaissance (C4ISR) (Potential Partners: United Kingdom, France, Italy, Germany and major NATO Allies) MNNEC would focus on developing a single solutions standard avoiding development of multiple unique solutions and leverage existing interoperability standards developed by NATO as well as other international forums such as the Five Power Net Centrick PA. A single solution standard will include common doctrine, technical and procedural specifications to make better use of existing information, shared data, leverage national operating picture capabilities and enable the development of interoperability of data, databases, applications, security domains and national networks architectures. The MNNEC is more than interoperability of information systems; it is the complete networking of information systems with sensors and shooters focusing on building Net-Centric interoperability among coalition tactical land components operating in a Joint Environment, focused at the Brigade and Below level, but not excluding using the services provided at higher echelons. The MNNEC has a future force focus, endeavoring to define migration strategies for Net-Centric capabilities in the 2010-2025 timeframe with part of the work to determine the time-phased implementations of a Multi-National Network Enabled Capability. The end results would be an integration of national C2/C4ISR systems into an NCES environment to include the NATO Network Enabled Capabilities (NNEC) and the 5 Powers Net Centrick Project Agreement.				
FY 2014 Accomplishments: Multi-National Network Enabled Capabilities (MNNEC) related Command, Control, Communications, Computers, Intelligence Surveillance and Reconnaissance (C4ISR)(Potential Partners: United Kingdom, France, Italy, Germany and major NATO Allies) MNNEC focused on developing a single solutions standard avoiding development of multiple unique solutions and leverage existing interoperability standards developed by NATO as well as other international forums such as the Five Power Net Centrick PA. A single solution standard included common doctrine, technical and procedural specifications to make better use of existing information, shared data, leverage national operating picture capabilities and enable the development of interoperability of data, databases, applications, security domains and national networks architectures. The MNNEC is the complete networking of information systems with sensors and shooters focusing on building Net-Centric interoperability among coalition tactical land				

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603790A / NATO Research and Development	Project (Number/Name) 691 / NATO Rsch & Devel

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016
<p>components operating in a Joint Environment, focused at the Brigade and Below level, but not excluding using the services provided at higher echelons. The MNNEC has a future force focus, endeavoring to define migration strategies for Net-Centric capabilities in the 2010-2025 timeframe with part of the work to determine the time-phased implementations of a Multi-National Network Enabled Capability. The end results was an integration of National C2/C4ISR systems into an NCES environment to include the NATO Network Enabled Capabilities (NNEC). Effective FY15, efforts in this area will move to Communications, interoperability, and electronics technologies.</p>			
<p>Title: Communications Interoperability, and Electronics Technologies</p> <p>Description: The goal of this project is to develop technologies that enable interoperability among partner countries' command, control, communications, sensors, and information systems. Efforts under this project include development of a single solution standard avoiding development of multiple unique solutions and leverage existing interoperability standards developed by NATO. Such standards include common doctrine, technical and procedural specifications to make better use of existing information, shared data, leverage national operating picture capabilities and enable the development of interoperability of data, databases, applications, security domains and national networks architectures. Includes efforts from areas formerly titled Multi-National Network Enabled Capabilities, Low Level Air Defense Interoperability, JTRS, Combat Identification, and Multilateral Interoperability Program.</p> <p>FY 2015 Plans: The goal of this project is to develop technologies that enable interoperability among partner countries' command, control, communications, sensors, and information systems. Efforts under this project include development of a single solution standard avoiding development of multiple unique solutions and leverage existing interoperability standards developed by NATO. Such standards include common doctrine, technical and procedural specifications to make better use of existing information, shared data, leverage national operating picture capabilities and enable the development of interoperability of data, databases, applications, security domains and national networks architectures. Includes projects formerly titled Multi-National Network Enabled Capabilities, Low Level Air Defense Interoperability, JTRS, Combat Identification, and Multilateral Interoperability Program.</p> <p>FY 2016 Plans: The goal of this project is to develop technologies that enable interoperability among partner countries' command, control, communications, sensors, and information systems. Efforts under this project include development of a single solution standard avoiding development of multiple unique solutions and leverage existing interoperability standards developed by NATO. Such standards include common doctrine, technical and procedural specifications to make better use of existing information, shared data, leverage national operating picture capabilities and enable the development of interoperability of data, databases, applications, security domains and national networks architectures. FY16 funds increased because, it Includes funded projects formerly titled Multi-National Network Enabled Capabilities, Low Level Air Defense Interoperability, JTRS, Combat Identification,</p>	-	0.700	1.686

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015		
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603790A / NATO Research and Development	Project (Number/Name) 691 / NATO Rsch & Devel		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2014	FY 2015	FY 2016
and Multilateral Interoperability Program. Additional FY16 funds will be used to persue cooperative projects that were postponed or not persue due to funding reductions in previous years such as the Coalition Wideband Networking Waveform Phase II, 5-Power-Net-centric Command and Control Interoperability projects. Land Warfare Concept Experimentation, projects to enhance information processing, exploitation, and dissemination capabilities, and multilateral cooperative projects in electronic warfare.				
<p>Title: Combat Identification</p> <p>Description: Combat Identification (Partners: UK, Germany, France and Italy): Combat ID will pursue the extension of tasks required for implementing the associated NATO Standardization Agreement (STANAG 4579), allied participation in Coalition Combat ID Advanced Concept Technology Demonstrator (ACTD), will pursue the NATO Staff Requirement and a STANAG for the Dismounted Soldier ID.</p> <p>FY 2014 Accomplishments: Combat ID pursued the extension of tasks required for implementing the associated NATO Standardization Agreement (STANAG 4579), allied participation in Coalition Combat ID Advanced Concept Technology Demonstrator (ACTD), pursued the NATO Staff Requirement and a STANAG for the Dismounted Soldier ID. Effective FY15, Combat ID efforts will move under Communications, Interoperability, and Electronics Technologies.</p>		0.043	-	-
<p>Title: Technology Research and Development Projects</p> <p>Description: Partners United Kingdom, Germany, France, Canada, Australia, Netherlands, Korea, Norway): The scope of this MOU encompasses R&D collaboration on basic, exploratory and advanced Land Warfare Concepts and Technologies that are focused on Future Combat System enabling technologies, the maturation of which may lead to the development of technologically superior conventional weapon systems.</p> <p>FY 2014 Accomplishments: The scope of this MOU encompasses R&D collaboration on basic, exploratory and advanced Land Warfare Concepts and Technologies that focused on Future Combat System enabling technologies, the maturation of which may lead to the development of technologically superior conventional weapon systems. Effective FY15, TRDP efforts will move under several other programs such as: Aviations Systems Technologies, Soldiers Technologies, Missile and Rocket Technologies, Chem/Bio Technologies, and Weapons and Munitions Technologies.</p>		0.617	-	-
<p>Title: Senior National Representatives (Army) (SNR-(A))</p> <p>Description: Senior National Representatives (Army) (SNR-(A)) Projects (Partners: France, Germany, United Kingdom and Italy): Supports harmonization of programs at various levels: exchanging information, identifying knowledge gaps and conducting feasibility studies to further promote cooperative development; standardizing, fielding and roadmapping various processes; distributing the workload among the different nations. Technology Demonstrations hosted by the U.S. reps to Land Group 6,</p>		0.090	0.058	0.139

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015		
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603790A / NATO Research and Development	Project (Number/Name) 691 / NATO Rsch & Devel		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2014	FY 2015	FY 2016
<p>NATO Army Armaments Group (NAAG), will provide an opportunity to observe and demonstrate the current and future capability of participating NATO nations with a view to assisting future operational and materiel interoperability. Army support of NAAG studies, analysis and technology demonstrations.</p> <p>FY 2014 Accomplishments: Senior National Representatives (Army) (SNR-(A)) Projects (Partners: France, Germany, United Kingdom and Italy): Supported harmonization of programs at various levels: exchanging information, identifying knowledge gaps and conducting feasibility studies to further promote cooperative development; standardizing, fielding and roadmapping various processes; distributing the workload among the different nations. Technology Demonstrations hosted by the U.S. reps to Land Group, NATO Army Armaments Group (NAAG), provided an opportunity to observe and demonstrate the current and future capability of participating NATO nations with a view to assisting future operational and materiel interoperability. Army supported NAAG studies, analysis and technology demonstrations.</p> <p>FY 2015 Plans: Senior National Representatives (Army) (SNR-(A)) Projects with international partners: Supports harmonization of programs at various levels: exchanging information, identifying knowledge gaps and conducting feasibility studies to further promote cooperative development; standardizing, fielding and road mapping various processes; distributing the workload among the different nations. Technology Demonstrations hosted by the U.S. reps to Land Group, NATO Army Armaments Group (NAAG), provides an opportunity to observe and demonstrate the current and future capability of participating NATO nations with a view to assisting future operational and materiel interoperability. Army support of NAAG studies, analysis and technology demonstrations.</p> <p>FY 2016 Plans: Senior National Representatives (Army) (SNR-(A)) Projects with international partner will support harmonization of programs at various levels: exchanging information, identifying knowledge gaps and conducting feasibility studies to further promote cooperative development; standardizing, fielding and road mapping various processes; distributing the workload among the different nations. Technology Demonstrations hosted by the U.S. reps to Land Group, NATO Army Armaments Group (NAAG), will provide an opportunity to observe and demonstrate the current and future capability of participating NATO nations with a view to assisting future operational and materiel interoperability. Army will support of NAAG studies, analysis and technology demonstrations. Additional funds will be used to persue cooperative initiatives that were postponed, cancelled or not persued due to funding reductions in previous years such as forums and engagement with long-standing foreign partners to identify interoperability gaps and develop necessary standardization programs.</p>				
<p>Title: Joint Tactical Radio System</p> <p>Description: Joint Tactical Radio System (JTRS) (Partners: Japan, Sweden, UK): The participants in these programs will develop and implement Software-enabled radios as replacements to current radio systems. The projects shall be focused on</p>		0.502	-	-

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2014	FY 2015	FY 2016
maintaining interoperability as the countries pursue their own separate software radio programs. The project agreements (PAs) will include a joint development of software radio specifications, separate development and testing of software waveforms, and joint interoperability testing using the system assets developed as part of the agreements.				
FY 2014 Accomplishments: The participants in this program developed and implemented Software-enabled radios as replacements to current radio systems. The project focused on maintaining interoperability as the countries pursue their own separate software radio programs. The project agreements (PAs) included a joint development of software radio specifications, separate development and testing of software waveforms, and joint interoperability testing using the system assets developed as part of the agreements. Effective FY15, efforts in this area moved under Communications, Interoperability, and Electronics Technologies.				
Title: Artillery Command and Control Interoperability Description: Artillery Command and Control Interoperability (ASCA) (Partners: France, Germany, Italy, UK): The Participants in this program will develop an automated software interface between their national field artillery command and control systems. The nations will be able to receive and provide mutual fire support (i.e. cannon and rocket fire) in combined operations more rapidly and with minimal errors. FY 2014 Accomplishments: The Participants in this program worked on developing an automated software interface between their national field artillery command and control systems. ASCA Nations was able to receive and provide mutual fire support (i.e. cannon and rocket fire) in combined operations more rapidly and with minimal errors. Effective FY15, efforts in this program moved to Weapons and Munitions Technologies.		0.378	-	-
Title: Weapons and Munitions Technologies Description: Weapons and munitions technologies (Partners: France, Germany, Italy, UK): The Participants in this program will develop an automated software interface between their national field artillery command and control systems. The nations will be able to receive and provide mutual fire support (i.e. cannon and rocket fire) in combined operations more rapidly and with minimal errors. FY 2015 Plans: The goal of this project is to cooperate with partner countries to increase interoperability and develop jointly technologies to improve range, payloads, speed, survivability and lethality to maintain U.S. technical superiority and combat overmatch for Army weapons systems and associated munitions. Areas of cooperation include fuzing and warhead systems, guidance systems, counter improvised explosive device neutralization, directed energy, and fire control systems. Such cooperative development will be done under the auspices of international agreements established among the participating countries for the purposes of		-	0.588	1.410

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2014	FY 2015	FY 2016
improving defense capabilities of the U.S. and partner countries. Effective FY15, efforts in this program will be combined with Artillery Command and Control Interoperability. FY 2016 Plans: The goal of this project is to cooperate with partner countries to increase interoperability and develop jointly technologies to improve range, payloads, speed, survivability and lethality to maintain U.S. technical superiority and combat overmatch for Army weapons systems and associated munitions. Areas of cooperation include fuzing and warhead systems, guidance systems, counter improvised explosive device neutralization, directed energy, and fire control systems. Such cooperative development will be done under the auspices of international agreements established among the participating countries for the purposes of improving defense capabilities of the U.S. and partner countries. This program was combined with Artillery Command and Control Interoperability in FY15. Additional FY16 funds will be used to persue cooperative projects that were postponed or not persue due to funding reductions in previous years, such as cooperative projects to develop and demonstrate interoperability among U.S. and foreign partners artillery weapons systems and ammunitions.				
Title: Low Level Air Defense Interoperability Description: Low Level Air Defense Interoperability (LLAPI) (Partners: Major NATO Allies): The objective of this program is to successfully demonstrate Command and Control (C2) interoperability among the participant nations' Short Range Air Defense (shared) assets for automated air picture exchange. FY 2014 Accomplishments: The objective of this program was to successfully demonstrate Command and Control (C2) interoperability among the participant nations' Short Range Air Defense (shared) assets for automated air picture exchange. Effective FY15, efforts in this program moved to Communications, Interoperability, and Electronics Technologies		0.170	-	-
Title: Force Protection Projects Description: Force Protection Projects (FPP) (Partners: United Kingdom, France, Germany, Italy, Sweden, Canada): Force Protection Projects include R&D collaboration on technologies such as Counter Rocket and Mortar (C-RAM) and Counter Improvised Explosive Devices (C-IED). Programs include Military Operations in Urban Terrain (MOUT) and a variety of Defense Against Terrorism (DAT) initiatives such as Defense Against Mortar Attacks (DAMA) and Joint Precision Air Drop System (JPADS). FY 2014 Accomplishments: Force Protection Projects included R&D collaboration on technologies such as Counter Rocket and Mortar (C-RAM) and Counter Improvised Explosive Devices (C-IED). Programs included Military Operations in Urban Terrain (MOUT) and a variety of Defense		0.257	-	-

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2014	FY 2015	FY 2016
Against Terrorism (DAT) initiatives such as Defense Against Mortar Attacks (DAMA) and Joint Precision Air Drop System (JPADS). Effective FY15 efforts in this program moved to Soldier Technologies.				
<p>Title: Soldier Technologies</p> <p>Description: Soldier Technologies (Partners: United Kingdom, France, Germany, Italy, Sweden, Canada): Soldier Technologies will include R&D collaboration on technologies such as Counter Rocket and Mortar (C-RAM) and Counter Improvised Explosive Devices (C-IED). Programs include Military Operations in Urban Terrain (MOUT) and a variety of Defense Against Terrorism (DAT) initiatives such as Defense Against Mortar Attacks (DAMA) and Joint Precision Air Drop System (JPADS).</p> <p>FY 2015 Plans: The goal of this project is to cooperate with partner countries to increase interoperability and develop jointly improved technologies to increase the effectiveness, health, and reliability of the individual soldier. Such technologies will maximize soldier survivability, sustainability, mobility, combat effectiveness, and field quality of life. Efforts under this project will also enable interoperability and standardization among partner country systems that support the individual soldier. Such cooperative development will be done under the auspices of international agreements established among the participating countries for the purposes of improving defense capabilities of the U.S. and partner countries. Effective FY15 this program will include Force Protection Projects Programs</p> <p>FY 2016 Plans: The goal of this project is to cooperate with partner countries to increase interoperability and develop jointly improved technologies to increase the effectiveness, health, and reliability of the individual soldier. Such technologies will maximize soldier survivability, sustainability, mobility, combat effectiveness, and field quality of life. Efforts under this project will also enable interoperability and standardization among partner country systems that support the individual soldier. Such cooperative development will be done under the auspices of international agreements established among the participating countries for the purposes of improving defense capabilities of the U.S. and partner countries. Since FY15 this program adopted Force Protection Project and projects under TRDP, additional funds will be used to persue cooperative projects that were postponed or not persue due to funding reductins in previous years such as cooperative projects in soldier psychological health and traumatic brain injury, improved small arms systems, eye safe lasers, portable soldier power technologies, and enhance body armor.</p>		-	0.020	0.300
<p>Title: Ground Systems Technologies</p> <p>Description: The goal of this project is to cooperate with partner countries to increase interoperability and develop jointly technologies to improve survivability, weapons, ground platforms (manned and unmanned), and mobility and counter-mobility to provide soldiers with unmatched offensive and defensive capabilities in weapons and military vehicles. Areas of cooperation include ground systems design, propulsion, structures, robotics, alternative fuels and lubricants, systems integration, electronics,</p>		-	0.200	0.350

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2014	FY 2015	FY 2016
<p>and power management. Such cooperative development will be done under the auspices of international agreements established among the participating countries for the purposes of improving defense capabilities of the U.S. and partner countries.</p> <p>FY 2015 Plans: The goal of this project is to cooperate with partner countries to increase interoperability and develop jointly technologies to improve survivability, weapons, ground platforms (manned and unmanned), and mobility and counter-mobility to provide soldiers with unmatched offensive and defensive capabilities in weapons and military vehicles. Areas of cooperation include ground systems design, propulsion, structures, robotics, alternative fuels and lubricants, systems integration, electronics, and power management. Such cooperative development is done under the auspices of international agreements established among the participating countries for the purposes of improving defense capabilities of the U.S. and partner countries.</p> <p>FY 2016 Plans: The goal of this project is to cooperate with partner countries to increase interoperability and develop jointly technologies to improve survivability, weapons, ground platforms (manned and unmanned), and mobility and counter-mobility to provide soldiers with unmatched offensive and defensive capabilities in weapons and military vehicles. Areas of cooperation will include ground systems design, propulsion, structures, robotics, alternative fuels and lubricants, systems integration, electronics, and power management. Such cooperative development will be done under the auspices of international agreements established among the participating countries for the purposes of improving defense capabilities of the U.S. and partner countries. Additional FY16 funds will be used to continue funding cooperative projects in armored vehicle underbody blast protection and unmanned ground vehicles such as Hybrid Electric PA between US and Japan.</p>				
<p>Title: Aviation Systems Technologies</p> <p>Description: The goal of this project is to cooperate with partner countries to increase interoperability and develop jointly improved aerodynamics, aeromechanics, avionics, weapons and sensor integration, propulsion, and aviation autonomy technologies that improve range, payloads, speed, survivability and lethality to maintain U.S. technical superiority and combat overmatch for vertical lift aviation systems. Such cooperative development will be done under the auspices of international agreements established among the participating countries for the purposes of improving defense capabilities of the U.S. and partner countries.</p> <p>FY 2015 Plans: The goal of this project is to cooperate with partner countries to increase interoperability and develop jointly improved aerodynamics, aeromechanics, avionics, weapons and sensor integration, propulsion, and aviation autonomy technologies that improve range, payloads, speed, survivability and lethality to maintain U.S. technical superiority and combat overmatch for vertical</p>		-	0.180	0.300

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2014	FY 2015	FY 2016
<p>lift aviation systems. Such cooperative development is done under the auspices of international agreements established among the participating countries for the purposes of improving defense capabilities of the U.S. and partner countries.</p> <p>FY 2016 Plans: The goal of this project is to cooperate with partner countries to increase interoperability and develop jointly improved aerodynamics, aeromechanics, avionics, weapons and sensor integration, propulsion, and aviation autonomy technologies that improve range, payloads, speed, survivability and lethality to maintain U.S. technical superiority and combat overmatch for vertical lift aviation systems. Such cooperative development will be done under the auspices of international agreements established among the participating countries for the purposes of improving defense capabilities of the U.S. and partner countries. Additional FY16 funds will be used to persue cooperative projects that were postponed or not pursued due to funding reductions in previous years such as cooperative projects to develop advance rotorcraft technologies and improve systems that aid pilots and aircrew in degraded visual environments.</p>				
<p>Title: Chemical and Biological Defense Technologies</p> <p>Description: The goal of this project is to cooperate with partner countries to increase interoperability and standardization of chemical, biological, and radiological defense materiel and to develop jointly improved technologies to defend against weapons of mass destruction. Areas of cooperation include aerosol physics, toxicology, vaccinations, filtration science, agent detection and monitoring, handling, and demilitarization. Such cooperative development will be done under the auspices of international agreements established among the participating countries for the purposes of improving defense capabilities of the U.S. and partner countries.</p> <p>FY 2015 Plans: The goal of this project is to cooperate with partner countries to increase interoperability and standardization of chemical, biological, and radiological defense materiel and to develop jointly improved technologies to defend against weapons of mass destruction. Areas of cooperation include aerosol physics, toxicology, vaccinations, filtration science, agent detection and monitoring, handling, and demilitarization. Such cooperative development was done under the auspices of international agreements established among the participating countries for the purposes of improving defense capabilities of the U.S. and partner countries.</p> <p>FY 2016 Plans: The goal of this project is to cooperate with partner countries to increase interoperability and standardization of chemical, biological, and radiological defense materiel and to develop jointly improved technologies to defend against weapons of mass destruction. Areas of cooperation include aerosol physics, toxicology, vaccinations, filtration science, agent detection and monitoring, handling, and demilitarization. Such cooperative development will be done under the auspices of international agreements established among the participating countries for the purposes of improving defense capabilities of the U.S. and</p>		-	0.030	0.350

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Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603790A / NATO Research and Development	Project (Number/Name) 691 / NATO Rsch & Devel
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016
partner countries. Additional FY16 funds will be used to continue cooperative projects that were postponed due to funds reductions in previous years, such as cooperative projects to develop vaccines for soldier protection against biological threats and enhanced radiological and biological threat detection systems.			
<p>Title: Missiles and Rocket Technologies</p> <p>Description: The goal of this project is to cooperate with partner countries to increase interoperability and deveop jointly improved missile and rocket technologies, such as propulsion, energetic materials, payloads, flight control systems, sensors, and seekers. Such cooperative development will be done under the auspices of international agreements established among the participating countries for the purpose of improving defense capabilities of the U.S. and partner countries.</p> <p>FY 2016 Plans: The goal of this project is to cooperate with partner countries to increase interoperability and deveop jointly improved missile and rocket technologies, such as propulsion, energetic materials, payloads, flight control systems, sensors, and seekers. Such cooperative development will be done under the auspices of international agreements established among the participating countries for the purpose of improving defense capabilities of the U.S. and partner countries. a portion of former Technology Research and Development Projects (TRDP) was moved to Missiles and Rockets as part of project realignment in FY15. Additional FY16 funds will be used to persue cooperative projects that were postponed or not pursued due to funding reductions in previous years such as cooperative projects to enhance coalition capabilities in Ground-based Air Defense.</p>	-	-	0.200
Accomplishments/Planned Programs Subtotals	3.743	2.952	6.075

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

Remarks

D. Acquisition Strategy
All projects are test or technical demonstrations to feed into potential new requirements in support of Army Transformation to the Future Force or as product improvements to the Current Force.

Below is the list of the programs that were changed, combined or renamed in FY15 and FY16.

Communications, Interoperability, and Electronics Technologies
The goal of this project is to develop technologies that enable interoperability among partner countries' command, control, communications, sensors, and information systems. Efforts under this project include development of a single solution standard avoiding development of multiple unique solutions and leverage existing interoperability standards developed by NATO. Such standards include common doctrine, technical and procedural specifications to make better use of existing

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<p>information, shared data, leverage national operating picture capabilities and enable the development of interoperability of data, databases, applications, security domains and national networks architectures. Includes projects formerly titled Multi-National Network Enabled Capabilities, Low Level Air Defense Interoperability, JTRS, Combat Identification, and Multilateral Interoperability Program.</p> <p>Missile and Rocket Technologies The goal of this project is to cooperate with partner countries to increase interoperability and develop jointly improved missile and rocket technologies, such as propulsion, energetic materials, payloads, flight control systems, sensors, and seekers. Such cooperative development will be done under the auspices of international agreements established among the participating countries for the purposes of improving defense capabilities of the U.S. and partner countries.</p> <p>Aviation Systems Technologies The goal of this project is to cooperate with partner countries to increase interoperability and develop jointly improved aerodynamics, aeromechanics, avionics, weapons and sensor integration, propulsion, and aviation autonomy technologies that improve range, payloads, speed, survivability and lethality to maintain U.S. technical superiority and combat overmatch for vertical lift aviation systems. Such cooperative development will be done under the auspices of international agreements established among the participating countries for the purposes of improving defense capabilities of the U.S. and partner countries.</p> <p>Soldier Technologies The goal of this project is to cooperate with partner countries to increase interoperability and develop jointly improved technologies to increase the effectiveness, health, and reliability of the individual soldier. Such technologies will maximize soldier survivability, sustainability, mobility, combat effectiveness, and field quality of life. Efforts under this project will also enable interoperability and standardization among partner country systems that support the individual soldier. Such cooperative development will be done under the auspices of international agreements established among the participating countries for the purposes of improving defense capabilities of the U.S. and partner countries.</p> <p>Chemical and Biological Defense Technologies The goal of this project is to cooperate with partner countries to increase interoperability and standardization of chemical, biological, and radiological defense materiel and to develop jointly improved technologies to defend against weapons of mass destruction. Areas of cooperation include aerosol physics, toxicology, vaccinations, filtration science, agent detection and monitoring, handling, and demilitarization. Such cooperative development will be done under the auspices of international agreements established among the participating countries for the purposes of improving defense capabilities of the U.S. and partner countries.</p> <p>Ground Systems Technologies The goal of this project is to cooperate with partner countries to increase interoperability and develop jointly technologies to improve survivability, weapons, ground platforms (manned and unmanned), and mobility and counter-mobility to provide soldiers with unmatched offensive and defensive capabilities in weapons and military vehicles. Areas of cooperation include ground systems design, propulsion, structures, robotics, alternative fuels and lubricants, systems integration, electronics, and power management. Such cooperative development will be done under the auspices of international agreements established among the participating countries for the purposes of improving defense capabilities of the U.S. and partner countries.</p>		

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Weapons and Munitions Technologies The goal of this project is to cooperate with partner countries to increase interoperability and develop jointly technologies to improve range, payloads, speed, survivability and lethality to maintain U.S. technical superiority and combat overmatch for Army weapons systems and associated munitions. Areas of cooperation include fuzing and warhead systems, guidance systems, counter improvised explosive device neutralization, directed energy, and fire control systems. Such cooperative development will be done under the auspices of international agreements established among the participating countries for the purposes of improving defense capabilities of the U.S. and partner countries.		
Senior National Representative (Army) program Senior National Representatives (Army) (SNR-(A)) Projects with international partners: Supports harmonization of programs at various levels: exchanging information, identifying knowledge gaps and conducting feasibility studies to further promote cooperative development; standardizing, fielding and road mapping various processes; distributing the workload among the different nations. Technology Demonstrations hosted by the U.S. reps to Land Group, NATO Army Armaments Group (NAAG), provides an opportunity to observe and demonstrate the current and future capability of participating NATO nations with a view to assisting future operational and materiel interoperability. Army support of NAAG studies, analysis and technology demonstrations.		
Armaments Cooperation Enterprise Support The goal of this program is to expand worldwide allied standardization and interoperability through cooperative research and development (R&D) and technology sharing per SECDEF guidance and especially in support of the U.S. Army. This program will fund the travel costs and administrative support (studies, analysis, interpretation, equipment, etc.) required to participate internationally, such as the North Atlantic Treaty Organization (NATO) Army Armaments Group (NAAG), Defense Against Terrorism (DAT) and to pursue new cooperative R&D initiatives and international cooperative agreements such as memoranda of understanding. This program will also include: the United States' share of costs of the NATO Civil Budget, Chapter IX, which funds the NATO Industrial Advisory Group (NIAG) and the Special Fund for Cooperative Planning (U. S. Army is Executive Agent for this NATO bill); the Technical Cooperation Program, and Army armaments cooperation working groups with many nations.		
E. Performance Metrics N/A		

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

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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			
ArmamentsCooperation Enterprise Support	TBD	RDECOM : Ft Belvoir, VA	0.000	-		0.006		0.006		-		0.006	-	0.012	-
Weapons and Munitions	TBD	CECOM : Aberdeen Proving Ground, MD	0.000	-		0.008		0.010		-		0.010	-	0.018	-
Ground Systems Technologies	MIPR	TARDEC : Warren, MI	0.000	-		-		0.050		-		0.050	-	0.050	-
Communications Interoperability and Electronic Technologies Interoperability	MIPR	Various, : Various	0.000	-		-		0.006		-		0.006	-	0.006	-
STEM/IOL	TBD	RDECOM, : Ft. Belvoir, VA	0.538	0.067		-		-		-		-	Continuing	Continuing	-
Chemical and Biological Technologies	MIPR	Aberdeen Proving Groun : MD	0.000	-		-		0.060		-		0.060	-	0.060	-
Low Level Air Defense Interoperability (LLAPI)	TBD	AMCOM, : Redstone Arsenal, AL	0.407	-		-		-		-		-	Continuing	Continuing	-
MIP	Various	PEO C3S, : Aberdeen Proving Ground, MD	1.219	-		-		-		-		-	Continuing	Continuing	-
Combat Identification	TBD	CECOM, : Aberdeen Proving Ground, MD	0.571	-		-		-		-		-	Continuing	Continuing	-
SNR(A)	TBD	ARL, : APG, MD	0.642	-		-		-		-		-	Continuing	Continuing	-
TRDP	TBD	REDCOM, : Ft. Belvoir, VA	2.896	0.228		-		-		-		-	Continuing	Continuing	-
Artillery Command and Control Interoperability (ASCA)	TBD	CECOM, : Aberdeen Proving Ground, MD	0.139	-		-		-		-		-	Continuing	Continuing	-
Force Protection Projects (FPP)	TBD	RDECOM, : Ft. Belvoir, VA	0.134	0.028		-		-		-		-	-	0.162	-
Subtotal			6.546	0.323		0.014		0.132		-		0.132	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army												Date: February 2015			
Appropriation/Budget Activity 2040 / 4				R-1 Program Element (Number/Name) PE 0603790A / NATO Research and Development				Project (Number/Name) 691 / NATO Rsch & Devel							
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			
Multilateral Interoperability Program (MIP)	TBD	Various : Various	2.376	0.151		-		-		-		-	Continuing	Continuing	Continuing
STEM-IOL	TBD	LSS/GDIT, : Fairfax, VA	6.756	0.466		-		-		-		-	Continuing	Continuing	Continuing
Missiles and Rocket Technologies	MIPR	APG, Redstone Arsenal : MD, AL	0.000	-		-		0.100		-		0.100	-	0.100	-
Combat Identification	TBD	CECOM, : Aberdeen Proving Ground, MD	1.042	0.018		-		-		-		-	Continuing	Continuing	Continuing
Communications, Interoperability, and Electronics Technologies	TBD	CECOM, JTRS, COALWNW, JTNC : Aberdeen Proving Ground, MD, CA	0.000	-		0.400		0.100		-		0.100	-	0.500	-
Weapons and Munitions	Various	CECOM : Aberdeen Proving Ground, MD	0.000	-		0.450		0.075		-		0.075	-	0.525	-
Multi-National Network Enabled Capabilities (MNNEC)	TBD	CECOM, : Aberdeen Proving Ground, MD	4.435	0.366		-		-		-		-	Continuing	Continuing	Continuing
Aviation Systems Technologies	Various	Various : Various	0.000	-		0.100		0.050		-		0.050	-	0.150	-
Artillery Command and Control Interoperability (ASCA)	Various	CECOM, : Aberdeen Proving Ground, MD	2.381	0.154		-		-		-		-	Continuing	Continuing	Continuing
TRDP	Various	Battelle/LMI, : McLean, VA	2.772	0.159		-		-		-		-	Continuing	Continuing	Continuing
Senior National Representatives (Army) (SNR[A])	Various	ARDEC, : Arlington, VA	9.012	-		-		-		-		-	Continuing	Continuing	Continuing
Communications Interoperability and Electronic Technologies-	Various	Joint Tactical Radio System (JTRS)-JTNC, COALWNW : San Diego, CA	1.288	0.127		-		-		-		-	Continuing	Continuing	Continuing
Ground Systems Technology	FFRDC	Various : Various	0.000	-		0.100		-		-		-	-	0.100	-

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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			
Force Protection Projects (FPP)	Various	RDECOM, : Ft Belvoir, VA	0.552	0.111		-		-		-		-	-	0.663	Continuing
Low Level Air Defense Interoperability (LLAPI)	TBD	AMCOM, : Redstone Arsenal, AL	1.513	0.093		-		-		-		-	Continuing	Continuing	Continuing
Subtotal			32.127	1.645		1.050		0.325		-		0.325	-	-	-

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			
Armaments Cooperation Enterprise Support	Various	LSS/GDIT : Fairfax, VA	0.000	-		1.170		1.334		-		1.334	-	2.504	-
Missiles and Rocket Technologies	MIPR	APG, Redstone Arsenal : MD, AL	0.000	-		-		0.100		-		0.100	-	0.100	-
Communications, Interoperability, and Electronics Technologies	TBD	Joint Tactical Radio (JTRS), JTNC, COALWNW : Aberdeen Proving Ground, MD	0.000	-		0.200		1.440		-		1.440	-	1.640	-
Aviation Systems Technologies	Various	ARDECOM : Ft Belvoir, VA	0.000	-		0.050		0.225		-		0.225	-	0.275	-
Ground Systems Technology	MIPR	Various : Various	0.000	-		0.050		0.300		-		0.300	-	0.350	-
SNR(A)	Various	ARL, : Aberdeen, MD	2.049	0.045		0.058		0.059		-		0.059	Continuing	Continuing	Continuing
Low Level Air Defense Interoperability (LLAPI)	Various	AMCOM, : Redstone Arsenal, AL	0.811	0.077		-		-		-		-	Continuing	Continuing	Continuing
Weapons and Munitions	Various	CECOM, ARDEC, AMMO, PEO C3T : Aberdeen Proving Ground, Various	0.000	-		0.050		1.225		-		1.225	-	1.275	-
Soldier Technologies	TBD	Various : Various	0.000	-		0.020		0.300		-		0.300	-	0.320	-

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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 / 4				PE 0603790A / NATO Research and Development				691 / NATO Rsch & Devel							
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
Chemical & Biological Defense Technologies	MIPR	RDECOM : Edgewood, Aberdeen, MD	0.000	-		0.030		0.290		-		0.290	-	0.320	-
STEM/IOL	Various	GDIT : Fairfax, VA	1.532	0.116		-		-		-		-	Continuing	Continuing	Continuing
MIP	Various	CECOM : Aberdeen Proving Ground, MD	1.859	0.172		-		-		-		-	Continuing	Continuing	Continuing
MNNEC	Various	CECOM : Aberdeen Proving Ground, MD	1.114	0.083		-		-		-		-	Continuing	Continuing	Continuing
Combat Identification	Various	CECOM : Aberdeen Proving Ground, MD	0.673	0.025		-		-		-		-	Continuing	Continuing	Continuing
TRDP	Various	RDECOM, : Ft. Belvoir, VA	2.977	0.230		-		-		-		-	Continuing	Continuing	Continuing
Joint Tactical Radio System (JTRS)	Various	PM JTRS, : San Diego, VA	0.812	0.230		-		-		-		-	Continuing	Continuing	Continuing
Force Protection Projects (FPP)	Various	RDECOM, : Fort Belvoir, VA	0.140	0.052		-		-		-		-	-	0.192	Continuing
Artillery Command and Control Interoperability (ASCA)	Various	CECOM : Aberdeen Proving Ground, MD	0.778	0.224		-		-		-		-	Continuing	Continuing	Continuing
Subtotal			12.745	1.254		1.628		5.273		-		5.273	-	-	-
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
MIP	Various	CECOM : Aberdeen Proving Ground, MD	1.664	0.215		-		-		-		-	Continuing	Continuing	-
STEM/IOL	Various	RDECOM, : Various	1.053	0.050		-		-		-		-	Continuing	Continuing	-
Communications, Interoperability, and Electronics Technologies	TBD	JTRN, JTNC, COALWNW : Various	0.000	-		0.100		0.140		-		0.140	-	0.240	-

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603790A / NATO Research and Development	Project (Number/Name) 691 / NATO Rsch & Devel
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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			
Low Level Air Defense Interoperability (LLAPI)	Various	AMCOM, : Redstone Arsenal, AL	0.244	-		-		-		-		-	Continuing	Continuing	-
SNR(A)	TBD	Various : Various	1.557	0.045		-		0.080		-		0.080	Continuing	Continuing	-
ASCA	TBD	CECOM : Aberdeen Proving Ground, MD	0.467	0.070		-		-		-		-	Continuing	Continuing	-
Weapons and Munitions	TBD	CECOM : Various	0.000	-		0.080		0.100		-		0.100	-	0.180	-
Joint Tactical Radio System (JTRS)	TBD	CECOM : Aberdeen Proving Ground, MD	0.302	0.075		-		-		-		-	Continuing	Continuing	-
Aviation Systems Technologies	TBD	RDECOM, Ft Belvoir, VA : Various	0.000	-		0.030		0.025		-		0.025	-	0.055	-
Ground Systems Technologies	MIPR	TARDEC : Various	0.000	-		0.050		-		-		-	-	0.050	-
Force Protection Projects (FPP)	TBD	RDECOM, : Ft. Belvoir, VA	0.155	0.066		-		-		-		-	-	0.221	-
Subtotal			5.442	0.521		0.260		0.345		-		0.345	-	-	-
Project Cost Totals			56.860	3.743		2.952		6.075		-		6.075	-	-	-

Remarks

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603790A / NATO Research and Development	Project (Number/Name) 691 / NATO Rsch & Devel
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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) NA																												



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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603790A / NATO Research and Development	Project (Number/Name) 691 / NATO Rsch & Devel

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
NA	4	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 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 0603801A / <i>Aviation - Adv 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	-	4.848	-	-	-	-	-	-	-	7.264	-	12.112
B32: <i>Adv Maint Concepts/Eq</i>	-	4.848	-	-	-	-	-	-	-	7.264	-	12.112

A. Mission Description and Budget Item Justification

This PE provides advanced development aviation support of programs that include advanced maintenance concepts and equipment. This program provides for development of rapid battle repair procedures, tools development to speed the return of aircraft to a full mission status, and development of new equipment for aerial recovery of damaged aircraft. Included in this project are: diagnostics/prognostic monitoring systems, Aviation Ground Power Unit (AGPU) redesign and incorporation of AGPU modularity capabilities, Aviation Light Utility Mobile Maintenance Cart (ALUMMC), Aviation Unit Maintenance Shop Set (AVUM SS), Unit Maintenance Aerial Recovery Kit (UMARK) and development support for tools needed to provide maintenance support to modernized/future force aircraft.

B. Program Change Summary (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	5.015	-	-	-	-
Current President's Budget	4.848	-	-	-	-
Total Adjustments	-0.167	-	-	-	-
• Congressional General Reductions	-	-	-	-	-
• Congressional Directed Reductions	-	-	-	-	-
• Congressional Rescissions	-	-	-	-	-
• Congressional Adds	-	-	-	-	-
• Congressional Directed Transfers	-	-	-	-	-
• Reprogrammings	-	-	-	-	-
• SBIR/STTR Transfer	-0.167	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 4					R-1 Program Element (Number/Name) PE 0603801A / Aviation - Adv Dev				Project (Number/Name) B32 / Adv Maint Concepts/Eq			
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
B32: Adv Maint Concepts/Eq	-	4.848	-	-	-	-	-	-	-	7.264	-	12.112
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Beginning in FY 2015, funding on this Project was realigned to PE/Project 0605830A/EE5 to reflect the program's development efforts in Budget Activity 05, System Development and Demonstration.

A. Mission Description and Budget Item Justification

This PE provides advanced development aviation support of programs that include advanced maintenance concepts and equipment. This program provides for development of rapid battle repair procedures, tools development to speed the return of aircraft to a full mission status, and development of new equipment for aerial recovery of damaged aircraft. Included in this project are: diagnostics/prognostic monitoring systems, Aviation Ground Power Unit (AGPU) redesign and incorporation of AGPU modularity capabilities, Aviation Light Utility Mobile Maintenance Cart (ALUMMC), Aviation Unit Maintenance Shop Set (AVUM SS), Unit Maintenance Aerial Recovery Kit (UMARK) and development support for tools needed to provide maintenance support to modernized/future force aircraft.

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

	FY 2014	FY 2015	FY 2016
<p>Title: Aviation Ground Power Unit (AGPU)</p> <p>Description: The AGPU provides the capability to meet Army helicopter servicing requirements into the next decade by providing a modular, diagnostic/prognostic monitoring system with external hydraulic, pneumatic, and AC/DC electrical power to all Modernized Force Aircraft.</p> <p>FY 2014 Accomplishments: Completed AGPU Trainer Development, Hydraulic Redesign Phase II.</p>	1.250	-	-
<p>Title: Aviation Light Utility Mobile Maintenance Cart (ALUMMC)</p> <p>Description: ALUMMC will enhance mission performance of current forces by reducing the burden on Army Aviation units currently using TDA and TOE tactical vehicles to support flight line operations and providing a standardized and sustainable vehicle to move personnel and equipment along the flight line.</p> <p>FY 2014 Accomplishments: Completed product evaluation and operational testing, Request For Proposal (RFP), and Milestone C Authority.</p>	0.600	-	-
<p>Title: Aviation Unit Maintenance Shop Set (AVUM SS)</p> <p>Description: The AVUM SS consists of three deployable shelters which provide deployable tool loads required for unit-level aviation maintenance tasks.</p>	1.000	-	-

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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 / 4	R-1 Program Element (Number/Name) PE 0603801A / Aviation - Adv Dev	Project (Number/Name) B32 / Adv Maint Concepts/Eq
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016
<p><i>FY 2014 Accomplishments:</i> Began development of a Modification Work Order to replace current AVUM SS shelter with an ISO compliant shelter which will standardize Aviation Intermediate and Unit Level Maintenance Shop Set shelters, increasing workspace and providing an adaptable platform to accommodate emerging requirements for aviation maintenance tools and procedures. Prepared Statement of Work, contract requirements package, conducted technical review of proposals, and load planning and testing.</p>			
<p><i>Title:</i> Unit Maintenance Aerial Recovery Kit (UMARK) <i>Description:</i> UMARK provides Aviation Support Company and Aviation Maintenance Company units with the ability to quickly rig for transport crash-damaged non-flyable modernized aircraft or aircraft undergoing maintenance for evacuation.</p>	0.924	-	-
<p><i>FY 2014 Accomplishments:</i> Completed ground and flight testing and verification.</p>			
<p><i>Title:</i> Management Support Services <i>Description:</i> Management Support Services in Support of the Aviation Ground Support Equipment Product Management Office.</p>	0.297	-	-
<p><i>FY 2014 Accomplishments:</i> Management Support Services</p>			
<p><i>Title:</i> RDTE Project Test Support <i>Description:</i> RDTE Project Test Support for the Aviation Ground Support Equipment Product Management Office.</p>	0.250	-	-
<p><i>FY 2014 Accomplishments:</i> RDTE Project Test Support.</p>			
<p><i>Title:</i> Technical Engineering Services <i>Description:</i> Technical Engineering Services in support of Aviation Ground Support Equipment Product Management Office.</p>	0.527	-	-
<p><i>FY 2014 Accomplishments:</i> Technical Engineering Services.</p>			
Accomplishments/Planned Programs Subtotals	4.848	-	-

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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 / 4	R-1 Program Element (Number/Name) PE 0603801A / Aviation - Adv Dev	Project (Number/Name) B32 / Adv Maint Concepts/Eq
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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>
• Aviation Ground Support Equipment: <i>Aviation Ground</i> <i>Support Equipment, SSN AZ3520</i>	45.999	-	-	-	-	-	-	-	-	-	45.999

Remarks

Beginning in FY 2015, funding on this PE was realigned from PE 0603801A to reflect the program's development efforts in Budget Activity 05, System Development and Demonstration.

D. Acquisition Strategy

This project is an aggregate of advanced maintenance concepts related projects. While the detailed acquisition strategy varies from project to project, the general strategy for each individual project is to complete the development effort through Government test (developmental and operational). Program documentation for milestone decision is prepared, as appropriate, concurrently with the development effort.

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 / 4	R-1 Program Element (Number/Name) PE 0603801A / Aviation - Adv Dev	Project (Number/Name) B32 / Adv Maint Concepts/Eq
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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 Support Services	Various	PM AGSE : RSA, AL	1.617	0.297	Jan 2014	-		-		-		-	-	1.914	-
Subtotal			1.617	0.297		-		-		-		-	-	1.914	-

Remarks
None

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			
AGPU	Various	RTTC, Redstone Arsenal (RSA), AL; AMRDEC, RSA, AL; Aberdeen Test Center (ATC), : Aberdeen Proving Ground, MD	13.222	1.250	Jun 2014	-		-		-		-	-	14.472	-
ALUMMC	Various	ATTD, Ft. Eustis, VA, Aberdeen Test Center (ATC), : Aberdeen Proving Ground MD	1.460	0.600	Jul 2014	-		-		-		-	-	2.060	-
AVUM SS	Various	AMRDEC, RSA, RTTC, RSA, Aberdeen Test Center (ATC), : Aberdeen Proving Ground, MD	0.000	1.000	Jul 2014	-		-		-		-	-	1.000	-
UMARK	Various	AMRDEC, (RSA), AL, Aberdeen Test Center (ATC), : Aberdeen Proving Ground, MD	6.864	0.924	Feb 2014	-		-		-		-	-	7.788	-
Subtotal			21.546	3.774		-		-		-		-	-	25.320	-

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603801A / Aviation - Adv Dev	Project (Number/Name) B32 / Adv Maint Concepts/Eq
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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			
Technical Engineering Services	MIPR	AATD, : Ft. Eustis, VA	7.065	0.388	Mar 2014	-		-		-		-	-	7.453	-
Technical Engineering Services	MIPR	AED : Redstone Arsenal, AL	0.060	0.139	Mar 2014	-		-		-		-	-	0.199	-
Subtotal			7.125	0.527		-		-		-		-	-	7.652	-

Remarks
None

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			
RDTE Project Test Support	MIPR	ATC, : Aberdeen Proving Ground, MD	1.866	0.250	Mar 2014	-		-		-		-	-	2.116	-
Subtotal			1.866	0.250		-		-		-		-	-	2.116	-

Remarks
None

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
	32.154	4.848	-	-	-	-	-	37.002	-

Remarks

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603801A / Aviation - Adv Dev	Project (Number/Name) B32 / Adv Maint Concepts/Eq
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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
Aviation Ground Power Unit (AGPU)	AGPU																											
Aviation Light Utility Mobile Maintenance Cart (ALUMMC)	ALUMMC																											
Aviation Unit Maintenance Shop Set (AVUM SS)					AVUM SS																							
Unit Maintenance Aerial Recovery Kit (UMARK)	UMARK																											

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603801A / Aviation - Adv Dev	Project (Number/Name) B32 / Adv Maint Concepts/Eq
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Aviation Ground Power Unit (AGPU)	2	2013	4	2014
Aviation Light Utility Mobile Maintenance Cart (ALUMMC)	4	2013	2	2015
Aviation Unit Maintenance Shop Set (AVUM SS)	4	2014	4	2015
Unit Maintenance Aerial Recovery Kit (UMARK)	1	2007	2	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 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 0603804A / <i>Logistics and Engineer Equipment - Adv 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	-	11.623	13.380	21.233	-	21.233	23.019	21.103	22.448	22.542	Continuing	Continuing
<i>526: Marine Orien Log Eq Ad</i>	-	2.748	2.602	2.546	-	2.546	4.221	4.389	3.478	3.501	Continuing	Continuing
<i>G11: Adv Elec Energy Con Ad</i>	-	2.416	4.011	8.857	-	8.857	6.441	4.084	8.258	8.414	Continuing	Continuing
<i>G14: Materials Handling Equipment - Ad</i>	-	0.626	-	0.143	-	0.143	0.455	0.847	0.744	0.758	Continuing	Continuing
<i>K39: Field Sustainment Support Ad</i>	-	2.088	0.534	1.875	-	1.875	2.856	2.453	2.531	1.886	Continuing	Continuing
<i>K41: Water And Petroleum Distribution - Ad</i>	-	2.187	3.543	3.764	-	3.764	4.392	4.773	4.871	4.963	Continuing	Continuing
<i>VR8: Combat Service Support Systems - Ad</i>	-	1.558	2.690	4.048	-	4.048	4.654	4.557	2.566	3.020	Continuing	Continuing

Note

Change Summary Explanation: Decrease is due to several PROJECTs.

A. Mission Description and Budget Item Justification

This program element supports advanced component development and prototypes of new and improved technologies for combat support and combat service support equipment essential to sustaining combat operations. Advancements in watercraft, bridging, electric power generators, potable water, material-handling, environmental control, shelter systems, cargo aerial delivery, field service systems, mortuary affairs equipment and petroleum equipment are necessary to improve safety and increase the tactical mobility, operational capability, lethality and survivability on the digital battlefield and to provide for greater sustainment while reducing the logistics support burden.

Decrease from FY14 PB to FY15 PB reflects decrease of several projects.

For FY14, Joint Light Tactical Vehicle (JLTV) moved to PE: 655812/Project: VU9

For FY16, Maneuver Support Vessel - Light (MSV(L)) moved to PE: 604804 Project: EJ9

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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 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 0603804A / <i>Logistics and Engineer Equipment - Adv 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	11.549	13.386	31.903	-	31.903
Current President's Budget	11.623	13.380	21.233	-	21.233
Total Adjustments	0.074	-0.006	-10.670	-	-10.670
• Congressional General Reductions	-0.007	-0.006			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	0.465	-			
• SBIR/STTR Transfer	-0.384	-			
• Adjustments to Budget Years	-	-	-10.670	-	-10.670

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 4					R-1 Program Element (Number/Name) PE 0603804A / <i>Logistics and Engineer Equipment - Adv Dev</i>				Project (Number/Name) 526 / <i>Marine Orien Log Eq Ad</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
526: <i>Marine Orien Log Eq Ad</i>	-	2.748	2.602	2.546	-	2.546	4.221	4.389	3.478	3.501	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

A portion of FY15 funding supports the Maneuver Support Vessel (Light) MSV(L)), a new start in FY16, whose FY16-FY18 resourcing moved from this PE to APE 0604804, Project EJ9.

A. Mission Description and Budget Item Justification

Support project advanced component development, and prototype of equipment and sub-systems supporting the Army Watercraft mission to provide critical capabilities in support of Unified Land Operations (ULO), by extending the Commander's available maneuver space into and throughout the littorals, inland waterways and near coastal regions. Army watercraft equipment supports the conduct of riverine, Logistics Over The Shore (LOTS), Joint Logistics Over The Shore (JLOTS), inter and intratheater transport, movement and maneuver, mission command and sustainment, as identified in DODD 5100.01 (Functions of the Department of Defense and its Major Components). Army Watercraft exploit the inland waterways and littoral regions as waterborne maneuver and supply routes, conducting operations through littoral entry points (developed, undeveloped, and austere access points) and in non-permissive, and/or denied access scenarios. The Army uses a spectrum of Army Watercraft Systems, from heavy sustainment ocean going landing craft capable of intratheater and ship to shore transport and undeveloped beach or harbor access, to ocean-going and harbor utility tug boats and barge derricks for transport and denied port/salvage operations, and modular causeway systems to support LOTS/JLOTS. The funding supports initiatives to enhance the seaworthiness, safety, survivability, supportability, energy efficiency, environmental, regulatory compliance and reliability of existing systems. Funded efforts will advance critical gaps in these areas for the current fleet, while at the same time researching, developing and testing emergent technologies in a manner to support future acquisitions and future fleet planning, as informed by the Army Watercraft Systems Board of Directors (AWS BOD).

FY16 funding will support the maturation of a Uniform National Discharge Standards (UNDS) project, maturation of an At-Sea Transfer project, refinement of the Army Watercraft Module Berthing (AWMB) and maturation of an Escalation of Force initiative. A statutory requirement, UNDS resulted from Section 325 of the National Defense Authorization Act of 1996, which amended Sections 312 and 502(6) of the Clean Water Act and further amends Title 40 Code of Federal Regulations (CFR). Army vessels operate nationwide in coastal and inland waters. Because they may enter waters of more than one state in their normal operations, these vessels would be subject to different environmental requirements for their discharges, depending upon vessel location. The UNDS program establishes national standards for these vessels".

FY15 funding supports development of program Milestone B for Maneuver Support Vessel Light (MSV(L)), a program to be initiated in FY16 with funding on APE 0604804, project EJ9; continues maturation of a Force Protection project, environmental compliance project, maturation of an energy compliance project, and will initiate an At-Sea Transfer project, and corrections to Army Watercraft Module Berthing (AWMBs) based on user evaluations.

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

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Major accomplishments from FY14 funding were the delivery of four Army Watercraft Module Berthing (AWMBs) for user evaluation on a Landing Craft Utility (LCU) and a Logistics Support Vessel (LSV). Design modification to the four prototypes will be awarded in FY15 and work will continue through FY16. Integration and testing of Common Remotely Operated Weapon Station (CROWS II) on a LSV, and initiation of an Energy Compliance project.

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: Landing Craft Mechanized (LCM8)/Maneuver Support Vessel-Light(MSV-L) Description: Landing Craft Mechanized 8 FY 2014 Accomplishments: Watercraft - Landing Craft Mechanized (LCM8) Development	0.175	-	-	-	-
Title: Maneuver Support Vessels (MSV) Capabilities Production Document (CPD) Capabilities and Feasibility Development Description: VSB - Vessel to Shore Bridging Development FY 2014 Accomplishments: Maneuver Support Vessels (MSV) Capabilities Production Document (CPD) support.	0.055	-	-	-	-
Title: Army Watercraft Module Berthing (AWMB) Development Description: AWS - Army Watercraft Module, Berthing (AWMB) FY 2014 Accomplishments: People Pod development FY 2015 Plans: People Pod FY 2016 Base Plans: People Pod	0.500	0.200	0.500	-	0.500
Title: Force Protection; lethal and non-lethal Escalation of Force (EoF) Development Description: AWS - Force Protection FY 2014 Accomplishments: Force Protection Development FY 2015 Plans:	0.600	0.400	0.500	-	0.500

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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
New Title: Force Protection; lethal and non-lethal Escalation of Force (EoF) Development Old Title: Watercraft - Force Protection Development. FY 2016 Base Plans: New Title: Force Protection; lethal and non-lethal Escalation of Force (EoF) Development					
Title: C4ISR Improvements Description: AWS - C4ISR FY 2014 Accomplishments: C4ISR FY 2015 Plans: New Title: C4ISR Improvements Old Title: Watercraft - C4ISR Development	0.250	0.206	-	-	-
Title: Army Watercraft Program Support Description: Salary Support FY 2014 Accomplishments: Support FY 2015 Plans: Salary Support	0.050	0.062	-	-	-
Title: Watercraft Market Surveys and Business Analysis Description: Funding is provided for the following effort FY 2014 Accomplishments: Watercraft Market Surveys and Business Analysis	0.050	-	-	-	-
Title: Riverine Craft Development Description: Riverine Craft Development FY 2014 Accomplishments:	0.050	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army				Date: February 2015	
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B. Accomplishments/Planned Programs (\$ in Millions)					
	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Riverine Craft Development					
Title: Tug and Barge Development Description: Tug and Barge Development FY 2014 Accomplishments: Medium Tug and Barge Development	0.375	-	-	-	-
Title: Terminal Operations and Ship to Shore Development Description: Terminal Operations and Ship to Shore Development FY 2014 Accomplishments: Terminal Operations and Ship to Shore Development	0.075	-	-	-	-
Title: Port/Harbor Utility Development Description: Port/Harbor Utility Development FY 2014 Accomplishments: Old Title: Watercraft - Port/Harbor Utility Development New Title: Port/Harbor Utility Development	0.100	-	-	-	-
Title: Digital Integration Development Description: Digital Integration Development FY 2014 Accomplishments: Digital Integration Development FY 2015 Plans: Will help with the maintenance of the Digital Intergration. Old Title: Watercraft - Digital Integration Development New Title: Digital Integration Development	0.100	0.250	-	-	-
Title: At Sea Transfer Development Description: At Sea Transfer Development	-	0.400	0.330	-	0.330

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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
<p>FY 2015 Plans: New Title: At Sea Transfer Development Old Title: Watercraft - At Sea Transfer Development</p> <p>FY 2016 Base Plans: At Sea Transfer Development</p>					
<p>Title: Energy Compliance Description: Energy Efficiency</p> <p>FY 2014 Accomplishments: New title: Energy Compliance. Old Title: Watercraft - Energy Efficiency Development</p> <p>FY 2015 Plans: New title: Energy Compliance. Old Title: Watercraft - Energy Efficiency Development</p> <p>FY 2016 Base Plans: Energy Compliance.</p>	0.368	0.348	0.300	-	0.300
<p>Title: Environmental Compliance Description: Environmental Compliance Development</p> <p>FY 2015 Plans: New Title: Environmental Compliance Technologies IAW evolving regulatory requirements. Old Title: Energy Efficiency and Environmental Compliance.</p> <p>FY 2016 Base Plans: Environmental Compliance. Technologies IAW evolving regulatory requirements.</p>	-	0.736	0.916	-	0.916
Accomplishments/Planned Programs Subtotals	2.748	2.602	2.546	-	2.546

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army			Date: February 2015			
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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
• MA4500 Modification on In-Service: <i>MA4500 Modification on In-Service Equipment (OPA3)</i>	4.425	41.740	9.305	-	9.305	11.376	10.619	12.325	12.560	Continuing	Continuing
• 0604804A Log and Eng Equip EJ9: <i>0604804A Logistics and Engineer Equipment EJ9</i>	-	-	10.066	-	10.066	18.586	14.522	-	-	-	43.174
• M11101000 Army Watercraft Esp: <i>M11101000 Army Watercraft Esp</i>	-	3.509	39.772	-	39.772	3.215	40.665	40.825	41.601	Continuing	Continuing

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 / 4	R-1 Program Element (Number/Name) PE 0603804A / Logistics and Engineer Equipment - Adv Dev	Project (Number/Name) 526 / Marine Oriented Log Eq Ad
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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			
Small Business Incentive Research (SBIR); Technology Transfer Research	TBD	Various : Various	0.072	-		-		-		-		-	-	0.072	0.083
Subtotal			0.072	-		-		-		-		-	-	0.072	0.083

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			
Landing Craft Mechanized (LCM8) Maneuver Support	C/ FFPLOE	Various : Various	0.591	0.175	Dec 2013	-		-		-		-	Continuing	Continuing	Continuing
Maneuver Support Vessels (MSV) Capabilities Production Document (CPD)Development	C/ FFPLOE	Various : Various	0.732	0.055	Dec 2013	-		-		-		-	Continuing	Continuing	Continuing
Army Watercraft Module, Berthing (AWMB) Development	C/ FFPLOE	PM Force Sustainment Systems : Natick, MA	0.741	0.500	Apr 2014	0.200	Jul 2015	0.500	Jul 2016	-		0.500	Continuing	Continuing	Continuing
Force Protection, Escalation of Force (EoF) Development	C/ FFPLOE	NSWCDD : Crane, IN	0.741	0.600	Jul 2014	0.400	Dec 2014	0.500	Dec 2015	-		0.500	Continuing	Continuing	Continuing
C4ISR Improvements	C/ FFPLOE	SPAWAR : Charleston, SC	0.426	0.250	May 2013	0.206	Aug 2015	-		-		-	-	0.882	Continuing
Market Surveys/Business Analysis	C/FP	TBD : TBD	0.150	0.050	Dec 2013	-		-		-		-	Continuing	Continuing	Continuing
Riverine Craft Development	C/ FFPLOE	Various : Various	0.000	0.050	Jun 2014	-		-		-		-	Continuing	Continuing	Continuing
Tug and Barge Development	C/ FFPLOE	ARO - Battelle : Columbus, OH	0.150	0.375	Apr 2014	-		-		-		-	Continuing	Continuing	Continuing
Terminal Operations & Ship to Shore Development	C/ FFPLOE	Various : Various	0.040	0.075	Dec 2013	-		-		-		-	Continuing	Continuing	Continuing

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

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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			
Port/Harbor Utility Development	C/ FFPLOE	Various : Various	0.150	0.100	Dec 2013	-		-		-		-	Continuing	Continuing	Continuing
Digital Integration Development	C/ FFPLOE	SPAWAR : Charleston, SC	0.150	0.100	Dec 2013	0.250	Mar 2015	-		-		-	-	0.500	Continuing
At Sea Transfer Development (Warping Tug)	C/ FFPLOE	Various : Various	0.100	-		0.400	Mar 2015	0.330	Jan 2016	-		0.330	Continuing	Continuing	-
Energy Efficiency	C/ FFPLOE	Various : Various	0.150	0.368	Mar 2014	0.348	Jan 2015	0.300	Jan 2016	-		0.300	Continuing	Continuing	Continuing
Environmental Compliance (UNDS)	C/ FFPLOE	Various : Various	0.348	-		0.736	Apr 2015	0.916	Feb 2016	-		0.916	-	2.000	-
Subtotal			4.469	2.698		2.540		2.546		-		2.546	-	-	-

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			
Army Watercraft Program Support	MIPR	Various : Various	0.000	0.050	Nov 2014	0.062	Oct 2015	-		-		-	Continuing	Continuing	-
Subtotal			0.000	0.050		0.062		-		-		-	-	-	-

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
	4.541	2.748	2.602	2.546	-	2.546	-	-	-

Remarks

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

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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
Landing Craft Mechanized (LCM 8) Development																												
Maneuver Support Vessels (MSV) Cap Prod Doc (CPD) and competitive																												
Army Watercraft Module Berthing (AWMB) Development																												
Force Protection; Lethal and Non-Lethal Escalation of Force (EoF) Deve																												
C4ISR Improvements																												
Army Watercraft Program Support																												
Watercraft Market Surveys and Business Analysis																												
Riverine Craft Development																												
Terminal Operations (Ship to Shore) Development																												
Digital Integration Development																												
At Sea Transfer Development																												
Energy Efficiency																												
Enviromental Compliance																												

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

Events	Start		End	
	Quarter	Year	Quarter	Year
Landing Craft Mechanized (LCM 8) Development	1	2010	4	2015
Maneuver Support Vessels (MSV) Cap Prod Doc (CPD) and competitive prototyping	1	2010	4	2015
Army Watercraft Module Berthing (AWMB) Development	1	2010	4	2017
Force Protection; Lethal and Non-Lethal Escalation of Force (EoF) Development	1	2010	4	2018
C4ISR Improvements	1	2010	4	2015
Army Watercraft Program Support	1	2013	4	2015
Watercraft Market Surveys and Business Analysis	1	2010	4	2015
Riverine Craft Development	1	2013	4	2015
Terminal Operations (Ship to Shore) Development	1	2013	4	2015
Digital Integration Development	1	2013	4	2015
At Sea Transfer Development	1	2013	4	2020
Energy Efficiency	1	2013	4	2020
Environmental Compliance	1	2013	4	2020

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 4					R-1 Program Element (Number/Name) PE 0603804A / <i>Logistics and Engineer Equipment - Adv Dev</i>				Project (Number/Name) G11 / <i>Adv Elec Energy Con Ad</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
G11: <i>Adv Elec Energy Con Ad</i>	-	2.416	4.011	8.857	-	8.857	6.441	4.084	8.258	8.414	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Not Applicable for this item.

A. Mission Description and Budget Item Justification

The Tactical Electric Power (TEP) program was established by the Department of Defense to develop modernized, standard families of mobile electric power sources and power distribution systems for all Services throughout the Department of Defense. Project Manager Expeditionary Energy & Sustainment Systems (PM E2S2) derives concept and technology developments that will improve the performance, mobility, readiness and survivability of the next generation of tactical power sources in support of all Services. It supports initiatives that are essential to the development and fielding of modernized TEP sources from Watts to Megawatts level that comply with environmental statues and provide noise and signature-suppressed, energy-efficient, lightweight, deployable and reliable equipment. FY15 & FY16 funding will support test and evaluation of technologies for Small Tactical Electric Power (STEP), Mobile Electric Hybrid Power Sources (MEHPS), and Intelligent Power Management and Distribution Systems (IPMDS). Also funding will support a holistic Modeling and Simulation approach to the evaluation of Operational Energy (OE)-related impacts, systems, and improvements; with the vision of reducing Army energy dependency and demand, increasing systems and contingency bases energy efficiency, seeking alternative energy sources and supporting a culture of energy responsibility while sustaining or enhancing operational capabilities. Out years will support investigation of general advancements in engine, power equipment and power distribution equipment that are applicable to current equipment and emerging requirements. Programs include costs for developing concept hardware and executing system evaluations at the Network Integration Evaluation (NIE) events at Ft. Bliss.

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

	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: Contract Activity	1.500	0.800	4.857	-	4.857
Description: Continue development of technology supporting the STEP program, IPMDS, and MEHPS.					
FY 2014 Accomplishments: Develop various technologies related to TEP and power distribution/management across the DoD power spectrum. Specific efforts will include STEP components, MEHPS components, and IPMDS.					
FY 2015 Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
<p>Develop various technologies related to TEP and power distribution/management across the DoD power spectrum. Specific efforts will include STEP components, MEHPS components and IPMDS. Develop tools, systems and capability to provide holistic analysis of Operational Energy impacts, systems and improvements.</p> <p>FY 2016 Base Plans: Develop various technologies related to TEP and power distribution/management across the DoD power spectrum. Specific efforts will include STEP components, MEHPS components and IPMDS. Develop tools, systems and capability to provide holistic M&S analysis of Operational Energy impacts, systems and improvements.</p>					
<p>Title: Government System Test and Evaluation</p> <p>Description: Continue development of technology supporting the STEP program, IPMDS, and MEHPS. Evaluate systems at Network Integration Evaluation (NIE).</p> <p>FY 2014 Accomplishments: Continue evaluation and testing of various technologies related to tactical electric power and power distribution and management across the DoD power spectrum. Efforts will be aimed at resolving technology gaps to meet Army User requirements. Efforts will support the TEP Capability Production Document (CPD). Specific efforts will be limited to small generator system testing due to limited funding. Program supports new equipment and concept demonstrations at NIE 14.2.</p> <p>FY 2015 Plans: Continue evaluation and testing of various technologies related to tactical electric power and power distribution and management across the DoD power spectrum. Efforts will be aimed at resolving technology gaps to meet Army User requirements. Efforts will support the TEP CPD. Specific efforts will include performance testing of small generator sets, hybrid/alternative energy power sources, and intelligent power distribution/management systems. Program also supports Rapid Equipping Force deployments of MEHPS concepts in support of Village Stability Operation. Program supports new equipment and concept demonstrations at NIE 15.1.</p> <p>FY 2016 Base Plans: Continue evaluation and testing of various technologies related to tactical electric power and power distribution and management across the DoD power spectrum. Efforts will be aimed at resolving technology gaps to meet Army User requirements. Efforts will support the TEP CPD. Specific efforts will include performance testing of small generator sets, hybrid/alternative energy power sources, and intelligent power distribution/management</p>	0.350	0.300	1.500	-	1.500

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army			Date: February 2015		
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
systems. Program also supports Type Classification efforts for improved Command Post infrastructure. Program supports new equipment and concept demonstrations at NIE 16.1.					
<p>Title: Other Contracts and Gov't agencies</p> <p>Description: Continue development of technology supporting the STEP program, IPMDS, and MEHPS.</p> <p>FY 2014 Accomplishments: Evaluation and testing of various technologies related to Tactical Electric Power and power distribution/management across the DoD power spectrum. Specific efforts will be limited to the development of STEP given limited funding and support of NIE 14.2</p> <p>FY 2015 Plans: Evaluation and testing of various technologies related to Tactical Electric Power and power distribution/management across the DoD power spectrum. Specific efforts will include development of STEP, and evaluation of MEHPS and intelligent power systems, as well as support of NIE 15.x. Develop tools, systems and capability to provide holistic analysis of Operational Energy impacts, systems and improvements.</p> <p>FY 2016 Base Plans: Continue evaluation and testing of various technologies related to tactical electric power and power distribution and management across the DoD power spectrum. Efforts will be aimed at resolving technology gaps to meet Army User requirements. Efforts will support the TEP CPD. Specific efforts will include performance testing of small generator sets, hybrid/alternative energy power sources, and intelligent power distribution/management systems. Program also supports Type Classification efforts for improved Command Post infrastructure. Program supports new equipment and concept demonstrations at NIE 16.1.</p>	0.400	1.691	1.000	-	1.000
<p>Title: Government Program Management</p> <p>Description: Continue development of technology supporting the STEP program, IPMDS and MEHPS.</p> <p>FY 2014 Accomplishments: Oversight and management of various technology projects related to Tactical Electric Power and power distribution/management across the DoD power spectrum. Efforts will be aimed at resolving technology gaps to meet Army User requirements. Efforts will support the STEP program and the TEP CPD. Specific efforts will be limited to small power sources given limited funding.</p> <p>FY 2015 Plans:</p>	0.166	1.220	1.500	-	1.500

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

	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Oversight and management of various technology projects related to Tactical Electric Power and power distribution/management across the DoD power spectrum. Efforts will be aimed at resolving technology gaps to meet Army User requirements. Efforts will support the STEP program and the TEP CPD. Specific efforts will include development of small sets, MEHPS and intelligent power systems. Oversight, analysis and management of Operational Energy-related impacts, systems and improvements to reduce Army's energy dependence and improve operational capabilities.					
<i>FY 2016 Base Plans:</i> Oversight and management of various technology projects related to Tactical Electric Power and power distribution/management across the DoD power spectrum. Efforts will be aimed at resolving technology gaps to meet Army User requirements. Efforts will support the STEP program and the TEP CPD. Specific efforts will include development of small sets, MEHPS and intelligent power systems. Oversight, analysis and management of Operational Energy-related impacts, systems and improvements to reduce Army's energy dependence and improve operational capabilities. Effort will also be focused on supporting Type Classification of improved Command Post Infrastructure.					
Accomplishments/Planned Programs Subtotals	2.416	4.011	8.857	-	8.857

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>
• 654804.194: <i>Logistics and Engineer Equipment - Eng Dev 194</i>	4.858	5.872	9.862	-	9.862	6.450	4.185	4.877	7.124	Continuing	Continuing
• MA9800: <i>OPA 3, Generators and Associated Eq. MA9800</i>	40.129	115.190	166.356	-	166.356	136.610	139.196	146.266	135.813	Continuing	Continuing

Remarks

D. Acquisition Strategy

Complete advanced development pre-milestone B technology assessments and analysis, and transition of tactical electric power and power distribution products to Engineering and Manufacturing Development (EMD) phase (Milestone B) and subsequent transition to production (Milestone C). Support concept development and demonstration efforts.

E. Performance Metrics

N/A

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

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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			
Small Tactical Electric Power (STEP) Components	MIPR	PM-E2S2 : Fort Belvoir, VA	0.316	0.117	Feb 2014	0.100	Dec 2014	0.200	Dec 2015	-		0.200	Continuing	Continuing	Continuing
Mobile Electric Hybrid Power Sources (MEHPS) Components	MIPR	PM E2S2 : Ft. Belvoir, VA	0.213	0.049	Feb 2014	0.070	Dec 2014	0.100	Dec 2015	-		0.100	Continuing	Continuing	Continuing
Intelligent Power Management and Distribution Systems	MIPR	PM E2S2 : Ft. Belvoir, VA	0.185	-		0.050	Dec 2014	1.000	Dec 2015	-		1.000	Continuing	Continuing	Continuing
Operational Energy	MIPR	PM E2S2 : Fort Belvoir, VA	0.000	-		1.000	Dec 2014	0.200	Dec 2015	-		0.200	Continuing	Continuing	Continuing
Subtotal			0.714	0.166		1.220		1.500		-		1.500	-	-	-

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			
Small Tactical Electric Power (STEP) Components	Various	CERDEC : Fort Belvoir, VA	1.681	1.000	Apr 2014	0.100	Feb 2015	0.500	Apr 2016	-		0.500	Continuing	Continuing	Continuing
Mobile Electric Hybrid Power Sources (MEHPS) Components	Various	Multiple Vendors : TBD	1.315	0.250	Apr 2014	0.100	Apr 2015	0.500	Apr 2016	-		0.500	Continuing	Continuing	Continuing
Intelligent Power Management and Distribution Systems	Various	CERDEC : Fort Belvoir, VA	0.659	0.250	Apr 2014	0.100	Feb 2015	2.057	Apr 2016	-		2.057	Continuing	Continuing	Continuing
Operational Energy	TBD	TBD (FY15) : TBD (FY15)	0.000	-		0.500	Feb 2015	1.800	Apr 2016	-		1.800	Continuing	Continuing	Continuing
Subtotal			3.655	1.500		0.800		4.857		-		4.857	-	-	-

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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 / 4				PE 0603804A / Logistics and Engineer Equipment - Adv Dev				G11 / Adv Elec Energy Con Ad							
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
Small Tactical Electric Power (STEP) Components	MIPR	CERDEC : Fort Belvoir, VA	0.906	0.400	Feb 2014	0.200	Dec 2014	0.200	Dec 2015	-		0.200	Continuing	Continuing	Continuing
Mobile Electric Hybrid Power Sources (MEHPS) Components	MIPR	CERDEC : Fort Belvoir, VA	0.965	-		0.164	Dec 2014	0.100	Dec 2015	-		0.100	Continuing	Continuing	Continuing
Intelligent Power Management and Distribution Systems	MIPR	CERDEC : Fort Belvoir, VA	0.868	-		0.327	Dec 2014	0.200	Dec 2015	-		0.200	Continuing	Continuing	Continuing
Operational Energy	MIPR	Dept of Energy Sandia National Labs : Washington DC	0.000	-		1.000	Dec 2014	0.500	Dec 2015	-		0.500	Continuing	Continuing	Continuing
Subtotal			2.739	0.400		1.691		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
Small Tactical Electric Power (STEP) Components	MIPR	CERDEC : Fort Belvoir, VA	0.380	0.250	Feb 2014	0.100	Feb 2015	0.100	Feb 2016	-		0.100	Continuing	Continuing	Continuing
Mobile Electric Hybrid Power Sources (MEHPS) Components	MIPR	CERDEC : Fort Belvoir, VA	0.215	0.050	Mar 2014	0.100	Feb 2015	0.300	Feb 2016	-		0.300	Continuing	Continuing	Continuing
Intelligent Power Management and Distribution Systems	MIPR	CERDEC : Fort Belvoir, VA	0.347	0.050	Mar 2014	0.100	Feb 2015	1.100	Feb 2016	-		1.100	Continuing	Continuing	Continuing
Subtotal			0.942	0.350		0.300		1.500		-		1.500	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army							Date: February 2015				
Appropriation/Budget Activity 2040 / 4			R-1 Program Element (Number/Name) PE 0603804A / <i>Logistics and Engineer Equipment - Adv Dev</i>				Project (Number/Name) G11 / <i>Adv Elec Energy Con Ad</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	8.050	2.416	4.011		8.857	-		8.857	-	-	-

Remarks

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603804A / <i>Logistics and Engineer Equipment - Adv Dev</i>	Project (Number/Name) G11 / <i>Adv Elec Energy Con Ad</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
SMALL TACTICAL ELECTRIC POWER (STEP) PROGRAM																												
Assess Technologies to Meet Gaps-STEP																												
Test Technologies to Meet Gaps-STEP																												
Assess Technology for Spiral Insertions into EMD-STEP																												
(1) Transfer to Engineering and Manufacturing Development-STEP																												
MOBILE ELECTRIC HYBRID POWER SOURCES (MEHPS)																												
Assess Technologies to Meet Gaps--MEHPS																												
Test Technologies to Meet Gaps--MEHPS																												
Develop Ruggedized Prototypes for Field Evaluations																												
Intelligent Power Management and Distribution Systems (IPMDS)																												
Assess Technologies to Meet Gaps-IPMDS																												
Test Technologies to Meet Gaps-IPMDS																												
Test Ruggedized IPDISE concepts with AMMPS Microgrid																												

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603804A / <i>Logistics and Engineer Equipment - Adv Dev</i>	Project (Number/Name) G11 / <i>Adv Elec Energy Con Ad</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) Transfer to Engineering and Manufacturing Development-IPDISE									▲																			
ASSESSMENT OF TECHNOLOGIES																												
Assess Technologies to Meet Gaps and Improve Efficiencies																												
OPERATIONAL ENERGY (OE)																												
Evaluation of OE-Related Impacts, Systems and Improvements																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603804A / <i>Logistics and Engineer Equipment - Adv Dev</i>	Project (Number/Name) G11 / <i>Adv Elec Energy Con Ad</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
SMALL TACTICAL ELECTRIC POWER (STEP) PROGRAM	1	2008	2	2015
Assess Technologies to Meet Gaps-STEP	1	2008	1	2015
Test Technologies to Meet Gaps-STEP	1	2008	2	2015
Assess Technology for Spiral Insertions into EMD-STEP	1	2016	4	2016
Transfer to Engineering and Manufacturing Development-STEP	2	2015	2	2015
MOBILE ELECTRIC HYBRID POWER SOURCES (MEHPS)	1	2010	4	2018
Assess Technologies to Meet Gaps--MEHPS	1	2010	4	2018
Test Technologies to Meet Gaps--MEHPS	1	2010	4	2018
Develop Ruggedized Prototypes for Field Evaluations	1	2019	4	2019
Intelligent Power Management and Distribution Systems (IPMDS)	1	2010	4	2015
Assess Technologies to Meet Gaps-IPMDS	1	2010	4	2015
Test Technologies to Meet Gaps-IPMDS	1	2010	4	2015
Test Ruggedized IPDISE concepts with AMMPS Microgrid	1	2013	4	2017
Transfer to Engineering and Manufacturing Development-IPDISE	2	2016	2	2016
ASSESSMENT OF TECHNOLOGIES	1	2017	4	2020
Assess Technologies to Meet Gaps and Improve Efficiencies	1	2017	4	2020
OPERATIONAL ENERGY (OE)	1	2015	4	2019
Evaluation of OE-Related Impacts, Systems and Improvements	1	2015	4	2019

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 4					R-1 Program Element (Number/Name) PE 0603804A / <i>Logistics and Engineer Equipment - Adv Dev</i>				Project (Number/Name) G14 / <i>Materials Handling Equipment - Ad</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
G14: <i>Materials Handling Equipment - Ad</i>	-	0.626	-	0.143	-	0.143	0.455	0.847	0.744	0.758	Continuing	Continuing
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.

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

	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: Field Maintenance and Training Aids for Material Handling Equipment (MHE)	0.378	-	-	-	-
Description: Field Maintenance and Training Aids for Material Handling Equipment (MHE)					
FY 2014 Accomplishments: Develop a solution to eliminate the physical insertion of system faults for maintenance training.					
Title: Baseline Fuel Efficiency of Material Handling Equipment (MHE)	0.248	-	-	-	-
Description: Develop standard duty cycles for fielded system, investigate training/technology for improving efficiency and validate performance of proposed changes.					
FY 2014 Accomplishments: Instrument and Test MHE equipment to baseline fuel consumption during standard operations.					
Title: Driver Assist	-	-	0.143	-	0.143
Description: Research and Demonstrate technologies which would enhance operations such as the inclusion of cameras, collision sensors and lifting aids.					
FY 2016 Base Plans: Develop Driver Assist for Rough Terrain Container Handler (RTCH).					
Accomplishments/Planned Programs Subtotals	0.626	-	0.143	-	0.143

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603804A / <i>Logistics and Engineer Equipment - Adv Dev</i>	Project (Number/Name) G14 / <i>Materials Handling Equipment - Ad</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
• G41002: <i>5K Light Capacity Rough Terrain (LCRT) Forklift</i>	7.517	14.327	17.496	10.486	27.982	17.843	18.199	18.555	17.916	-	122.339
• M41200: <i>Rough Terrain Container Handler (RTCH)</i>	1.250	-	-	-	-	-	-	-	-	-	1.250
• M41800: <i>All Terrain Lifting Army System</i>	0.860	-	-	-	-	-	-	-	-	-	0.860

Remarks

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. Develop additional capabilities for existing systems such as the LCRTF, RTCH, and ATLAS which will allow for improved safety, autonomous or semi autonomous operation. Award contracts with vehicle or Autonomus System Developer/TARDEC Robotics to integrate existing technologies onto the platforms to allow for ease of operation or removal of the operator from vehicle. Testing will be conducted at Aberdeen Proving Grounds, MD.

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 / 4	R-1 Program Element (Number/Name) PE 0603804A / <i>Logistics and Engineer Equipment - Adv Dev</i>	Project (Number/Name) G14 / <i>Materials Handling Equipment - Ad</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			
System Engineering/ Program Management	MIPR	TARDEC : Warren, MI	0.022	-		-		-		-		-	-	0.022	-
Subtotal			0.022	-		-		-		-		-	-	0.022	-

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			
Field Maintenance Aids for MHE	TBD	Kalmar RT Center : Cibolo, TX	0.087	0.378	Feb 2014	-		-		-		-	-	0.465	-
Driver Assist	TBD	TBD : TBD	0.000	-		-		0.143	Mar 2016	-		0.143	-	0.143	-
Subtotal			0.087	0.378		-		0.143		-		0.143	-	0.608	-

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			
Field Maintenance Aids for MHE	TBD	Kalmar RT Center : Cibolo, TX	0.028	-		-		-		-		-	Continuing	Continuing	-
Baseline Fuel Efficiency of MHE Equipment	TBD	TBD : TBD	0.000	0.248	Jan 2014	-		-		-		-	-	0.248	-
Subtotal			0.028	0.248		-		-		-		-	-	-	-

			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			0.137	0.626	-	0.143	-	0.143	-	-	-

Remarks

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603804A / <i>Logistics and Engineer Equipment - Adv Dev</i>	Project (Number/Name) G14 / <i>Materials Handling Equipment - Ad</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
Develop solution for field maintenance and training aids																												
Baseline fuel efficiency of equipment																												
Driver Assist																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603804A / <i>Logistics and Engineer Equipment - Adv Dev</i>	Project (Number/Name) G14 / <i>Materials Handling Equipment - Ad</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Develop solution for field maintenance and training aids	2	2014	2	2014
Baseline fuel efficiency of equipment	1	2014	4	2014
Driver Assist	2	2016	4	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 4					R-1 Program Element (Number/Name) PE 0603804A / <i>Logistics and Engineer Equipment - Adv Dev</i>				Project (Number/Name) K39 / <i>Field Sustainment Support Ad</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
K39: <i>Field Sustainment Support Ad</i>	-	2.088	0.534	1.875	-	1.875	2.856	2.453	2.531	1.886	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project supports development of critical soldier support and sustainment systems for cargo aerial delivery capabilities. These systems will fill identified theater distribution and services capability gaps, improve unit sustainability, and increase combat effectiveness. This project supports Advanced Component Development and Prototyping of Critical Distribution Capabilities which provide improved safety and accuracy while increasing survivability of aircraft, personnel, and equipment. This project develops critical enablers that support the Quartermaster (QM) Force Transformation Strategy and The Army's Modular Capabilities by maintaining readiness through fielding and integrating new equipment. This project also ensures Army Expeditionary Forces are capable of rapid deployment through aerial delivery initiatives and reduces sustainment requirements, related Combat Support/Combat Service Support (CS/CSS) demands in lift, combat zone footprint, and costs for logistical support.

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

	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: Advanced Low Velocity Airdrop System Light and Heavy (ALVADS-L or ALVADS-H)	2.088	-	-	-	-
Description: ALVADS provides critical airdrop of supplies and equipment to Global Response Force (GRF) airborne Brigade Combat Teams (BCT) and resupply of non-airborne BCT's, Stryker Brigade Combat Teams (SBCT), Special Operations Forces (SOF), and other future forces for strategic, operational, and tactical military operations. This capability is essential in providing the strategic responsiveness, full spectrum versatility, and sustainability demanded by Joint and Service Visions and concepts. GRF, non-airborne BCT, SBCT, SOF, and other future forces require mission-critical equipment delivered by airdrop when air-land is not possible due to anti-access conditions. ALVADS enhances the commander's ability to deliver heavy loads, conduct resupply activities, and provide accurate, timely delivery of needed equipment in all operational environments and in all types of weather while reducing the aircraft vulnerability to threat weaponry. The ALVADS-Light capability includes loads in the weight range from 2,520 to 22,000 lbs being deployed from altitudes as low as 750 Above Ground Level (AGL) (T) and 500 (AGL) (O). The ALVADS-Heavy load range is 22,001 - 42,000 lbs to accommodate heavier cargo loads and possesses a slightly increased minimum deployment altitude requirement of 975 (AGL) (T) and 500 (AGL) (O).					
FY 2014 Accomplishments:					

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603804A / <i>Logistics and Engineer Equipment - Adv Dev</i>	Project (Number/Name) K39 / <i>Field Sustainment Support Ad</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Awarded ALVADS developmental contract. Initiated ALVADS Design Validation competitive fly off. Prepared Milestone B package and transitioned into Engineering and Manufacturing Development (EMD).					
Title: Extracted High and Low High Speed Container Delivery System (EHLSCDS) Description: Provides a high speed (230 knot), low altitude (375 ft AGL) capability for up to eight Container Delivery Systems (CDS) to enhance aircraft and aircrew safety while improving accuracy and reducing dispersion for receiving ground units. FY 2015 Plans: Begin EHLSCDS Design Validation (DV) testing. FY 2016 Base Plans: Complete EHLSCDS Design Validation (DV) testing, prepare for Milestone B and transition program into Engineering and Manufacturing Development (EMD).	-	0.534	1.875	-	1.875
Accomplishments/Planned Programs Subtotals	2.088	0.534	1.875	-	1.875

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>
• OPA MA7806: <i>Precision Airdrop MA7806</i>	9.500	4.778	2.890	-	2.890	1.930	2.191	2.197	2.240	Continuing
• RDT&E 654804.L39: <i>Field Sustainment Support ED 654804.L39</i>	1.729	1.687	1.849	-	1.849	4.156	3.219	2.308	3.078	Continuing

Remarks

D. Acquisition Strategy
Accelerate Joint Precision Aerial Delivery System (JPADS) product improvements to transition to Production.

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 / 4				PE 0603804A / Logistics and Engineer Equipment - Adv Dev				K39 / Field Sustainment Support Ad							
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 Support	Various	PM Force Sustainment Sys (FSS), Natick : Natick, MA	5.104	0.628	Apr 2014	0.070		0.575		-		0.575	Continuing	Continuing	Continuing
SBIR+STTR	TBD	Various : Various	0.090	-		-		-		-		-	-	0.090	-
Subtotal			5.194	0.628		0.070		0.575		-		0.575	-	-	-
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
Extracted High and Low Speed Container Delivery System (EHLSCDS)	Various	Various : Various	1.097	-		0.264		0.500		-		0.500	Continuing	Continuing	Continuing
Soldier Support Equipment	Various	PM Force Sustainment Sys (FSS), Natick : Natick, MA	15.934	-		-		-		-		-	Continuing	Continuing	Continuing
LCADS P3I Effort	Various	Various : Various	1.300	-		-		-		-		-	Continuing	Continuing	Continuing
ALVADS Development	Various	Various : Various	9.600	-		-		-		-		-	Continuing	Continuing	Continuing
JPADS 2K and 10K product improvements	Various	Various : Various	5.900	-		-		-		-		-	Continuing	Continuing	Continuing
RRDAS Development	Various	Various : Various	2.200	-		-		-		-		-	Continuing	Continuing	Continuing
Next Generation Human Remains Transfer Case Development	Various	Various : Various	2.220	-		-		-		-		-	Continuing	Continuing	Continuing
Subtotal			38.251	-		0.264		0.500		-		0.500	-	-	-

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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 / 4				PE 0603804A / Logistics and Engineer Equipment - Adv Dev				K39 / Field Sustainment Support Ad							
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
ALVADS Development	C/FFP	Various : Various	0.000	0.060	May 2014	-		-		-		-	-	0.060	-
Subtotal			0.000	0.060		-		-		-		-	-	0.060	-
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
ALVADS-Light Testing Design Validation(DV). ALVADS-Heavy S&T Test	Various	YPG, AZ : YPG, AZ	9.031	1.400	May 2014	-		-		-		-	Continuing	Continuing	Continuing
Extracted High and Low Speed Container Delivery System (EHLSCDS)	C/FFP	YPG, AZ : Arizona	0.000	-		0.200		0.800		-		0.800	-	1.000	-
RRDAS Design Validation (DV) Testing	Various	YPG, AZ : YPG, AZ	0.150	-		-		-		-		-	Continuing	Continuing	Continuing
ACPRS	Various	Ft Bragg, NC : NC	0.220	-		-		-		-		-	-	0.220	-
LCADS P3I	Various	DTC, YPG, OTC, FT Bragg : Various	4.307	-		-		-		-		-	Continuing	Continuing	Continuing
Subtotal			13.708	1.400		0.200		0.800		-		0.800	-	-	-
Project Cost Totals			57.153	2.088		0.534		1.875		-		1.875	-	-	-
Remarks															

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603804A / <i>Logistics and Engineer Equipment - Adv Dev</i>	Project (Number/Name) K39 / <i>Field Sustainment Support Ad</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) Prepare for MS B and transition of ALVADS					▲1																								
(2) Prepare MS A EHLSCDS					▲2																								
(3) Conduct Milestone B and transition EHLSCDS									▲3																				
Conduct EHLSCDS validation testing																													
(4) Conduct Milestone A on Autoload Hookup/Rotary A/C									▲4																				
Conduct SADE Autoload Hookup advanced component prototype, design																													
JPADS Block I upgrade component development																													
(5) Prepare Milestone A for RRDAS																	▲5												
Conduct RRDAS advanced component prototype design																													
(6) Prepare for Milestone A for Next Generation Green LCADS																					▲6								
Next Generation LCADS component development																													
(7) Prepare for Milestone A for Rotary A/C Low Cost Cargo Airdrop																									▲7				
Conduct Rotary A/C Low Cost AD component development																													

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603804A / <i>Logistics and Engineer Equipment - Adv Dev</i>	Project (Number/Name) K39 / <i>Field Sustainment Support Ad</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Prepare for MS B and transition of ALVADS	4	2014	4	2014
Prepare MS A EHLSCDS	1	2015	1	2015
Conduct Milestone B and transition EHLSCDS	2	2016	2	2016
Conduct EHLSCDS validation testing	2	2015	1	2016
Conduct Milestone A on Autoload Hookup/Rotary A/C	2	2016	2	2016
Conduct SADE Autoload Hookup advanced component prototype, design & fabrication	2	2017	2	2018
JPADS Block I upgrade component development	1	2017	4	2018
Prepare Milestone A for RRDAS	2	2018	2	2018
Conduct RRDAS advanced component prototype design	4	2018	2	2019
Prepare for Milestone A for Next Generation Green LCADS	1	2020	1	2020
Next Generation LCADS component development	2	2020	4	2020
Prepare for Milestone A for Rotary A/C Low Cost Cargo Airdrop	2	2020	2	2020
Conduct Rotary A/C Low Cost AD component development	4	2020	4	2020

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 4					R-1 Program Element (Number/Name) PE 0603804A / <i>Logistics and Engineer Equipment - Adv Dev</i>				Project (Number/Name) K41 / <i>Water And Petroleum Distribution - Ad</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
K41: <i>Water And Petroleum Distribution - Ad</i>	-	2.187	3.543	3.764	-	3.764	4.392	4.773	4.871	4.963	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project develops and demonstrates the potential of prototype equipment and technologies to satisfy petroleum storage, distribution, and quality surveillance system requirements. The Technology Development programs support the development and enhancement of rapidly deployable Petroleum and Water equipment. The mission includes developing onboard fuel quality analysis systems; achieving greater capabilities in the removal of Nuclear, Biological, Chemical (NBC) and other contaminants from water sources; reducing the logistics footprint; developing water reutilization systems to reduce the requirement for transport of water into the theater; and material systems to decrease the logistics footprint and employment time for the transfer of liquid logistics in joint operations area. This vital equipment enables the Army to achieve its mission by providing the Army with the means to be highly mobile and self-sustaining in very hostile joint operations areas. Future Force operations demand that combat systems be rapidly deployable to the theater, rapidly emplaced upon arrival, and rapidly relocated to support a fast moving non-linear battlefield.

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

	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: 3K Tactical Water Purification System (3K TWPS)	0.500	-	0.565	-	0.565
Description: Funding is provided for the following effort					
FY 2014 Accomplishments: Test 3K TWPS breadboard components and use results to start preparation of detailed system design.					
FY 2016 Base Plans: Complete detailed system design and prepare Milestone B program documentation and analysis. Initiate Preliminary Design Review (PDR) to support MS B in 1QFY16.					
Title: Early Entry Fluid Distribution System (E2FDS)	1.362	2.793	3.199	-	3.199
Description: Funding is provided for the following effort					
FY 2014 Accomplishments: Complete the development of six performance specifications for the E2FDS; System Level, Command and Control, Hose Reel Assembly, Hose Assembly, Pumping Assembly and Pump Station Accessories. Develop					

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603804A / <i>Logistics and Engineer Equipment - Adv Dev</i>	Project (Number/Name) K41 / <i>Water And Petroleum Distribution - Ad</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
<p>Milestone B documentation and initiate Engineering and Manufacturing Development (EMD) contract action in parallel with Milestone B documentation.</p> <p>FY 2015 Plans: Achieve Milestone B approval. Release Request for Proposal (RFP) for (EMD) contract. Source Selection Evaluation Board (SSEB) for EMD contract. EMD Contract award.</p> <p>FY 2016 Base Plans: Award prototype development contract. Complete initial design of E2FDS. Initiate Preliminary Design Review of E2FDS prototype. Initiate fabrication of prototypes of E2FDS for testing.</p>					
<p>Title: Fuel System Supply Points (FSSP)</p> <p>Description: Funding is provided for the following effort</p> <p>FY 2014 Accomplishments: Address the capability gap for automated gauging to capture fuel quantities in collapsible tanks in the FSSP. This includes the development of a data device that will transmit and store the data internally for the system and externally to other command networks and systems. Assist the Army and Capability Developer in the Limited Objective Experiment mission conducted in FY14.</p>	0.325	-	-	-	-
<p>Title: Modular Fuel System (MFS)</p> <p>Description: Funding is provided for the following effort</p> <p>FY 2015 Plans: Conduct Operational Testing on the MFS. Test will include the MFS Pump Rack Module (PRM) and the MFS Tank Rack Module (TRM). Funding provides support for Soldiers to conduct Operational Tests of the MFS system.</p>	-	0.750	-	-	-
Accomplishments/Planned Programs Subtotals	2.187	3.543	3.764	-	3.764

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603804A / <i>Logistics and Engineer Equipment - Adv Dev</i>	Project (Number/Name) K41 / <i>Water And Petroleum Distribution - Ad</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>
• PM PAWS Project L41 654804: <i>Logistics and Engineer Equipment</i>	2.508	3.193	4.038	-	4.038	8.669	5.256	4.645	4.645	Continuing	Continuing
- <i>Engineering Development L41</i>											
• <i>Distribution Sys Petroleum & Water: Distribution Systems Petroleum & Water MA6000</i>	42.288	40.692	35.381	-	35.381	37.949	42.169	39.112	40.843	Continuing	Continuing

Remarks

D. Acquisition Strategy

Develop engineering prototypes for the 3K Tactical Water Purification System (3K TWPS), Early Entry Fluid Distribution System (E2FDS), and select Non-Development Item (NDI) based on market surveys and proposals from industry. Based on market research, will award either competitive or sole source contracts.

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 / 4	R-1 Program Element (Number/Name) PE 0603804A / Logistics and Engineer Equipment - Adv Dev	Project (Number/Name) K41 / Water And Petroleum Distribution - Ad
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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			
3K Tactical Water Purification System (3K TWPS)	Various	TARDEC : Warren, MI	0.680	0.200	Mar 2014	-		0.150	Oct 2015	-		0.150	-	1.030	Continuing
Water Quality Monitoring	Various	TARDEC, : Warren, MI	0.270	-		-		-		-		-	-	0.270	-
Fuel Gauging Improvements	MIPR	NFESC : Port Hueneme, CA	0.818	0.237	Dec 2013	-		-		-		-	-	1.055	Continuing
Early Entry Fluid Distribution System (E2FDS)	C/FFP	TARDEC & PM, PAWS : Warren, MI	0.000	0.972	Jan 2014	2.000		3.199	Mar 2016	-		3.199	Continuing	Continuing	Continuing
3K Tactical Water Purification System (3K TWPS)	MIPR	NFESC : Port Hueneme, CA	0.989	-		-		0.050	Oct 2015	-		0.050	Continuing	Continuing	Continuing
Bulk Fuel Distribution	Various	TBD : TBD	1.404	-		-		-		-		-	-	1.404	-
Expeditionary Water Packaging System (EWPS)	C/FFP	TARDEC : Warren, MI	1.177	-		-		-		-		-	-	1.177	Continuing
Modular Tactical Retail Refueling System (MTRRS)	RO	TARDEC : Warren, MI	0.100	-		-		-		-		-	-	0.100	Continuing
Subtotal			5.438	1.409		2.000		3.399		-		3.399	-	-	-

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			
Water System Capability Improvements	Various	TARDEC : Warren, MI	1.053	-		-		-		-		-	-	1.053	Continuing
Early Entry Fluid Distribution System (E2FDS)	Various	TARDEC & PM, PAWS : Warren, MI	0.000	0.390	Jan 2014	0.793	Mar 2015	-		-		-	-	1.183	Continuing

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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 / 4				PE 0603804A / Logistics and Engineer Equipment - Adv Dev				K41 / Water And Petroleum Distribution - Ad							
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
Fuel Gauging Improvements	Various	TARDEC & PM, PAWS : Warren, MI	0.000	0.163	Jan 2014	-		-		-		-	-	0.163	Continuing
3K Tactical Water Purification System (TWPS)	Various	TARDEC : Warren, MI	0.500	0.100	Feb 2014	-		-		-		-	-	0.600	Continuing
Subtotal			1.553	0.653		0.793		-		-		-	-	2.999	-
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
Water Systems Capability Improvements	Various	TARDEC : Warren, MI	1.181	-		-		-		-		-	-	1.181	Continuing
Water Quality Monitoring	Various	Aberdeen Proving Ground,MD : APG, MD	0.030	-		-		-		-		-	-	0.030	Continuing
Water Quality Monitoring	Various	TARDEC : Warren, MI	0.300	-		-		-		-		-	-	0.300	Continuing
Modular Fuel System (MFS)	Various	Yuma Proving Ground : Yuma, AZ	0.000	-		0.750		-		-		-	-	0.750	Continuing
3K Tactical Water Purification System (3K TWPS)	RO	TARDEC : Warren, MI	0.822	0.125	Apr 2014	-		0.365	Oct 2015	-		0.365	-	1.312	Continuing
Fuel Pumping Assembly Improvements	Various	TARDEC : Warren, MI	0.700	-		-		-		-		-	-	0.700	Continuing
Subtotal			3.033	0.125		0.750		0.365		-		0.365	-	4.273	-
Project Cost Totals			10.024	2.187		3.543		3.764		-		3.764	-	-	-
Remarks															

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603804A / <i>Logistics and Engineer Equipment - Adv Dev</i>	Project (Number/Name) K41 / <i>Water And Petroleum Distribution - Ad</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
Improvements for Family of Fuel System Supply Points (FSSPs)	Tank Gauging																											
3K Tactical Water Purification System (3K TWPS)	Develop 3K TWPS; PDR; CDR																											
Early Entry Fluid Distribution System	Prototype Contract & complete design																											
Modular Fuel System (MFS)					Modular Fuel																							
Water From Air													Water From Air															
Petroleum Test Kit (PTK)													Petroleum Test Kit															
Waste Water/Water Recycle Systems																	Develop Sys.											
Man Portable Water Purifier																					Develop Sys.							

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603804A / <i>Logistics and Engineer Equipment - Adv Dev</i>	Project (Number/Name) K41 / <i>Water And Petroleum Distribution - Ad</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Improvements for Family of Fuel System Supply Points (FSSPs)	1	2013	4	2014
3K Tactical Water Purification System (3K TWPS)	4	2013	3	2016
Early Entry Fluid Distribution System	4	2013	4	2018
Modular Fuel System (MFS)	1	2015	4	2015
Water From Air	1	2017	3	2019
Petroleum Test Kit (PTK)	1	2017	4	2018
Waste Water/Water Recycle Systems	1	2019	4	2020
Man Portable Water Purifier	1	2020	4	2020

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 4					R-1 Program Element (Number/Name) PE 0603804A / <i>Logistics and Engineer Equipment - Adv Dev</i>				Project (Number/Name) VR8 / <i>Combat Service Support Systems - Ad</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
VR8: <i>Combat Service Support Systems - Ad</i>	-	1.558	2.690	4.048	-	4.048	4.654	4.557	2.566	3.020	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project supports development of critical soldier support and sustainment systems including shelter systems (rigid and soft wall), base camp subsystems, field service systems, mortuary affairs equipment, heaters, camouflage systems to counter emerging enemy threat technologies, and other combat service support equipment. These systems will fill identified theater distribution and services capability gaps, improve unit sustainability, improve resource and energy efficiency and increase combat effectiveness. This project supports Advanced Component Development and Prototyping of critical tactical support systems that support mobile Joint Service command and control, medical, and maintenance platforms. This project develops critical enablers that support the Quartermaster (QM) Force Transformation Strategy and The Army's Modular Capabilities by maintaining readiness through fielding and integrating new equipment. This project also ensures Army Expeditionary Forces are capable of rapid deployment and reduces sustainment requirements, related Combat Support/Combat Service Support (CS/CSS) demands in lift, combat zone footprint, and costs for logistical support.

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

	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: Zero-Footprint Base Camp	0.350	0.701	1.070	-	1.070
Description: Zero-Footprint Base Camp reduces the operational energy and logistics footprint of the expeditionary base camp system, with the goal being a significant reduction in fuel, water, and power requirements to sustain operations in the field. Operating a base camp such as Force Provider requires a significant amount of logistics support and also produces an enormous amount of by products, both of which cost money, human effort (that means a risk in the form of soldiers on the road), and represents a potential vulnerability.					
FY 2014 Accomplishments: Conducted evaluation and demonstration of novel technologies with focus on producing suitable technology demonstration prototypes and reducing technical risk. Prepared for transition of Zero-Footprint Base Camp technologies into Engineering and Manufacturing Development (EMD) in support of the OSD Joint Expeditionary Basing Work Group initiative for Joint base camp systems. Completed evaluation and demonstration on solar shading and insulating technologies.					
FY 2015 Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
<p>Conduct evaluation and demonstration of novel technologies with focus on producing suitable technology demonstration prototypes and reducing technical risk. Prepare for transition of Zero-Footprint Base Camp technologies into Engineering and Manufacturing Development (EMD) in support of the OSD Joint Expeditionary Basing Work Group initiative for Joint base camp systems.</p> <p>FY 2016 Base Plans: Conduct evaluation and demonstration of novel resource and operational energy saving technologies with continued focus on producing suitable technology demonstration prototypes and reducing technical risk. Evaluate technologies transitioning from the Sustainability, Logistics Basing Science and Technology Objective Demonstration (SLB-STO-D). Prepare promising Zero-Footprint Base Camp technologies for transition into Engineering and Manufacturing Development (EMD) supporting Force Provider requirements and OSD Joint Expeditionary Basing Work Group initiatives</p>					
<p>Title: Net-Zero Energy Efficiency Solutions</p> <p>Description: Net-Zero Energy Efficiency Solutions reduce the logistics footprint of the expeditionary base camp system, with the goal being a significant reduction in fuel, water, material and power requirements to sustain operations in the field. The effort includes reducing site preparation, maintenance and spare parts requirements. Operating a base camp such as Force Provider requires a significant amount of logistics support and also produces an enormous amount of by products, both of which cost money, human effort (that means a risk in the form of soldiers on the road), and represents a potential vulnerability.</p> <p>FY 2014 Accomplishments: Completed evaluation of integrated technologies that transitioned from the RDECOM 6.3 programs in a realistic operating environment at the Ft Devens Base Camp Integration Laboratory (BCIL). Efforts were focused on proving out subsystem maturity and the potential of these technologies before transitioning into Engineering and Manufacturing Development (EMD) and putting them into operational use within the Army Force Provider base camps as a Pre-Planned Product Improvements (P3I). Focus was on evaluating technologies that will improve upon the environmental and energy efficiency performance of the base camp. Specifically: 1) Integration and evaluation of micro-grid / smart power / renewable energy/ power storage solutions developed under separate DoD and industry programs that can be incorporated into Force Provider modules to complement existing Tactical Quiet Generators (TQGs) and the Advanced Medium-sized Mobile Power Source (AMMPS) for standard Army Force Provider modules; and 2) Integration and evaluation of energy efficient Expeditionary Rigid Wall</p>	0.885	0.964	1.231	-	1.231

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army			Date: February 2015		
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Shelters with integrated Environmental Control Units / Heaters that will compliment improved shelter efficiencies and significantly reduce the fuel demand on base camp operations. FY 2015 Plans: Conduct evaluation of integrated technologies that are transitioning from the RDECOM 6.3 programs in a realistic operating environment at the Ft Devens Base Camp Integration Laboratory (BCIL). Efforts are focused on proving out subsystem maturity and the potential of these technologies before transitioning into Engineering and Manufacturing Development (EMD) and putting them into operational use within the Army Force Provider base camps as a Pre-Planned Product Improvements (P3I). Focus will be on evaluating technologies that will improve upon the environmental and energy efficiency performance of the base camp. Specifically the Integration and evaluation of energy efficient Expeditionary Rigid Wall Shelters with integrated Environmental Control Units / Heaters and energy saving appliances that will compliment improved shelter efficiencies and significantly reduce the fuel and resource demand on base camp operations. FY 2016 Base Plans: Conduct evaluation of integrated technologies that are transitioning from the RDECOM 6.3 programs in a realistic operating environment at the Ft Devens Base Camp Integration Laboratory (BCIL). Efforts are focused on proving out subsystem maturity and the potential of these technologies before transitioning into Engineering and Manufacturing Development (EMD) and putting them into operational use within the Army Force Provider base camps as a Pre-Planned Product Improvements (P3I). Focus will be on evaluating technologies that will improve upon the environmental, resource, and energy efficiency performance of the base camp. Specifically the integration and evaluation of renewable energy supplementing systems such as solar water heating and waste heat collection systems, low-energy demand Environmental Control Units / heaters, and energy saving appliances that will compliment improved shelter and subsystem efficiencies significantly reducing the fuel and resource demand on base camp operations.					
Title: Expeditionary Shelter Protection System (ESPS) Description: ESPS is a lightweight, rapidly deployable and reusable ballistic protection system that can be installed in commonly used military shelters in expeditionary and remote base camps and outposts where more robust forms of ballistic protection (i.e. sandbags, concrete barriers) are not readily available or logistically feasible. FY 2014 Accomplishments:	0.323	0.200	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Completed evaluation/demonstration of advanced ballistics protection technologies to support transition to EMD for ESPS in support of Force Provider Expeditionary (FPE) add-on capability requirement. FY 2015 Plans: Complete Milestone B documentation and obtain acquisition decision to initiate EMD development for ESPS.					
Title: Black Waste Elimination for Small Base Camps (150 personnel) Description: Provides the capability to reduce/eliminate the black water generated by small base camps. The objective capability will reduce our sustainment requirements for backhauling black waste water as well as our risk of contaminating the environment with biological contaminants. This capability will significantly reduce reliance on external support and is a key capability required to move toward zero footprint base camps. FY 2015 Plans: Transition black waste water elimination technologies from RDECOM 6.3 program and develop a demonstration prototype for contingency base applications to prove out component and subsystem maturity. FY 2016 Base Plans: Complete prototype fabrication and conduct evaluation of component performance. Prepare documentation for Milestone B for the Black Waste Elimination System and transition into EMD.	-	0.250	0.500	-	0.500
Title: Solid Waste Disposal for Small Base Camps Description: Provides an integrated waste management (reduction, treatment or disposal process) add-on capability that can safely process 1,000 lbs or more of mixed solid waste in a single day on site. Mixed solid waste produced on a single 150 person site must be properly managed through reduction, reuse, recycling, treatment, or disposal. Most of the waste is nonhazardous solid waste. Provides a substantial improvement over the current practice of burn pits that poses a health risk to Soldiers and/or the backhaul logistics burden. FY 2015 Plans: Complete the evaluation of integrated waste management technologies. Prepare a demonstration prototype for contingency base applications and conduct initial performance evaluation. Prepare documentation for Milestone B for the Small Base Waste Disposal System. FY 2016 Base Plans: Conduct Milestone B and transition technologies into EMD.	-	0.575	0.100	-	0.100
Title: Ultralightweight Camouflage Net System (ULCANS)	-	-	0.250	-	0.250

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
<p>Description: ULCANS is durable, robust, snag resistant state of the art camouflage system that provides increased survivability against multi-spectral visual, infrared and radar threats, thermal signature suppression and significant thermal/solar reduction capability. ULCANS utilizes a snag-free design and is capable of use in all types of weather and climatic conditions except in heavy snow and winds. ULCANS variants are integrated systems that are very lightweight, easily deployable, versatile, user friendly and tailored to the equipment meeting the requirements of operations for combat systems, command and control equipment, logistic support sites, tactical facilities, and fixed facilities. RDT&E funding supports formal development of new ULCANS variants (snow, urban, aviation, 2 sided system) and necessary technology/signature enhancements for current ULCANS variants.</p> <p>FY 2016 Base Plans: Complete evaluation/demonstration of ULCANS technology enhancements in a realistic environment. Prepare Milestone B documentation and initiate contract planning for ULCANS Arctic/Snow variant and technology enhancements of Woodland/Desert variants.</p>					
<p>Title: Expeditionary Waste to Energy System</p> <p>Description: The Expeditionary Waste to Energy System reduces the operational energy and logistics footprint of the expeditionary base camp system, with the goal of providing an integrated waste management and disposal process add-on capability that can safely process up to two tons of mixed solid organic waste in a single day on site with the energy associated with the management process being converted to usable energy in the form of fuel, heat and/or electric power. This capability will provide a safe and suitable means to dispose of waste in remote expeditionary base camps while reducing the fuel and power requirements to sustain operations in the field. This capability provides a substantial improvement over the current practice of burn pits and backhaul with associated vulnerabilities.</p> <p>FY 2016 Base Plans: Procure and integrate prototype waste management and waste-to-energy technologies. Conduct evaluation of integrated waste to energy technologies that are transitioning from the RDECOM 6.3 programs in a realistic operating environment such as the Ft Devens Base Camp Integration Laboratory (BCIL). Efforts are focused on proving out subsystem maturity and the potential of these technologies before transitioning into Engineering and Manufacturing Development (EMD).</p>	-	-	0.897	-	0.897
Accomplishments/Planned Programs Subtotals	1.558	2.690	4.048	-	4.048

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603804A / <i>Logistics and Engineer Equipment - Adv Dev</i>	Project (Number/Name) VR8 / <i>Combat Service Support Systems - Ad</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
• RDT&E 654804.VR7: <i>Combat Service Support Systems - RDTE 654804 VR7</i>	4.405	2.945	2.963	-	2.963	2.963	4.574	4.354	2.598	3.077	27.879

Remarks

D. Acquisition Strategy

Accelerate Base Camp efficiency and safety initiatives to incorporate in deployed camps and/or incorporate during reset of equipment.

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 / 4	R-1 Program Element (Number/Name) PE 0603804A / Logistics and Engineer Equipment - Adv Dev	Project (Number/Name) VR8 / Combat Service Support Systems - Ad
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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 Support	Various	PM Force Sustainment Systems : Natick, MA	0.402	0.185	Jan 2014	0.314		0.534		-		0.534	Continuing	Continuing	-
SBIR+STTR	TBD	various : Various	0.062	-		-		-		-		-	-	0.062	-
Subtotal			0.464	0.185		0.314		0.534		-		0.534	-	-	-

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			
Soldier Support Equipment	Various	Various : Various	1.700	0.578	Apr 2014	1.281		1.914		-		1.914	Continuing	Continuing	-
Subtotal			1.700	0.578		1.281		1.914		-		1.914	-	-	-

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			
Soldier Support Equipment	Various	Various : Various	1.604	0.795	May 2014	1.095		1.600		-		1.600	Continuing	Continuing	-
Subtotal			1.604	0.795		1.095		1.600		-		1.600	-	-	-

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
	3.768	1.558	2.690	4.048	-	4.048	-	-	-

Remarks

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603804A / <i>Logistics and Engineer Equipment - Adv Dev</i>	Project (Number/Name) VR8 / <i>Combat Service Support Systems - Ad</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
Conduct evaluation on Net-Zero energy efficiency solutions																												
Evaluate and Demonstrate Zero-Footprint Base Camp capabilities for Ba																												
Complete Milestone B and transition ESPS to EMD																												
Conduct evaluation and demo of integrated Black Waste Elimination tec																												
(1) Conduct MS B for the Black Waste Elimination System and transitio																												
Conduct technology demonstration on small base solid waste disposal																												
(2) Conduct MS B & transition small base solid waste disposal technolo																												
Prepare MS B, transition arctic/snow ULCANS & tech variants to EMD																												
Conduct technology demonstration on urban ULCANS and prepare for M																												
Evaluate integrated Waste-to-Energy technologies																												
Prepare for Milestone B and transition Waste-to-Energy technologies int																												
Prove out HTRC2 component and system maturity																												
(3) Conduct Milestone B and transition HTRC2 technologies into EMD																												

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603804A / <i>Logistics and Engineer Equipment - Adv Dev</i>	Project (Number/Name) VR8 / <i>Combat Service Support Systems - Ad</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				
Demonstrate integrated black waste elimination technologies for large base																																
Prepare for MS B and transition large camp black waste elimination tech																																
Conduct evaluation and demo of integrated expeditionary shelter technol																																
Prepare for MS B & transition Family of Vehicle Mounted RWS technol																																
Prepare for MS B & transition Family of Expandable/Non-expandable RV																																
Prepare for MS B & transition Family of Collapsible & Panelized RWS te																																
(1) Obtain Milestone B on Advanced Mortuary Affairs Systems																																

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603804A / <i>Logistics and Engineer Equipment - Adv Dev</i>	Project (Number/Name) VR8 / <i>Combat Service Support Systems - Ad</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Conduct evaluation on Net-Zero energy efficiency solutions	1	2012	4	2021
Evaluate and Demonstrate Zero-Footprint Base Camp capabilities for Base Camp Sys	1	2014	4	2018
Complete Milestone B and transition ESPS to EMD	2	2015	4	2015
Conduct evaluation and demo of integrated Black Waste Elimination technologies.	4	2014	3	2016
Conduct MS B for the Black Waste Elimination System and transition to EMD.	4	2016	4	2016
Conduct technology demonstration on small base solid waste disposal	1	2015	4	2015
Conduct MS B & transition small base solid waste disposal technology to EMD	1	2016	1	2016
Prepare MS B, transition arctic/snow ULCANS & tech variants to EMD	1	2016	4	2016
Conduct technology demonstration on urban ULCANS and prepare for MS B	1	2017	4	2017
Evaluate integrated Waste-to-Energy technologies	1	2016	3	2017
Prepare for Milestone B and transition Waste-to-Energy technologies into EMD	2	2017	4	2017
Prove out HTRC2 component and system maturity	2	2017	2	2018
Conduct Milestone B and transition HTRC2 technologies into EMD	3	2018	3	2018
Demonstrate integrated black waste elimination technologies for large base camps	2	2018	4	2019
Prepare for MS B and transition large camp black waste elimination tech to EMD	3	2019	4	2019
Conduct evaluation and demo of integrated expeditionary shelter technologies.	1	2016	4	2020
Prepare for MS B & transition Family of Vehicle Mounted RWS technology to EMD	1	2017	2	2017
Prepare for MS B & transition Family of Expandable/Non-expandable RWS to EMD	1	2018	4	2018
Prepare for MS B & transition Family of Collapsible & Panelized RWS tech to EMD	1	2020	4	2020
Obtain Milestone B on Advanced Mortuary Affairs Systems	2	2020	2	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 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 0603807A / <i>Medical Systems - Adv 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	-	17.524	23.647	31.962	-	31.962	35.423	29.235	28.704	34.008	Continuing	Continuing
808: <i>DoD Drug & Vacc Ad</i>	-	6.712	8.966	15.997	-	15.997	16.204	14.509	14.482	16.665	Continuing	Continuing
811: <i>Mil HIV Vac&Drug Dev</i>	-	0.532	1.077	0.965	-	0.965	0.839	1.002	1.023	1.053	Continuing	Continuing
836: <i>Field Medical Systems Advanced Development</i>	-	9.738	13.325	15.000	-	15.000	18.380	13.724	13.199	16.290	Continuing	Continuing
VST: <i>MEDEVAC Mission Equipment Package (MEP) - Adv Dev</i>	-	0.542	0.279	-	-	-	-	-	-	-	0.404	1.225

A. Mission Description and Budget Item Justification

This program element (PE) funds development of medical materiel within the early system integration portion of the System Development and Demonstration phase of the acquisition life cycle using 6.4 funding. Program efforts support transition of promising Science and Technology candidate medical technologies (drugs, vaccines, medical devices, diagnostics, and mechanisms for detection and control of disease carrying insects) to larger scale testing in humans for safety and effectiveness. Programs are aligned to meet future force requirements identified within concept documents and organizational structures. This Program Element also provides funding for Food and Drug Administration (FDA) regulated human clinical trials to gain additional information about safety and effectiveness on the path to licensure for use in humans. The Projects supported by this PE are:

(PROJ 808) funds development of candidate medical countermeasures for infectious diseases of military relevance. Efforts include vaccines, drugs, diagnostic kits/ devices, and insect control measures. These funds support human clinical efficacy trials of the drug/vaccine in a larger group that are designed to assess performance and to continue safety assessments in a larger group of volunteers. Products from this project will transition to 849.

(PROJ 811) funds the development of military relevant human immunodeficiency virus (HIV) medical countermeasures. It provides funding for planning and conducting of human clinical trials in a group of healthy volunteers to assess the drug/vaccine for safety, tolerability, how the drug/vaccine is distributed, metabolized, and excreted from the body, and investigate the appropriate dose for therapeutic use. Products from this project will transition to Project 812.

(PROJ 836) funds the demonstration and validation of medical products for enhanced combat casualty care and follow-on care, including rehabilitation. This project also funds the human clinical trials that test the safety and effectiveness of biologics, devices and demonstration. Clinical trials are conducted in accordance with U.S. Food and Drug Administration (FDA) regulations. Products from this project will transition to 832.

(PROJ VS7) funds program upgrades, retrofits, trains, and sustains the fleet of Medical Evacuation legacy helicopters that continue to play a major role in Iraq and Afghanistan. The approved force design increased the number of air frames in the force from 12 to 15 aircraft for 37 MEDEVAC companies. All products from this project will transition to VS8 in FY16.

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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 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 0603807A / <i>Medical Systems - Adv Dev</i>
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This program is managed by U.S. Army Medical Materiel Development Activity (USAMMDA) and U.S. Army Medical Materiel Agency (USAMMA) of the US Army Medical Research and Materiel Command.

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	15.594	23.659	32.295	-	32.295
Current President's Budget	17.524	23.647	31.962	-	31.962
Total Adjustments	1.930	-0.012	-0.333	-	-0.333
• Congressional General Reductions	-	-0.012			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	2.231	-			
• SBIR/STTR Transfer	-0.301	-			
• Adjustments to Budget Years	-	-	-0.333	-	-0.333

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 4					R-1 Program Element (Number/Name) PE 0603807A / <i>Medical Systems - Adv Dev</i>				Project (Number/Name) 808 / <i>DoD Drug & Vacc Ad</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
808: <i>DoD Drug & Vacc Ad</i>	-	6.712	8.966	15.997	-	15.997	16.204	14.509	14.482	16.665	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project funds development of candidate medical countermeasures for infectious diseases of military relevance. These efforts are in: vaccines, drugs, diagnostic kits/devices, and determining if insects are infected with pathogenic organisms capable of infecting service members/preventive medicine measures. These funds support human clinical effectiveness (capacity to produce a desired size of an effect under ideal or optimal conditions) trials of the drug/vaccine in larger groups that are designed to assess how well the drug/vaccine works, and to continue safety assessments in a larger group of volunteers. Funding supports both technical evaluations and human clinical testing to assure the safety and effectiveness of medical diagnostic kits and devices. This work, which is performed in military laboratories or civilian pharmaceutical firms, is directed toward the prevention of disease, early diagnosis, and accelerated recovery time once diagnosed; to enhance battlefield readiness. All clinical trials are conducted in accordance with U.S. Food and Drug Administration (FDA) regulations, a mandatory obligation for all military products placed into the hands of medical providers or service members. Product development priorities are determined based upon four major factors: (1) the extent and threat of the disease within the Combatant Commands theater of operations, (2) the clinical severity of the disease, (3) the technical maturity of the proposed solution, and (4) the affordability of the solution (development and production).

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

	FY 2014	FY 2015	FY 2016
Title: DoD Drug and Vaccine Advanced Development	6.712	8.966	15.997
Description: Funding is provided for the following effort in the development of candidate medical countermeasures for military relevant infectious disease.			
FY 2014 Accomplishments: Tropical Antileishmanial Cream (TLC, Paromomycin/Gentamicin): Completed site development efforts for Phase 3 New World pivotal safety and effectiveness clinical trial on a diverse population. Dengue Tetravalent Vaccine: Continued volunteer follow up and subsequent analysis of data from pivotal Phase 3 (safety and effectiveness in 10 countries, over 30000 volunteers) endemic region studies of Dengue Tetravalent Vaccine with commercial partner Sanofi Pasteur, provided Go/No Go decision for pursuit of compressed vaccination schedule for US traveler/military indication. Joint Biological Agent identification and Diagnostic System (JBAIDS): Completed Analysis of Alternatives (AoA) and requirements analysis helped to determine that The Dengue JBAIDS capability does not meet user needs; therefore, the project has been terminated. Leishmania Rapid Diagnostic Device (LRDD): Transitioned LRDD to Project 849 (Drugs and Vaccines - 6.5) after completion of the analytical testing and Good Manufacturing Practices manufacturing reviews. Preventive Medicine Products: These products for the control/mitigation of arthropod (insect) borne diseases field testing and evaluation were delayed for several product candidates to include: field deployable detection devices for Chikungunya, Rift Valley Fever, Sand Fly Fever, Crimean-Congo Fever, advanced arthropod collection devices, Saliva Capture RTA card, spatial repellents, and advanced pesticides. Infectious Disease Diagnostic: These products field testing and			

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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 / 4	R-1 Program Element (Number/Name) PE 0603807A / <i>Medical Systems - Adv Dev</i>	Project (Number/Name) 808 / <i>DoD Drug & Vacc Ad</i>
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016
<p>evaluation were delayed for several product candidates to include: Scrub Typhus, Rickettsiae, and Sand Fly Fever based on decrement due to poor disbursements in FY2012.</p> <p>FY 2015 Plans: Topical Antileishmanial Cream (TLC, Paromomycin/Gentamicin): Topical Antileishmanial Cream is expected to transition in FY14 to Project 849 (Drugs and Vaccines - 6.5) after completion of the site development efforts for Phase 3 New World clinical trial. Expanded Access Treatment Program will continue until FDA approved product is available. Dengue Tetravalent Vaccine: Dengue Tetravalent Vaccine transitioned in FY14 to Project 849 after completion of volunteer follow up and data analysis on pivotal Phase 3 safety and effectiveness clinical trials. Preventive Medicine Products: These products fall into the category military operational requirements and are Commercial-Off-The-Shelf (COTS). As such, they have moved to a more appropriate Program Element (PE 836 or 832) and will be listed as separate products when they are considered for military use.</p> <p>FY 2016 Plans: Dengue Tetravalent Vaccine: Will continue to fund Dengue Tetravalent Vaccine until FY18 for additional two-year volunteer follow-up and data analysis on pivotal Phase 3 safety and effectiveness clinical trials required by the Thai Ministry of Public Health. Infectious Disease Diagnostic: Products will transition from S&T in FY16. Will begin preparation for field testing and evaluation of several product candidates to include: Scrub Typhus, Rickettsiae, and Sand Fly Fever. Dengue Vaccine Block II: Products will transition from S&T in FY16. Will transition from Military Infectious Diseases S&T funding and prepare for Phase 2 safety and efficacy trial (24 to 300 subjects) of vaccine candidate in an adult/military population. Treatment for Resistant Wound Infections: Products will transition from S&T in FY16. Will transition from Military Infectious Diseases S&T funding and begin preparation for safety and efficacy trials of drug candidate for the Treatment for Resistant Wound Infections. Next Generation Malaria Prophylaxis: The IPT will initiate a retinal safety study in 2016 and will continue to prepare the protocols for any required soldier specific studies that is needed. Arthropod Control/Surveillance: Will begin preparation for field testing and evaluation of several product candidates to include: Scrub Typhus, Rickettsiae, and Sand Fly Fever. Hemorrhagic Fever w/Renal Syndrome: Transition from Military Infectious Diseases S&T delayed indefinitely based on lack of product maturity.</p>			
Accomplishments/Planned Programs Subtotals	6.712	8.966	15.997

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

Remarks

D. Acquisition Strategy
 Test and evaluate in-house and commercially developed products in extensive government-managed clinical trials to gather data required for FDA licensure and Environmental Protection Agency registration.

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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 / 4	PE 0603807A / <i>Medical Systems - Adv Dev</i>	808 / <i>DoD Drug & Vacc Ad</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 / 4	R-1 Program Element (Number/Name) PE 0603807A / Medical Systems - Adv Dev	Project (Number/Name) 808 / DoD Drug & Vacc Ad
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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			
Medical Product Development Management Services Cost	Various	Not Applicable : Not applicable	15.451	1.939		0.965		1.280		-		1.280	Continuing	Continuing	Continuing
Medical Product Development Management Services Cost	PO	General Dynamics Information Technology, : Frederick MD	0.000	-		1.365		1.293		-		1.293	-	2.658	-
Subtotal			15.451	1.939		2.330		2.573		-		2.573	-	-	-

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			
Medical Product Development Cost	Various	Not applicable : Not applicable	22.827	1.890		1.370		2.632		-		2.632	Continuing	Continuing	Continuing
Product Development of Malaria Prophylaxis	Various	Walter Reed Army Institute of Research : Silver Spring, MD	3.000	-		-		-		-		-	-	3.000	-
Product Development of Malaria Prophylaxis	Allot	Armed Forces Research Institute of Medical Sciences : Cambodia	0.000	2.111		-		-		-		-	-	2.111	-
Product Development of Malaria Prophylaxis	Allot	TBD : TBD	0.000	-		1.010		-		-		-	-	1.010	-
Subtotal			25.827	4.001		2.380		2.632		-		2.632	-	-	-

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			
Medical Product Development Support Cost	Various	Not Applicable : Not applicable	9.204	0.448		1.097		2.545		-		2.545	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 / 4						R-1 Program Element (Number/Name) PE 0603807A / Medical Systems - Adv Dev					Project (Number/Name) 808 / DoD Drug & Vacc Ad				
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			9.204	0.448		1.097		2.545		-		2.545	-	-	-
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
Medical Product Development T&E Cost	Various	Not applicable : Not applicable	44.718	0.324		1.160		5.047		-		5.047	Continuing	Continuing	Continuing
Malaria Prophylaxis clinical trial	TBD	TBD : TBD	0.000	-		1.999		3.200		-		3.200	-	5.199	-
Subtotal			44.718	0.324		3.159		8.247		-		8.247	-	-	-
Project Cost Totals			95.200	6.712		8.966		15.997		-		15.997	-	-	-
Remarks															

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603807A / Medical Systems - Adv Dev	Project (Number/Name) 808 / DoD Drug & Vacc Ad
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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
	Topical Antileishmanial Cream Phase Expanded Access Treatment Pro	[Active]																										
Infectious Disease Diagnostics Assays Validation of point-of-care	[Active]				FY16-FY22				[Active]																			
Dengue Vaccine Block II Phase 2 safety and efficacy trial preparation/pe					FY16-FY19				[Active]																			
Arthropod Control / Surveillance Process Validation					FY16-FY22				[Active]																			
Treatment for Resistant Wound Infections Phase 2 safety and efficacy tr					FY16-FY19				[Active]																			
Q Fever Vaccine IND and NDA package creation					FY15-FY16				[Active]																			
D5P Next Generation Malaria Drug Clinical Studies					FY16-FY17				[Active]																			
Oral Drug for Cutaneous Leishmaniasis Adult Indication Study					FY16-FY19				[Active]																			

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603807A / <i>Medical Systems - Adv Dev</i>	Project (Number/Name) 808 / <i>DoD Drug & Vacc Ad</i>
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Topical Antileishmanial Cream Phase Expanded Access Treatment Program	2	2011	1	2017
Infectious Disease Diagnostics Assays Validation of point-of-care	1	2016	1	2022
Dengue Vaccine Block II Phase 2 safety and efficacy trial preparation/perform	1	2016	4	2019
Arthropod Control / Surveillance Process Validation	1	2016	1	2022
Treatment for Resistant Wound Infections Phase 2 safety and efficacy trial	1	2016	4	2019
Q Fever Vaccine IND and NDA package creation	1	2015	4	2016
D5P Next Generation Malaria Drug Clinical Studies	1	2016	4	2017
Oral Drug for Cutaneous Leishmaniasis Adult Indication Study	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 / 4					R-1 Program Element (Number/Name) PE 0603807A / <i>Medical Systems - Adv Dev</i>				Project (Number/Name) 811 / <i>Mil HIV Vac&Drug Dev</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
811: <i>Mil HIV Vac&Drug Dev</i>	-	0.532	1.077	0.965	-	0.965	0.839	1.002	1.023	1.053	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project funds development of militarily relevant human immunodeficiency virus (HIV) medical countermeasures. It provides funding for the planning and conducting of human clinical trials in a group of healthy volunteers to assess the drug/vaccine for safety, tolerability, how the drug/vaccine is distributed, metabolized, and excreted from the body, and to investigate the appropriate dose for therapeutic use. Development efforts are focused on militarily unique needs effecting manning, mobilization, and deployment.

The major contractor is Henry M. Jackson Foundation for the Advancement of Military Medicine, Rockville, MD. Research efforts are coordinated with the National Institutes of Health.

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

	FY 2014	FY 2015	FY 2016
Title: Military HIV Vaccine & Drug Development	0.532	1.077	0.965
Description: This project funds advanced development research to develop candidate HIV vaccines, assess their safety and effectiveness in evaluations with human subjects, and protect military personnel from risks associated with HIV infection.			
FY 2014 Accomplishments: Continued the three inter-related clinical trials (RV305, RV306, RV328) aimed at refining our understanding of immune responses elicited by the increment 1 HIV regional vaccine strategy. Analyzed laboratory interrogation of samples from trial participants. Refined vaccine administration schedule as well as clinical trial design based on data from clinical trials. Safety and effectiveness clinical trial RV305, examined the immune responses to secondary boost of increment 1 HIV regional vaccine. Safety and effectiveness clinical trial RV306, examined the intensive immune monitoring of Prime-Boost Vaccine. Safety and effectiveness clinical trial RV328, conducted intensive immune monitoring of AIDS VAXB/E Regional Vaccine with a large well controlled trial to test immunity of improved vaccine Boost Prime/Boost Regional study to confirm safety and effectiveness in a diverse population. Adjusted plan for Regional well-controlled clinical trial large enough to demonstrate vaccine effectiveness to initiate in FY14.			
FY 2015 Plans: Conduct analysis of samples from safety and effectiveness clinical trial RV305 including extensive evaluation of binding antibodies based on previously determined correlates of protection. In addition, novel findings in cellular immune responses in the stomach have driven new requirements for evaluation of cytotoxic T cell responses in the peripheral blood. Complete FY15 collection of late invasive samples for safety and effectiveness clinical trials RV306 and RV328; those samples have a requirement for			

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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 / 4	R-1 Program Element (Number/Name) PE 0603807A / <i>Medical Systems - Adv Dev</i>	Project (Number/Name) 811 / <i>Mil HIV Vac&Drug Dev</i>
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016
<p>immediate processing and analysis. Conclude FY15 RV306 and 328 with closing costs associated with the 5 clinical trial sites associated with those protocols.</p> <p><i>FY 2016 Plans:</i> In RV305 (a late boost study of RV144 vaccine recipients), coordination will be made for final data analyses and meetings with investigators as to how the data should be presented/published. Results of RV305 has resulted in a rollover study (RV305 amendment) which will provide an additional boost dose to selected vaccine recipients. Candidate vaccine trials RV306 (evaluation of different one-year boosts) and RV328 (study of AIDSVAX B/E alone) will continue to seek further immunogenicity data that will complement. Results observed in the first Phase III study to show efficacy (RV144/The Thai Trial). RV403 will continue in Mozambique, Uganda, and Thailand. This study will compare immune responses induced by the RV144 regimen using AIDSVAX B/E mixed with L(MPLA) [monophosphoryl lipid A w/ liposomes.</p>			
Accomplishments/Planned Programs Subtotals	0.532	1.077	0.965

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

N/A

Remarks

D. Acquisition Strategy

Test and evaluate commercially developed drug/vaccine candidates in government-managed trials.

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 / 4	R-1 Program Element (Number/Name) PE 0603807A / Medical Systems - Adv Dev	Project (Number/Name) 811 / Mil HIV Vac&Drug Dev
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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			
Medical Product Development Management Services Cost	TBD	Not Applicable : Not Applicable	1.953	0.165		0.146		0.110		-		0.110	Continuing	Continuing	Continuing
Subtotal			1.953	0.165		0.146		0.110		-		0.110	-	-	-

Remarks
Not Applicable

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			
Medical Product Development Cost	TBD	Not applicable : Not applicable	3.192	0.097		0.549		0.343		-		0.343	Continuing	Continuing	Continuing
Medical Product Development Support Cost	TBD	TBD : TBD	0.000	-		-		0.222		-		0.222	-	0.222	-
Subtotal			3.192	0.097		0.549		0.565		-		0.565	-	-	-

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			
Medical Product Development Support Cost	TBD	TBD : TBD	1.471	0.101		0.250		0.195		-		0.195	-	2.017	-
Subtotal			1.471	0.101		0.250		0.195		-		0.195	-	2.017	-

Remarks
Not Applicable

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603807A / Medical Systems - Adv Dev	Project (Number/Name) 811 / Mil HIV Vac&Drug Dev
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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			
Medical Product Development T&E Cost	TBD	Not applicable : Not Applicable	15.607	0.169		0.132		0.095		-		0.095	-	16.003	-
Subtotal			15.607	0.169		0.132		0.095		-		0.095	-	16.003	-

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	22.223	0.532	1.077	0.965	-	0.965	-	-	-

Remarks

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603807A / <i>Medical Systems - Adv Dev</i>	Project (Number/Name) 811 / <i>Mil HIV Vac&Drug Dev</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
RV305 Immune Responses to Secondary Boost of Regional Vaccine																												
RV306 Intensive Immune Monitoring of Prime-Boost Vaccine																												
RV328 Intensive Immune Monitoring of AIDS VAXB/E alone																												
RV403 to evaluate adjuvant's ability to enhance durability of vaccine can																												

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603807A / <i>Medical Systems - Adv Dev</i>	Project (Number/Name) 811 / <i>Mil HIV Vac&Drug Dev</i>
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
RV305 Immune Responses to Secondary Boost of Regional Vaccine	1	2013	4	2014
RV306 Intensive Immune Monitoring of Prime-Boost Vaccine	2	2011	4	2015
RV328 Intensive Immune Monitoring of AIDS VAXB/E alone	4	2014	4	2017
RV403 to evaluate adjuvant's ability to enhance durability of vaccine candidate	2	2015	4	2017

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 4					R-1 Program Element (Number/Name) PE 0603807A / <i>Medical Systems - Adv Dev</i>				Project (Number/Name) 836 / <i>Field Medical Systems Advanced 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
836: <i>Field Medical Systems Advanced Development</i>	-	9.738	13.325	15.000	-	15.000	18.380	13.724	13.199	16.290	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Not applicable for this PE.

A. Mission Description and Budget Item Justification

This project funds the demonstration and validation of medical products for enhanced combat casualty care and follow-on care, including rehabilitation. This project funds human clinical trials to test the safety and effectiveness of biologics (products derived from living organisms) and devices necessary to meet medical requirements. When available, commercial-off-the-shelf (COTS) medical products are also tested and evaluated for transition to engineering and manufacturing development. Consideration is also given to reducing the medical logistics footprint through smaller weight, volume, and equipment independence from supporting materials. All clinical trials are conducted in accordance with U.S. Food and Drug Administration (FDA) regulations.

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

	FY 2014	FY 2015	FY 2016
Title: Field Medical Systems Advanced Development - PM Medical Devices	9.662	11.791	11.760
Description: Advanced Concept Development funding is provided for the following development of medical devices in support of enhanced combat casualty care.			
FY 2014 Accomplishments: Eye Tracking System for Assessing Concussions (system is a traumatic brain injury diagnostic tool): Re-baselined, as a Request for Information (RFI) was submitted in FY12 to reevaluate the most current devices and no Research Development Test Evaluation (RDTE) funds were needed in FY14. Traumatic Brain Injury (TBI) Diagnostic Assay System Increment II Point of Care Device enter pivotal clinical trial for safety and effectiveness and transition to engineering and manufacturing funding in project 832. Increment III of the TBI Diagnostic Assay System has been delayed and did not reach milestone B (proof of concept) in FY14 based on the maturity of the technology. TBI Diagnostic Assay System Increment II Point of Care Device: TBI Diagnostic Assay System Increment II Point of Care Device entered pivotal clinical trial for safety and effectiveness and transition to engineering and manufacturing funding in project 832. Increment III of the TBI Diagnostic Assay System has been delayed and will not reach milestone B (proof of concept) in FY14 based on the maturity of the technology. Impedance Threshold Device for the Treatment of TBI: Current device has a 510(k) (Premarket Notification) clearance for multiple indications. Submission of a new 510(k) to			

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015		
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603807A / <i>Medical Systems - Adv Dev</i>	Project (Number/Name) 836 / <i>Field Medical Systems Advanced Development</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2014	FY 2015	FY 2016
<p>cover the expanded indications for the currently fielded device. Device will no longer be a stand-alone product, because the capability will be incorporated in existing ventilators.</p> <p>FY 2015 Plans: Eye Tracking System for Assessing Concussions (system is a traumatic brain injury diagnostic tool): Noninvasive neurodiagnostic technologies for TBI is multi-focused. The Eye Tracking System for Assessing Concussions (system is a traumatic brain injury diagnostic tool) is one of multiple systems to be evaluated. Efforts to collate all non-invasive technologies into one integrated IPT is currently in place. The 3 technologies currently involved are the Eye- Tracking System, the Quantitative electroencephalogram (qEEG) and Balance Platforms. Future components of the multi-focused approach will fall under the scope of this line item. No Research Development Test Evaluation (RDTE) funds are needed for FY15. This project line is being programmed in FY16-20 plan under non-invasive neurodiagnostic line item. TBI Diagnostic Assay System Increment II Point of Care Device: TBI Diagnostic Assay System: The focus of this effort will be to use the current Biomarker technology developed by Banyan and cross-level all known technologies to Abbott Diagnostics. Contracting efforts are in place to facilitate this path forward. Army currently uses the i-STAT in assemblages. The intent of this effort is to modernize the i-STAT platform to accommodate the new cartridges associated with the TBI Biomarkers. Impedance Threshold Device for the Treatment of TBI: Current device has a 510(k) (Premarket Notification) clearance for multiple indications. Continue the submission of a new 510(k) is planned to cover the expanded indications for the currently fielded device. Device will no longer be a stand-alone product, because the capability will be incorporated in existing ventilators. Compartment Syndrome Pressure Device: Transition from project 840 6.3 funding and enroll patients in the pivotal trial for FDA clearance for anticipated FY15 start of the clinical trial.</p> <p>FY 2016 Plans: TBI Diagnostic Assay System Increment II Point of Care Device: TBI Diagnostic Assay System: Will continue current Biomarker technology developed by Banyan and cross-level all known technologies to Abbott Diagnostics. Contracting efforts will continue through FY16. Impedance Threshold Device for the Treatment of TBI: Product has transitioned back to S&T to conduct research on the expanded indications for the fielded device. Compartment Syndrome Pressure Device: Compartment Syndrome Pressure Device will be delayed for transition into Advanced Development from S&T until FY17. Milestone A will be delayed until FY17. After the Milestone A, product will transition into Advanced Development. Junctional / Noncompressible Hemorrhage Control Agent: Junctional / Noncompressible Hemorrhage Control Agent: Product will transition into Advanced Development after Milestone B in late FY15. If FDA requires 510-K, program will develop required paper work for submission to the FDA.</p>				
Title: Field Medical Systems Advanced Development - PM Medical Support Systems		0.076	1.534	3.240
Description: Funding is provided for the following effort in the development of products that support the medical mission in combat casualty care and health care 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 / 4	R-1 Program Element (Number/Name) PE 0603807A / <i>Medical Systems - Adv Dev</i>	Project (Number/Name) 836 / <i>Field Medical Systems Advanced Development</i>

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

	FY 2014	FY 2015	FY 2016
<p>Environmental Sentinel Biomonitor: Continued development of the Environmental Sentinel Biomonitor (ESB) and transitioned to project 832. The ESB will assist preventive medicine personnel certify water capabilities by providing a presumptive screening capability that can rapidly identify toxicity in water. Medical Evac and Treatment Vehicles Medical Equipment Set and Mission Essential Package: Continued collaboration with Program Executive Office Combat Support/Combat Service Support (PEO CS&CSS) and Program Executive Office Ground Combat Systems (PEO GCS) on development efforts for emerging medical vehicle evacuation/casualty evacuation (CASEVAC) variants. Medical variants that were collaborated on with PEO CS/CSS consisted of medical shelters, Mine Resistant Ambush Protected (MRAP), Armored Multipurpose Vehicle (AMPV), and Joint Light Tactical Vehicle (JLTV). Collaborated with PEO GCS on medical variants for the Heavy Brigade Combat Team (HBCT). Improved Vector Tent Traps: Developed prototypes of Vector Tent Traps for testing after transition from S&T. The Vector Tent Trap allows researchers to safely conduct vector surveillance on insects that are attracted to humans and vector-borne diseases. Altitude Readiness Management System (ARMS): Began the development of the Altitude Readiness Management System (ARMS). ARMS transitioned from S&T MM3 funding line. The ARMS product is a handheld sensor and software decision device to plan, monitor, and manage unit altitude illness risk and task performance prediction. Hydration Status Monitor (HSM): Planned to transition Hydration Status Monitor (HSM) from project MM3 6.3 funding to prepare for milestone B (proof of concept) and down-select. The HSM product will accurately detect the hydration status of Soldiers.</p> <p>FY 2015 Plans: Medical Evac and Treatment Vehicles Medical Equipment Set and Mission Essential Package: Continue collaboration with Program Executive Office Combat Support/Combat Service Support (PEO CS&CSS) and Program Executive Office Ground Combat Systems (PEO GCS) on development efforts for emerging medical vehicle evacuation/casualty evacuation (CASEVAC) variants. Improved Vector Tent Traps: Continue prototype development of Vector Tent Traps and transition to project 832. Altitude Readiness Management System (ARMS): Continue prototype development of the Altitude Readiness Management System (ARMS) and transition to project 832. Next Generation Uniform Repellent: Begin development of the Next Generation Uniform Repellent (NGUR). The NGUR transitions from an S&T SBIR. The NGUR is an effort to develop new military uniform insect repellent formulations for the uniform materiel and the corresponding uniform treatment technology. Next Generation Immobilization System: Transition from S&T SBIR. Develop prototypes for initial developmental testing and FDA data collection. The Next Generation Immobilization System (NGIS) provides advanced vibration dampening to allow for safer evacuation of spinal cord injury and traumatic brain injury casualties. Hydration Status Monitor (HSM): Hydration Status Monitor (HSM) transition continues to be delayed. Milestone B for this effort is scheduled for Feb 2015. Contract is planned to be a 4 year effort to develop the actual device and gain FDA approval for use.</p> <p>FY 2016 Plans: Medical Evac and Treatment Vehicles Medical Equipment Set and Mission Essential Package: Will continue collaboration with Program Executive Office Combat Support/Combat Service Support (PEO CS&CSS) and Program Executive Office Ground Combat Systems (PEO GCS) on development efforts for emerging medical vehicle evacuation/casualty evacuation (CASEVAC)</p>			

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603807A / <i>Medical Systems - Adv Dev</i>	Project (Number/Name) 836 / <i>Field Medical Systems Advanced Development</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016
variants including AMPV source selection. CASEVAC kit development for MRAP Dash and JLTV vehicles will be explored. Will transition to 832 in FY17. Next Generation Uniform Repellent: Will continue development of the Next Generation Uniform Repellent/Impregnation process in collaboration with PEO Soldier. Will obtain EPA registration. Will perform cut and sew testing of EPA approved uniform repellent/impregnation process for permethrin. Will investigate use of other repellents. Next Generation Immobilization System (NGIS): Will continue prototype development of NGIS and begin initial developmental tests and user evaluations. Hydration Status Monitor (HSM): Hydration Status Monitor (HSM) transition will be delayed until FY16 due to a more extensive feasibility study than initially determined. Milestone B for this effort is scheduled for 2QFY16. Will begin to develop prototype devices and prepare for the Milestone B submission with required documentation.			
Accomplishments/Planned Programs Subtotals	9.738	13.325	15.000

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

N/A

Remarks

D. Acquisition Strategy

Develop in-house or industrial prototypes in government-managed programs to meet military and regulatory requirements for production and fielding.

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 / 4				PE 0603807A / Medical Systems - Adv Dev				836 / Field Medical Systems Advanced Development							
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
Medical Product Development Management Services Cost	Various	Not Applicable : Not applicable	40.231	0.024		0.933		0.623		-		0.623	Continuing	Continuing	Continuing
TBI Diagnostic Assay System - Increment II (benchtop/POC/ Bandits)	TBD	Banyan BioMarkers, Inc : Alachua FL	0.000	0.208		-		-		-		-	-	0.208	-
Impedance Threshold Device for the Treatment of Traumatic Brain Injury	TBD	Advance Circulatory Systems, Inc : Roseville, MN	0.000	0.154		-		-		-		-	-	0.154	-
Subtotal			40.231	0.386		0.933		0.623		-		0.623	-	-	-
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
Product Development	TBD	TBD : TBD	0.000	-		0.932		-		-		-	-	0.932	-
Product Development	TBD	Banyan BioMarkers, Inc : Alachua FL	31.514	-		-		-		-		-	Continuing	Continuing	Continuing
Product Development	TBD	HemCon Medical Technologies : Tigard, Oregon	9.720	-		-		-		-		-	Continuing	Continuing	Continuing
Development of Platelet Derived Hemostatic agent	TBD	Fast Track Drugs & Biologics : Frederick, MD	1.800	-		-		-		-		-	Continuing	Continuing	Continuing
Medical Product Development	TBD	ALL Product : Various	1.931	-		-		-		-		-	Continuing	Continuing	Continuing
Product Development of Freeze-dried plasma	TBD	TBD : TBD	2.400	-		6.884		-		-		-	Continuing	Continuing	Continuing
Point of Care Coagulation Profiler	TBD	TBD : TBD	0.000	-		-		0.385		-		0.385	-	0.385	-

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603807A / Medical Systems - Adv Dev	Project (Number/Name) 836 / Field Medical Systems Advanced Development
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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			
TBI Diagnostic Assay System - Increment II (benchtop/POC/ Bandits)	TBD	Banyan BioMarkers, Inc : Alachua FL	0.000	6.737		-		6.614		-		6.614	-	13.351	-
Impedance Threshold Device for the Treatment of Traumatic Brain Injury	TBD	Advance Circulatory Systems Inc. : Roseville, MN	0.000	2.322		-		-		-		-	-	2.322	-
Compartment Syndrome Pressure Device	TBD	Twinstar : Minniapolis, MN	0.000	-		1.871		-		-		-	-	1.871	-
Hydration Status Monitor	TBD	Gaia Medical : LaJolla CA	0.000	-		0.841		-		-		-	-	0.841	-
Noninvasive Neuromodulator TBI	TBD	TBD : TBD	0.000	-		-		2.140		-		2.140	-	2.140	-
Field Sterilizer	TBD	TBD : TBD	0.000	-		-		3.815		-		3.815	-	3.815	-
Subtotal			47.365	9.059		10.528		12.954		-		12.954	-	-	-

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			
Medical Product Development Support Cost	Various	Not Applicable : Not applicable	43.865	0.200		0.932		0.723		-		0.723	Continuing	Continuing	Continuing
Subtotal			43.865	0.200		0.932		0.723		-		0.723	-	-	-

Remarks
No product/contract costs greater than \$1M individually.

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			
Medical Product Development T&E Cost	TBD	Not applicable : Not applicable	35.968	0.093		0.932		0.700		-		0.700	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 / 4						R-1 Program Element (Number/Name) PE 0603807A / Medical Systems - Adv Dev				Project (Number/Name) 836 / Field Medical Systems Advanced Development			

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			35.968	0.093		0.932		0.700		-		0.700	-	-	-

Remarks
No product/contract costs greater than \$1M individually.

	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	167.429	9.738		13.325		15.000		-		15.000	-	-	-

Remarks

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603807A / Medical Systems - Adv Dev	Project (Number/Name) 836 / Field Medical Systems Advanced Development
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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) Cryopreserved Platelets (CPP) Critical Design Review MS-B				▲ 1 MS-B																								
Cryopreserved Platelets (CPP) Phase 1 Safety Clinical Trial					Phase 1 Safety Clinical Trial																							
(2) Bench-top/POC Biomarker assay for determining exposure to Trauma				▲ 2 MS-B																								
Impedance Threshold Device for the Treatment of TBI (PreMarket Note.)					510(k) submittal for new indications																							
(3) Hydration Status Monitor MS-B																												
(4) Noninvasive Neuromodulator TBI MS-A								▲ 4 MS-A																				

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603807A / <i>Medical Systems - Adv Dev</i>	Project (Number/Name) 836 / <i>Field Medical Systems Advanced Development</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Cryopreserved Platelets (CPP) Critical Design Review MS-B	4	2014	4	2014
Cryopreserved Platelets (CPP) Phase 1 Safety Clinical Trial	4	2011	3	2014
Bench-top/POC Biomarker assay for determining exposure to Traumatic Brain Injury	1	2014	1	2014
Impedance Threshold Device for the Treatment of TBI (PreMarket Note.)	3	2013	2	2014
Hydration Status Monitor MS-B	4	2015	4	2015
Noninvasive Neuromodulator TBI MS-A	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 / 4	R-1 Program Element (Number/Name) PE 0603807A / Medical Systems - Adv Dev	Project (Number/Name) VS7 / MEDEVAC Mission Equipment Package (MEP) - Adv Dev
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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
VS7: MEDEVAC Mission Equipment Package (MEP) - Adv Dev	-	0.542	0.279	-	-	-	-	-	-	-	0.404	1.225
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Medical Evacuation Enroute Care Validation Study is completed in FY 2015.

A. Mission Description and Budget Item Justification

Original models of Army Black Hawk MEDEVAC helicopters continue to play a major role in maintaining high US troop survival rates in Iraq and Afghanistan by evacuating wounded troops in less than one-hour. In 2009 a VCSA-approved force design update increased the number of air frames in the force from 12 to 15 aircraft for 37 MEDEVAC companies to better meet operational needs. In 2010, the AMEDD accepted life-cycle management of the MEDEVAC MEP from PEO Aviation. In order to achieve required operational capability and enhance commonality across the MEDEVAC fleet, the MEDEVAC MEP program upgrades, retrofits, trains, and sustains the 256 MEDEVAC legacy helicopters to achieve the medical capability provided by the HH-60M, which is factory built for the MEDEVAC mission.

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

	FY 2014	FY 2015	FY 2016
<p>Title: Telemedicine for MEDEVAC aircraft</p> <p>Description: Effort is focused on requirement to provide enroute patient data to treatment facilities.</p> <p>FY 2014 Accomplishments: Continue design, development, and testing of the telemedicine systems in order to provide medics with state of the art capability to monitor and communicate patient data to ground crews at forward treatment facility.</p>	0.542	-	-
<p>Title: Medical Evacuation Enroute Care Validation Study</p> <p>Description: Medical Evacuation Enroute Care Validation Study</p> <p>FY 2015 Plans: Modify Interim MEDEVAC Mission Support System (IMMSS) to take into account the new paramedic skills being used by the flight paramedic.</p>	-	0.279	-
Accomplishments/Planned Programs Subtotals	0.542	0.279	-

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 / 4	R-1 Program Element (Number/Name) PE 0603807A / Medical Systems - Adv Dev	Project (Number/Name) VS7 / MEDEVAC Mission Equipment Package (MEP) - Adv Dev

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

Remarks

D. Acquisition Strategy

Develop in-house or industrial prototypes in government-managed programs to meet military MEDEVAC and regulatory requirements for production and fielding.

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 / 4	R-1 Program Element (Number/Name) PE 0603807A / Medical Systems - Adv Dev	Project (Number/Name) VS7 I MEDEVAC Mission Equipment Package (MEP) - Adv Dev
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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			
Medical Product Development Management Services Cost	TBD	APM MEDEVAC : Huntsville, AL	0.189	-		-		-		-		-	-	0.189	-
Subtotal			0.189	-		-		-		-		-	-	0.189	-

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			
Medical Product Development Cost	TBD	APM MEDEVAC PEO Aviation : Huntsville AL	1.479	-		-		-		-		-	-	1.479	-
Subtotal			1.479	-		-		-		-		-	-	1.479	-

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			
Medical Product Development Support Cost	TBD	APM MEDEVAC : Huntsville, AL	0.100	0.542		0.279		-		-		-	-	0.921	-
Subtotal			0.100	0.542		0.279		-		-		-	-	0.921	-

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			
Medical Product Development T&E Cost	MIPR	APM MEDEVAC PEO Aviation : Huntsville, AL	0.199	-		-		-		-		-	-	0.199	-
Subtotal			0.199	-		-		-		-		-	-	0.199	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army								Date: February 2015					
Appropriation/Budget Activity 2040 / 4				R-1 Program Element (Number/Name) PE 0603807A / <i>Medical Systems - Adv Dev</i>				Project (Number/Name) VS7 / <i>MEDEVAC Mission Equipment Package (MEP) - Adv Dev</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	1.967	0.542		0.279		-		-		-	-	2.788	-

Remarks

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603807A / <i>Medical Systems - Adv Dev</i>	Project (Number/Name) VS7 / <i>MEDEVAC Mission Equipment Package (MEP) - Adv Dev</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
Telemedicine Research and Development and Tech transfer	Research and development																											
Medical Evacuation Enroute Care Validation Study																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603807A / <i>Medical Systems - Adv Dev</i>	Project (Number/Name) VS7 / <i>MEDEVAC Mission Equipment Package (MEP) - Adv Dev</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Telemedicine Research and Development and Tech transfer	1	2012	4	2015
Medical Evacuation Enroute Care Validation Study	3	2013	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 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 0603827A / <i>Soldier Systems - Advanced Development</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	-	13.448	5.983	22.194	-	22.194	22.910	17.807	19.459	20.455	Continuing	Continuing
S51: <i>Aircrew Integrated Sys Ad</i>	-	0.159	0.161	0.152	-	0.152	0.157	0.153	0.198	0.198	Continuing	Continuing
S53: <i>Clothing And Equipment</i>	-	5.608	1.555	9.185	-	9.185	8.436	7.108	7.296	7.651	Continuing	Continuing
S54: <i>Small Arms Improvement</i>	-	4.117	1.578	7.449	-	7.449	9.089	6.152	7.557	7.643	Continuing	Continuing
VS4: <i>Soldier Protective Equipment</i>	-	3.564	2.689	5.408	-	5.408	5.228	4.394	4.408	4.963	Continuing	Continuing

Note

Change Summary Explanation:

A. Mission Description and Budget Item Justification

This Program Element (PE) for Advanced Component Development and Prototypes manages the Soldier as a system in order to increase combat effectiveness, test and deliver tangible products that save Soldier's lives, and improve Soldier's quality of life. It evaluates, develops, and tests emerging technologies and critical Soldier support systems to reduce technology risk.

Project S49 funding (Ground Soldier System) The Nett Warrior (NW) program leverages commercial smart devices and secure Army tactical radios to provide the dismounted leader an integrated mission command and situational awareness system for use during combat operations.

Project S51 funding (Aircrew Integrated Systems) supports component development and prototyping of critical Soldier support systems and other combat service support equipment that will improve unit sustainability and combat effectiveness.

Project S52 funding (Soldier Support Equipment) supports design, manufacture and testing/evaluation of the Spark Gap (SG)-Shock Tube Initiator program as well as develop a technical data package. This funding will also support the preliminary testing of prototype hardware to begin any necessary modifications of design for the VBOT (Vehicle Borne Improvised Explosive Device (VBIED) Blast Overpressure Tool) program.

Project S53 funding (Clothing and Equipment) supports development of state-of-the-art technology to improve tactical and non-tactical clothing and individual equipment to enhance the lethality, survivability, and mobility of the individual Soldier.

Project S54 funding (Small Arms Improvement) provides funds to develop, demonstrate and evaluate emerging technology for integration of systems, subcomponents and prototypes designed to enhance lethality, target acquisition, fire control, training effectiveness and reliability for current and future small arms weapon systems and ammunition.

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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 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 0603827A / <i>Soldier Systems - Advanced Development</i>
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Project VS4 funding (Soldier Protective Equipment) supports efforts to evaluate integrated technologies and representative or prototype systems that help expedite Individual Soldier Ballistic Protection technology transition from the laboratory to operational use.

B. Program Change Summary (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	14.152	6.830	23.405	-	23.405
Current President's Budget	13.448	5.983	22.194	-	22.194
Total Adjustments	-0.704	-0.847	-1.211	-	-1.211
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-0.002			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustments 1	-0.704	-0.845	-1.211	-	-1.211

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 4					R-1 Program Element (Number/Name) PE 0603827A / <i>Soldier Systems - Advanced Development</i>				Project (Number/Name) S51 / <i>Aircrew Integrated Sys Ad</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
S51: <i>Aircrew Integrated Sys Ad</i>	-	0.159	0.161	0.152	-	0.152	0.157	0.153	0.198	0.198	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project supports the Advanced Component Development and Prototyping of select Air Soldier System (Air SS) technologies. The Air SS provides improved safety, survivability, and human performance that amplifies the Warfighter's effectiveness and facilitates full-spectrum dominance of Army aircraft. The Air SS addresses capability gaps identified during combat operations in Iraq and Afghanistan including the effects of weight and bulk, limited situational awareness, and lack of functionally integrated aircrew member life support equipment. The Air SS follows an evolutionary acquisition approach that integrates mature technologies to build to the full capability. Air SS reduces overall weight and bulk of aircrew equipment, increases situational awareness, and enhances aircrew mobility. This funding provides advanced development for the Air SS in technology areas supporting improved laser eye protection, integrated power, wireless personal area networks, lightweight protective clothing, and tactile situational awareness cueing.

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

	FY 2014	FY 2015	FY 2016
Title: Aircrew Integrated Systems (ACIS) Advanced Development	0.159	0.161	0.152
Description: Advanced Component Development and Prototyping (ACDP) of critical aircrew support systems technology improvements and Advanced Development (AD) and risk reduction efforts required for transition into the Engineering Manufacturing Development (EMD) phase.			
FY 2014 Accomplishments: Continued advanced component development of Air Soldier System technology improvements and advanced development effort transition to engineering development including advanced helmet mounted display technologies and miniaturized communication devices.			
FY 2015 Plans: Fund laboratories to monitor and influence Air SS technologies to include advanced wide field of view/high resolution helmet mounted display technologies and miniaturized communication devices for transition into Air SS preplanned product improvements phase.			
FY 2016 Plans: Continue to resource laboratories to monitor and influence Air SS technologies to include advanced wireless battery charging and wireless personal area networks for transition into Air SS preplanned product improvements phase.			
Accomplishments/Planned Programs Subtotals	0.159	0.161	0.152

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603827A / <i>Soldier Systems - Advanced Development</i>	Project (Number/Name) S51 / <i>Aircrew Integrated Sys Ad</i>

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
• ACIS Engineering Development: <i>RDTE, A PE 0604601A PROJ S61-SDD</i>	13.716	1.742	3.463	-	3.463	3.893	3.880	3.812	1.861	Continuing	Continuing
• Aircrew Integrated Systems: <i>Aircraft Procurement, Army SSN AZ3110 - ACIS</i>	45.841	48.081	44.085	-	44.085	48.441	47.380	47.374	50.136	Continuing	Continuing

Remarks

D. Acquisition Strategy

The Air Soldier System (Air SS) employs an incremental acquisition approach to improve the mission effectiveness, survivability, Situational Awareness, and safety of Army aircrews. These funds resource various government agencies and labs in the transition of emerging technologies to the Air SS program, including enhanced battlefield laser eye protection and tactile cueing.

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 / 4	R-1 Program Element (Number/Name) PE 0603827A / <i>Soldier Systems - Advanced Development</i>	Project (Number/Name) S51 / <i>Aircrew Integrated Sys Ad</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
Air Soldier System Advanced Development									Air Soldier System Advanced Development																			

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603827A / <i>Soldier Systems - Advanced Development</i>	Project (Number/Name) S51 / <i>Aircrew Integrated Sys Ad</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Air Soldier System Advanced Development	1	2016	4	2020

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 4					R-1 Program Element (Number/Name) PE 0603827A / <i>Soldier Systems - Advanced Development</i>				Project (Number/Name) S53 / <i>Clothing And Equipment</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
S53: <i>Clothing And Equipment</i>	-	5.608	1.555	9.185	-	9.185	8.436	7.108	7.296	7.651	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This funding supports efforts to evaluate and integrate technologies and representative or prototype systems that help expedite Soldier uniform and clothing technology transition from the laboratory to operational use. Efforts focus on proving out commonality across as broad a spectrum of users as possible to provide a modular, integrated uniform/clothing system from skin out and head-to-toe. It funds efforts to investigate new technologies and domestically available fabrics with Flame Resistance, moisture wicking, insect protection and camouflage technologies, including evaluation and integration of fabrics appropriate for uniforms and equipment used in jungle/tropical and Arctic environments. It funds efforts to improve personnel parachutes, to include analysis of canopy cloth fabrics and pack volume techniques. New technologies are investigated to monitor health and improve Soldier survivability, reduce weight, and improve affordability, mobility and comfort in combat and training/administrative environments.

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

	FY 2014	FY 2015	FY 2016
Title: Soldier Uniforms and Clothing	3.119	1.555	6.191
Description: Develop and provide superior and sustainable integrated clothing for the Soldier in a rapidly changing global environment.			
FY 2014 Accomplishments: Funded maturing of new technology to reduce Soldier load and weight. Continued testing improvements in Permethrin treatment and Flame Resistance (FR) capabilities for use in combat uniforms to adapt to improvements in textile technology. Initiated joint OSD/USMC/Army/ funded effort to develop and test spectral mitigation enhancements to combat uniforms.			
FY 2015 Plans: Tactical/Personal Clothing. Continue to develop more durable FR fabrics for use in combat uniforms to improve service life of tactical uniforms.			
FY 2016 Plans: Tactical Clothing. Obtain MDD and initiate technical testing on Environmental Protection Ensemble (EPE) component prototypes to provide Soldiers protection in all extreme environmental conditions. Conduct evaluation and integration of fabrics appropriate for uniforms and equipment used in jungle/tropical and arctic environments. Transition to S60 with MSB in 4QFY16. Obtain MDD on upgraded Combat Vehicle Crewman (CVC) uniform to provide CVC military personal optimal performance. Transition to S60 2QFY17.			

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603827A / <i>Soldier Systems - Advanced Development</i>	Project (Number/Name) S53 / <i>Clothing And Equipment</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016
Will continue to develop alternate insect protection with lower toxicity for all combat uniform fabrics (i.e. Army Combat Shirt, Army Combat Pants, FR Army Combat Uniform). Continue to develop more durable FR fabrics for use in combat uniforms to improve service life of tactical uniforms.			
Title: Individual Equipment	2.489	-	2.994
Description: Develop and provide superior and sustainable integrated individual equipment for the Soldier in a rapidly changing global environment.			
FY 2014 Accomplishments: Obtained Material Development Decision (MDD) for Parachute Navigational System (PARANAVSYS), further developed Government owned software to be evaluated at Development Testing (DT) 1, DT 2 and Operational Testing (OT). Procured and tested prototype thermal/ruggedized protective systems to support PARANAVSYS MS-B in 4QFY14. Tested current oxygen systems to determine altitude levels required on the Military Free Fall (MFF) Advanced Ram Air Parachute System (ARAPS).			
FY 2016 Plans: Load Carriage. Obtain Material Development Decision (MDD) and initiate technical testing on the Integrated Load Carriage System (ILCS). The ILCS will provide an integrated load carriage that interfaces with the Soldier Protection System (SPS). Transition to S60 with MS B in 4QFY16. Airdrop. Initiate characterization of canopy materials for the T-11 that could reduce pack thickness and include assessment of canopy signature. Also perform initial assessment of design/material changes to the T-11 that could reduce corner vent entanglements. Hydration. Initiate technical testing to provide the Individual Water Treatment Device (IWTD) with the capability to eliminate Toxic Industrial Chemicals/Toxic Industrial Materials (TICs/TIMs).			
Accomplishments/Planned Programs Subtotals	5.608	1.555	9.185

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
• 0604601A S60: <i>RDTE, 0604601A.S60, Clothing and Equipment</i>	5.266	2.518	4.180	-	4.180	7.154	10.897	10.765	6.651	Continuing	Continuing
• 121017 CFF OMA: <i>OMA, 121017, Central Funding and Fielding</i>	88.771	126.972	121.608	-	121.608	134.879	134.876	133.442	150.872	Continuing	Continuing

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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 / 4	R-1 Program Element (Number/Name) PE 0603827A / <i>Soldier Systems - Advanced Development</i>	Project (Number/Name) S53 / <i>Clothing And Equipment</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>
• MA7801 OPA: <i>OPA, MA7801, Advanced Tactical Parachute System</i>	35.177	25.996	26.303	-	26.303	26.108	40.854	43.546	12.235	Continuing	Continuing

Remarks

D. Acquisition Strategy

Programs pursue refinement and integration of new technology at the component and subsystem level, culminating in the transition of mature technologies (TRL 6-7) to EMD and production. This project continues to exercise competitively awarded contracts using best value source selection procedures.

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 / 4				PE 0603827A / Soldier Systems - Advanced Development				S53 I Clothing And Equipment							
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 Support	TBD	PM SPIE : Ft. Belvoir, VA	13.291	0.997		-		0.800		-		0.800	Continuing	Continuing	Continuing
Subtotal			13.291	0.997		-		0.800		-		0.800	-	-	-
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
Engineering Support	MIPR	NSRDEC : Natick, MA	13.312	1.071		0.200		0.545		-		0.545	Continuing	Continuing	Continuing
Development Contracts	C/TBD	Various : Various	25.072	3.118		1.100		3.240		-		3.240	Continuing	Continuing	Continuing
Subtotal			38.384	4.189		1.300		3.785		-		3.785	-	-	-
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
Misc Support Costs	MIPR	Various : Various	6.677	0.400		-		0.700		-		0.700	Continuing	Continuing	Continuing
Subtotal			6.677	0.400		-		0.700		-		0.700	-	-	-
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 Costs	MIPR	various : Various	20.300	0.022		0.255		3.900		-		3.900	Continuing	Continuing	Continuing
Subtotal			20.300	0.022		0.255		3.900		-		3.900	-	-	-
Project Cost Totals			78.652	5.608		1.555		9.185		-		9.185	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army							Date: February 2015			
Appropriation/Budget Activity 2040 / 4			R-1 Program Element (Number/Name) PE 0603827A / <i>Soldier Systems - Advanced Development</i>			Project (Number/Name) S53 / <i>Clothing And Equipment</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 / 4	R-1 Program Element (Number/Name) PE 0603827A / <i>Soldier Systems - Advanced Development</i>	Project (Number/Name) S53 / <i>Clothing And Equipment</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
UNIFORM CLOTHING																												
Permethrin Testing																												
Flame Resistant Clothing Upgrades																												
Improve Signature Mgmt (IR) Eval & Camo in Clothing & Equipment																												
(1) Transition upgraded CVC uniform to S60																												
(2) Environmental Protection Ensemble MDD																												
(3) Environmental Protection Ensemble MS B																												
INDIVIDUAL EQUIPMENT																												
Technical Testing of IWTD TIC/TIM																												
Parachutist Navigation System (PARANAVSYS) Evaluation																												
(4) PARANAVSYS Transition to 0604601A S60																												
(5) Integrated Load Carriage System MDD																												
(6) Integrated Load Carriage System MS B																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603827A / <i>Soldier Systems - Advanced Development</i>	Project (Number/Name) S53 / <i>Clothing And Equipment</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
UNIFORM CLOTHING	1	2008	4	2015
Permethrin Testing	1	2011	4	2018
Flame Resistant Clothing Upgrades	1	2009	4	2018
Improve Signature Mgmt (IR) Eval & Camo in Clothing & Equipment	2	2012	4	2018
Transition upgraded CVC uniform to S60	2	2017	2	2017
Environmental Protection Ensemble MDD	2	2016	2	2016
Environmental Protection Ensemble MS B	4	2016	4	2016
INDIVIDUAL EQUIPMENT	1	2009	4	2015
Technical Testing of IWTD TIC/TIM	2	2016	4	2016
Parachutist Navigation System (PARNAVSYS) Evaluation	2	2014	2	2014
PARNAVSYS Transition to 0604601A S60	3	2013	3	2014
Integrated Load Carriage System MDD	2	2016	2	2016
Integrated Load Carriage System MS B	4	2016	4	2016

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 4					R-1 Program Element (Number/Name) PE 0603827A / <i>Soldier Systems - Advanced Development</i>				Project (Number/Name) S54 / <i>Small Arms 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
S54: <i>Small Arms Improvement</i>	-	4.117	1.578	7.449	-	7.449	9.089	6.152	7.557	7.643	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

New starts in FY 2016 include Dynamic Tracking for Fire Controls, Sniper Rifle Fire Control (SRFC), Small Arms Deployable Sensor Networks, and Armaments for Robots.

A. Mission Description and Budget Item Justification

The Small Arms Improvement Advanced Component Development and Prototypes (ACD&P) program provides funds to mature, demonstrate, test and evaluate emerging technology from Joint Service Small Arms Program (JSSAP), Project 627, Program Element 0603607A, (Budget Activity 3), Defense Advanced Research Projects Agency (DARPA), Department of Energy National Laboratories, Research Development & Engineering Centers (RDECs) and other domestic and foreign sources for small arms weapons systems and technology. Small arms systems include weapons ranging up to 40 millimeter in caliber. Current and future efforts focus on improvements designed to enhance lethality, target acquisition and tracking, fire control, training effectiveness and reliability of weapons to include ammunition when developing and/or evaluating standard and non-standard weapons. Focus areas include the maturing of technology through testing and evaluation of sub-system or system prototypes which demonstrates light weight materials, wear resistant/protective/anti-reflective coatings, observation/situational awareness improvements, robotic armament capability and equipment enhancements. Benefits include continuous improvements to small arms weapons, fire control equipment, optics, gun barrels, training devices, suppressors, component mounts, weapon mounts, and weapon/ammunition interface.

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

	FY 2014	FY 2015	FY 2016
Title: New Weapons	1.016	0.400	2.269
Description: Description: Development of new small arms weapons			
FY 2014 Accomplishments: Lightweight Machine Gun: Acquisition community continued to assist the United States Army Training and Doctrine Command (TRADOC) and Maneuver Center of Excellence (MCoE) in the development of Lightweight Machine Gun requirements to include a potential Common Lightweight Automatic Weapon System (CLAWS) now known as Next Generation Squad Weapon (NGSW).			
Next Generation Squad Weapon (NGSW): Lead support to Maneuver Center of Excellence (MCoE) initiated the development of requirements for the Next Generation Squad Weapon to include development and clarification of Key Performance Parameters (KPPs), Key System Attributes (KSAs), and Additional Performance Attributes (APAs). Also reviewed first Draft of the NGSW Capability Development Document and provided updates.			
FY 2015 Plans:			

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015		
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603827A / <i>Soldier Systems - Advanced Development</i>	Project (Number/Name) S54 / <i>Small Arms Improvement</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2014	FY 2015	FY 2016
<p>Next Generation Squad Weapon (NGSW): Acquisition community assist the United States Army Training and Doctrine Command (TRADOC) and Maneuver Center of Excellence (MCoE) in the development of Next Generation Squad Weapon requirements to include a potential replacement for the M249 in the Automatic Rifle role. Support the Capability Development Document (CDD) and provide input to a Cost Benefit Analysis (CBA) for decision makers. Begin development of the Capabilities Production Document (CPD) for the NGSW.</p> <p>FY 2016 Plans: Next Generation Squad Weapon (NGSW): Will develop and review Capabilities Production Document (CPD) in support of United States Army Training and Doctrine Command (TRADOC) and Maneuver Center of Excellence (MCoE) for the Next Generation Squad Weapon requirements. Begin development of Acquisition Strategy, and plan to support CPD and provide Analysis of Alternatives for stakeholders.</p> <p>Externally Powered Mounted Machine Gun: Transitions from FY2015 Research and Analysis. Will continue to evaluate and develop metrics for externally powered weapon stations. Will continue to provide information/assistance to the MCoE in the preparation of an Externally Powered Weapon Capability Development Document (CDD).</p>				
<p>Title: Small Arms Weapons Enhancements</p> <p>Description: Description: Enhancements and developments of small arms weapons</p> <p>FY 2014 Accomplishments: Individual Non-Lethal System: Continued studies on human effects at intended ranges.</p> <p>Increased Barrel Life/Replace Chrome: Conducted barrel studies to improve/enhance barrel life and eliminate chrome-lined weapon parts.</p> <p>Non-Standard Weapons Assessments: Evaluated on-going characterization studies of standard and non-standard weapons. Conducted market research of commercially available weapon systems that have characteristics for military suitability.</p> <p>FY 2015 Plans: Individual Non-Lethal System: Initiate analysis of alternatives and start review of requirements.</p> <p>Increased Barrel Life/Replace Chrome: Continue to conduct barrel studies to improve/enhance barrel life and eliminate chrome-lined weapon parts. Monitor contract progress in developing prototype barrel liners. Develop test plan for barrels, conduct testing at Government facility.</p>		1.163	0.369	2.680

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015		
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603827A / <i>Soldier Systems - Advanced Development</i>	Project (Number/Name) S54 / <i>Small Arms Improvement</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2014	FY 2015	FY 2016
<p>Non-Standard Weapons Assessments: Conduct baseline testing of commercial weapon systems and perform capability analysis of unique weapon characteristics. Continue to conduct market research of commercially available weapon systems.</p> <p>Weapon Upgrades and Accessories: Continue to test, evaluate and analyze ongoing and new activities to enhance small arms weapons.</p> <p>FY 2016 Plans: Increased Barrel Life/Replace Chrome: Will perform barrel studies for alternate calibers (7.62mm, possibly 5.56mm) to improve/enhance barrel life. Will utilize lesson-learned from initial prototype testing, further develop and acquire full length barrel liners for extended life testing and perform testing at Government facility.</p> <p>Non-Standard Weapons Assessments: Will conduct baseline testing of commercial weapon systems and perform capability analysis of unique weapon characteristics. Will continue to conduct market research of commercially available weapon systems.</p> <p>Additive Manufacturing (3D Printing): Transitions from FY2015 Research and Analysis. Will continue using Additive Manufacturing (3D Printing) methods to fabricate and test selected prototype weapon components for individual and crew served weapons.</p> <p>Recoil Reduction Mechanisms: Transitions from FY2015 Research and Analysis. Selected Recoil Reduction Mechanisms will be fabricated and tested for both individual and crew served weapons.</p> <p>Small Business Innovative Research (SBIR) Enhancements: Transitions from FY2015 Research and Analysis. Future efforts will continue to focus on improvements designed to enhance lethality, target acquisition and tracking, fire control, training effectiveness and reliability of weapons.</p> <p>FY16 New Start Armaments for Robots: Will initiate the intelligence/networking and weapons design and functions for a man-in-the-loop, small caliber defensive armaments system on an unmanned ground vehicle including the Warfighter/Robot interface.</p> <p>FY16 New Start Small Arms Deployable Sensor Networks: Will transition a low cost, prototype munition from Armament Research, Development and Engineering Center (ARDEC) and integrate with the M320, 40mm rifle-mounted grenade launcher system. The munition will remotely deploy a sensor network comprised of 40mm grenade nodes containing an Electro Optical (EO) camera, acoustic and magnetic sensor components networked via robust ad-hoc wireless communications capable of transmitting streaming audio and imagery to provide increased situational awareness.</p>				

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015		
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603827A / <i>Soldier Systems - Advanced Development</i>	Project (Number/Name) S54 / <i>Small Arms Improvement</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2014	FY 2015	FY 2016
Weapon Upgrades and Accessories: Will continue to test, evaluate and analyze ongoing and new activities to enhance small arms weapons.				
<p>Title: Ammunition</p> <p>Description: Description: Small arms ammunition improvement</p> <p>FY 2014 Accomplishments: Extended Range/Guided 40mm Munition: Initiated coordination/participation on an ongoing Science & Technology (S&T) effort of guided, extended range small arms projectiles/munitions.</p> <p>Small Arms Ammunition Configuration Study: Initiated Small Arms Ammunition Configuration Study.</p> <p>FY 2015 Plans: Extended Range/Guided 40mm Munition: Continue coordination/participation on an ongoing Science & Technology (S&T) effort of guided, extended range small arms projectiles/munitions and determine effects on weapon mechanisms and recoil.</p> <p>Small Arms Ammunition Configuration Study: Will evaluate the operational benefit and cost of alternative technical approaches that mitigate capability gaps prescribed in the Small Arms Capabilities Based Assessment (CBA)</p> <p>FY 2016 Plans: Extended Range/Guided 40mm Munition: Will continue coordination/participation on an ongoing Science & Technology (S&T) effort of guided, extended range small arms projectiles/munitions for observation and target acquisition, and precision munitions with enhanced lethality. Will initiate review of requirements for the system.</p> <p>Small Arms Ammunition Configuration Study: Will continue to evaluate the operational benefit and cost of alternative technical approaches that mitigate capability gaps prescribed in the Small Arms Capabilities Based Assessment (CBA).</p>		0.638	0.300	0.500
<p>Title: Combat Optics</p> <p>Description: Description: Improvement of small arms combat optics</p> <p>FY 2014 Accomplishments: Advanced Laser Protection for Optics (ALPO): Initiated market surveys of the state of laser blocking technologies. Awarded a SBIR Phase I for ALPO. Cross-coordinated with PM Abrams/Tank Automotive Research, Development and Engineering Center</p>		0.050	0.050	0.500

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015		
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603827A / <i>Soldier Systems - Advanced Development</i>	Project (Number/Name) S54 / <i>Small Arms Improvement</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2014	FY 2015	FY 2016
<p>(TARDEC), Armament Research, Development and Engineering Center (ARDEC), and Natick Soldier Research, Development and Engineering Center (NSRDEC) gather lessons learned and verified validity of technical path forward.</p> <p>FY 2015 Plans: Adaptive Lubricious Coatings: Evaluate advanced coatings and film technology for application both to optical surfaces for laser protection and to weapon components to increase reliability.</p> <p>Optics Upgrades: Continue engineering evaluation, verification and validation of weapon optics performance requirements.</p> <p>FY 2016 Plans: Advanced Laser Protection for Optics (ALPO): Transitions from FY2015 Research and Analysis. Technical efforts will focus on exploring laser protection solutions for fire control devices, for integration with documented optic requirements.</p> <p>Adaptive Lubricious Coatings: Will continue to evaluate advanced coatings and film technology for application both to laser optical surfaces for laser protection and to weapon components to increase reliability.</p> <p>Optics Upgrades: Will continue to evaluate state of the art advances in optical component technologies for inclusion in future products, including Mounted Machinegun Optic Capabilities Production Document (CPD), Fire Control Capability Development Document (CDD), and its associated annexes.</p>				
<p>Title: Fire Control</p> <p>Description: Description: Small arms fire control</p> <p>FY 2014 Accomplishments: Advanced Hyperspectral Target Acquisition: Evaluated and analyzed advance approaches to acquire targets with the use of hyperspectral imaging and assess the effect on current optical systems. Tested and assessed enhanced electro-optics for target detection, acquisition and identification.</p> <p>Precision Projectile Tracking: Established method for projectile tracking and displayed previous round impact information to the user. Completed initial atmospheric modeling. Completed and validated lab setup to simulate rotating projectile at extended range.</p> <p>Ballistic Kernel: Developed proof of concept Government-owned ballistic kernel, replete with demonstration/debugging hardware board, ballistic look-up tables, and initial ballistic solution algorithm. Interface Control Drawings for both the hardware (connectors) and software (gateways and protocols) provided.</p> <p>FY 2015 Plans:</p>		1.250	0.359	1.400

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015		
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603827A / <i>Soldier Systems - Advanced Development</i>	Project (Number/Name) S54 / <i>Small Arms Improvement</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2014	FY 2015	FY 2016
<p>Advanced Hyperspectral Target Acquisition: Continue to evaluate and analyze advance approaches to acquire targets with the use of hyperspectral imaging and assess the effect on current optical systems to include advanced hyperspectral target acquisition.</p> <p>Precision Projectile Tracking: Refine projectile production methods and packaging. Illumination and imaging hardware will be refined, and software will be tested and validated. Complete prototypes will be fired, and tracking verification will be conducted.</p> <p>FY 2016 Plans: Advanced Hyperspectral Target Acquisition: Will continue to evaluate and analyze advanced approaches to acquire targets with the use of hyperspectral imaging and incorporate technology into prototype hardware.</p> <p>FY 2016 New Start Dynamic Tracking for Fire Control: Armament Research, Development and Engineering Center (ARDEC) developed target solution algorithms and laser beam steering that will be integrated into optics and Fire Control Systems. Systems will be tested for ability to track targets and improve probability of hit (P(h)).</p> <p>FY16 New Start Sniper Rifle Fire Control (SRFC): Will evaluate and assess enhanced multi-functional fire control technologies which will improve small arms accuracy and lethality, and will substantially reduce user's cognitive load during tactical operation. These technologies can be transitioned to the following capability requirements: Mounted Machinegun Optic Capabilities Production Document (CPD); Fire Control Capability Development Document (CDD), Crew Served Annex; Fire Control CDD, Squad Annex; and Fire Control CDD, Precision Annex.</p> <p>Fire Control Upgrades: Will continue oversight of integration and test of advanced fire control systems for small arms platforms, with focus on modular integration. Will continue to conduct human factors evaluation of Soldier-System interface between the Soldier and fire control. Will continue to evaluate impact of automated target designation on Soldier engagement time.</p>				
<p>Title: Research and Analysis</p> <p>Description: Research and analysis of small arms</p> <p>FY 2015 Plans: Conduct Market Research and Benefit Analysis of ongoing small arms initiatives to refine requirements and identify multiple solution sets. The following programs will be evaluated in FY 2015; Externally Powered Mounted Machine Gun, Extended Range/ Guided 40mm Munition, Precision Projectile Tracking, Advanced Laser Protection for Optics, Additive Manufacturing (3D Printing), Recoil Reduction Mechanisms, Adaptive Lubricious Coatings, Armaments for Robots, Dynamic Tracking for Fire Control, Small</p>		-	0.100	0.100

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603827A / <i>Soldier Systems - Advanced Development</i>	Project (Number/Name) S54 / <i>Small Arms Improvement</i>
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016
Arms Deployable Sensor Network, and Small Business Innovative Research enhancements and the Small Arms Ammunition Configuration Study.			
FY 2016 Plans: Will initiate Market Research and Benefit Analysis of Armaments for Robots, Dynamic Tracking for Fire Control, and Small Arms Deployable Sensor Networks.			
Accomplishments/Planned Programs Subtotals	4.117	1.578	7.449

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
• Small Arms Improvement: <i>RDTE S63, Program Element 0604601A - Infantry Support Weapons</i>	17.387	11.095	20.303	-	20.303	22.665	19.926	19.542	19.732	Continuing	Continuing
• Joint Service Small Arms Program: <i>RDTE 627, Program Element 0603607A - Joint Service Small Arms Program (JSSAP)</i>	4.902	7.318	5.150	-	5.150	5.839	5.787	5.874	5.990	Continuing	Continuing

Remarks
In support of Small Arms Initial Capability and Capability Development Requirements, advanced technology of Small Arms Weapons is transitioned from Joint Service Small Arms Program (JSSAP), Project 627, Program Element 0603607A, (Budget Activity 3) to Small Arms Improvement, Project S54, Program Element 0603827A, (Budget Activity 4). After the technology is demonstrated and/or validated the program transitions to Small Arms Improvement, Project S63, Program Element 0604601A, (Budget Activity 5) for engineering and manufacturing development.

D. Acquisition Strategy
Primary strategy is to study, develop, demonstrate and evaluate emerging technologies that ultimately lead to enhancing/improving the small arms inventory.

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 / 4				PE 0603827A / Soldier Systems - Advanced Development				S54 / Small Arms 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 Management	Allot	PM Soldier Weapons, : Picatinny Arsenal	2.226	0.289	Mar 2014	0.054	Mar 2015	0.680	Dec 2015	-		0.680	Continuing	Continuing	Continuing
Subtotal			2.226	0.289		0.054		0.680		-		0.680	-	-	-
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
Hardware Development	MIPR	Army Research Development Engineering Centers, : Multiple	8.523	0.998	Mar 2014	-		1.150	Dec 2015	-		1.150	Continuing	Continuing	Continuing
Subtotal			8.523	0.998		-		1.150		-		1.150	-	-	-
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	MIPR	Army Research Development Engineering Centers, : Multiple	10.805	1.600	Mar 2014	0.899	Mar 2015	4.085	Dec 2015	-		4.085	Continuing	Continuing	Continuing
Subtotal			10.805	1.600		0.899		4.085		-		4.085	-	-	-
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 Testing	MIPR	Army Test and Evaluation Centers, : Multiple	6.377	1.230	Mar 2014	0.625	Mar 2015	1.534	Dec 2015	-		1.534	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 / 4	R-1 Program Element (Number/Name) PE 0603827A / <i>Soldier Systems - Advanced Development</i>	Project (Number/Name) S54 / <i>Small Arms Improvement</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			6.377	1.230		0.625		1.534		-		1.534	-	-	-
Project Cost Totals			27.931	4.117		1.578		7.449		-		7.449	-	-	-

Remarks

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603827A / <i>Soldier Systems - Advanced Development</i>	Project (Number/Name) S54 / <i>Small Arms 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
Lightweight Machine Gun																												
Next Generation Squad Weapon (NGSW)																												
Externally Powered Mounted Machine Gun																												
Individual Non-Lethal System																												
Lead Free Barrel Twist/Barrel Studies																												
Additive Manufacturing (3D Printing)																												
Recoil Reduction Mechanisms																												
Armament for Robotics																												
Small Arms Deployable Sensor Networks																												
Non-Standard Weapon Studies																												
Improved Weapons Coating																												
Small Business Innovative Research (SBIR)																												
Weapons Upgrades and Accessories																												

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603827A / <i>Soldier Systems - Advanced Development</i>	Project (Number/Name) S54 / <i>Small Arms 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				
Extended Range/Guided 40mm Munition																																
Small Arms Ammunition Configuration Study																																
Advanced Laser Protection for Optics																																
Adaptive Lubricious Coatings																																
Optics Upgrades																																
Advanced Hyperspectral Target Acquisition																																
Precision Projectile Tracking																																
Ballistic Kernel																																
Fire Control Upgrades																																
Research and Analysis of Small Arms																																

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603827A / <i>Soldier Systems - Advanced Development</i>	Project (Number/Name) S54 / <i>Small Arms Improvement</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Lightweight Machine Gun	3	2011	4	2014
Next Generation Squad Weapon (NGSW)	1	2014	4	2017
Externally Powered Mounted Machine Gun	1	2015	4	2017
Individual Non-Lethal System	1	2013	4	2015
Lead Free Barrel Twist/Barrel Studies	1	2011	4	2016
Additive Manufacturing (3D Printing)	1	2015	4	2017
Recoil Reduction Mechanisms	1	2015	4	2018
Armament for Robotics	1	2016	4	2018
Small Arms Deployable Sensor Networks	1	2016	4	2016
Non-Standard Weapon Studies	4	2011	4	2020
Improved Weapons Coating	1	2012	4	2020
Small Business Innovative Research (SBIR)	1	2015	4	2020
Weapons Upgrades and Accessories	1	2010	4	2020
Extended Range/Guided 40mm Munition	1	2014	4	2017
Small Arms Ammunition Configuration Study	4	2014	1	2017
Advanced Laser Protection for Optics	1	2014	4	2016
Adaptive Lubricious Coatings	1	2015	4	2017
Optics Upgrades	1	2010	4	2020
Advanced Hyperspectral Target Acquisition	1	2014	4	2016
Precision Projectile Tracking	1	2015	4	2016
Ballistic Kernel	1	2014	4	2014
Fire Control Upgrades	1	2008	4	2020

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army			Date: February 2015	
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603827A / <i>Soldier Systems - Advanced Development</i>	Project (Number/Name) S54 / <i>Small Arms Improvement</i>		

Events	Start		End	
	Quarter	Year	Quarter	Year
Research and Analysis of Small Arms	1	2015	4	2016

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 4					R-1 Program Element (Number/Name) PE 0603827A / <i>Soldier Systems - Advanced Development</i>				Project (Number/Name) VS4 / <i>Soldier Protective Equipment</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
VS4: <i>Soldier Protective Equipment</i>	-	3.564	2.689	5.408	-	5.408	5.228	4.394	4.408	4.963	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This funding supports the efforts to evaluate and integrate technologies and prototype systems that help expedite Individual Soldier Ballistic Protection technology transition from the laboratory to operational use. It continues incremental improvement of body armor to reduce Soldier load and improve comfort/functionality based on operational feedback. It advances efforts to mature manufacturing readiness levels of advanced high performance fibers and composites for next-generation combat helmets, and supports transition to 6.5 phase of EMD. It continues to increase eyewear ballistics/blast protection, and incorporates advancements in laser eye protection, as well as advancements in variable transition lens technology into ballistic goggles and spectacles.

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

	FY 2014	FY 2015	FY 2016
Title: Soldier Protective Equipment	3.564	2.689	5.408
Description: Funding line established in FY12. Effort was previously executed in Program Element 0603827 S53. Effort is to increase the Warfighter lethality and mobility by optimizing Soldier protection while effectively managing all life cycle aspects of Personal Protective Equipment (PPE).			
FY 2014 Accomplishments:			
Continued FY13 efforts initiated in FY13 to develop Soldier Protection System (SPS) Integrated Soldier Sensor System (ISSS) Developmental Testing (DT) 1 prototypes and continued planning for FY15 characterization and human factors testing. Monitored and provided guidance to SPS ISSS contractors to refine design, power management and component integration. Conducted Preliminary Design Review (PDR) of the SPS ISSS test candidates in 2QFY14 and obtained Post PDR Assessment Acquisition Decision Memorandum on 15 May 14. In 2QFY14 completed SPS DT 1 system level plate testing, Vital Torso Protection (VTP), including SPS Torso Protection (TP) ballistic testing. Continued to integrate new and emerging technologies at the SPS component and subsystem level and transitioned mature components and subsystems to System Capability & Manufacturing Process Demonstration (SC&MPD)/VS 5. Evaluate component and subsystem technologies across the PPE portfolio (extremities, torso and vital torso, head and face protection) to counter emerging ballistic/blast threats. Continued efforts to test, characterize, and increase durability and functional service life of existing personal protective systems. Continued development and evaluation of ballistic inserts for female and small statured Soldiers, and plan to transition to SC&MPD/VS 5 through 2QFY15 as the components and subsystems mature. Completed validation testing of multi-sized head forms with expected transition to Army and National Institute of Justice (NIJ) certified testing laboratories to standardize testing of multiple size helmet and acceptance testing			

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603827A / <i>Soldier Systems - Advanced Development</i>	Project (Number/Name) VS4 / <i>Soldier Protective Equipment</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016
<p>in FY15. Supported the Sustainment Center of Excellence (SCoE) in developing requirements for the Next Generation Advanced Bomb Suit (NGABS).</p> <p>FY 2015 Plans: Conduct SPS ISSS human factors/limited user evaluations and subsystem development and characterization testing 3QFY15, and transition to SC&MPD/VS5 to buy DT/OT test items by 1QFY16. Initiate development of SPS system Modeling & Simulation as a research and diagnostic tool. Continue FY14 SPS Integrated System Design (ISD) efforts to integrate new and emerging technologies at the component and subsystem level, with a focus on reducing weight and bulk at the system, subsystem and component level. Continue to evaluate component and subsystem technologies across the PPE portfolio (extremities, torso and vital torso, head and face protection) to counter known and emerging ballistic/blast threats. Continue efforts to characterize and increase durability and functional service life of existing personal protective systems. Initiate efforts for reduced weight, increased performance, scalability, and integration for the NGABS. Complete Developmental Testing 2 (DT2) of the contractor's candidate Torso and Extremity Protection (TEP), Integrated Head Protection System (IHPS), and Vital Torso Protection (VTP) systems. Complete DT2 of the Government designed TEP candidates in order to inform the Milestone C decision in 3QFY15.</p> <p>FY 2016 Plans: Continue to evaluate component and subsystem technologies across the PPE portfolio (extremities, torso and vital torso, head and face protection) to counter emerging ballistic/blast threats. Will continue efforts to reduce SPS weight and bulk at the system, subsystem and component level - planned focus in FY16 includes reducing the aerial density of soft armor systems while maintaining same or better performance. Will also further develop and test other SPS subsystems, to include new plate sizes and enhanced extremity protection. Will also develop and perform initial validation testing of a vital torso plate smart sensor. Conduct systems development and testing to include improvements for varying operational environments (cold, tropical). Continue blast, ballistic and characterization testing of SPS Subsystems and ancillary components. Will continue efforts to characterize and increase durability and functional service life of existing personal protective systems at the subsystem/component level. Complete an MDD and initiate a Technology Development phase for SPS Increment 2 in 4QFY16. Continue efforts for reduced weight, increased performance, scalability, and integration for the NGABS.</p>			
Accomplishments/Planned Programs Subtotals	3.564	2.689	5.408

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>
• Soldier Protective Equipment VS5: RDTE, 0604601A.VS5, Soldier Protective Equipment	19.367	4.830	15.175	-	15.175	13.827	10.842	10.282	4.969	-	79.292

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603827A / <i>Soldier Systems - Advanced Development</i>	Project (Number/Name) VS4 / <i>Soldier Protective Equipment</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>
• Central Funding & Fielding: <i>OMA, 121017, Central Funding & Fielding</i>	88.771	126.972	121.608	-	121.608	134.879	134.876	133.442	150.872	-	891.420

Remarks

D. Acquisition Strategy

Programs pursue refinement and integration of new technology at the component and subsystem level, culminating in the transition of mature technologies (TRL 6-7) to EMD and production. This project continues to exercise competitively awarded contracts using best value source selection procedures.

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 / 4				PE 0603827A / Soldier Systems - Advanced Development				VS4 / Soldier Protective Equipment							
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
SETA Support	TBD	PM SPE : Ft. Belvoir, VA	0.200	0.100		-		-		-		-	Continuing	Continuing	Continuing
Subtotal			0.200	0.100		-		-		-		-	-	-	-
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
Dev/Sys Engineering Spt	MIPR	Various : Various	2.659	1.293		1.000		1.908		-		1.908	Continuing	Continuing	-
Dev/Integ Contracts	TBD	Various : various	10.461	0.771		0.999		1.500		-		1.500	Continuing	Continuing	Continuing
Subtotal			13.120	2.064		1.999		3.408		-		3.408	-	-	-
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
Misc Support Costs	MIPR	Various : various	0.800	0.400		-		1.000		-		1.000	Continuing	Continuing	Continuing
Subtotal			0.800	0.400		-		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
DT (Ballistic/Non-ballistic) Testing	MIPR	Various : Various	2.179	1.000		0.690		1.000		-		1.000	Continuing	Continuing	Continuing
Subtotal			2.179	1.000		0.690		1.000		-		1.000	-	-	-
Project Cost Totals			16.299	3.564		2.689		5.408		-		5.408	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army							Date: February 2015			
Appropriation/Budget Activity 2040 / 4			R-1 Program Element (Number/Name) PE 0603827A / <i>Soldier Systems - Advanced Development</i>			Project (Number/Name) VS4 / <i>Soldier Protective Equipment</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 / 4	R-1 Program Element (Number/Name) PE 0603827A / <i>Soldier Systems - Advanced Development</i>	Project (Number/Name) VS4 / <i>Soldier Protective Equipment</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
	Initiate/continue SPS ISSS Subsystem development																											
(1) SPS ISSS Preliminary Design Reviews	▲																											
(2) Obtained SPS ISSS ADM					▲																							
Conduct HFE/limited user Eval of ISSS subsys									■																			
(3) Trans SPS ISSS subsystem to VS5																					▲							
System level plate testing (VTP/TP)	■																											
Dev & Eval of ballistic inserts for Female/small statured Soldiers	■																											
Continue dev/testing of SPS Comp/Subsys/enhancements																												
(4) SPS Increment 2 MDD													▲															
(5) SPS Increment 2 MS B																					▲							

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603827A / <i>Soldier Systems - Advanced Development</i>	Project (Number/Name) VS4 / <i>Soldier Protective Equipment</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Initiate/continue SPS ISSS Subsystem development	1	2013	2	2016
SPS ISSS Preliminary Design Reviews	2	2014	2	2014
Obtained SPS ISSS ADM	3	2014	3	2014
Conduct HFE/limited user Eval of ISSS subsys	3	2015	3	2015
Trans SPS ISSS subsystem to VS5	1	2016	1	2016
System level plate testing (VTP/TP)	1	2014	2	2014
Dev & Eval of ballistic inserts for Female/small statured Soldiers	2	2014	2	2015
Continue dev/testing of SPS Comp/Subsys/enhancements	1	2014	4	2019
SPS Increment 2 MDD	4	2016	4	2016
SPS Increment 2 MS B	3	2019	4	2019

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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 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 0603850A / <i>Integrated Broadcast Service</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	-	0.079	-	-	-	-	-	-	-	-	-	0.079
472: <i>Integrated Broadcast Service (MIP)</i>	-	0.079	-	-	-	-	-	-	-	-	-	0.079

Note

Follow-on funding for this effort has been realigned to PE 0305179A Project EF4.

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 transmitting time-sensitive tactical and strategic intelligence and targeting data to all echelons of Joint Service operational users. The JPO's role is to coordinate sustainment and modernization of IBS terminals compatible with the Common Interactive Broadcast (CIB). The JTT family of systems currently consists of the JTT-Senior and JTT-IBS systems, and they satisfy Radio Frequency (RF) 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 which includes technical fixes as needed in the newly upgraded IBS network that now uses new crypto, a new Common Interactive Broadcast (CIB), and the Common Message Format (CMF). Funds support continued technical fixes/enhancements, configuration management for JTT crypto/CIB/CMF capabilities after the FY14 Initial Operational Capability (IOC) of the newly upgraded IBS network enterprise.

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	0.079	-	-	-	-
Current President's Budget	0.079	-	-	-	-
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 / 4					R-1 Program Element (Number/Name) PE 0603850A / <i>Integrated Broadcast Service</i>				Project (Number/Name) 472 / <i>Integrated Broadcast Service (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
472: <i>Integrated Broadcast Service (MIP)</i>	-	0.079	-	-	-	-	-	-	-	-	-	0.079
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Follow-on funding for this effort has been realigned to PE 0305179A Project EF4.

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 transmitting time-sensitive tactical and strategic intelligence and targeting data to all echelons of Joint Service operational users. The JPO's role is to coordinate sustainment and modernization of IBS terminals compatible with the CIB. The JTT family of systems currently consists of the JTT-Senior and JTT-IBS systems, and they satisfy RF 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 which includes technical fixes as needed in the newly upgraded IBS network that now uses new crypto, a new CIB, and the CMF. Funds support continued technical fixes/enhancements, configuration management for JTT crypto/CIB/CMF capabilities after the FY14 IOC of the newly upgraded IBS network enterprise.

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

	FY 2014	FY 2015	FY 2016
Title: JTT IBS CIB Integration	0.079	-	-
Description: Integration of the CIB waveform for migration to the IBS Worldwide standard DoD Network and NSA Certification			
FY 2014 Accomplishments: Completed CIB performance evaluation in over-the-air, system-of-systems, SATCOM environment.			
Accomplishments/Planned Programs Subtotals	0.079	-	-

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
• V29600 Other Procurement, Army	0.824	0.870	0.881	-	0.881	0.892	0.907	0.924	0.940	Continuing	Continuing
- JT: V29600 Other Procurement, Army - JTT/CIBS-M (Tiara)											

Remarks

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603850A / <i>Integrated Broadcast Service</i>	Project (Number/Name) 472 / <i>Integrated Broadcast Service (MIP)</i>

D. Acquisition Strategy

Funds support continued CIB performance evaluation in over-the-air, system-of-systems, SATCOM environment.

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 / 4	R-1 Program Element (Number/Name) PE 0603850A / <i>Integrated Broadcast Service</i>	Project (Number/Name) 472 / <i>Integrated Broadcast Service (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
IBS System of Systems Testing																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603850A / <i>Integrated Broadcast Service</i>	Project (Number/Name) 472 / <i>Integrated Broadcast Service (MIP)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
IBS System of Systems Testing	4	2011	1	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 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 0604100A / <i>Analysis Of Alternatives</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	-	-	9.910	9.805	-	9.805	9.982	10.023	9.970	10.243	Continuing	Continuing
EC7: <i>Analysis Of Alternatives</i>	-	-	9.910	9.805	-	9.805	9.982	10.023	9.970	10.243	Continuing	Continuing

Note

N/A

A. Mission Description and Budget Item Justification

This PE provides funding for analytical support of Analysis of Alternatives (AoA). Based on Department of Defense Instruction (DoDI) 5000.02, AoAs are required to be completed for a new program start prior to its first Milestone (MS) Decision. AoAs are a statutory requirement for ACAT I and ACAT II programs and regulatory for ACAT III programs. The AoAs support the preparation of the Capability Development Document (CDD), Key Performance Parameters (KPP) and Thresholds within the CDDs and tradeoff analysis. The Army must complete and approve an AoA prior to the MS A Decision in order to successfully achieve a MS A decision for new start programs. This PE provides central funding for new start programs prior to a materiel development decision and which do not yet have a Program Manager assigned for materiel development. The cited work is consistent with the Assistant Secretary of Defense, Research and Engineering Science and Technology priority focus areas and the Army Modernization Strategy and Plan. Work in this PE is performed by analytical agencies such as U.S. Army TRADOC Analysis Center and U.S. Army Materiel Systems Analysis Activity.

The Army is projecting to start work on several AoAs beginning in FY 2015, and will assess and fund the highest Army priorities during the year of execution.

B. Program Change Summary (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	-	9.913	9.877	-	9.877
Current President's Budget	-	9.910	9.805	-	9.805
Total Adjustments	-	-0.003	-0.072	-	-0.072
• Congressional General Reductions	-	-0.003			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustments 1	-	-	-0.072	-	-0.072

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 4					R-1 Program Element (Number/Name) PE 0604100A / <i>Analysis Of Alternatives</i>				Project (Number/Name) EC7 / <i>Analysis Of Alternatives</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
EC7: <i>Analysis Of Alternatives</i>	-	-	9.910	9.805	-	9.805	9.982	10.023	9.970	10.243	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

This Program Element (PE) contains funding for Analysis of Alternatives (AoA) support in FY 2016 PE 0604100, AoA (project EC7), consistent with Congressional direction.

A. Mission Description and Budget Item Justification

This PE provides funding for analytical support of AoAs. Based on Department of Defense Instruction (DoDI) 5000.02, AoAs are required to be completed for a new program start prior to its first Milestone (MS) Decision. AoAs are a statutory requirement for ACAT I and ACAT II programs and regulatory for ACAT III programs. The AoAs support the preparation of the Capability Development Document, Key Performance Parameters and Thresholds within the CDDs and tradeoff analysis. The Army must complete and approve an AoA prior to the MS A Decision in order to successfully achieve a MS A decision for new start programs. This PE provides central funding for new start programs prior to a materiel development decision and do not yet have a Program Manager assigned for materiel development. The cited work is consistent with the Assistant Secretary of Defense, Research and Engineering Science and Technology priority focus areas and the Army Modernization Strategy and Plan. Work in this PE is performed by analytical agencies such as U.S. Army TRADOC Analysis Center and U.S. Army Materiel Systems Analysis Activity.

The Army will assess and fund the highest Army priorities during the year of execution.

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

	FY 2014	FY 2015	FY 2016
Title: Acquisition Analysis of Alternatives	-	9.910	9.805
Description: Funds are to be used for the following effort.			
FY 2015 Plans: Centrally fund AoAs for new program starts that require a materiel development decision. These new programs do not yet have a Program Manager assigned.			
FY 2016 Plans: Centrally fund AoAs for new program starts that require a materiel development decision. These new programs do not yet have a Program Manager assigned.			
Accomplishments/Planned Programs Subtotals	-	9.910	9.805

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
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Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604100A / <i>Analysis Of Alternatives</i>	Project (Number/Name) EC7 / <i>Analysis Of Alternatives</i>
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C. Other Program Funding Summary (\$ in Millions)

Remarks
Not applicable for this item.

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 / 4	R-1 Program Element (Number/Name) PE 0604100A / <i>Analysis Of Alternatives</i>	Project (Number/Name) EC7 / <i>Analysis Of Alternatives</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			
Analytical Support for Analyses of Alternatives	TBD	TBD : TBD	0.000	-		9.910		9.805		-		9.805	-	19.715	-
Subtotal			0.000	-		9.910		9.805		-		9.805	-	19.715	-

Remarks
N/A

	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	-		9.910		9.805	-	19.715	-

Remarks

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604100A / <i>Analysis Of Alternatives</i>	Project (Number/Name) EC7 / <i>Analysis Of Alternatives</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
Identify Candidates for FY15 AoA funding																												
Issue FY15 AoA Funding as Determined in the MDD																												
Identify Candidates for FY16 AoA funding																												
Issue FY16 AoA Funding as Determined in the MDD																												
Conduct Analysis of Alternatives																												

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604100A / <i>Analysis Of Alternatives</i>	Project (Number/Name) EC7 / <i>Analysis Of Alternatives</i>
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Identify Candidates for FY15 AoA funding	4	2014	3	2015
Issue FY15 AoA Funding as Determined in the MDD	1	2015	4	2015
Identify Candidates for FY16 AoA funding	4	2015	3	2016
Issue FY16 AoA Funding as Determined in the MDD	1	2016	4	2016
Conduct Analysis of Alternatives	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: <i>Research, Development, Test & Evaluation, Army / BA 4: Advanced Component Development & Prototypes (ACD&P)</i>					R-1 Program Element (Number/Name) PE 0604115A / <i>TECHNOLOGY MATURATION INITIATIVES</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	-	10.741	44.214	40.917	-	40.917	47.819	39.140	40.475	48.694	Continuing	Continuing
DS3: <i>TECHNOLOGY MATURATION INITIATIVES</i>	-	10.741	44.214	40.917	-	40.917	47.819	39.140	40.475	48.694	Continuing	Continuing

A. Mission Description and Budget Item Justification

This Program Element (PE) funds prototyping and demonstration of selected technology enabled capabilities to support advanced ground and aviation systems, precision weapons, and Soldier equipment. Funding facilitates maturation and demonstration of advanced technologies and systems in relevant environments and tactical/operational scenarios, taking technologies to a goal of Technology Readiness Level (TRL) 7 and reducing risk for acquisition programs of record. Efforts include competitive prototyping earlier in development to facilitate transition of new capabilities into acquisition programs. Efforts are directed by an Army Senior Executive Steering Group to ensure that demonstrations have high potential for filling capability gaps and transition. This PE provides the Army an improved mechanism for fulfilling the goals of the Weapon Systems Acquisition Reform Act (WSARA) of 2009 by enabling greater competition in the latter stages of technology maturation and establishes a closer alignment between Science and Technology (S&T) programs and acquisition programs.

The cited work is consistent with the Assistant Secretary of Defense, Research and Engineering science and technology priority focus areas and the Army Modernization Strategy.

Work in this PE is performed by the Research, Development and Engineering Command (RDECOM), Engineering Research Development Center (ERDC), and Space and Missile Defense Command (SMDC).

B. Program Change Summary (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	11.110	74.740	42.652	-	42.652
Current President's Budget	10.741	44.214	40.917	-	40.917
Total Adjustments	-0.369	-30.526	-1.735	-	-1.735
• Congressional General Reductions	-	-0.016			
• Congressional Directed Reductions	-	-30.510			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.369	-			
• Adjustments to Budget Years	-	-	-1.735	-	-1.735

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 4					R-1 Program Element (Number/Name) PE 0604115A / <i>TECHNOLOGY MATURATION INITIATIVES</i>				Project (Number/Name) DS3 / <i>TECHNOLOGY MATURATION INITIATIVES</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
DS3: <i>TECHNOLOGY MATURATION INITIATIVES</i>	-	10.741	44.214	40.917	-	40.917	47.819	39.140	40.475	48.694	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

N/A

A. Mission Description and Budget Item Justification

This Project funds the prototyping and demonstration of selected technology enabled capabilities to support advanced Soldier, ground, aviation, and command, control, communication & reconnaissance systems and equipment. Demonstration of these advanced technologies and systems are conducted in relevant environments and performing tactical/operational scenarios, taking technologies to a goal of Technology Readiness Level (TRL) 7 and reducing risk for acquisition programs. Efforts are typically 1-3 years in duration, and may include early competitive prototyping to facilitate transition of new capabilities into acquisition programs of record. Efforts are directed by an Army Senior Executive Steering Group (ESG) based on program priority and opportunity, to ensure that demonstrations have high potential for filling capability gaps and transitioning. This Project provides the Army an improved mechanism for fulfilling the goals of the Weapon Systems Acquisition Reform Act (WSARA) of 2009 by enabling greater competition in the latter stages of technology maturation and establishing a closer alignment between Science and Technology (S&T) and acquisition programs.

The cited work is consistent with the Assistant Secretary of Defense, Research and Engineering science and technology priority focus areas and the Army Modernization Strategy.

Work in the Project is performed by the Research, Development and Engineering Command (RDECOM), Engineering Research Development Center (ERDC), the Space and Missile Defense Command (SMDC).

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

	FY 2014	FY 2015	FY 2016
Title: Prototype, Evaluate, and Demonstrate	1.172	-	-
Description: This effort selects technologies in advanced ground systems, aviation systems, precision navigation and weapons, and/or Soldier equipment that show high promise for advancing capabilities required under acquisition programs; prototypes, evaluates, and demonstrates integrated technologies within a high fidelity and realistic operating environment, and transitions them to a formal program of record at reduced cost and/or risk.			
FY 2014 Accomplishments:			

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015		
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604115A / TECHNOLOGY MATURATION INITIATIVES	Project (Number/Name) DS3 / TECHNOLOGY MATURATION INITIATIVES		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2014	FY 2015	FY 2016
Completed the Integrated Soldier Power and Data System-Enhanced technology maturation effort initiated in FY12; developed test parameters and assessment criteria and transitioned effort to the Soldier Power program of record.				
<p>Title: Maturation and Prototyping for Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) Systems</p> <p>Description: This effort selects technologies that show high promise for advancing command, control, communication and reconnaissance capabilities required under acquisition programs; prototypes, evaluates, and demonstrates integrated technologies within a high fidelity and realistic operating environment, and transitions them to a formal program of record at reduced cost and/or risk.</p> <p>FY 2014 Accomplishments: Demonstrated and validated critical technologies – Pseudolites – that provide a ground-based alternative for Positioning, Navigation and Timing (PNT) in a Global Positioning System (GPS) challenged or denied environment; prototyped Pseudolite systems and developed a second source to enable competitive testing prior to the Assured PNT program's Milestone B; demonstrated Pseudolite software for six legacy GPS receiver variants that are widely used by the Army. This investment accelerates and reduces risk for the Assured PNT program.</p> <p>FY 2015 Plans: Complete demonstration, validation and testing of Pseudolite prototypes and legacy receiver software, and transition to Assured PNT program of record; mature and prototype Assured PNT devices for mounted and dismounted applications, reducing size, weight and power for protection in all environments; accelerate integration and testing of dismounted capability with Nett Warrior end-user device and military GPS; develop and validate Anti-Jam GPS Antenna performance specifications and A-Kit to enable off-the-shelf, Assured PNT for mounted applications. Demonstrate mature critical optical elements, coating, and assembly technologies for prototype integration, addressing performance requirements of the Improved Forward-Looking Infrared (I-FLIR) at reduced cost and risk prior to program Engineering and Manufacturing Development (EMD) phase. Demonstrate a next generation Command Post data foundation interoperable with the Mounted and Mobile Handheld Computing Environments and the tactical cloud to critically inform the implementation of the Army Common Operation Environment V3. Mature and demonstrate spectrum assignment and frequency reuse software for incorporation into Joint Enterprise Network Manager to alleviate Software Radio Waveform spectrum congestion.</p> <p>FY 2016 Plans: Will continue to mature and prototype Assured PNT devices for mounted and dismounted applications; accelerate the integration and testing of mounted capability with ground vehicle platforms and military GPS; continue the development and validation of Anti-Jam GPS Antenna performance specifications and A-Kit to enable off-the-shelf, Assured PNT for mounted applications. Will integrate, validate and transition mature Improved Forward-Looking Infrared (I-FLIR) prototype solution, addressing program</p>		7.569	28.204	22.682

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015		
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604115A / <i>TECHNOLOGY MATURATION INITIATIVES</i>	Project (Number/Name) DS3 / <i>TECHNOLOGY MATURATION INITIATIVES</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2014	FY 2015	FY 2016
performance requirements at reduced cost and risk prior to Engineering and Manufacturing Development (EMD) phase. Will validate and transition improved spectrum assignment and frequency reuse software for incorporation into Joint Enterprise Network Manager to alleviate spectrum congestion on the Software Radio Waveform.				
Title: Maturation and Prototyping for Ground Systems		1.600	3.400	14.485
<p>Description: This effort selects ground maneuver technologies in areas such as mobility, survivability, vehicle architecture, lethality and systems integration, that show high promise for advancing capabilities required under acquisition programs; prototypes, evaluates, and demonstrates integrated technologies within a high fidelity and realistic operating environment, and transitions them to a formal program of record at reduced cost and/or risk.</p> <p>FY 2014 Accomplishments: Mature VICTORY ground vehicle architecture and develop an open-source VICTORY Adapter component for integration and demonstration in a realistic operational environment, to reduce the technology risk, non-recurring engineering, and production costs that hinder the transition of the VICTORY standards into ground vehicle platforms.</p> <p>FY 2015 Plans: Finalize and demonstrate VICTORY ground vehicle architecture and performance specifications in a realistic operational environment, reducing technology risk, non-recurring engineering, and production costs that hinder the transition of the VICTORY standards into ground vehicle platforms; mature and productize open-source VICTORY Adapter component for integration and evaluation in major vehicle systems.</p> <p>FY 2016 Plans: Will begin multi-year effort to fabricate, integrate, and evaluate critical subsystem prototypes in support of the Combat Vehicle Prototyping (CVP) program, reducing the risk of transitioning next-generation and leap-ahead technologies to the Army's Future Fighting Vehicle. Will build mature, CVP sub-system prototypes for vehicle blast mitigation, including seat, restraint, hull and floor components; fabricate test fixtures and evaluate component prototypes' ability to reduce dynamic deformation, blast loading, and occupant injury against increased blast threats; complete foundational seat and restraint specifications and build final products for testing, integrated system demonstration, and risk reduction activities. Will begin CVP advanced engine and transmission component prototype builds for performance evaluation. Will begin multi-year effort to mature, demonstrate, and test modular Active Protection System (APS) common architecture, components, and controller that will provide future fighting vehicles with increased protection against current and emerging advanced threats, while maintaining or reducing vehicle weight. Will verify APS common architecture performance and flexibility in soft-kill configurations by integrating and testing interchangeable soft-kill sensors and countermeasures; conduct maturation testing of these components for performance in realistic and operational</p>				

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015		
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604115A / TECHNOLOGY MATURATION INITIATIVES	Project (Number/Name) DS3 / TECHNOLOGY MATURATION INITIATIVES		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2014	FY 2015	FY 2016
environments and to ensure their ability to operate across all relevant scenarios; evaluate APS subsystem interoperability with other ground vehicle subsystems.				
<p>Title: Maturation and Prototyping for Soldier Systems</p> <p>Description: This effort selects technologies that show high promise for advancing required soldier system capabilities required under acquisition programs; prototypes, evaluates, and demonstrates integrated technologies within a high fidelity and realistic operating environment, and transitions them to a formal program of record at reduced cost and/or risk.</p> <p>FY 2015 Plans: Accelerate, integrate and demonstrate targeting software for the Mobile Handheld Fires Application, providing a timely, advanced Government Purpose Rights software solution for the Pocket-sized Forward Entry Device (PFED) Inc 2 program. Prototype and demonstrate a competitive materiel solution to meet Improved Military Combat Eye Protection objective requirements; transition specifications for improved transparent, ballistic fragmentation-resistant materials and coating to materiel vendors. Mature, prototype, and demonstrate advanced counter-defilade grenade to inform and expedite requirements for Increased Range Anti-Personnel (Low Velocity) and reduce future acquisition risks.</p> <p>FY 2016 Plans: Will complete the maturation, demonstration and validation of targeting software for the Mobile Handheld Fires Application; will integrate Government Purpose Rights software into full prototype solution and transition to the Pocket-sized Forward Entry Device (PFED) Inc 2 program of record.</p>		-	7.960	2.500
<p>Title: Maturation and Prototyping for Logistics and Sustainment Systems</p> <p>Description: This effort selects logistics and/or sustainment technologies that show high promise for advancing mobility capabilities required under acquisition programs; prototypes, evaluates, and demonstrates integrated technologies within a high fidelity and realistic operating environment, and transitions them to a formal program of record at reduced cost and/or risk.</p> <p>FY 2014 Accomplishments: Initiate component qualification for a common Army Vehicle Fire Extinguisher, which will reduce procurement and life-cycle costs due to low-volume manufacturing of 50-plus unique configurations.</p> <p>FY 2015 Plans: Advance government-owned Transparent Armor 3a design to meet Rock Strike requirements; integrate and test on Joint Light Tactical Vehicle (JLTV) and transition to materiel vendors for increased competition. Complete component qualification and</p>		0.400	4.650	1.250

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604115A / <i>TECHNOLOGY MATURATION INITIATIVES</i>	Project (Number/Name) DS3 / <i>TECHNOLOGY MATURATION INITIATIVES</i>
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016
develop competitive procurement specification for a common Army Vehicle Fire Extinguisher, reducing procurement and life-cycle costs due to low-volume manufacturing of 50-plus unique configurations.			
<i>FY 2016 Plans:</i> Will complete the demonstration and validation the advanced Transparent Armor 3a design against Rock Strike requirements; will complete integration and testing of the government-own design on Joint Light Tactical Vehicle (JLTV) and transition to materiel vendors for future competition.			
Accomplishments/Planned Programs Subtotals	10.741	44.214	40.917

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>
• RDT&E,A: <i>RDT&E,A</i> <i>PE 0604120A</i>	7.500	9.925	30.058	-	30.058	27.957	33.918	30.574	30.598	-	170.530

Remarks
PE Title: Assured Positioning, Navigation and Timing (A-PNT)

D. Acquisition Strategy
Multiple competitive contracts will be awarded based on selection of efforts from the Senior ESG. The various developmental programs in this project will continue to exercise competitively awarded contracts using best value source selection procedures.

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 / 4	R-1 Program Element (Number/Name) PE 0604115A / <i>TECHNOLOGY MATURATION INITIATIVES</i>	Project (Number/Name) DS3 / <i>TECHNOLOGY MATURATION INITIATIVES</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
Integrated Soldier Power & Data System (ISPDS)																												
Maturation and Prototyping for C4ISR Systems																												
Maturation and Prototyping for Ground Systems																												
Maturation and Prototyping for Soldier Systems																												
Maturation and Prototyping for Logistics and Sustainment Systems																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604115A / <i>TECHNOLOGY MATURATION INITIATIVES</i>	Project (Number/Name) DS3 / <i>TECHNOLOGY MATURATION INITIATIVES</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Integrated Soldier Power & Data System (ISPDS)	2	2012	3	2014
Maturation and Prototyping for C4ISR Systems	3	2014	4	2017
Maturation and Prototyping for Ground Systems	3	2014	4	2019
Maturation and Prototyping for Soldier Systems	1	2015	4	2016
Maturation and Prototyping for Logistics and Sustainment Systems	1	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 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 0604120A / <i>Assured Positioning, Navigation and Timing (PNT)</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	-	7.500	9.925	30.058	-	30.058	27.957	33.918	30.574	30.598	-	170.530
ED5: <i>Assured Positioning, Navigation and Timing (PNT)</i>	-	7.500	9.925	9.700	-	9.700	-	-	-	-	-	27.125
EH8: <i>DISMOUNTED</i>	-	-	-	-	-	-	-	13.700	0.400	0.800	-	14.900
EH9: <i>PSEUDOLITES</i>	-	-	-	20.358	-	20.358	27.957	20.218	7.774	0.598	-	76.905
EJ2: <i> MOUNTED</i>	-	-	-	-	-	-	-	-	15.700	1.000	-	16.700
EJ3: <i>ANTI-JAM ANTENNA</i>	-	-	-	-	-	-	-	-	6.700	28.200	-	34.900

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

Assured Positioning, Navigation and Timing will provide Army forces with unhindered access to trusted Positioning, Navigation, and Timing (PNT) information under conditions where space based PNT (Global Positioning System (GPS)) may be limited or denied. Joint Requirements Oversight Council Memo (JROCM) 049-10, dated April 5th 2010, approved the Positioning, Navigation and Timing Assurance Initial Capabilities Document and designated the Army as the Lead Component for Assured PNT. The Material Development Decision (MDD) was approved on July 30th 2013. The Assured PNT draft Capabilities Development Document was validated by the Army Requirements Oversight Council (AROC) on July 28th 2014.

PNT is a critical enabler of many Army systems. The current capability, GPS, is a fixed frequency system which can be impacted by current and emerging threats and field conditions, which means that PNT access and integrity to the Warfighter cannot be guaranteed. This situation degrades mission performance to an unacceptable level. Therefore, current Army systems cannot operate at the required PNT Assurance Levels with GPS alone.

Assured PNT is a family of solutions which includes four subprograms: (1) The Pseudolites subprogram provides PNT Assurance in GPS denied environments by providing terrestrial radio navigation (GPS-like) service in electronically or physically challenged environments using a higher power signal. (2) The Mounted PNT subprogram is the integration of multiple sensors and provides PNT platform distribution. The Mounted PNT subprogram incorporates a System of Systems architecture that acquires, protects and distributes secure PNT on stationary and vehicular platforms. (3) The Dismounted PNT subprogram is the integration of multiple sensors for platform distribution of PNT on the Soldier. The Dismounted PNT subprogram incorporates a System of Systems architecture that acquires, protects and distributes secure PNT wirelessly on the soldier; (4) The Anti-Jam subprogram provides GPS signal protection and PNT Assurance in challenged environments through anti-jam technologies. Anti-jam enables tactical capabilities through assured signal acquisition in challenged environments.

0604120/ED5 funding has transitioned into four (4) separate project lines for each Assured PNT subprogram. EH8 – Dismounted subprogram. EH9 – Pseudolites subprogram. EJ2 – Mounted subprogram. EJ3 Anti-jam Antenna subprogram.

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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 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 0604120A / <i>Assured Positioning, Navigation and Timing (PNT)</i>
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FY 2016 Base funds in the amount of \$30.058 million are provided to continue the development of the Pseudolite sub-program; program planning and technical evaluation of the Assured PNT sub-system and architecture development; integration of M-Code in accordance with Public Law 111-383 Sec 913; participation in various Navigation Warfare (NAVWAR) test events and support to the Military GPS User Equipment (MGUE) Precision Guided Munitions.

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	-	9.930	20.191	-	20.191
Current President's Budget	7.500	9.925	30.058	-	30.058
Total Adjustments	7.500	-0.005	9.867	-	9.867
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	7.500	-0.005	9.867	-	9.867

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 4					R-1 Program Element (Number/Name) PE 0604120A / Assured Positioning, Navigation and Timing (PNT)				Project (Number/Name) ED5 / Assured Positioning, Navigation and Timing (PNT)			
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
ED5: Assured Positioning, Navigation and Timing (PNT)	-	7.500	9.925	9.700	-	9.700	-	-	-	-	-	27.125
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

0604120/ED5 funding has transitioned into four (4) separate project lines for each Assured PNT subprogram. EH8 – Dismounted Subprogram. EH9 – Pseudolites Subprogram. EJ2 – Mounted Subprogram. EJ3 Anti-jam Antenna subprogram

ED5 - Assured PNT FY 2015 funds in the amount of \$9.925 million are associated with EH9 – Pseudolites Subprogram. FY 2015 funds were provided as a new start for the Assured PNT Program to initiate the development of Pseudolites.

A. Mission Description and Budget Item Justification

Assured Positioning, Navigation and Timing will provide Army forces with unhindered access to trusted Positioning, Navigation, and Timing (PNT) information under conditions where space based PNT (Global Positioning System (GPS)) may be limited or denied. Joint Requirements Oversight Council Memo (JROCM) 049-10, dated April 5th 2010, approved the Positioning, Navigation and Timing Assurance Initial Capabilities Document and designated the Army as the Lead Component for Assured PNT. The Material Development Decision (MDD) was approved on July 30th 2013. The Assured PNT draft Capabilities Development Document was validated by Army Requirements Oversight Council (AROC) on July 28th 2014.

FY 2016 – \$9.700 million is to support Military GPS User Equipment (MGUE) Precision Guided Munitions.

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

	FY 2014	FY 2015	FY 2016
Title: Assured PNT	7.500	9.925	9.700
Description: Efforts include initiation of development effort for Pseudolite subprogram, Dismounted sub program Risk reduction efforts, preparation of Milestone documentation for the Assured PNT program, and associated Program Management Office (PMO) and support activities. Efforts also include Acceleration of MGUE (Military GPS User Equipment) Increment 2 for Precision Guided Munitions (AM2P)			
FY 2014 Accomplishments: Development of Precision Guided Munitions prototype receivers.			
FY 2015 Plans: Efforts include initiation of development effort for Pseudolite subprogram, Dismounted sub program Risk reduction efforts, preparation of Milestone documentation for the Assured PNT program, and			

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604120A / Assured Positioning, Navigation and Timing (PNT)	Project (Number/Name) ED5 / Assured Positioning, Navigation and Timing (PNT)

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016
associated Program Management Office (PMO) and support activities.			
<i>FY 2016 Plans:</i> FY 2016 Funds will further assess the Technology maturity assessment and Joint Comment GPS Specification and Interface Control Document. These efforts include bench top component level testing of GPS receiver prototypes, integration of the GPS receivers into a Precision Guided Munition platform and live fire guide-to-hit (Technology Readiness Level 6) demonstration of the GPS receivers.			
Accomplishments/Planned Programs Subtotals	7.500	9.925	9.700

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
• RDTE&A: PE: 0604115A	10.741	44.214	40.917	-	40.917	47.819	39.140	40.475	48.694	-	272.000
• PE: 0604120A:	-	-	-	-	-	-	13.700	0.400	0.800	-	14.900
<i>EH8: DISMOUNTED</i>											
• EH9: Pseudolites	-	-	20.358	-	20.358	27.957	20.218	7.774	0.598	-	76.905
• EJ2: Mounted	-	-	-	-	-	-	-	15.700	1.000	-	16.700
• EJ3: Anti-Jam Antenna	-	-	-	-	-	-	-	6.700	28.200	-	34.900

Remarks

PE 0604115A Title: Technology Maturation Initiatives

ED5 - Assured PNT FY 2015 Base funds in the amount of \$9.925 million are associated with EH9 - Pseudolites Subprogram. FY 2015 funds were provided as a new start for the Assured PNT Program to initiate the development of Psuedolites.

D. Acquisition Strategy

The Planned Acquisition Strategy for the Pseudolite subprogram includes: 1) Technology maturation of the Transmitter segment through the use of two competitive prototyping, cost-plus fixed fee (CPFF) contracts. 2) Command and Control (C2) segment will leverage the development by other DoD agencies to the greatest extent possible, specifically, the Electronic Warfare Planning and Management Tool (EWPMT); this will be a Government Off the Shelf (GOTS) product. 3) Receiver segment will make the use of multiple contracts through existing vehicles for Pseudolite Receiver SW Prototype Development.

The acquisition strategy includes the acceleration of Military GPS User Equipment (MGUE) Increment 2 for Precision Guided Munitions (AM2P). This will provide a technology maturity assessment of MGUE Increment 1 technology and increase supply chain competition for subsequent use by Joint Precision Guided Munitions (PGM) to avoid potential significant performance and operation risks. The Joint Common GPS Specification and Interface Control Document will be validated through

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604120A / <i>Assured Positioning, Navigation and Timing (PNT)</i>	Project (Number/Name) ED5 / <i>Assured Positioning, Navigation and Timing (PNT)</i>
live fire Technology Readiness Level 6 (TRL6) demonstration. The M-Code GPS enables essential PGM-based lethality capabilities in potential "M-Code Only" GPS combat scenarios and maintains combat overmatch enabled by Joint GPS-based PGMs.		
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 / 4	R-1 Program Element (Number/Name) PE 0604120A / Assured Positioning, Navigation and Timing (PNT)	Project (Number/Name) ED5 / Assured Positioning, Navigation and Timing (PNT)
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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 Support	Allot	PD PNT : Various	0.000	-		0.485	Mar 2015	-		-		-	-	0.485	-
Subtotal			0.000	-		0.485		-		-		-	-	0.485	-

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			
AM2P – DOTC GPS Receiver Prototypes	C/FFP	Rockwell Collins : Cedar Rapids, IA	0.000	0.630	Nov 2014	-		-		-		-	-	0.630	-
AM2P – DOTC GPS Receiver Prototypes	C/CPFF	L-3 IEC : Anaheim, CA	0.000	0.600	Jan 2015	-		-		-		-	-	0.600	-
AM2P – DOTC GPS Receiver Prototypes	C/CPFF	EOIR Technologies : Fredericksburg, VA	0.000	3.982	Nov 2014	-		-		-		-	-	3.982	-
AM2P – DOTC GPS Receiver Prototypes	C/CPFF	SAVIT : Rockaway, NJ	0.000	0.286	Jan 2015	-		-		-		-	-	0.286	-
AM2P – GPS/PGM Integration	MIPR	various : various	0.000	-		-		2.735	Dec 2015	-		2.735	-	2.735	-
AM2P – DOTC PGM Platform Integration	C/CPFF	SAVIT : Rockaway, NJ	0.000	-		-		0.695	Dec 2015	-		0.695	-	0.695	-
AM2P – Government Engineering	MIPR	ARDEC : Picatinny, NJ	0.000	0.702	Nov 2014	-		2.500	Dec 2015	-		2.500	-	3.202	-
AM2P – Joint PGM SME	MIPR	Various : Various	0.000	1.300	Dec 2014	-		2.740	Dec 2015	-		2.740	-	4.040	-
Develop Pseudolite Competitive Prototype Contractor 1	C/CPIF	Various : Various	0.000	-		3.615	Apr 2015	-		-		-	-	3.615	-
Develop Pseudolite Competitive Prototype Contractor 2	C/CPIF	Various : Various	0.000	-		3.615	Apr 2015	-		-		-	-	3.615	-
Dismounted Technical Risk Reduction and Integration	MIPR	Various : Various	0.000	-		0.440	Apr 2015	-		-		-	-	0.440	-

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604120A / Assured Positioning, Navigation and Timing (PNT)	Project (Number/Name) ED5 / Assured Positioning, Navigation and Timing (PNT)
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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			
Subtotal			0.000	7.500		7.670		8.670		-		8.670	-	23.840	-

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			
SETA Support	C/FFP	Various : Various	0.000	-		0.920	Mar 2015	-		-		-	-	0.920	-
Matrix Support	MIPR	Various : Various	0.000	-		0.850	Mar 2015	-		-		-	-	0.850	-
Subtotal			0.000	-		1.770		-		-		-	-	1.770	-

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			
AM2P – Bench Top Component Level Test	MIPR	Various : Various	0.000	-		-		0.190	Dec 2015	-		0.190	-	0.190	-
AM2P – Flight Tests	MIPR	Various : Yuma Proving Ground, AZ	0.000	-		-		0.840	Aug 2016	-		0.840	-	0.840	-
Subtotal			0.000	-		-		1.030		-		1.030	-	1.030	-

			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	7.500	9.925	9.700	-	9.700	-	27.125	-

Remarks

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604120A / Assured Positioning, Navigation and Timing (PNT)	Project (Number/Name) ED5 / Assured Positioning, Navigation and Timing (PNT)
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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) Pseudolite (PL) Milestone A Decision (Project started under ED5)					▲ Milestone A Decision																							
Pseudolite (PL) Prototype Development Contractor 1 (Project started under ED5)									■ PL Prototype Dev Ctr 1																			
Pseudolite (PL) Prototype Development Contractor 2 (Project started under ED5)									■ PL Prototype Dev Ctr 2																			
Pseudolite (PL) Command and Control Development (Project started under ED5)									■ PL Command and Control Dev																			
Pseudolite (PL) Receiver Development (Project started under ED5)									■ PL Receiver Development																			
(2) Pseudolite (PL) Preliminary Design Review (PDR)													▲ PDR															
Pseudolite (PL) Prototype Testing													■ Prototype Testing															
(3) Pseudolite (PL) System Specification Review													▲ System Spec Review															
(4) Pseudolite (PL) Pre-Engineering Manufacturing Design (EMD) Review													▲ Pre-EMD Review															
(5) Pseudolite (PL) Milestone B Decision													▲ Milestone B Decision															
(6) Pseudolite (PL) EMD Contract Award													▲ EMD Contract Award															
Pseudolite (PL) Developmental Testing																	■ Developmental Testing											
(7) Pseudolite (PL) Milestone C Decision																	▲ Milestone C Decision											

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604120A / Assured Positioning, Navigation and Timing (PNT)	Project (Number/Name) ED5 / Assured Positioning, Navigation and Timing (PNT)
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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
AM2P Technology Maturation and Demonstration					AM2P Tech Maturation and Demo																							
AM2P Develop Receiver Prototypes					AM2P Prototype Dev																							
AM2P Platform Integration					AM2P Platform Integration																							
AM2P Bench Top Component Testing					AM2P Bench Testing																							
AM2P Flight Testing					AM2P Flight Testing																							

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604120A / Assured Positioning, Navigation and Timing (PNT)	Project (Number/Name) ED5 / Assured Positioning, Navigation and Timing (PNT)

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Pseudolite (PL) Milestone A Decision (Project started under ED5)	2	2015	2	2015
Pseudolite (PL) Prototype Development Contractor 1 (Project started under ED5)	2	2015	1	2017
Pseudolite (PL) Prototype Development Contractor 2 (Project started under ED5)	2	2015	1	2017
Pseudolite (PL) Command and Control Development (Project started under ED5)	2	2015	1	2017
Pseudolite (PL) Receiver Development (Project started under ED5)	2	2015	1	2017
Pseudolite (PL) Preliminary Design Review (PDR)	3	2016	3	2016
Pseudolite (PL) Prototype Testing	4	2016	3	2017
Pseudolite (PL) System Specification Review	3	2017	3	2017
Pseudolite (PL) Pre-Engineering Manufacturing Design (EMD) Review	4	2017	4	2017
Pseudolite (PL) Milestone B Decision	4	2017	4	2017
Pseudolite (PL) EMD Contract Award	1	2018	1	2018
Pseudolite (PL) Developmental Testing	2	2019	4	2019
Pseudolite (PL) Milestone C Decision	1	2020	1	2020
AM2P Technology Maturation and Demonstration	1	2015	2	2017
AM2P Develop Receiver Prototypes	1	2015	4	2015
AM2P Platform Integration	1	2016	4	2016
AM2P Bench Top Component Testing	1	2016	2	2016
AM2P Flight Testing	4	2016	2	2017

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 4					R-1 Program Element (Number/Name) PE 0604120A / <i>Assured Positioning, Navigation and Timing (PNT)</i>				Project (Number/Name) EH8 / <i>DISMOUNTED</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
EH8: <i>DISMOUNTED</i>	-	-	-	-	-	-	-	13.700	0.400	0.800	-	14.900
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

ED5 funding has been transitioned into four (4) separate project lines for each Assured PNT subprogram. EH8 – Dismounted subprogram. EH9 – Pseudolites subprogram. EJ2 – Mounted subprogram. EJ3 Anti-jam Antenna subprogram.

A. Mission Description and Budget Item Justification

The Dismounted Positioning, Navigation and Timing (PNT) subprogram:

- > Acquires, protects, and distributes wired and wirelessly secure PNT on Dismounted Platforms
- > Enabling capability for applications under development in the Mobile Hand Held Computing Environment, PEO Soldier and NETT Warrior
- > Development and integration of multiple sensors for non-GPS augmentation
- > Modular, Scalable Form-Factor that paces the threats
- > Migration Path to M-code & other future technologies
- > Receiver software can be upgraded to acquire Pseudolite signals to provide additional protection for military GPS in denied environments

There are no FY 2016 Base funds for EH8 - Dismounted.

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 / 4	R-1 Program Element (Number/Name) PE 0604120A / <i>Assured Positioning, Navigation and Timing (PNT)</i>	Project (Number/Name) EH8 / <i>DISMOUNTED</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
x																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604120A / <i>Assured Positioning, Navigation and Timing (PNT)</i>	Project (Number/Name) EH8 / <i>DISMOUNTED</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
x	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 / 4	R-1 Program Element (Number/Name) PE 0604120A / Assured Positioning, Navigation and Timing (PNT)	Project (Number/Name) EH9 / PSEUDOLITES
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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
EH9: PSEUDOLITES	-	-	-	20.358	-	20.358	27.957	20.218	7.774	0.598	-	76.905
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

Note

ED5 funding has been transitioned into four (4) separate project lines for each Assured PNT subprogram. EH8 – Dismounted subprogram. EH9 – Pseudolites subprogram. EJ2 – Mounted subprogram. EJ3 Anti-jam Antenna subprogram.

EH9 - Pseudolites Subprogram FY 2016 Base funds in the amount of \$20.358 million are associated with ED5 – Assured PNT. FY 2016 funds are to continue the development of Pseudolites.

A. Mission Description and Budget Item Justification

Highly accurate Positioning, Navigation and Timing (PNT) data is a key enabler and a cross cutting capability for Army forces to execute their mission. Army Forces require unhindered access to trusted PNT information under conditions where space based PNT may be limited or denied to maintain its Global Positioning System military advantage on the battlefield. The current capability, Global Positioning System (GPS), is a fixed frequency system which is vulnerable to current and emerging threats and field condition.

Pseudolites provide GPS protection by providing PNT data using terrestrial and airborne based radio navigation GPS satellite-like transmitters in electronically or physically challenged environments using a higher power signal. Area protection can be provided through the deployment of Pseudolite transmitters supporting a Brigade Combat Team area of operations. The Pseudolites subprogram enables continued operations of PNT-enabled systems such as Blue Force Tracker, Communications Networks and Precision Guided Munitions. The PNT Pseudolite sub-program will consist of three segments:

1. Pseudolite Transmitter segment provides terrestrial and airborne radio navigation (GPS-like) service in electronically or physically challenged environments using a high power signal.
2. Command and Control (C2) segment to control the Pseudolites transmitters on the battlefield.
3. Receiver segment, which will develop software upgrades to current and future military GPS receivers to receive and process the Pseudolite signals.

FY 2016 Base funds in the amount of \$20.358 million are provided to continue the development of the Pseudolite sub-program; program planning and technical evaluation of the Assured PNT sub-system and architecture development; integration of M-Code in accordance with Public Law 111-383 Sec 913; participation in various Navigation Warfare (NAVWAR) test events.

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

	FY 2014	FY 2015	FY 2016
Title: Pseudolites Technology Maturation and Risk Reduction	-	-	20.358

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604120A / <i>Assured Positioning, Navigation and Timing (PNT)</i>	Project (Number/Name) EH9 / <i>PSEUDOLITES</i>
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016
<p>Description: Technology Maturation and Risk Reduction of the Pseudolite sub-program, to reduce technology risk and to determine the appropriate set of technologies to be integrated into the full system.</p> <p>FY 2016 Plans: FY16 Funds will continue the Technology Maturation and Risk Reduction phase of the Pseudolite sub-program. These efforts include Pseudolite Transmitter competitive prototyping, with two (2) contractors; Prototyping of the Command and Control Software; and prototype software for legacy GPS receiver(s). Additionally, funds will be used for Assured PNT system architecture development to include: design trades and requirements trades analysis; mature and validate requirements; and performance of Cost Benefit analysis.</p>			
Accomplishments/Planned Programs Subtotals	-	-	20.358

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	FY 2014	FY 2015	FY 2016 <u>Base</u>	FY 2016 <u>OCO</u>	FY 2016 <u>Total</u>	FY 2017	FY 2018	FY 2019	FY 2020	<u>Cost To Complete</u>	<u>Total Cost</u>
• ED5: <i>Assured PNT</i>	7.500	9.925	9.700	-	9.700	-	-	-	-	-	27.125
• EH8: <i>Dismounted</i>	-	-	-	-	-	-	13.700	0.400	0.800	-	14.900
• EJ2: <i>Mounted</i>	-	-	-	-	-	-	-	15.700	1.000	-	16.700
• EJ3: <i>Anti-Jam Antenna</i>	-	-	-	-	-	-	-	6.700	28.200	-	34.900

Remarks
EH9 - Pseudolites Subprogram FY 2016 Base funds in the amount of \$20.358 million are associated with ED5 – Assured PNT. FY 2016 funds are to continue the development of Pseudolites.

D. Acquisition Strategy
The Assured Positioning, Navigation and Timing (PNT) Acquisition Strategy is focused on the acquisition of a family of systems required to achieve the Assured PNT capability. The materiel solutions are partitioned into subprograms (Pseudolites, Mounted PNT, Dismounted PNT, and Anti-jam) to allow for the optimization of solutions for various Army formations. EH9 is specifically for the acquisition of Pseudolites.

The acquisition strategy is pending approval by the Milestone Decision Authority, Milestone A is scheduled for 2QFY15.

Pseudolite Milestone B is planned for FY 2018. After a successful MS B approval the proposed strategy is to award a single Engineering and Manufacturing Development (EMD) contract with priced options for Low Rate Initial Production (LRIP) and for the procurement of all technical data relevant to the performance of this contract or life cycle of this program.

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604120A / Assured Positioning, Navigation and Timing (PNT)	Project (Number/Name) EH9 / PSEUDOLITES
<p>The Planned Acquisition Strategy for the Pseudolite subprogram includes: 1) Technology maturation of the Transmitter segment through the use of two competitive prototyping, cost-plus fixed fee (CPFF) contracts. 2) Command and Control (C2) segment will leverage the development by other DoD agencies to the greatest extent possible, specifically, the Electronic Warfare Planning and Management Tool (EWPMT); this will be a Government Off the Shelf (GOTS) product. 3) Receiver segment will make the use of multiple contracts through existing vehicles for Pseudolite Receiver SW Prototype Development.</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 2040 / 4	R-1 Program Element (Number/Name) PE 0604120A / Assured Positioning, Navigation and Timing (PNT)	Project (Number/Name) EH9 / PSEUDOLITES
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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 Support	Allot	PD PNT : Various	0.000	-		-		0.800	Dec 2015	-		0.800	-	0.800	-
FFRDC	SS/CR	Various : Various	0.000	-		-		0.700	Dec 2015	-		0.700	-	0.700	-
Contractor Support	C/CPFF	Various : Various	0.000	-		-		0.228	Dec 2015	-		0.228	-	0.228	-
Subtotal			0.000	-		-		1.728		-		1.728	-	1.728	-

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			
Develop Pseudolite Competitive Prototype - Transmitter Contractor 1 (incremental funding)	C/CPFF	Various : Various	0.000	-		-		5.663	Jan 2016	-		5.663	-	5.663	-
Develop Pseudolite Competitive Prototype - Transmitter Contractor 2 (incremental funding)	C/CPFF	Various : Various	0.000	-		-		5.663	Jan 2016	-		5.663	-	5.663	-
Develop Pseudolite Receiver Contractor (incremental funding)	C/CPFF	Various : Various	0.000	-		-		1.200	Jan 2016	-		1.200	-	1.200	-
Engineering and Technical Services	MIPR	CERDEC, SEC, LRC : Various	0.000	-		-		2.653	Dec 2015	-		2.653	-	2.653	-
Engineering and Technical contracting Services	C/CPFF	Various : Various	0.000	-		-		3.451	Dec 2015	-		3.451	-	3.451	-
Subtotal			0.000	-		-		18.630		-		18.630	-	18.630	-

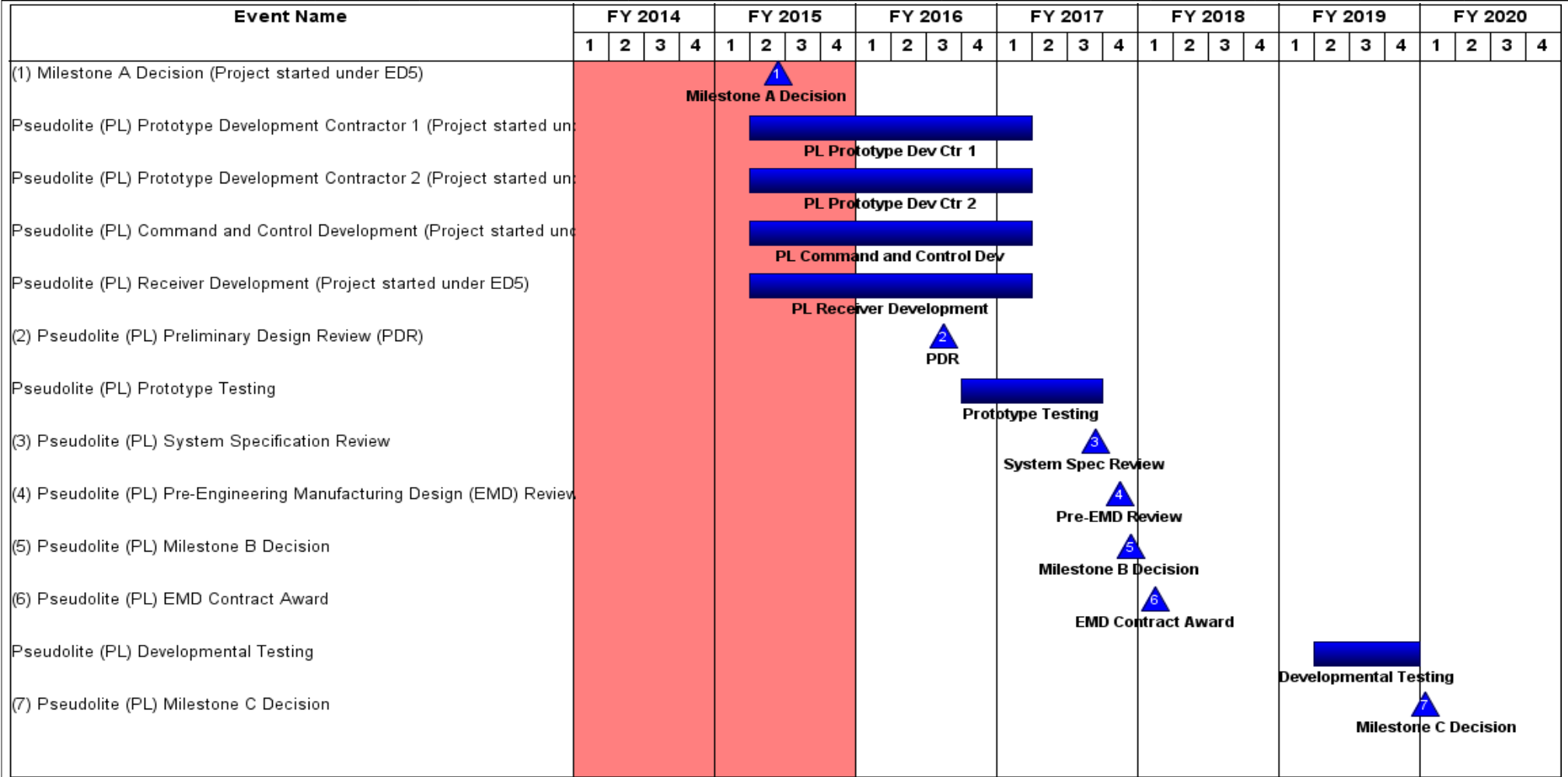
	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals		0.000	-	-	20.358	-	-	20.358	-

Remarks

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604120A / Assured Positioning, Navigation and Timing (PNT)	Project (Number/Name) EH9 / PSEUDOLITES
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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604120A / <i>Assured Positioning, Navigation and Timing (PNT)</i>	Project (Number/Name) EH9 / <i>PSEUDOLITES</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Milestone A Decision (Project started under ED5)	2	2015	2	2015
Pseudolite (PL) Prototype Development Contractor 1 (Project started under ED5)	2	2015	1	2017
Pseudolite (PL) Prototype Development Contractor 2 (Project started under ED5)	2	2015	1	2017
Pseudolite (PL) Command and Control Development (Project started under ED5)	2	2015	1	2017
Pseudolite (PL) Receiver Development (Project started under ED5)	2	2015	1	2017
Pseudolite (PL) Preliminary Design Review (PDR)	3	2016	3	2016
Pseudolite (PL) Prototype Testing	4	2016	3	2017
Pseudolite (PL) System Specification Review	3	2017	3	2017
Pseudolite (PL) Pre-Engineering Manufacturing Design (EMD) Review	4	2017	4	2017
Pseudolite (PL) Milestone B Decision	4	2017	4	2017
Pseudolite (PL) EMD Contract Award	1	2018	1	2018
Pseudolite (PL) Developmental Testing	2	2019	4	2019
Pseudolite (PL) Milestone C Decision	1	2020	1	2020

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604120A / <i>Assured Positioning, Navigation and Timing (PNT)</i>	Project (Number/Name) EJ2 / <i>MOUNTED</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
EJ2: <i>MOUNTED</i>	-	-	-	-	-	-	-	-	15.700	1.000	-	16.700
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

ED5 funding has been transitioned into four (4) separate project lines for each Assured PNT subprogram. EH8 – Dismounted subprogram. EH9 – Pseudolites subprogram. EJ2 – Mounted subprogram. EJ3 Anti-jam Antenna subprogram.

A. Mission Description and Budget Item Justification

The Mounted Positioning, Navigation and Timing (PNT) subprogram:

- > Acquires, protects, and distributes secure PNT on mounted platforms
- > Development and integration of multiple sensors for non-GPS augmentation
- > Modular, scalable form-Factor that paces the threats
- > Enables PNT on the Vehicle Integration for C4ISR/EW Interoperability (VICTORY) and Future Airborne Capability Environment (FACE) Architecture
- > Migration path to M-code & other future technologies

There are no FY 2016 Base funds for EJ2 - Mounted PNT.

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604120A / <i>Assured Positioning, Navigation and Timing (PNT)</i>	Project (Number/Name) EJ2 / MOUNTED
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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			
x	Various	x : x	0.000	-		-		-		-		-	0.001	0.001	-
Subtotal			0.000	-		-		-		-		-	0.001	0.001	-
Project Cost Totals			0.000	-		-		-		-		-	0.001	0.001	-

Remarks

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604120A / <i>Assured Positioning, Navigation and Timing (PNT)</i>	Project (Number/Name) EJ2 / <i>MOUNTED</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
x																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604120A / <i>Assured Positioning, Navigation and Timing (PNT)</i>	Project (Number/Name) EJ2 / <i>MOUNTED</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
x	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 / 4					R-1 Program Element (Number/Name) PE 0604120A / <i>Assured Positioning, Navigation and Timing (PNT)</i>				Project (Number/Name) EJ3 / <i>ANTI-JAM ANTENNA</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
EJ3: <i>ANTI-JAM ANTENNA</i>	-	-	-	-	-	-	-	-	6.700	28.200	-	34.900
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

ED5 funding has been transitioned into four (4) separate project lines for each Assured PNT subprogram. EH8 – Dismounted subprogram. EH9 – Pseudolites subprogram. EJ2 – Mounted subprogram. EJ3 Anti-jam Antenna subprogram.

A. Mission Description and Budget Item Justification

The Anti-Jam Antenna subprogram:

- > Enables continuous GPS signal acquisition and tracking in a navigation warfare (jamming) environment
- > Deployed as a scalable component accessory to Positioning, Navigation and Timing User Equipment

There are no FY 2016 Base funds for EJ3 - Anti-Jam Antenna.

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 / 4	R-1 Program Element (Number/Name) PE 0604120A / <i>Assured Positioning, Navigation and Timing (PNT)</i>	Project (Number/Name) EJ3 / ANTI-JAM ANTENNA
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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
x																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604120A / <i>Assured Positioning, Navigation and Timing (PNT)</i>	Project (Number/Name) EJ3 / ANTI-JAM ANTENNA

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
x	2	2015	2	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 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 0604319A / <i>Indirect Fire Protection Capability Increment 2-Intercept (IFPC2)</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	-	76.559	96.131	155.361	-	155.361	90.323	58.562	43.384	109.495	-	629.815
DU3: <i>IFPC2</i>	-	76.559	96.131	155.361	-	155.361	90.323	58.562	43.384	109.495	-	629.815

A. Mission Description and Budget Item Justification

This program supports the overall Air and Missile Defense (AMD) architecture and provides a robust intercept capability against Cruise Missiles (CM), Unmanned Aircraft System (UAS) and Rocket, Artillery, and Mortar (RAM) threats for deployed forces. The Indirect Fire Protection Capability Increment 2 - Intercept (IFPC Inc 2-I) is a ground-based weapon system that will be designed to acquire, track, engage, and defeat UAS, CM, and RAM. The System will provide 360-degree protection and will simultaneously engage threats arriving from different azimuths. A block acquisition approach will be used to provide this capability. The Block 1 system will consist of an existing interceptor and sensor and development of technical fire control and a Multi-Mission Launcher (MML) to support the UAS and CM mission. The IFPC Inc 2-I System will be compatible with the Army Integrated Air and Missile Defense (IAMD) Command and Control (C2) architecture. The IFPC Inc 2-I System will be transportable by Army common mobile platforms.

B. Program Change Summary (\$ in Millions)

	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	79.190	96.177	156.523	-	156.523
Current President's Budget	76.559	96.131	155.361	-	155.361
Total Adjustments	-2.631	-0.046	-1.162	-	-1.162
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-2.631	-			
• Adjustments to Budget Years	-	-0.046	-1.162	-	-1.162

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604319A / Indirect Fire Protection Capability Increment 2-Intercept (IFPC2)	Project (Number/Name) DU3 / IFPC2
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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
DU3: IFPC2	-	76.559	96.131	155.361	-	155.361	90.323	58.562	43.384	109.495	-	629.815
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

Note

Previous PE/Project/Title: 0603305A/TR7 Army Missile Defense Systems Integration/TR7 Indirect Fire Protection Capability II-Intercept

Current PE/Project/Title: 0604319A/DU3 Indirect Fire Protection Capability Increment 2/ DU3 IFPC2
(Funds realigned to current PE in Fiscal Year (FY) 2013.)

A. Mission Description and Budget Item Justification

This program supports the overall Air and Missile Defense (AMD) architecture and provides a robust intercept capability against Cruise Missiles (CM), Unmanned Aircraft System (UAS) and Rocket, Artillery, and Mortar (RAM) threats for deployed forces. The Indirect Fire Protection Capability Increment 2 - Intercept (IFPC Inc 2-I) is a ground-based weapon system that will be designed to acquire, track, engage, and defeat UAS, CM, and RAM. The System will provide 360-degree protection and will simultaneously engage threats arriving from different azimuths. A block acquisition approach will be used to provide this capability. The Block 1 system will consist of an existing interceptor and sensor and development of technical fire control and a Multi-Mission Launcher (MML) to support the UAS and CM mission. The IFPC Inc 2-I System will be compatible with the Army Integrated Air and Missile Defense (IAMD) Command and Control (C2) architecture. The IFPC Inc 2-I System will be transportable by Army common mobile platforms.

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

	FY 2014	FY 2015	FY 2016
Title: Indirect Fire Protection Capability Increment 2 - Intercept (IFPC Inc 2-I) System Engineering & Program Management	23.029	28.038	28.580
Description: Funding is provided for the following efforts:			
FY 2014 Accomplishments:			
- Continued Research, Development, Test, & Evaluation (RDT&E) efforts associated with the Engineering Demonstration			
- Performed system engineering, logistics engineering, system test and evaluation, technical control, and business management activities			
- Conducted system and program reviews			
- Performed technical assessments, concept studies, cost reduction, risk reduction, and required documentation			
FY 2015 Plans:			
- Continue Research, Development, Test, & Evaluation (RDT&E) efforts associated with the Engineering Demonstration			
- Perform system engineering, logistics engineering, system test and evaluation management, technical control, and business management activities			

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015		
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604319A / <i>Indirect Fire Protection Capability Increment 2-Intercept (IFPC2)</i>	Project (Number/Name) DU3 / <i>IFPC2</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2014	FY 2015	FY 2016
<ul style="list-style-type: none"> - Conduct system and program reviews - Perform technical assessments, concept studies, cost reduction, risk reduction, and required documentation <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Continue RDT&E efforts associated with the Engineering Demonstration - Perform system engineering, logistics engineering, system test and evaluation management, technical control, and business management activities - Conduct system and program reviews - Perform technical assessments, concept studies, cost reduction, risk reduction, and required documentation - Conduct Milestone B preparation, documentation, and execution activities - Transition from Technology Maturation and Risk Reduction (TMRR) to Engineering and Manufacturing Development (EMD) phase 				
<p>Title: IFPC Inc 2-I Engineering and Technical Support</p> <p>Description: Funding is provided for the following efforts:</p> <p>FY 2014 Accomplishments:</p> <ul style="list-style-type: none"> - Continued engineering and technical support for development of system hardware, software, and integration requirements and definition - Continued integration of design refinements into system baseline design - Participated in system and program reviews - Performed technical assessments, concept studies, cost reduction, risk reduction, and required documentation <p>FY 2015 Plans:</p> <ul style="list-style-type: none"> - Continue engineering and technical support for design of system hardware, software, and integration requirements and definition - Participate in system and program reviews - Perform technical assessments, concept studies, cost reduction, risk reduction, and required documentation <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Continue engineering and technical support for design of system hardware, software, and integration requirements and definition - Participate in system and program reviews - Perform technical assessments, concept studies, cost reduction, risk reduction, and required documentation 		30.328	52.548	48.655
<p>Title: IFPC Inc 2-I System/Subsystem Development, Integration, and Testing</p>		23.202	15.545	78.126

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604319A / <i>Indirect Fire Protection Capability Increment 2-Intercept (IFPC2)</i>	Project (Number/Name) DU3 / <i>IFPC2</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016
<p>Description: Funding is provided for the following efforts:</p> <p>FY 2014 Accomplishments:</p> <ul style="list-style-type: none"> - Continued system component hardware, software, and integration design and development activities - Participated in system and program reviews - Fabricated, integrated system/subsystem hardware - Continued development of technical data package - Performed technical assessments, concept studies, cost reduction, risk reduction, and required documentation - Performed missile assessment to inform identification of future missile candidates to counter Unmanned Aerial Systems (UAS), Cruise Missiles (CM), and Rocket, Artillery, and Mortar (RAM) threats. <p>FY 2015 Plans:</p> <ul style="list-style-type: none"> - Continue system component hardware, software, and integration development activities - Participate in system and program reviews - Continue development of technical data package - Perform technical assessments, concept studies, cost reduction, required documentation, and integration, component, and system level risk reduction - Continue system/subsystem hardware, software, and integration test activities <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Continue system component hardware, software, and integration development activities - Participate in system and program reviews - Continue development of technical data package - Perform technical assessments, concept studies, cost reduction, required documentation, and integration, component, and system level risk reduction - Continue system/subsystem hardware, software, and integration test activities - Complete manufacturing, assembly, and integration of Multi-Mission Launcher (MML) prototypes - Conduct Engineering Demonstration - Purchase EMD test assets and components 			
Accomplishments/Planned Programs Subtotals	76.559	96.131	155.361

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604319A / <i>Indirect Fire Protection Capability Increment 2-Intercept (IFPC2)</i>	Project (Number/Name) DU3 / <i>IFPC2</i>
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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
• PE 0605456A, Proj PA3: <i>PAC-3/MSE MISSILE</i>	86.223	34.991	2.272	-	2.272	-	-	-	-	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>System Integration and Test</i>	-	78.720	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, Proj E55: <i>Joint Aero Stat Program - EMD Effort</i>	57.976	-	-	-	-	-	-	-	-	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, Proj E10: <i>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>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 654741A, 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
• PE 0202429A, Proj EP8: <i>JLENS COCOM EXERCISE</i>	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 Materiel Development Decision (MDD) was completed in fourth quarter Fiscal Year (FY) 2011, allowing for the initiation of an Analysis of Alternatives (AoA) to determine materiel solution approach; establishment of requirement baseline; initiation of development of required Milestone documents and execution of the Milestone decision to continue with Research, Development, Test, & Evaluation (RDT&E) efforts associated with conducting an Engineering Demonstration.

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604319A / Indirect Fire Protection Capability Increment 2-Intercept (IFPC2)	Project (Number/Name) DU3 / IFPC2

The Government will fund the Aviation and Missile Research Development and Engineering Center (AMRDEC) for the development and demonstration of the Multi-Mission Launcher during the Technology Maturation and Risk Reduction phase of the program. An independent Cost Benefit Analysis will inform the Acquisition Strategy for the Engineering, Manufacturing and Development and Production phases of acquisition.

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 / 4	R-1 Program Element (Number/Name) PE 0604319A / Indirect Fire Protection Capability Increment 2-Intercept (IFPC2)	Project (Number/Name) DU3 / IFPC2
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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 Admin	MIPR	Cruise Missile Defense Systems Project Office : Huntsville, Alabama	0.483	9.733		8.774		9.988		-		9.988	Continuing	Continuing	Continuing
Subtotal			0.483	9.733		8.774		9.988		-		9.988	-	-	-

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			
System Engineering & Integration	MIPR	Cruise Missile Defense Systems Project Office : Huntsville, AL	6.089	13.296		19.264		18.592		-		18.592	Continuing	Continuing	Continuing
Engineering and Technical Support	MIPR	Aviation and Missile Research, Development, Engineering Center : Huntsville, AL	13.338	30.328		52.548		48.655		-		48.655	Continuing	Continuing	Continuing
System/Subsystem Development, Integration, and Test	MIPR	Multiple Activities : Multiple Locations	5.799	23.202		15.545		78.126		-		78.126	Continuing	Continuing	Continuing
Subtotal			25.226	66.826		87.357		145.373		-		145.373	-	-	-

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
	25.709	76.559	96.131	155.361	-	155.361	-	-	-

Remarks

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604319A / <i>Indirect Fire Protection Capability Increment 2-Intercept (IFPC2)</i>	Project (Number/Name) DU3 / <i>IFPC2</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) Block 1 Milestone A	▲ Blk 1 Milestone A																											
Block 1 Pre-Milestone B Activities	Blk 1 Pre-Milestone B Activities																											
Engineering Demonstration									ED																			
(2) Block 1 Milestone B													▲ Blk 1 Milestone B															
Block 1 Engineering and Manufacturing Development (EMD) Phase									Blk 1 EMD Phase																			
(3) Block 1 Milestone C																	▲ Blk 1 Milestone C											

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604319A / <i>Indirect Fire Protection Capability Increment 2-Intercept (IFPC2)</i>	Project (Number/Name) DU3 / <i>IFPC2</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Block 1 Milestone A	2	2014	2	2014
Block 1 Pre-Milestone B Activities	1	2014	2	2016
Engineering Demonstration	1	2016	1	2016
Block 1 Milestone B	3	2016	3	2016
Block 1 Engineering and Manufacturing Development (EMD) Phase	3	2016	3	2018
Block 1 Milestone C	4	2018	4	2018

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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 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 0604785A / <i>Integrated Base Defense (Budget Activity 4)</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	-	4.473	-	-	-	-	-	-	-	-	-	4.473
DS4: <i>Integrated Base Defense</i>	-	4.473	-	-	-	-	-	-	-	-	-	4.473

Note

IBD Research Development Test and Evaluation funding was moved to Program Element 205402A Project EF2 in FY2015.

A. Mission Description and Budget Item Justification

Mission Description:

Integrated Base Defense (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 focused on system engineering and software development.

Justification: IBD Research Development Test and Evaluation funding was moved to Program Element 205402A Project EF2 in FY2015.

<u>B. Program Change Summary (\$ in Millions)</u>	<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	4.473	-	-	-	-
Current President's Budget	4.473	-	-	-	-
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 / 4	R-1 Program Element (Number/Name) PE 0604785A / <i>Integrated Base Defense (Budget Activity 4)</i>	Project (Number/Name) DS4 / <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
DS4: <i>Integrated Base Defense</i>	-	4.473	-	-	-	-	-	-	-	-	-	4.473
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

Mission Description:

Integrated Base Defense (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 focused on system engineering and software development.

Justification:

IBD Research Development Test and Evaluation funding was moved to Program Element 205402A Project EF2 in FY2015.

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

	FY 2014	FY 2015	FY 2016
Title: IBD Architecture Development	4.473	-	-
Description: Development of holistic IBD architectures leveraging DoD-approved protocol and processes to support interoperability of fielded and emerging IBD-related systems.			
FY 2014 Accomplishments: Continue development of the IBD operations functionality and architecture to ensure that data fusion of IBD Non-standard Equipment and force protection equipment is combined on a single Graphical User Interface resulting in the reduction of the number of operators required and reduced footprint, hardware, and associated maintenance/logistics costs. Completion of Technical Data Packages, software modifications, and physical architecture. Ensure promulgation of an IBD construct and the operation of a comprehensive software capability that supports the holistic Life Cycle Support of the IBD Software Architecture and enabling technologies. Package validation, developmental testing and formal operational assessment of the IBD kitting construct.			
Accomplishments/Planned Programs Subtotals	4.473	-	-

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 / 4	R-1 Program Element (Number/Name) PE 0604785A / <i>Integrated Base Defense</i> (Budget Activity 4)	Project (Number/Name) DS4 / <i>Integrated Base Defense</i>

D. Acquisition Strategy

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 / 4				R-1 Program Element (Number/Name) PE 0604785A / <i>Integrated Base Defense</i> (<i>Budget Activity 4</i>)				Project (Number/Name) DS4 / <i>Integrated Base Defense</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
System Engineering and Software Development	MIPR	AMRDEC : Huntsville, AL	3.604	3.246		-		-		-		-	Continuing	Continuing	Continuing
Subtotal			3.604	3.246		-		-		-		-	-	-	-
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 and Evaluation	MIPR	A TEC : Aberdeen Proving Ground, MD	0.000	1.227		-		-		-		-	-	1.227	-
Subtotal			0.000	1.227		-		-		-		-	-	1.227	-
Project Cost Totals			3.604	4.473		-		-		-		-	-	-	-
Remarks															

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604785A / <i>Integrated Base Defense</i> (Budget Activity 4)	Project (Number/Name) DS4 / <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) Test an Evaluation	Evaluation																											

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604785A / <i>Integrated Base Defense (Budget Activity 4)</i>	Project (Number/Name) DS4 / <i>Integrated Base Defense</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Test an Evaluation	3	2014	4	2015

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