Supporting Data FY 2011 Budget Estimate
Submitted to OSD – February 2010

DESCRIPTIVE SUMMARIES OF THE

RESEARCH, DEVELOPMENT, TEST AND EVALUATION
Army Appropriation, Budget Activity 7

Department of the Army
Office of the Secretary of the Army (Financial Management and Comptroller)

Persuasive in Peace, Invincible in War

VOLUME VII

DESCRIPTIVE SUMMARIES FOR PROGRAM ELEMENTS OF THE RESEARCH, DEVELOPMENT, TEST AND EVALUATION, ARMY FY 2011 BUDGET ESTIMATE SUBMISSION FEBRUARY 2010

VOLUME VII
Budget Activity 7

Department of the Army
Office of the Assistant Secretary of the Army (Financial Management and Comptroller)

FY 2011 RDT&E, ARMY
PROGRAM ELEMENT DESCRIPTIVE SUMMARIES

INTRODUCTION AND EXPLANATION OF CONTENTS

1. General. The purpose of this document is to provide summary information concerning the Research, Development, Test and Evaluation, Army program. The Descriptive Summaries are comprised of R-2 (Army RDT&E Budget Item Justification – program element level), R-2A (Army RDT&E Budget Item Justification – project level), R-3 (Army RDT&E Cost Analysis), R-4 (Schedule Profile), R-4A (Schedule Profile Detail) and R-5 (Termination Liability Funding for MDAPs) Exhibits, which provide narrative information on all RDT&E program elements and projects for FY 2009 through FY 2011.

2. Relationship of the FY 2011 Budget Submitted to Congress to the FY 2010 Budget Submitted to Congress. This paragraph provides a list of program elements restructured, transitioned, or established to provide specific program identification.

A. Program Element Restructures. Explanations for these changes can be found in the narrative sections of the Program Element R-2A Exhibits.

OLD PE/PROJECT	NEW PROJECT TITLE	NEW PE/PROJECT
0603308A/978	Long Endurance Multi-Intelligence Vehicle	0305205A/LE4
0604270A/L16	TROJAN – RH12-MIP	0303032A/RH5
0604802A/S23	SLAMRAAM	0605455A/S35
0604805A/589	Joint Battle Command – Platform (JBC-P)	0604805A/593
0604869A/M06	PAC-3/MSE Missile	0605456A/PA3
0303140/5PM	Biometrics Enabled Intelligence – MIP	0307665A/BI7
0303140/5PM	Intelligence Support to Cyber (ISC) – MIP	0203347A/CY7
0305204A/114	RQ-7 Shadow UAV	0305233A/RQ7
0305204A/D10	RQ-11 Raven (MIP)	0305232A/RA7
0307207A/024	Aerial Common Sensor – SDD	0605626A/AC5

B. Developmental Transitions. Explanations for these changes can be found in the narrative sections of the Program Element R-2/R-3 Exhibits.

OLD PE/PROJECT	NEW PROJECT TITLE	NEW PE/PROJECT
0305204A/D09	ER/MP Unmanned Aircraft System (MIP)	0604276A/TU1
0307207A/024	Aerial Common Sensor (ACS)	0605626A/AC5

C. Establishment of New FY 2011 Program Elements/Projects. There are no major system new starts.

TITLE	PE/PROJECT
Aerial Common Sensor – SDD	0605626A/AC5
Armed Scout Helicopter	0604220A/53Z
Army Integrated Air and Missile Defense (AIAMD)	0605457A/S40
Army Integrated Military Human Resources System (A-IRMS)	0605018A/HR5
Biometrics Enabled Intelligence – MIP	0307665A/BI7
ER/MP Unmanned Aircraft System (MIP)	0604276A/TU1
Intelligence Support to Cyber (ISC) – MIP	0203347A/CY7
Joint Battle Command - Platform (JBC-P)	0604805A/593
Long Endurance Multi-Intelligence Vehicle	0305205A/LE4
MQ-1 Sky Warrior – Army UAV (MIP)	0305219A/MQ1
PAC-3/MSE Missile	0605456A/PA3
RQ-7 Shadow UAV	0305233A/RQ7
RQ-11 Raven (MIP)	0305232A/RA7
SLAMRAAM	0605455A/S35
Suicide Prevention/Mitigation	0602787A/VJ4
TROJAN – RH12-MIP	0303032A/RH5
Advanced Geospatial Intelligence (AGI)	0304348A/NI7

D. FY 2011 programs for which funding existed in the FY 2010 President's Budget Submit (May 2009), but which are no longer funded in the FY 2011 President's Budget Submit.

PE/PROJECT	TITLE	BRIEF EXPLANATION
0603004A/L94	Electric Gun System Demo	Program restructured
0604270A/L12	Signals Warfare Development (MIP)	Program moved to a separate MIP PE
0604270A/L16	TROJAN Development (MIP)	Program moved to a separate MIP PE
0604666A/FC7	FCS – Spin Out Technology/Capability Integration	Terminated
0604802A/S23	Surface Launched Advanced Medium Range Air-to-Air Missile (SLAMRAAM)	Program moved to a separate missile defense PE
0604818A/C15	Mounted Battle Command On-The-Move (MBCOTM)	Terminated
0604818A/C39	Tactical Operations Center (TOCs)	Terminated
0303142A/562	Multi-band Integrated Satellite Terminal (MIST)	Terminated
0307207A/024	Aerial Common Sensor (MIP)	Program transitioned to BA 5 for proper execution

3. Classification. This document contains no classified data. Classified/Special Access Programs that are submitted offline are listed below.

0203801A/DF8/DF9	0603005A/C66	0604328A
0203808A	0603006A/DF7	
0301359A	0603009A	
0304348A	0603020A	
0602122A	0603322A	

4. Performance Metrics. Performance metrics used in the preparation of this justification book may be found in the FY 2010 Army Performance Budget Justification Book, dated March 2009.

UNCLASSIFIED

Department of the Army

FY 2011 RDT&E Program

President's Budget FY 2011

Exhibit R-1

01-Feb-2010

Summary

Summary Recap of Budget Activities		Thousands of Dollars				
		FY2009	FY2010	FY2011	FY2011 OCO	FY2011 Total
Basic research		422,136	431,777	406,873	0	406,873
Applied Research		1,224,889	1,337,114	841,364	0	841,364
Advanced technology development		1,438,797	1,373,609	696,592	0	696,592
Advanced Component Development and Prototypes		1,010,485	932,004	746,248	57,900	804,148
System Development and Demonstration		5,025,850	4,454,743	5,021,546	13,500	5,035,046
Management support		1,470,157	1,196,744	1,142,383	0	1,142,383
Operational system development		1,482,756	1,823,380	1,473,939	79,506	1,553,445
Total	RDT&E, Army	12,075,070	11,549,371	10,328,945	150,906	10,479,851

Department of the Army

Exhibit R-1

FY 2011 RDT&E Program

President's Budget FY 2011

Approriation: 2040 A RDT&E, Army 01-Feb-2010

Line No	Program Element Number	Act	Item	Thousands of Dollars FY2009	FY2010	FY2011	FY2011 OCO	FY2011 Total
			Basic research					
1	0601101A	01	IN-HOUSE LABORATORY INDEPENDENT RESEARCH	19,357	19,568	21,780		21,780
2	0601102A	01	DEFENSE RESEARCH SCIENCES	193,968	197,471	195,845		195,845
3	0601103A	01	UNIVERSITY RESEARCH INITIATIVES	87,485	99,400	91,161		91,161
4	0601104A	01	UNIVERSITY AND INDUSTRY RESEARCH CENTERS	121,326	115,338	98,087		98,087
			Tota Basic research	422,136	431,777	406,873	0	406,873
			Applied Research					
5	0602105A	02	MATERIALS TECHNOLOGY	80,686	99,447	29,882		29,882
6	0602120A	02	SENSORS AND ELECTRONIC SURVIVABILITY	76,213	70,272	48,929		48,929
7	0602122A	02	TRACTOR HIP	17,659	14,250	14,624		14,624
8	0602211A	02	AVIATION TECHNOLOGY	46,232	49,273	43,476		43,476
9	0602270A	02	ELECTRONIC WARFARE TECHNOLOGY	20,058	22,303	17,330		17,330
10	0602303A	02	MISSILE TECHNOLOGY	57,502	70,924	49,525		49,525
11	0602307A	02	ADVANCED WEAPONS TECHNOLOGY	22,638	21,964	18,190		18,190
12	0602308A	02	ADVANCED CONCEPTS AND SIMULATION	18,205	27,330	20,582		20,582
13	0602601A	02	COMBAT VEHICLE AND AUTOMOTIVE TECHNOLOGY	84,436	78,923	64,740		64,740
14	0602618A	02	BALLISTICS TECHNOLOGY	84,827	78,034	60,342		60,342
15	0602622A	02	CHEMICAL, SMOKE AND EQUIPMENT DEFEATING TECHNOLOGY	8,873	13,622	5,324		5,324
16	0602623A	02	JOINT SERVICE SMALL ARMS PROGRAM	9,165	7,634	7,893		7,893
17	0602624A	02	WEAPONS AND MUNITIONS TECHNOLOGY	106,253	144,864	42,645		42,645
18	0602705A	02	ELECTRONICS AND ELECTRONIC DEVICES	99,118	134,532	60,859		60,859
19	0602709A	02	NIGHT VISION TECHNOLOGY	45,329	50,877	40,228		40,228
20	0602712A	02	COUNTERMINE SYSTEMS	27,827	23,621	19,118		19,118
21	0602716A	02	HUMAN FACTORS ENGINEERING TECHNOLOGY	42,208	30,446	21,042		21,042
22	0602720A	02	ENVIRONMENTAL QUALITY TECHNOLOGY	15,786	25,469	18,364		18,364
23	0602782A	02	COMMAND, CONTROL, COMMUNICATIONS TECHNOLOGY	45,350	30,036	25,573		25,573
24	0602783A	02	COMPUTER AND SOFTWARE TECHNOLOGY	7,786	5,609	6,768		6,768
25	0602784A	02	MILITARY ENGINEERING TECHNOLOGY	58,671	60,779	79,189		79,189
26	0602785A	02	MANPOWER/PERSONNEL/TRAINING TECHNOLOGY	16,096	16,614	22,198		22,198
27	0602786A	02	WARFIGHTER TECHNOLOGY	35,866	38,347	27,746		27,746

Exhibit R-1

Approriation: 2040 A RDT&E, Army 01-Feb-2010

Line No	Program Element Number	Act	Item	Thousands of Dollars FY2009	FY2010	FY2011	FY2011 OCO	FY2011 Total
			Basic research					
28	0602787A	02	MEDICAL TECHNOLOGY	198,105	221,944	96,797		96,797
			Tota Applied Research	1,224,889	1,337,114	841,364	0	841,364
			Advanced technology development					
29	0603001A	03	WARFIGHTER ADVANCED TECHNOLOGY	72,271	54,290	37,364		37,364
30	0603002A	03	MEDICAL ADVANCED TECHNOLOGY	329,258	339,752	71,510		71,510
31	0603003A	03	AVIATION ADVANCED TECHNOLOGY	102,207	112,388	57,454		57,454
32	0603004A	03	WEAPONS AND MUNITIONS ADVANCED TECHNOLOGY	112,544	89,861	64,438		64,438
33	0603005A	03	COMBAT VEHICLE AND AUTOMOTIVE ADVANCED TECHNOLOGY	270,195	240,190	89,499		89,499
34	0603006A	03	COMMAND, CONTROL, COMMUNICATIONS ADVANCED TECHNOL	11,307	12,352	8,102		8,102
35	0603007A	03	MANPOWER, PERSONNEL AND TRAINING ADVANCED TECHNOLC	6,725	7,371	7,921		7,921
36	0603008A	03	ELECTRONIC WARFARE ADVANCED TECHNOLOGY	61,192	57,199	50,359		50,359
37	0603009A	03	TRACTOR HIKE	14,157	11,270	8,015		8,015
38	0603015A	03	NEXT GENERATION TRAINING & SIMULATION SYSTEMS	24,769	25,362	15,334		15,334
39	0603020A	03	TRACTOR ROSE	11,216	14,493	12,309		12,309
40	0603103A	03	EXPLOSIVES DEMILITARIZATION TECHNOLOGY	17,213	12,495			
41	0603105A	03	MILITARY HIV RESEARCH	14,867	29,502	6,688		6,688
42	0603125A	03	COMBATING TERRORISM - TECHNOLOGY DEVELOPMENT	12,656	11,927	10,550		10,550
43	0603270A	03	ELECTRONIC WARFARE TECHNOLOGY	32,544	21,877	18,350		18,350
44	0603313A	03	MISSILE AND ROCKET ADVANCED TECHNOLOGY	74,967	86,559	84,553		84,553
45	0603322A	03	TRACTOR CAGE	12,037	12,090	9,986		9,986
46	0603606A	03	LANDMINE WARFARE AND BARRIER ADVANCED TECHNOLOGY	36,883	34,855	26,953		26,953
47	0603607A	03	JOINT SERVICE SMALL ARMS PROGRAM	8,568	8,949	9,151		9,151
48	0603710A	03	NIGHT VISION ADVANCED TECHNOLOGY	69,778	72,250	39,912		39,912
49	0603728A	03	ENVIRONMENTAL QUALITY TECHNOLOGY DEMONSTRATIONS	16,782	16,121	15,878		15,878
50	0603734A	03	MILITARY ENGINEERING ADVANCED TECHNOLOGY	34,935	45,394	27,393		27,393
51	0603772A	03	ADVANCED TACTICAL COMPUTER SCIENCE AND SENSOR TECH	91,726	57,062	24,873		24,873
			Tota Advanced technology development	1,438,797	1,373,609	696,592	0	696,592

Exhibit R-1

Approriation: 2040 A RDT&E, Army 01-Feb-2010

Line No	Program Element Number	Act	Item	Thousands of Dollars FY2009	FY2010	FY2011	FY2011 OCO	FY2011 Total
			Basic research					
			Advanced Component Development and Prototypes					
52	0603024A	04	UNIQUE ITEM IDENTIFICATION (UID)	628	1,990			
53	0603305A	04	ARMY MISSLE DEFENSE SYSTEMS INTEGRATION	90,552	71,788	11,455		11,455
54	0603308A	04	ARMY SPACE SYSTEMS INTEGRATION	53,416	118,610	27,551		27,551
55	0603327A	04	AIR AND MISSILE DEFENSE SYSTEMS ENGINEERING	115,567	166,061			
56	0603619A	04	LANDMINE WARFARE AND BARRIER - ADV DEV	13,789	17,445	15,596		15,596
57	0603627A	04	SMOKE, OBSCURANT AND TARGET DEFEATING SYS-ADV DEV	3,721	4,894	2,425		2,425
58	0603639A	04	TANK AND MEDIUM CALIBER AMMUNITION	39,590	33,757	42,183		42,183
59	0603653A	04	ADVANCED TANK ARMAMENT SYSTEM (ATAS)	76,072	89,828	136,302		136,302
60	0603747A	04	SOLDIER SUPPORT AND SURVIVABILITY	18,058	33,178	18,556	57,900	76,456
61	0603766A	04	TACTICAL ELECTRONIC SURVEILLANCE SYSTEM - ADV DEV	12,235	12,164	17,962		17,962
62	0603774A	04	NIGHT VISION SYSTEMS ADVANCED DEVELOPMENT	2,508				
63	0603779A	04	ENVIRONMENTAL QUALITY TECHNOLOGY - DEM/VAL	20,443	18,374	4,695		4,695
64	0603782A	04	WARFIGHTER INFORMATION NETWORK-TACTICAL - DEM/VAL	392,138	169,783	190,903		190,903
65	0603790A	04	NATO RESEARCH AND DEVELOPMENT	4,883	5,022	5,060		5,060
66	0603801A	04	AVIATION - ADV DEV	26,507	8,492	8,355		8,355
67	0603804A	04	LOGISTICS AND ENGINEER EQUIPMENT - ADV DEV	42,939	59,662	80,490		80,490
68	0603805A	04	COMBAT SERVICE SUPPORT CONTROL SYSTEM EVALUATION AN	17,267	9,817	14,290		14,290
69	0603807A	04	MEDICAL SYSTEMS - ADV DEV	29,572	35,886	28,132		28,132
70	0603827A	04	SOLDIER SYSTEMS - ADVANCED DEVELOPMENT	41,599	73,785	48,323		48,323
71	0603850A	04	INTEGRATED BROADCAST SERVICE	9,001	1,468	970		970
72	0305205A	04	ENDURANCE UAVS			93,000		93,000
			Tota Advanced Component Development and Prototypes	1,010,485	932,004	746,248	57,900	804,148
			System Development and Demonstration					
73	0604201A	05	AIRCRAFT AVIONICS	60,781	89,508	89,210		89,210
74	0604220A	05	ARMED, DEPLOYABLE HELOS	63,017	66,169	72,550		72,550
75	0604270A	05	ELECTRONIC WARFARE DEVELOPMENT	38,256	281,570	172,269	5,400	177,669
76	0604280A	05	JOINT TACTICAL RADIO			784		784
77	0604321A	05	ALL SOURCE ANALYSIS SYSTEM	13,211	13,039	22,574	8,100	30,674

Exhibit R-1

Approriation: 2040 A RDT&E, Army 01-Feb-2010

Line No	Program Element Number	Act	Item	Thousands of Dollars FY2009	FY2010	FY2011	FY2011 OCO	FY2011 Total
			Basic research					
78	0604328A	05	TRACTOR CAGE	16,300	16,201	23,194		23,194
79	0604601A	05	INFANTRY SUPPORT WEAPONS	57,677	83,178	80,337		80,337
80	0604604A	05	MEDIUM TACTICAL VEHICLES	2,169	5,653	3,710		3,710
81	0604609A	05	SMOKE, OBSCURANT AND TARGET DEFEATING SYS - ENG DEV	5,428	973	5,335		5,335
82	0604611A	05	JAVELIN			9,999		9,999
83	0604622A	05	FAMILY OF HEAVY TACTICAL VEHICLES	4,550	9,826	3,519		3,519
84	0604633A	05	AIR TRAFFIC CONTROL	16,092	7,538	9,892		9,892
85	0604642A	05	LIGHT TACTICAL WHEELED VEHICLES			1,990		1,990
86	0604646A	05	NON-LINE OF SIGHT LAUNCH SYSTEM	253,684	91,223	81,247		81,247
87	0604647A	05	NON-LINE OF SIGHT CANNON	87,038	47,964			
88	0604660A	05	FCS MANNED GRD VEHICLES & COMMON GRD VEHICLE	760,744	275,116			
89	0604661A	05	FCS SYSTEMS OF SYSTEMS ENGR & PROGRAM MGMT	1,022,165	912,399	568,711		568,711
90	0604662A	05	FCS RECONNAISSANCE (UAV) PLATFORMS	55,923	75,107	50,304		50,304
91	0604663A	05	FCS UNMANNED GROUND VEHICLES	104,571	124,962	249,948		249,948
92	0604664A	05	FCS UNATTENDED GROUND SENSORS	20,135	26,778	7,515		7,515
93	0604665A	05	FCS SUSTAINMENT & TRAINING R&D	819,721	655,745	610,389		610,389
94	0604666A	05	SPIN OUT TECHNOLOGY/CAPABILITY INSERTION	122,788				
95	0604710A	05	NIGHT VISION SYSTEMS - ENG DEV	96,678	57,111	52,549		52,549
96	0604713A	05	COMBAT FEEDING, CLOTHING, AND EQUIPMENT	2,422	2,081	2,118		2,118
97	0604715A	05	NON-SYSTEM TRAINING DEVICES - ENG DEV	36,826	30,052	27,756		27,756
98	0604741A	05	AIR DEFENSE COMMAND, CONTROL AND INTELLIGENCE - ENG D	21,737	28,785	34,209		34,209
99	0604742A	05	CONSTRUCTIVE SIMULATION SYSTEMS DEVELOPMENT	25,095	33,039	30,291		30,291
100	0604746A	05	AUTOMATIC TEST EQUIPMENT DEVELOPMENT	17,020	15,240	14,041		14,041
101	0604760A	05	DISTRIBUTIVE INTERACTIVE SIMULATIONS (DIS) - ENG DEV	18,999	15,645	15,547		15,547
102	0604778A	05	POSITIONING SYSTEMS DEVELOPMENT (SPACE)		9,396			
103	0604780A	05	COMBINED ARMS TACTICAL TRAINER (CATT) CORE	32,541	26,107	27,670		27,670
104	0604783A	05	JOINT NETWORK MANAGEMENT SYSTEM	659				
105	0604802A	05	WEAPONS AND MUNITIONS - ENG DEV	101,823	87,022	24,345		24,345
106	0604804A	05	LOGISTICS AND ENGINEER EQUIPMENT - ENG DEV	29,884	37,023	41,039		41,039
107	0604805A	05	COMMAND, CONTROL, COMMUNICATIONS SYSTEMS - ENG DEV	9,489	58,688	90,736		90,736
108	0604807A	05	MEDICAL MATERIEL/MEDICAL BIOLOGICAL DEFENSE EQUIPMENT	41,081	41,794	34,474		34,474
109	0604808A	05	LANDMINE WARFARE/BARRIER - ENG DEV	113,590	72,380	95,577		95,577
110	0604814A	05	ARTILLERY MUNITIONS - EMD	70,008	42,230	26,371		26,371
111	0604817A	05	COMBAT IDENTIFICATION	8,967	10,018	29,884		29,884

Exhibit R-1

Approriation: 2040 A RDT&E, Army 01-Feb-2010

Line No	Program Element Number	Act	Item	Thousands of Dollars FY2009	FY2010	FY2011	FY2011 OCO	FY2011 Total
			Basic research					
112	0604818A	05	ARMY TACTICAL COMMAND & CONTROL HARDWARE & SOFTWAI	63,552	79,448	60,970		60,970
113	0604822A	05	GENERAL FUND ENTERPRISE BUSINESS SYSTEM (GFEBS)	50,308	23,777	13,576		13,576
114	0604823A	05	FIREFINDER	64,834	20,227	24,736		24,736
115	0604827A	05	SOLDIER SYSTEMS - WARRIOR DEM/VAL	20,086	19,683	20,886		20,886
116	0604854A	05	ARTILLERY SYSTEMS - EMD	32,261	115,811	53,624		53,624
117	0604869A	05	PATRIOT/MEADS COMBINED AGGREGATE PROGRAM (CAP)	454,665	566,215	467,139		467,139
118	0604870A	05	NUCLEAR ARMS CONTROL MONITORING SENSOR NETWORK	6,064	7,103	7,276		7,276
119	0605013A	05	INFORMATION TECHNOLOGY DEVELOPMENT	68,194	66,561	23,957		23,957
120	0605018A	05	ARMY INTEGRATED MILITARY HUMAN RESOURCES SYSTEM (A-IMHRS)			100,500		100,500
121	0605450A	05	JOINT AIR-TO-GROUND MISSILE (JAGM)	114,817	126,775	130,340		130,340
122	0605455A	05	SLAMRAAM			23,700		23,700
123	0605456A	05	PAC-3/MSE MISSILE			62,500		62,500
124	0605457A	05	ARMY INTEGRATED AIR AND MISSILE DEFENSE (AIAMD)			251,124		251,124
125	0605625A	05	MANNED GROUND VEHICLE		79,583	934,366		934,366
126	0605626A	05	AERIAL COMMON SENSOR			211,500		211,500
127	0303032A	05	TROJAN - RH12			3,697		3,697
128	0304270A	05	ELECTRONIC WARFARE DEVELOPMENT			21,571		21,571
			Tota System Development and Demonstration	5,025,850	4,454,743	5,021,546	13,500	5,035,046
			Management support					
129	0604256A	06	THREAT SIMULATOR DEVELOPMENT	22,015	25,091	26,158		26,158
130	0604258A	06	TARGET SYSTEMS DEVELOPMENT	13,124	13,544	8,614		8,614
131	0604759A	06	MAJOR T&E INVESTMENT	62,699	51,576	42,102		42,102
132	0605103A	06	RAND ARROYO CENTER	19,817	17,812	20,492		20,492
133	0605301A	06	ARMY KWAJALEIN ATOLL	169,367	162,662	163,788		163,788
134	0605326A	06	CONCEPTS EXPERIMENTATION PROGRAM	33,178	26,407	17,704		17,704
135	0605502A	06	SMALL BUSINESS INNOVATIVE RESEARCH	297,531				
136	0605601A	06	ARMY TEST RANGES AND FACILITIES	356,720	352,845	393,937		393,937
137	0605602A	06	ARMY TECHNICAL TEST INSTRUMENTATION AND TARGETS	84,905	84,389	59,040		59,040
138	0605604A	06	SURVIVABILITY/LETHALITY ANALYSIS	40,037	44,782	41,812		41,812
139	0605605A	06	DOD HIGH ENERGY LASER TEST FACILITY	6,772	7,352	4,710		4,710

Exhibit R-1

Approriation: 2040 A RDT&E, Army 01-Feb-2010

Line No	Program Element Number	Act	Item	Thousands of Dollars FY2009	FY2010	FY2011	FY2011 OCO	FY2011 Total
			Basic research					
140	0605606A	06	AIRCRAFT CERTIFICATION	5,001	3,746	5,055		5,055
141	0605702A	06	METEOROLOGICAL SUPPORT TO RDT&E ACTIVITIES	8,120	8,347	7,185		7,185
142	0605706A	06	MATERIEL SYSTEMS ANALYSIS	17,472	19,864	18,078		18,078
143	0605709A	06	EXPLOITATION OF FOREIGN ITEMS	3,908	5,403	5,460		5,460
144	0605712A	06	SUPPORT OF OPERATIONAL TESTING	76,231	77,471	68,191		68,191
145	0605716A	06	ARMY EVALUATION CENTER	61,461	67,555	61,450		61,450
146	0605718A	06	ARMY MODELING & SIM X-CMD COLLABORATION & INTEG	5,159	5,328	3,926		3,926
147	0605801A	06	PROGRAMWIDE ACTIVITIES	72,659	77,419	73,685		73,685
148	0605803A	06	TECHNICAL INFORMATION ACTIVITIES	44,051	51,351	48,309		48,309
149	0605805A	06	MUNITIONS STANDARDIZATION, EFFECTIVENESS AND SAFETY	44,326	72,851	53,338		53,338
150	0605857A	06	ENVIRONMENTAL QUALITY TECHNOLOGY MGMT SUPPORT	9,966	5,165	3,195		3,195
151	0605898A	06	MANAGEMENT HQ - R&D	15,586	15,784	16,154		16,154
152	0909999A	06	FINANCING FOR CANCELLED ACCOUNT ADJUSTMENTS	52				
			Tota Management support	1,470,157	1,196,744	1,142,383	0	1,142,383
			Operational system development					
153	0603778A	07	MLRS PRODUCT IMPROVEMENT PROGRAM	53,954	27,549	51,619		51,619
154	0102419A	07	AEROSTAT JOINT PROJECT OFFICE	344,850	328,356	372,493		372,493
155	0203347A	07	INTELLIGENCE SUPPORT TO CYBER (ISC) MIP			2,360		2,360
156	0203726A	07	ADV FIELD ARTILLERY TACTICAL DATA SYSTEM	16,200	29,174	24,622		24,622
157	0203735A	07	COMBAT VEHICLE IMPROVEMENT PROGRAMS	139,100	196,393	204,481		204,481
158	0203740A	07	MANEUVER CONTROL SYSTEM	36,072	21,283	25,540		25,540
159	0203744A	07	AIRCRAFT MODIFICATIONS/PRODUCT IMPROVEMENT PROGRAM	298,640	231,792	134,999		134,999
160	0203752A	07	AIRCRAFT ENGINE COMPONENT IMPROVEMENT PROGRAM	326	788	710		710
161	0203758A	07	DIGITIZATION	7,835	10,636	6,329		6,329
162	0203759A	07	FORCE XXI BATTLE COMMAND, BRIGADE AND BELOW (FBCB2)	22,688		3,935		3,935
163	0203801A	07	MISSILE/AIR DEFENSE PRODUCT IMPROVEMENT PROGRAM	34,189	39,068	24,280		24,280
164	0203802A	07	OTHER MISSILE PRODUCT IMPROVEMENT PROGRAMS	5,167	3,979			
165	0203808A	07	TRACTOR CARD	15,818	19,930	14,870		14,870
166	0208010A	07	JOINT TACTICAL COMMUNICATIONS PROGRAM (TRI-TAC)	892				
167	0208053A	07	JOINT TACTICAL GROUND SYSTEM	1,949	36,005	12,403		12,403

Exhibit R-1

Approriation: 2040 A RDT&E, Army 01-Feb-2010

Line No	Program Element Number	Act	Item	Thousands of Dollars FY2009	FY2010	FY2011	FY2011 OCO	FY2011 Total
			Basic research					
168	0208058A	07	JOINT HIGH SPEED VESSEL (JHSV)	2,986	3,066	3,153		3,153
169	0301359A	07	SPECIAL ARMY PROGRAM					
170	0303028A	07	SECURITY AND INTELLIGENCE ACTIVITIES	3,189	9,777			
171	0303140A	07	INFORMATION SYSTEMS SECURITY PROGRAM	39,679	60,866	54,784	63,306	118,090
172	0303141A	07	GLOBAL COMBAT SUPPORT SYSTEM	107,693	143,979	125,569		125,569
173	0303142A	07	SATCOM GROUND ENVIRONMENT (SPACE)	46,799	39,889	33,694		33,694
174	0303150A	07	WWMCCS/GLOBAL COMMAND AND CONTROL SYSTEM	12,599	11,972	13,024		13,024
175	0303158A	07	JOINT COMMAND AND CONTROL PROGRAM (JC2)	13,228				
176	0305204A	07	TACTICAL UNMANNED AERIAL VEHICLES	100,454	202,116	54,300		54,300
177	0305208A	07	DISTRIBUTED COMMON GROUND/SURFACE SYSTEMS	88,483	188,465	103,002	16,200	119,202
178	0305219A	07	MQ-1 SKY WARRIOR A UAV			123,156		123,156
179	0305232A	07	RQ-11 UAV			1,599		1,599
180	0305233A	07	RQ-7 UAV			7,805		7,805
181	0307207A	07	AERIAL COMMON SENSOR (ACS)		115,430			
182	0307665A	07	BIOMETRICS ENABLED INTELLIGENCE			14,114		14,114
183	0702239A	07	AVIONICS COMPONENT IMPROVEMENT PROGRAM	991				
184	0708045A	07	END ITEM INDUSTRIAL PREPAREDNESS ACTIVITIES	88,975	102,867	61,098		61,098
			Tota Operational system development	1,482,756	1,823,380	1,473,939	79,506	1,553,445
Total: RDT&E, Army				12,075,070	11,549,371	10,328,945	150,906	10,479,851

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129	0605604A	Survivability/Lethality Analysis	35
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136	0605326A	Concepts Experimentation Program	119
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155	0603778A	MLRS PRODUCT IMPROVEMENT PROGRAM	418
157	0208058A	Joint High Speed Vessel (JHSV)	452
158	0203726A	Adv Field Artillery Tactical Data System	464
159	0203735A	Combat Vehicle Improvement Programs	485
161	0203744A	Aircraft Modifications/Product Improvement Programs	513
163	0303150A	WWMCCS/Global Command and Control System	574
164	0203759A	Force XXI Battle Command, Brigade and Below (FBCB2)	586
164	0303158A	Joint Command and Control Program (JC2)	601
165	0203801A	Missile/Air Defense Product Improvement Program	609
166	0203802A	Other Missile Product Improvement Programs	617
167	0307207A	Aerial Common Sensor (ACS)	625
168	0702239A	Avionics Component Improvement Program	635
169	0708045A	End Item Industrial Preparedness Activities	640
172	0303028A	Security and Intelligence Activities	667
173	0303140A	Information Systems Security Program	675
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144	0102419A	Aerostat Joint Project Office	366
149	0203752A	Aircraft Engine Component Improvement Program	393
161	0203744A	Aircraft Modifications/Product Improvement Programs	513
136	0605716A	Army Evaluation Center	143
148	0605718A	Army Modeling & Sim X-Cmd Collaboration & Integ	178
139	0605602A	Army Technical Test Instrumentation and Targets	149
168	0702239A	Avionics Component Improvement Program	635
159	0203735A	Combat Vehicle Improvement Programs	485
136	0605326A	Concepts Experimentation Program	119
130	0605605A	DOD High Energy Laser Test Facility	44
150	0203758A	Digitization	407
179	0305208A	Distributed Common Ground/Surface Systems	815
134	0605709A	EXPLOITATION OF FOREIGN ITEMS	114
169	0708045A	End Item Industrial Preparedness Activities	640
152	0605857A	Environmental Quality Technology Mgmt Support	339
164	0203759A	Force XXI Battle Command, Brigade and Below (FBCB2)	586
174	0303141A	Global Combat Support System	710
173	0303140A	Information Systems Security Program	675
164	0303158A	Joint Command and Control Program (JC2)	601
157	0208058A	Joint High Speed Vessel (JHSV)	452
133	0605706A	MATERIEL SYSTEMS ANALYSIS	107

Exhibit R-2, PB 2011 Army **RDT&E Budget Item Justification**	**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0102419A: *Aerostat Joint Project Office*

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	Base FY 2011 Estimate	OCO FY 2011 Estimate	Total FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	344.850	328.356	372.493	0.000	372.493	176.198	118.448	0.000	0.000	Continuing	Continuing
E55: *Jnt Land Atk Msl Def Elevated Netted Sensor-JLENS*	344.850	328.356	372.493	0.000	372.493	176.198	118.448	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

U) The mission of the Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System (JLENS) is to provide elevated, persistent, Over-The-Horizon (OTH) surveillance and fire control quality data on Army and Joint networks enabling protection of the United States, Allied and Coalition forces, as well as critical geo-political assets from Cruise Missiles, Aircraft, Unmanned Aerial Vehicles (UAVs), Tactical Ballistic Missiles (TBMs), Large Caliber Rockets (LCRs), and Surface Moving Targets (SMTs). JLENS is a critical part of the Army's future Integrated Air and Missile Defense (IAMD) architecture and is a Joint Service interest program. A JLENS orbit consists of two systems: a fire control radar system and a wide-area surveillance radar system. Each radar system employs a separate 74-meter tethered aerostat, mobile mooring station, radar and communications payload, processing station, and associated ground equipment. JLENS uses advanced sensor and networking technologies to provide 360-degree, wide-area surveillance and precision tracking of land-attack cruise missiles. This JLENS information is distributed via joint service networks and contributes to the development of a single integrated air picture. JLENS has the capability of detecting and tracking surface moving targets, detecting Tactical Ballistic Missiles at boost phase and Large Caliber Rockets during the ascent phase. JLENS also performs as a multi-role platform to enable extended range command and control linkages, communications relay, and battlefield situational awareness.

Exhibit R-2, PB 2011 Army **RDT&E Budget Item Justification**	**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0102419A: *Aerostat Joint Project Office*

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	355.257	360.076	372.153	0.000	372.153
Current President's Budget	344.850	328.356	372.493	0.000	372.493
Total Adjustments	-10.407	-31.720	0.340	0.000	0.340
• Congressional General Reductions		0.000			
• Congressional Directed Reductions					
• Congressional Rescissions		0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers					
• Reprogrammings	-0.524	0.000			
• SBIR/STTR Transfer	-9.883	0.000			
• Adjustments to Budget Years	0.000	0.000	0.340	0.000	0.340
• Congressional General Reductions	0.000	-1.720	0.000	0.000	0.000
• Congressional Directed Reductions	0.000	-30.000	0.000	0.000	0.000

Change Summary Explanation

Adjustments to FY 2010: FY 2010 funds realigned -$30,000 (dollars thousands) to higher priority requirements.

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**											**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*				**R-1 ITEM NOMENCLATURE** PE 0102419A: *Aerostat Joint Project Office*				**PROJECT** E55: *Jnt Land Atk Msl Def Elevated Netted Sensor-JLENS*			
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**Base FY 2011 Estimate**	**OCO FY 2011 Estimate**	**Total FY 2011 Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
E55: *Jnt Land Atk Msl Def Elevated Netted Sensor-JLENS*	344.850	328.356	372.493	0.000	372.493	176.198	118.448	0.000	0.000	Continuing	Continuing
Quantity of RD&TE Articles											

A. Mission Description and Budget Item Justification

(U) The mission of the Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System (JLENS) is to provide elevated, persistent, Over-The-Horizon (OTH) surveillance and fire control quality data on Army and Joint networks enabling protection of the United States, Allied and Coalition forces, as well as critical geo-political assets from Cruise Missiles, Aircraft, Unmanned Aerial Vehicles (UAVs), Tactical Ballistic Missiles (TBMs), Large Caliber Rockets (LCRs), and Surface Moving Targets (SMTs). JLENS is a critical part of the Army's future Integrated Air and Missile Defense (IAMD) architecture and is a Joint Service interest program. A JLENS orbit consists of two systems: a fire control radar system and a wide-area surveillance radar system. Each radar system employs a separate 74-meter tethered aerostat, mobile mooring station, radar and communications payload, processing station, and associated ground equipment. JLENS uses advanced sensor and networking technologies to provide 360-degree, wide-area surveillance and precision tracking of land-attack cruise missiles. This JLENS information is distributed via joint service networks and contributes to the development of a single integrated air picture. JLENS has the capability of detecting and tracking surface moving targets, detecting Tactical Ballistic Missiles at boost phase and Large Caliber Rockets during the ascent phase. JLENS also performs as a multi-role platform to enable extended range command and control linkages, communications relay, and battlefield situational awareness.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	**FY 2010**	**Base FY 2011**	**OCO FY 2011**	**Total FY 2011**
Program #1	294.771	261.689	237.258	0.000	237.258
Continue System Development and Demonstration (SDD) phase contract activity.					
FY 2009 Accomplishments: FY 2009					
FY 2010 Plans: FY 2010					

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0102419A: *Aerostat Joint Project Office*	**PROJECT** E55: *Jnt Land Atk Msl Def Elevated Netted Sensor-JLENS*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Base FY 2011 Plans: FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #2 Government System Test and Evaluation *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	11.846	17.491	52.700	0.000	52.700
Program #3 Other contracts and Other Government Agencies (OGAs). *FY 2009 Accomplishments:* FY 2009	24.600	30.986	40.073	0.000	40.073

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0102419A: *Aerostat Joint Project Office*	**PROJECT** E55: *Jnt Land Atk Msl Def Elevated Netted Sensor-JLENS*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2010 Plans: FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #4 Government Project Management *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	3.818	3.310	2.272	0.000	2.272
Program #5 Government Furnished Equipment(GFE)	9.815	5.694	40.190	0.000	40.190

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0102419A: *Aerostat Joint Project Office*	**PROJECT** E55: *Jnt Land Atk Msl Def Elevated Netted Sensor-JLENS*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2009 Accomplishments: FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #6 Small Business Innovative Research/Small Business Technology Transfer Programs (SBIR/STTR) *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	0.000	9.186	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	344.850	328.356	372.493	0.000	372.493

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0102419A: *Aerostat Joint Project Office*	**PROJECT** E55: *Jnt Land Atk Msl Def Elevated Netted Sensor-JLENS*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• Ord. #1: *PE 0604869A, Proj M06, Patriot/MEADS Combined Aggregate Program (CAP)*	454.565	566.215	467.139	0.000	467.139	408.012	325.184	240.018	75.585	Continuing	Continuing
• Ord. #2: *SSN C53101, MSE Missile*	0.000	0.000	0.000	0.000	0.000	607.796	534.022	516.479	503.786	Continuing	Continuing
• Ord. #3: *SSN C53201, Patriot/ MEADS GSE*	0.000	0.000	0.000	0.000	0.000	0.000	126.589	217.639	528.435	Continuing	Continuing
• Ord. #4: *SSN BZ0525, JLENS Production*	0.000	0.000	0.000	0.000	0.000	470.661	419.801	427.731	394.325	Continuing	Continuing
• Ord. #5: *PE 0604802A, Proj S23, SLAMRAAM*	31.306	56.441	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
• Ord. #6: *PE 0605450A, Proj S35 SLAMRAAM*	0.000	0.000	23.700	0.000	23.700	17.800	53.500	7.500	7.600	Continuing	Continuing
• Ord. #7: *SSN C81002, SLAMRAAM Launcher*	40.349	0.000	116.732	0.000	116.732	83.302	233.762	241.691	248.895	Continuing	Continuing
• Ord. #8: *SSN C81004, SLAMRAAM Missile*	0.000	0.000	0.000	0.000	0.000	0.000	39.542	39.426	15.416	Continuing	Continuing
• Ord. #9: *SSN WK5053, FAAD GBS*	0.000	0.000	91.467	169.260	260.727	7.948	7.935	0.000	0.000	Continuing	Continuing
• Ord. #10: *PE 0603327A, Proj S34, AMD System of System Engineering and Integration*	111.496	166.061	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
• Ord. #11: *PE 0605457A, Proj S40, Army Integrated Air and Missile Defense (AIAMD)*	0.000	0.000	251.124	0.000	251.124	271.543	251.646	228.639	129.043	Continuing	Continuing
• Ord. #12: *SSN BZ5075, Army IAMD Battle Commond System (IBCS)*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	24.045	99.102	Continuing	Continuing
• Ord. #13: *PE 0605456A, Project PA3, PAC-3/MSE Missile*	0.000	0.000	62.500	0.000	62.500	62.100	3.500	62.000	64.500	Continuing	Continuing
	1.949	36.005	12.403	0.000	12.403	12.630	13.038	7.982	7.947	Continuing	Continuing

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0102419A: *Aerostat Joint Project Office*	**PROJECT** E55: *Jnt Land Atk Msl Def Elevated Netted Sensor-JLENS*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• Ord. #14: *PE 0208053, Proj 635, JOINT TACT GRD STATION-P3I (MIP)*											
• Ord. #15: *BZ8401, Joint Tactical Ground Station (JTAGS)*	0.000	6.682	9.279	0.000	9.279	0.000	0.000	9.415	4.658	Continuing	Continuing

D. Acquisition Strategy

The JLENS Operational Requirements Document (ORD) calls for initial fielding to Block I requirements (tethered aerostat platforms for Fire Control and Surveillance radars); followed by fielding of Block II (untethered platforms for Fire Control and Surveillance radars); and Block III (both radars on a single untethered platform). There is currently no funding beyond Block I. On 28 Jun 05, the Defense Acquisition Board (DAB) approved the JLENS program for entry into System Development and Demonstration (SDD) as recommended by the Army Acquisition Executive. The DAB elected to maintain oversight of JLENS as an ACAT 1D program as stated in the Acquisition Decision Memorandum signed on 5 Aug 05.As part of the overall strategy for the Army Integrated Air and Missile Defense (IAMD) capability, The Department of Army, in POM10-15, stretched the SDD program for other higher Army priorities independent of JLENS program performance. The Department of the Army resourced the schedule extension in POM10-15 with additional RDTE funds. Low Rate Initial Production, previously to begin in FY2011 will be delayed until FY2012. The Department of Army decided to re-allocate JLENS FY11 LRIP funding and stretch the SDD program for "other higher Army priorities". There were no JLENS program issues that necessitated the Department of Army decision. The JLENS program was and is meeting cost, schedule and performance goals.

E. Performance Metrics

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

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0102419A: *Aerostat Joint Project Office*	**PROJECT** E55: *Jnt Land Atk Msl Def Elevated Netted Sensor-JLENS*

Product Development ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Technology Development (TD) Phase Contracts and Government	SS	Raytheon Systems Co. (MA/CA/FL/TX) Location could not be determined.	301.083	0.000		0.000		0.000		0.000	0	Continuing	301.083
Lightweight X-band Radar Antenna	C	Multiple Location could not be determined.	7.811	0.000		0.000		0.000		0.000	0	Continuing	0
Contractor System Development and Demonstration (SDD) Hardware/Software	SS/CPIF	Raytheon Systems Co. (MA/CA/FL/TX) Location could not be determined.	671.431	253.619		201.802		0.000		201.802	Continuing	Continuing	1,414.652
SDD OGA System Engineering	C	Multiple Location could not be determined.	11.612	5.402		5.242		0.000		5.242	Continuing	Continuing	0
SDD System Engineering Contracts	C	Multiple Location could not be determined.	43.943	24.074		33.261		0.000		33.261	Continuing	Continuing	0
SDD GFE Various	C	Multiple Location could not be determined.	18.091	1.464		0.000		0.000		0.000	Continuing	Continuing	0
SDD GFE - Cooperative Engagement Transmission Processing Set (CETPS)	C	Multiple Location could not be determined.	15.389	4.230		5.190		0.000		5.190	Continuing	Continuing	0
SDD Govt Integrated Logistics Support	C	Multiple	2.500	1.510		1.570		0.000		1.570	Continuing	Continuing	0

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0102419A: *Aerostat Joint Project Office*	**PROJECT** E55: *Jnt Land Atk Msl Def Elevated Netted Sensor-JLENS*

Product Development ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
		Location could not be determined.											
SDD Organizational Support Equipment	C	Multiple Location could not be determined.	0.000	0.000		35.000		0.000		35.000	Continuing	Continuing	0
		Subtotal	1,071.860	290.299		282.065		0.000		282.065			1,715.735

Remarks

Support ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
TD Phase Misc Support	C	Multiple Location could not be determined.	2.084	0.000		0.000		0.000		0.000	0	2.084	0
		Subtotal	2.084	0.000		0.000		0.000		0.000	0.000	2.084	0.000

Remarks

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0102419A: *Aerostat Joint Project Office*	**PROJECT** E55: *Jnt Land Atk Msl Def Elevated Netted Sensor-JLENS*

Test and Evaluation ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
TD Phase Maintain Test Bed	SS	CAS-TX NM	3.056	0.000		0.000		0.000		0.000	0	Continuing	0
SDD Contractor System Test and Evaluation	SS/CPIF	Raytheon Systems Co. (MA/CA/FL/TX) Location could not be determined.	7.625	8.070		35.456		0.000		35.456	Continuing	Continuing	0
SDD Government System Test and Evaluation	C	Multiple Location could not be determined.	20.389	17.491		52.700		0.000		52.700	Continuing	Continuing	0
		Subtotal	31.070	25.561		88.156		0.000		88.156			0.000

Remarks

Management Services ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
SDD Government Program Management	C	PEO Missiles and Space HSV, AL	9.543	3.310		2.272		0.000		2.272	Continuing	Continuing	0
SBIR/STTR	C	Nothing entered for Activity and Location.	0.000	9.186		0.000		0.000		0.000	Continuing	Continuing	0

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0102419A: *Aerostat Joint Project Office*	**PROJECT** E55: *Jnt Land Atk Msl Def Elevated Netted Sensor-JLENS*

Management Services ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
		Location could not be determined.											
		Subtotal	9.543	12.496		2.272		0.000		2.272			0.000

Remarks

	FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	328.356		372.493		0.000		372.493	Continuing	Continuing	Continuing

Remarks

Exhibit R-4, PB 2011 Army **RDT&E Schedule Profile**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0102419A: *Aerostat Joint Project Office*	**PROJECT** E55: *Jnt Land Atk Msl Def Elevated Netted Sensor-JLENS*

	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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
Orbit 1 Delivery to Test									#																			
Milestone (MS) C													#															
Orbit 2 Delivery to Test										#																		
First Unit Equipped (FUE)																	#											
Subsystem/System (Ss/Sys) Level Integration							#	#	#	#																		
Developmental Testing (DT)									#	#	#	#	#	#	#	#	#	#	#									
Force Development Experiment (FDE)-Operational Testing (OT)											#																	
Limited User Test (LUT) - OT												#																
Force Development Test (FDT)- OT																	#											
Initial Operational Test (IOT)																	#	#										

Exhibit R-4A, PB 2011 Army **RDT&E Schedule Details**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0102419A: *Aerostat Joint Project Office*	**PROJECT** E55: *Jnt Land Atk Msl Def Elevated Netted Sensor-JLENS*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Orbit 1 Delivery to Test	1	2011	1	2011
Milestone (MS) C	1	2012	1	2012
Orbit 2 Delivery to Test	2	2011	2	2011
First Unit Equipped (FUE)	1	2013	1	2013
Subsystem/System (Ss/Sys) Level Integration	3	2010	2	2011
Developmental Testing (DT)	1	2011	3	2013
Force Development Experiment (FDE)- Operational Testing (OT)	3	2011	3	2011
Limited User Test (LUT) - OT	4	2011	4	2011
Force Development Test (FDT)- OT	1	2013	1	2013
Initial Operational Test (IOT)	1	2013	2	2013

Exhibit R-2, PB 2011 Army **RDT&E Budget Item Justification**	**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203740A: *Maneuver Control System*

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	Base FY 2011 Estimate	OCO FY 2011 Estimate	Total FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	36.072	21.283	25.540	0.000	25.540	13.314	13.821	8.194	5.144	Continuing	Continuing
484: *MANEUVER CONTROL SYSTEM (MCS)*	36.072	21.283	25.540	0.000	25.540	13.314	13.821	8.194	5.144	Continuing	Continuing

A. Mission Description and Budget Item Justification

Tactical Battle Command (TBC) is a suite of products and services that provide commanders and staffs executive decision making capability in a collaborative environment, planning tools, and common operational picture management and other maneuver functional tools. TBC satisfies requirements and capabilities identified in the MCS GE ORD and MCS 6.4 CPD which includes Army migration to DoD net-centric environment. The overarching capability includes a user-defined Common Operational Picture (COP) with integrated Command and Control (C2) and Situational Awareness (SA), map-centric collaboration, Army Battle Command System (ABCS) and other enabling system interoperability, data management, and enterprise services. The suite of products include Command Post of the Future (CPOF), Battle Command Common Services (BCCS) that provides the consolidate server and services infrastructure for systems supporting Army Battle Command from Battalion to Army Component Command, Maneuver Control System (MCS), Battalion and Above Joint Convergence with the Marine Corps, and Tactical Web Portal for Knowledge management. TBC products and services are compliant with the joint technical architecture.FY11 funding will provide for the continuing development of the products and services that will satisfy the Tactical Battle Command capability requirements, while migrating to a service oriented architecture supporting the Battle Command Essential Capability Set 13-14. Funding also provides for the continued development of Battle Command Common Services (BCCS) enabling infrastructure for Tactical Battle Command. FY11 funding will also be utilized for development and integration efforts of the third generation of CPOF (CPOF 3G), to allow for enhanced scalability and disconnected operations. This funding also allows for the integration efforts of the Personalized Assistant that Learns (PAL).

Exhibit R-2, PB 2011 Army **RDT&E Budget Item Justification**	**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203740A: *Maneuver Control System*

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	37.028	21.394	14.695	0.000	14.695
Current President's Budget	36.072	21.283	25.540	0.000	25.540
Total Adjustments	-0.956	-0.111	10.845	0.000	10.845
• Congressional General Reductions		-0.111			
• Congressional Directed Reductions					
• Congressional Rescissions		0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers					
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-0.956	0.000			
• Adjustments to Budget Years	0.000	0.000	10.845	0.000	10.845

Change Summary Explanation

Change Summary Explanation: Funding - FY11: $10.8 million was increased in order to complete development and integration efforts of CPOF 3G into the Tactical Battle Command baseline. This will extend scalability and collaboration capabilities, and to be effective in operational environments where intermittent network connectivity is available. The increase in funding also allows for the integration of the Personalized Assistant that Learns (PAL).

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**											**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*				**R-1 ITEM NOMENCLATURE** PE 0203740A: *Maneuver Control System*				**PROJECT** 484: *MANEUVER CONTROL SYSTEM (MCS)*			
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**Base FY 2011 Estimate**	**OCO FY 2011 Estimate**	**Total FY 2011 Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
484: *MANEUVER CONTROL SYSTEM (MCS)*	36.072	21.283	25.540	0.000	25.540	13.314	13.821	8.194	5.144	Continuing	Continuing
Quantity of RD&TE Articles											

A. Mission Description and Budget Item Justification

Tactical Battle Command (TBC) is a suite of products and services that provide commanders and staffs executive decision making capability in a collaborative environment, planning tools, and common operational picture management and other maneuver functional tools. TBC satisfies requirements and capabilities identified in the MCS GE ORD and MCS 6.4 CPD which includes Army migration to DoD net-centric environment. The overarching capability includes a user-defined Common Operational Picture (COP) with integrated Command and Control (C2) and Situational Awareness (SA), map-centric collaboration, Army Battle Command System (ABCS) and other enabling system interoperability, data management, and enterprise services. The suite of products include Command Post of the Future (CPOF), Battle Command Common Services (BCCS) that provides the consolidate server and services infrastructure for systems supporting Army Battle Command from Battalion to Army Component Command, Maneuver Control System (MCS), Battalion and Above Joint Convergence with the Marine Corps, and Tactical Web Portal for Knowledge management. TBC products and services are compliant with the joint technical architecture.FY11 funding will provide for the continuing development of the products and services that will satisfy the Tactical Battle Command capability requirements, while migrating to a service oriented architecture supporting the Battle Command Essential Capability Set 13-14. Funding also provides for the continued development of Battle Command Common Services (BCCS) enabling infrastructure for Tactical Battle Command. FY11 funding will also be utilized for development and integration efforts of the third generation of CPOF (CPOF 3G), to allow for enhanced scalability and disconnected operations. This funding also allows for the integration efforts of the Personalized Assistant that Learns (PAL).

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	**FY 2010**	**Base FY 2011**	**OCO FY 2011**	**Total FY 2011**
Program #1	4.228	0.642	0.000	0.000	0.000
MCS software development to enhance Interoperability, Usability, and Functionality					
FY 2009 Accomplishments: FY 2009					

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203740A: *Maneuver Control System*	**PROJECT** 484: *MANEUVER CONTROL SYSTEM (MCS)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2010 Plans: FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #2 Joint Convergence Engineering and Development *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	7.383	3.159	0.000	0.000	0.000
Program #3 CPOF Development	17.613	12.667	22.391	0.000	22.391

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203740A: *Maneuver Control System*	**PROJECT** 484: *MANEUVER CONTROL SYSTEM (MCS)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2009 Accomplishments: FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #4 Battle Command Common Services Development *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	6.848	4.219	3.149	0.000	3.149
Program #5	0.000	0.596	0.000	0.000	0.000

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203740A: *Maneuver Control System*	**PROJECT** 484: *MANEUVER CONTROL SYSTEM (MCS)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Small Business Innovative Research/Small Business Technology Transfer Programs					
FY 2009 Accomplishments: FY 2009					
FY 2010 Plans: FY 2010					
Base FY 2011 Plans: FY 2011 Base					
OCO FY 2011 Plans: FY 2011 OCO					
Accomplishments/Planned Programs Subtotals	36.072	21.283	25.540	0.000	25.540

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• Ord. #1: *BA9320 - Maneuver Control System (MCS)*	119.146	82.401	96.162	0.000	96.162	71.695	69.451	34.356	16.969	Continuing	Continuing
• Ord. #2: *BS9710 - MCS Spares*	3.502	1.545	1.591	0.000	1.591	1.638	1.675	0.773	0.585	Continuing	Continuing

D. Acquisition Strategy

In accordance with the TRADOC requirements document approved in 2008, entitled Battle Command Essential Capability, software capability will be developed in 2-year increments as capability sets designed to Collaborate, Collapse and Converge Battle Command products. The product development funded under this R-Form is an integral part of the Army Battle Command System (ABCS), a system of systems, under a strategy designed to optimize opportunity for improved interoperability among the systems, to capture the benefits of competition where possible and to ensure the rapid integration of new capability into warfighter systems. This strategy is designed to reduce the physical footprint, logistics support requirements and increase operational efficiency.

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203740A: *Maneuver Control System*	**PROJECT** 484: *MANEUVER CONTROL SYSTEM (MCS)*

E. Performance Metrics

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

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203740A: *Maneuver Control System*	**PROJECT** 484: *MANEUVER CONTROL SYSTEM (MCS)*

Product Development ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
MCS Software Development	C/CPAF	Lockheed Martin Corp. Tinton Falls, NJ	190.787	0.000		0.000		0.000		0.000	0	Continuing	178.467
Misc Contracts	C/Various	Various Location could not be determined.	20.819	0.725		0.514		0.000		0.514	Continuing	Continuing	0
CPOF Development	C	DARPA Location could not be determined.	20.737	0.000		0.000		0.000		0.000	0	Continuing	0
CPOF Development - 2	C	General Dynamics Location could not be determined.	24.757	7.666		18.637		0.000		18.637	Continuing	Continuing	0
Software Development & Technical Support	C	CECOM Software Engineering Center NJ	37.775	3.579		2.519		0.000		2.519	Continuing	Continuing	0
MCS, Joint Convergence, and BCCS System Engineering & Development	C/CPAF	Lockheed Martin Corp. Tinton Falls, NJ	30.453	3.007		0.000		0.000		0.000	Continuing	Continuing	0
ABCS SoS Contract	C/TBD	TBD Location could not be determined.	0.000	1.062		1.200		0.000		1.200	Continuing	Continuing	0
Technical Support	C	PM Battle Command NJ	21.312	0.631		0.624		0.000		0.624	Continuing	Continuing	0
PSE H/W & S/W	C/Various	Various	2.775	0.000		0.000		0.000		0.000	Continuing	2.775	0

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203740A: *Maneuver Control System*	**PROJECT** 484: *MANEUVER CONTROL SYSTEM (MCS)*

Product Development ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
		Location could not be determined.											
MITRE System Engineering	C	MITRE Corp. Eatontown, NJ	12.533	0.000		0.000		0.000		0.000	Continuing	12.533	0
ABCS SE&I	C	PEO C3T NJ	1.830	0.000		0.000		0.000		0.000	0	1.830	0
		Subtotal	363.778	16.670		23.494		0.000		23.494			178.467

Remarks

Support ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Misc Support	C	PM Battle Command NJ	5.394	0.576		0.547		0.000		0.547	Continuing	Continuing	0
Misc Contracts	C/Various	Various Location could not be determined.	3.003	0.409		0.364		0.000		0.364	Continuing	Continuing	0
		Subtotal	8.397	0.985		0.911		0.000		0.911			0.000

Remarks

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203740A: *Maneuver Control System*	**PROJECT** 484: *MANEUVER CONTROL SYSTEM (MCS)*

Test and Evaluation ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
OGA	C	Various Location could not be determined.	4.802	0.206		0.195		0.000		0.195	Continuing	Continuing	0
Misc Contracts	C/Various	Various Location could not be determined.	5.673	0.196		0.186		0.000		0.186	Continuing	Continuing	0
Test Planning/Conduct	C	Various Location could not be determined.	22.297	2.139		0.000		0.000		0.000	Continuing	Continuing	0
		Subtotal	32.772	2.541		0.381		0.000		0.381			0.000

Remarks

Management Services ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Program Office Mgmt	C	PM Battle Command NJ	5.482	1.087		0.754		0.000		0.754	Continuing	Continuing	0
		Subtotal	5.482	1.087		0.754		0.000		0.754			0.000

Remarks

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203740A: *Maneuver Control System*	**PROJECT** 484: *MANEUVER CONTROL SYSTEM (MCS)*

	FY 2010		**Base FY 2011**		**OCO FY 2011**		**Total FY 2011**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Project Cost Totals	21.283		25.540		0.000		25.540	Continuing	Continuing	Continuing

Remarks

Exhibit R-4, PB 2011 Army **RDT&E Schedule Profile**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203740A: *Maneuver Control System*	**PROJECT** 484: *MANEUVER CONTROL SYSTEM (MCS)*

	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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
Battle Command Capability Set 13-14 Software Development						#	#	#	#	#	#	#	#	#														
Battle Command Capability Set 15-16 Software Development														#	#	#	#	#	#	#	#	#						

Exhibit R-4A, PB 2011 Army **RDT&E Schedule Details**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203740A: *Maneuver Control System*	**PROJECT** 484: *MANEUVER CONTROL SYSTEM (MCS)*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Battle Command Capability Set 13-14 Software Development	2	2010	2	2012
Battle Command Capability Set 15-16 Software Development	2	2012	2	2014

Exhibit R-2, PB 2011 Army **RDT&E Budget Item Justification**	**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203752A: *Aircraft Engine Component Improvement Program*

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	Base FY 2011 Estimate	OCO FY 2011 Estimate	Total FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	0.326	0.788	0.710	0.000	0.710	0.852	0.900	0.428	0.333	0	5.047
106: *A/C COMPON IMPROV PROG*	0.326	0.788	0.710	0.000	0.710	0.852	0.900	0.428	0.333	Continuing	Continuing

A. Mission Description and Budget Item Justification

Aircraft Engine Component Improvement Program (CIP) develops, tests, and qualifies improvements to aircraft engine components to correct service-revealed deficiencies, improve flight safety, enhance readiness and reduce operating and support (O&S) costs. In addition, CIP provides the test vehicles for the testing and qualification efforts required as a part of the Army's Flight Safety Parts program. CIP is included in the RDTE budget vice procurement appropriations in accordance with congressional direction. The majority of CIP funding has been reallocated to PE 273744 beginning in FY07. Non-program specific auxiliary power unit (APU) safety and readiness issue will continue to be addressed under this PE.

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	0.331	0.792	0.714	0.000	0.714
Current President's Budget	0.326	0.788	0.710	0.000	0.710
Total Adjustments	-0.005	-0.004	-0.004	0.000	-0.004
• Congressional General Reductions		0.000			
• Congressional Directed Reductions					
• Congressional Rescissions		0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers					
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Adjustments to Budget Years	-0.005	-0.004	-0.004	0.000	-0.004

Change Summary Explanation

Funds realigned to higher priority requirements.

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**											**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*				**R-1 ITEM NOMENCLATURE** PE 0203752A: *Aircraft Engine Component Improvement Program*				**PROJECT** 106: *A/C COMPON IMPROV PROG*			
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**Base FY 2011 Estimate**	**OCO FY 2011 Estimate**	**Total FY 2011 Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
106: *A/C COMPON IMPROV PROG*	0.326	0.788	0.710	0.000	0.710	0.852	0.900	0.428	0.333	Continuing	Continuing
Quantity of RD&TE Articles											

Note

Not applicable for this item.

A. Mission Description and Budget Item Justification

Aircraft Engine Component Improvement Program (CIP) develops, tests, and qualifies improvements to aircraft engine components to correct service-revealed deficiencies, improve flight safety, enhance readiness and reduce operating and support (O&S) costs. In addition, CIP provides the test vehicles for the testing and qualification efforts required as a part of the Army's Flight Safety Parts program. CIP is included in the RDTE budget vice procurement appropriations in accordance with congressional direction. The majority of CIP funding has been reallocated to PE 273744 beginning in FY07. Non-program specific auxiliary power unit (APU) safety and readiness issue will continue to be addressed under this PE.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	**FY 2010**	**Base FY 2011**	**OCO FY 2011**	**Total FY 2011**
Program #1	0.046	0.000	0.000	0.000	0.000
T700 Engine: As of FY07, majority of funding for this program has been reallocated to PE 273744. Previously, this program addressed flight safety and readiness problems that arise in the field by providing timely engineering support, continued the development of the T700-GE-701D, provided engineering support of fielded engines to enhance war fighting capability and improve durability and reliability while reducing cost of ownership. FY09 effort provided minimal support to resolve Flight Safety and Engineering issues.					
FY 2009 Accomplishments: FY 2009					
FY 2010 Plans: FY 2010					

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203752A: *Aircraft Engine Component Improvement Program*	**PROJECT** 106: *A/C COMPON IMPROV PROG*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Base FY 2011 Plans: FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #2 T700 Engine - FY10: Start spin pit testing effort for the T700-GE-701D engine to address overspeed safety concerns and reduce O&S costs. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	0.000	0.303	0.000	0.000	0.000
Program #3 T700 Engine - FY11 Base: Continue spin pit testing for the T700-GE-701D engine to address safety concerns. *FY 2009 Accomplishments:* FY 2009	0.000	0.000	0.275	0.000	0.275

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203752A: *Aircraft Engine Component Improvement Program*	**PROJECT** 106: *A/C COMPON IMPROV PROG*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2010 Plans: FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #4 T55 Engine: Provide timely support to field users, applying engineering effort to resolve unanticipated flight safety problems revealed in the field. Continue the engineering support of fielded engines to enhance war-fighting capability, improve durability & reliability while reducing CH-47 engine cost of ownership. FY09: Funds used to support program management; this covers CIP reviews, Engineering Change Proposal (ECP) preparation and other management activities related to CIP. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	0.026	0.000	0.000	0.000	0.000
Program #5	0.000	0.303	0.000	0.000	0.000

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203752A: *Aircraft Engine Component Improvement Program*	**PROJECT** 106: *A/C COMPON IMPROV PROG*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
T55 Engine - FY10: Complete the qualification of the 1553 Databus Engine Control Unit (ECU) for incorporation into the CH-47F aircraft. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #6 T55 Engine - FY11: Start efforts to address Hydromechanical Assembly (HMA) water intrusion and implementation of HMA potentiometer technology to improve reliability and reduce O&S costs. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base	0.000	0.000	0.275	0.000	0.275

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203752A: *Aircraft Engine Component Improvement Program*	**PROJECT** 106: *A/C COMPON IMPROV PROG*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
OCO FY 2011 Plans: FY 2011 OCO					
Program #7 GTCP36 Auxiliary Power Unit (APU): Provide timely responses to technical problems arising in the field during operational use. Review operational and repair reports, perform engineering analysis of failed engines and equipment. Perform investigation and testing as required to isolate/verify reported field problems and service revealed deficiencies (SRDs). FY09 addressed service revealed difficulties affecting safe operation of US Army GTCP 36 APUs. Began efforts to formulate correlation factors necessary to publish life limits of turbine and compressor wheels for US Army GTCP36 APUs. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	0.057	0.000	0.000	0.000	0.000
Program #8 GTCP36 APU - FY10: Continue to address service revealed difficulties affecting safe operation of US Army GTCP 36 APUs. Continue efforts to formulate correlation factors necessary to publish life limits of turbine and compressor wheels for US Army GTCP36 APUs.	0.000	0.025	0.000	0.000	0.000

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203752A: *Aircraft Engine Component Improvement Program*	**PROJECT** 106: *A/C COMPON IMPROV PROG*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2009 Accomplishments: FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #9 GTCP36 APU - FY11 Base: Continue to formulate correlation factors to publish life limits and address service revealed deficiencies that affect safe operation of the GTCP 36 APU. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	0.000	0.000	0.025	0.000	0.025
Program #10	0.100	0.000	0.000	0.000	0.000

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203752A: *Aircraft Engine Component Improvement Program*	**PROJECT** 106: *A/C COMPON IMPROV PROG*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
T62 APU: Provide timely responses to technical problems arising in the field during operational use. Review operational and repair reports, perform engineering analysis of failed engines and equipment. Perform investigation and testing as required to isolate/verify reported field problems and service revealed deficiencies (SRDs) that affect safe operation of the T62 APU. FY09 finalized the design and assembly of an improved flex fuel manifold to improve reliability and reduce O&S costs. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #11 T62 APU - FY10: Start the qualification testing on the flex fuel manifolds to ensure airworthiness, prepare drawings for T62-T-2B Fuel Pump/Fuel Control assembly, address SRDs affecting T62 APUs. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010	0.000	0.035	0.000	0.000	0.000

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203752A: *Aircraft Engine Component Improvement Program*	**PROJECT** 106: *A/C COMPON IMPROV PROG*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Base FY 2011 Plans: FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #12 T62 APU - FY11 Base: Finish the qualification of the Flex Fuel Manifolds and provide a class I Engineering Change Proposal for incorporation, address service revealed deficiencies affecting the T62 APU. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	0.000	0.000	0.025	0.000	0.025
Program #13 UAV Shadow Engine Investigation at U.S. Army Research Laboratory (ARL) Cleveland: US Army Vehicle Technology Directorate (VTD) at ARL Cleveland. Provide research to support airworthiness, reliability and performance improvements of the Unmanned Aerial Vehicle (UAV) shadow engine. Investigate and research the technology challenges (i.e. engine performance, engine durability, engine life, and engine modifications) for reliable engine operation using JP-8 fuel and readily available MIL-spec lubricants. FY09: Began work on ARL	0.052	0.000	0.000	0.000	0.000

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203752A: *Aircraft Engine Component Improvement Program*	**PROJECT** 106: *A/C COMPON IMPROV PROG*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
engine test cell. Investigated and researched improved oil pump and engine bearings to increase engine life and reduce engine failure due to lubrication restriction. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #14 UAV Shadow Engine Investigation at ARL Cleveland - FY10: Complete and qualify ARL engine test cell, continue research of improved oil pump and engine bearings. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base	0.000	0.079	0.000	0.000	0.000

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203752A: *Aircraft Engine Component Improvement Program*	**PROJECT** 106: *A/C COMPON IMPROV PROG*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
OCO FY 2011 Plans: FY 2011 OCO					
Program #15 UAV Shadow Engine Investigation at ARL Cleveland - FY11 Base: Start research on thermal barrier coatings for rotor to improve engine performance, durability and reduce thermal affects due to combustion. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	0.000	0.000	0.067	0.000	0.067
Program #16 IN HOUSE - FY09: Provided in-house support for the CIP engineers. Provided contracting support for CIP contracts. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010	0.045	0.000	0.000	0.000	0.000

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203752A: *Aircraft Engine Component Improvement Program*	**PROJECT** 106: *A/C COMPON IMPROV PROG*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Base FY 2011 Plans: FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #17 IN HOUSE - FY10: Provide in-house support for the CIP engineers. Provide contracting support for CIP contracts. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	0.000	0.025	0.000	0.000	0.000
Program #18 IN HOUSE - FY11 Base: Continue to provide in-house support for the CIP engineers. Continue to provide contracting support for CIP contracts. *FY 2009 Accomplishments:* FY 2009	0.000	0.000	0.043	0.000	0.043

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203752A: *Aircraft Engine Component Improvement Program*	**PROJECT** 106: *A/C COMPON IMPROV PROG*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2010 Plans: FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #19 FY10: Small Business Innovative Research/Small Business Technology Transfer Programs *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	0.000	0.018	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	0.326	0.788	0.710	0.000	0.710

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203752A: *Aircraft Engine Component Improvement Program*	**PROJECT** 106: *A/C COMPON IMPROV PROG*

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

Improved designs will be implemented via Engineering Change Proposal (ECP) and follow-on procurement or modification to a production contract to introduce the improved hardware.

E. Performance Metrics

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

Exhibit R-2, PB 2011 Army **RDT&E Budget Item Justification**	**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203758A: *Digitization*

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	Base FY 2011 Estimate	OCO FY 2011 Estimate	Total FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	7.835	10.636	6.329	0.000	6.329	8.328	9.919	9.181	9.285	Continuing	Continuing
374: *HOR BATTLEFLD DIGITIZN*	7.835	10.636	6.329	0.000	6.329	8.328	9.919	9.181	9.285	Continuing	Continuing

A. Mission Description and Budget Item Justification

Horizontal Battlefield Digitization is a strategy that allows warfighters, from the individual soldier and platform to echelons above corps, to share critical situation awareness (SA) and command and control (C2) information. It conducts analysis and evaluation of new information technologies, concepts, and applications of integrated management activities to meet the dynamic Army acquisition technology requirements. The strategy applies digital information technologies to acquire exchange and employ data throughout the operational environment, providing a clear and accurate common operational picture for leaders at al levels. This timely sharing of information significantly improves the ability of commanders and leaders to quickly make decisions, synchronize forces and fires, and increase the operational tempo. Digitization is a means of realizing a fully integrated C2 capability to the platoon level, including interoperability links with joint and multi-national forces. The major efforts included in the program element are: 1) Integration and synchronization of the Army's interoperability efforts, coordination of interoperability efforts between joint and multi-national forces, and the synchronization of combat material and training efforts to develop Army information technologies; 2) Systems engineering and integration of hardware and software interfaces between and across the warfighting functions and across multiple Program Executive Offices, providing System of System (SOS) capabilities that satisfy warfighter requirements and enable the execution of mission operations by providing one Common Operational Picture (COP)/Common Tactical Picture. 3) Oversee and support synchronization of LandWarNet Battle Command capabilities and ensure interoperability across the current and future force. 4) Support fielding of integrated systems to Active and Reserve Components (USARNG and USAR) in accordance with Army Force Generation (ARFORGEN). 5) Supports integration and enhancements to Army Equipping Enterprise System (AE2S) software for the single program language, single platform system that incorporates Force Development Investment Information System (FDIIS), Continuous Early Validation (CEaVa), COP and Army Flow Model(AFM).

Exhibit R-2, PB 2011 Army **RDT&E Budget Item Justification**	**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203758A: *Digitization*

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	9.502	10.692	7.074	0.000	7.074
Current President's Budget	7.835	10.636	6.329	0.000	6.329
Total Adjustments	-1.667	-0.056	-0.745	0.000	-0.745
• Congressional General Reductions		0.000			
• Congressional Directed Reductions					
• Congressional Rescissions		0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers					
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			

Change Summary Explanation

Change Summary Explanation: Funding - FY 09: Funding decreased by 1400 to support FUZE Technology.FY 10: Funding increased to support AE2S in Horizontal Battlefield Digitization.FY 11: OSD identified decrement based on DFAS disbursement reports.

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**											**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*				**R-1 ITEM NOMENCLATURE** PE 0203758A: *Digitization*				**PROJECT** 374: *HOR BATTLEFLD DIGITIZN*			
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**Base FY 2011 Estimate**	**OCO FY 2011 Estimate**	**Total FY 2011 Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
374: *HOR BATTLEFLD DIGITIZN*	7.835	10.636	6.329	0.000	6.329	8.328	9.919	9.181	9.285	Continuing	Continuing
Quantity of RD&TE Articles											

A. Mission Description and Budget Item Justification

Horizontal Battlefield Digitization is a strategy that allows warfighters, from the individual soldier and platform to echelons above corps, to share critical situation awareness (SA) and command and control (C2) information. It conducts analysis and evaluation of new information technologies, concepts, and applications of integrated management activities to meet the dynamic Army acquisition technology requirements. The strategy applies digital information technologies to acquire exchange and employ data throughout the operational environment, providing a clear and accurate common operational picture for leaders at al levels. This timely sharing of information significantly improves the ability of commanders and leaders to quickly make decisions, synchronize forces and fires, and increase the operational tempo. Digitization is a means of realizing a fully integrated C2 capability to the platoon level, including interoperability links with joint and multi-national forces. The major efforts included in the program element are: 1) Integration and synchronization of the Army's interoperability efforts, coordination of interoperability efforts between joint and multi-national forces, and the synchronization of combat material and training efforts to develop Army information technologies; 2) Systems engineering and integration of hardware and software interfaces between and across the warfighting functions and across multiple Program Executive Offices, providing System of System (SOS) capabilities that satisfy warfighter requirements and enable the execution of mission operations by providing one Common Operational Picture (COP)/Common Tactical Picture. 3) Oversee and support synchronization of LandWarNet Battle Command capabilities and ensure interoperability across the current and future force. 4) Support fielding of integrated systems to Active and Reserve Components (USARNG and USAR) in accordance with Army Force Generation (ARFORGEN). 5) Supports integration and enhancements to Army Equipping Enterprise System (AE2S) software for the single program language, single platform system that incorporates Force Development Investment Information System (FDIIS), Continuous Early Validation (CEaVa), COP and Army Flow Model(AFM).

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	**FY 2010**	**Base FY 2011**	**OCO FY 2011**	**Total FY 2011**
Program #1	1.694	1.987	1.352	0.000	1.352
Conduct technical interoperability assessments, perform interoperability/integration analyses, analyze networked weapon system and Situational Awareness (SA), Command and Control (C2), Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) systems compatibility, and assess technical and operational test plans, activities, and results.					

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2009 Accomplishments: FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #2 Integrate and synchronize interoperability across SA/C2/C4ISR programs in support of acquisition synchronization, testing, training, and fielding System of Systems capabilities to the Army Force. Continue application across current and future force. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	1.910	2.194	1.941	0.000	1.941

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #3	1.304	1.317	0.842	0.000	0.842
Support digitization technical integration with Active and Reserve Components both CONUS and OCONUS. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #4	0.000	2.000	1.000	0.000	1.000
Procures AE2S software integration and enhancements for the single program language, single platform system that incorporates FDIIS, CEaVa, COP and AFM *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base					

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203758A: *Digitization*	**PROJECT** 374: *HOR BATTLEFLD DIGITIZN*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
OCO FY 2011 Plans: FY 2011 OCO					
Program #5 Support Joint and Coalition interoperability programs to improve integration and interoperability in accordance with Army Software Blocking Policy, Joint Planning Guidance, Coalition Specifications, Joint Capabilities Integration and Development System (JCIDS) requirements. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	0.600	0.810	0.538	0.000	0.538
Program #6 Manage cross-platform software and hardware development, testing, training, and fielding to ensure the coordinated interoperability for each Army Force unit rotation. *FY 2009 Accomplishments:* FY 2009	0.928	1.030	0.656	0.000	0.656

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203758A: *Digitization*	**PROJECT** 374: *HOR BATTLEFLD DIGITIZN*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2010 Plans: FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #7 Apply university academic and research resources to the integration of Army complex modeling, simulation, and training in support of modernized forces. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	1.399	1.000	0.000	0.000	0.000
Program #8 Small Business Innovative Research/Small Business Technology Transfer Programs	0.000	0.298	0.000	0.000	0.000

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203758A: *Digitization*	**PROJECT** 374: *HOR BATTLEFLD DIGITIZN*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2009 Accomplishments: FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Accomplishments/Planned Programs Subtotals	7.835	10.636	6.329	0.000	6.329

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

To validate/demonstrate concepts and requirements, near term efforts are focused on developing a seamless battlefield software architecture and digitized hardware systems to include: evaluation of the horizontal battlefield digitization resources for systems, acquisition, integration, and testing of digital capability across multiple command and control, communications, sensors, and weapons platforms. The result will be an integrated, synchronize capability designed to meet the near-term requirements of the Stryker Brigade Combat Teams and the Army Future Force. Also supports the Army's role in joint and multi-national digitization programs, battle command efforts and Joint Battlefield Situational Awareness.

E. Performance Metrics

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

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203758A: *Digitization*	**PROJECT** 374: *HOR BATTLEFLD DIGITIZN*

Product Development ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
System/Software Integration	C	Various Location could not be determined.	112.271	4.486		2.656		0.000		2.656	Continuing	Continuing	0
International Digitization	C	Various Location could not be determined.	11.001	0.000		0.000		0.000		0.000	0	11.001	0
Technical Analysis	C	MITRE McLean, VA	12.956	2.194		1.941		0.000		1.941	Continuing	Continuing	0
Other Government Agencies	C	Various Location could not be determined.	6.522	0.000		0.000		0.000		0.000	0	Continuing	0
Single Integrated Ground Picture	C	Nothing entered for Activity and Location. Location could not be determined.	7.281	0.000		0.000		0.000		0.000	0	0	0
		Subtotal	150.031	6.680		4.597		0.000		4.597			0.000

Remarks

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203758A: *Digitization*	**PROJECT** 374: *HOR BATTLEFLD DIGITIZN*

Support ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Directorate of Integration Office Operations	C	Pentagon Arlington, VA	14.422	0.000		0.000		0.000		0.000	0	14.422	0
System Eng. & Field Integration, Internet and graphics support.	C	Quantum Res International Pentagon & Arlington, VA, Ft. Monroe, VA, & Ft. H	10.058	0.956		0.732		0.000		0.732	0	Continuing	0
Software Integration and enhancements	C	SAIC Pentagon & Ft. Belvoir	0.000	2.000		1.000		0.000		1.000	0	Continuing	0
		Subtotal	24.480	2.956		1.732		0.000		1.732	0.000		0.000

Remarks

Test and Evaluation ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Other Govt. Agencies	C	Various Location could not be determined.	5.062	0.000		0.000		0.000		0.000	0	5.062	0
University XXI Initiatives	C	Univ. of Texas and Texas A&M	19.472	1.000		0.000		0.000		0.000	0	Continuing	0

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203758A: *Digitization*	**PROJECT** 374: *HOR BATTLEFLD DIGITIZN*

Test and Evaluation ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
		Location could not be determined.											
Studies/Analyses	C	Pentagon Arlington, VA	2.116	0.000		0.000		0.000		0.000	0	2.116	0
DISM Battalion Test	C	Nothing entered for Activity and Location. Location could not be determined.	1.000	0.000		0.000		0.000		0.000	0	1.000	0
		Subtotal	27.650	1.000		0.000		0.000		0.000	0.000		0.000

Remarks

Continue to fund University XXI efforts in FY10 as a stop gap in anticipation for congressional mark in FY11.

	FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	10.636		6.329		0.000		6.329	Continuing	Continuing	Continuing

Remarks

Exhibit R-2, PB 2011 Army **RDT&E Budget Item Justification**	**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0603778A: *MLRS PRODUCT IMPROVEMENT PROGRAM*

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	Base FY 2011 Estimate	OCO FY 2011 Estimate	Total FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	53.954	27.549	51.619	0.000	51.619	54.018	41.331	49.617	49.013	Continuing	Continuing
090: *MLRS HIMARS*	3.656	1.987	3.367	0.000	3.367	6.360	6.195	6.304	6.406	Continuing	Continuing
093: *Multi-Launch Rocket System (MLRS)*	3.981	4.514	3.691	0.000	3.691	1.447	0.962	0.978	0.994	Continuing	Continuing
784: *GUIDED MLRS*	46.317	8.911	2.582	0.000	2.582	2.634	2.697	11.156	12.041	Continuing	Continuing
78G: *GMLRS ALTERNATIVE WARHEADS*	0.000	12.137	41.979	0.000	41.979	43.577	31.477	31.179	29.572	Continuing	Continuing

A. Mission Description and Budget Item Justification

The M142 High Mobility Artillery Rocket System (HIMARS) fully supports more deployable, affordable and lethal, Brigade Combat Teams, Fires Brigade, Modular Forces, and Joint Expeditionary Forces. The HIMARS launcher is a C-130 transportable, wheeled, indirect fire, rocket/missile launcher capable of firing all rockets and missiles in the current and future Multiple Launch Rocket System (MLRS) Family of Munitions (MFOM) and Army Tactical Missile System (ATACMS) Family of Munitions. The HIMARS launcher has extensive commonality with the MLRS M270A1 tracked launcher and consists of a Fire Control System, a carrier (FMTV XM1140 automotive chassis) and a launcher-loader module that performs all operations necessary to complete a fire mission. The MFOM and AFOM are a family of rockets and missiles capable of attacking a variety of tactical and operational targets, providing the requisite range and lethality to support maneuver commanders out to 300 kilometers. HIMARS, when firing ATACMS and GMLRS, is capable of the precise attack of targets in both open and complex/urban terrain, with low collateral damage. HIMARS satisfies the Army's digitization requirements by interfacing with the Advanced Field Artillery Tactical Data System fire support command and control system. HIMARS is interoperable with existing MLRS units in terms of communications and reloading capabilities. HIMARS is an all-weather, day/night, indirect fire system used in support of light, early and forced entry expeditionary operations using a more deployable, lethal, survivable and tactically mobile long range artillery system. The HIMARS is deployable worldwide and will operate in a wide range of climatic conditions. It is certified by the Air Force for fixed-wing air transport in a fully combat loaded, combat ready configuration. HIMARS, as part of the Fires Brigade, will provide fires that shape, shield and isolate the battle space. Using both precision GMLRS and ATACMS Unitary munitions, HIMARS provides close support fires for Troops in Contact (TIC) in both open and urban terrain. The HIMARS provides Joint Expeditionary Forces a flexible and lethal rocket/missile capability that can be employed by platoon, battery, or battalion, each with the ability to operate independently for a limited period. HIMARS units can be quickly tailored for centralized or decentralized execution throughout the depth and breadth of the battle space in support of distributed forces. The program also includes training devices for tactical training, classroom training, and handling exercises. HIMARS has been deployed to both Operation Iraqi Freedom and Operation Enduring Freedom with great success. HIMARS is also a key component of the Marine Corps Future Fighting Effort.The M270A1 upgraded MLRS launcher is mounted on a Bradley Fighting Vehicle chassis, and is capable of firing the MFOM and the AFOM, including precision munitions, to a range of 300KM. M270A1, as part of the fires brigade, will provide fires that shape, shield, and isolate the battlefield in open, urban, and complex terrain. Guided Multiple Launch Rocket Systems (GMLRS) munitions are the Army's

Exhibit R-2, PB 2011 Army **RDT&E Budget Item Justification**	**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0603778A: *MLRS PRODUCT IMPROVEMENT PROGRAM*

primary organic Joint Expeditionary, all-weather, all-terrain, 24/7, tactical range precision guided rockets employed by modular Fired Brigades supporting Brigade Combat Teams, Joint Special Operations Force and Joint Force combatant commanders. GMLRS are the primary munitions for units fielded with the HIMARS and MLRS M270A1 rocket and missile launcher platforms. GMLRS is a major upgrade/replacement for the aging M26A1/A2 rocket inventory that integrates a guidance and control package and an improved rocket motor achieving greater range and precision accuracy requiring fewer rockets to defeat targets than current artillery rockets, thereby reducing the logistics burden. There are two variants of GMLRS; GMLRS with Dual Purpose Improved Conventional Munitions (DPICM) and GMLRS with a 200-pound class high explosive warhead (Unitary). The GMLRS Unitary is a modification to the GMLRS DPICM integrating a multi-mode fuze and high explosive warhead making it an all-weather, low collateral damage, precision rocket. This expands the MLRS target set into urban and complex environments, adds point targets, and supports TIC. The alternative warhead will replace the DPICM with similar lethal capability that reduces unexploded ordnance and increases warhead IM compliance.

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	59.552	27.693	9.694	0.000	9.694
Current President's Budget	53.954	27.549	51.619	0.000	51.619
Total Adjustments	-5.598	-0.144	41.925	0.000	41.925
• Congressional General Reductions		-0.144			
• Congressional Directed Reductions					
• Congressional Rescissions		0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers					
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			

Change Summary Explanation

Change Summary Explanation: Funding - FY 2011: Funds increased to support GMLRS Alternative Warhead.

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**											**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*				**R-1 ITEM NOMENCLATURE** PE 0603778A: *MLRS PRODUCT IMPROVEMENT PROGRAM*				**PROJECT** 090: *MLRS HIMARS*			
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**Base FY 2011 Estimate**	**OCO FY 2011 Estimate**	**Total FY 2011 Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
090: *MLRS HIMARS*	3.656	1.987	3.367	0.000	3.367	6.360	6.195	6.304	6.406	Continuing	Continuing
Quantity of RD&TE Articles											

A. Mission Description and Budget Item Justification

The M142 High Mobility Artillery Rocket System (HIMARS) fully supports more deployable, affordable, and lethal Brigade Combat Teams, Fires Brigade, Modular Forces and Joint Expeditionary Forces. It is a light weight, deployable system which provides long range precision strike capability in both early and forced entry scenarios. Mounted on a medium tactical wheeled vehicle chassis, HIMARS is transportable in a C-130 aircraft, and is self-loading and self-locating using Global Positioning System technology. It fires the full Multiple Launch Rocket System (MLRS) Family of Munitions and Army Tactical Missile System (ATACMS) Family of Munitions. Additionally a HIMARS battery requires significantly reduced airlift resources that are required to transport a battery of the tracked M270/M270A1 MLRS. HIMARS, as part of the Fires Brigade, provides fires that shape, shield and isolate the battle space. Using both Precision Guided Multiple Launch Rocket System and ATACMS Unitary munitions, HIMARS provides close support fires for Troops In Contact in both open and urban terrain. HIMARS has been deployed to both Operation Iraqi Freedom and Operation Enduring Freedom with great success. HIMARS is also a key component of the Marine Corps Future Fighting Effort.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	**FY 2010**	**Base FY 2011**	**OCO FY 2011**	**Total FY 2011**
Program #1	3.656	1.931	3.367	0.000	3.367
Continue system design and Production Qualification Testing, conduct Functional Configuration Audit, and develop Integrated Logistics Products; integrate and test Horizontal Technology Insertion (HTI) upgrades including Increased Crew Protection Cab, Enhanced Command and Control, Improved Initialization, Obsolescence Mitigation, Tactical Fire Control, Embedded Training Launcher Loader Module electric drive, Diagnostics/Prognostics, Alternate Coupling, Situational Awareness, Long Range Communication and future munition integration. Perform technical assessments, concept studies, cost reduction, risk reduction, field issue resolution and required documentation.					

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0603778A: *MLRS PRODUCT IMPROVEMENT PROGRAM*	**PROJECT** 090: *MLRS HIMARS*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2009 Accomplishments: FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #2 Small Business Innovative Research/Small Business Technology Transfer Programs *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	0.000	0.056	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	3.656	1.987	3.367	0.000	3.367

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0603778A: *MLRS PRODUCT IMPROVEMENT PROGRAM*	**PROJECT** 090: *MLRS HIMARS*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• Ord. #1: *HIMARS Launcher (C02901)*	227.509	208.416	211.517	0.000	211.517	31.737	20.265	7.095	7.216	0	713.755
• Ord. #2: *HIMARS Modifications (C67501)*	33.144	70.890	39.371	0.000	39.371	9.802	6.379	6.643	6.664	Continuing	Continuing
• Ord. #3: *HIMARS Modifications: Initial Spares (CA0289)*	1.053	1.801	1.856	0.000	1.856	1.891	1.925	1.958	1.991	Continuing	Continuing
• Ord. #4: *Initial Spares, HIMARS (CA0288)*	12.933	8.915	9.706	0.000	9.706	0.939	1.221	1.241	1.263	0	36.218

D. Acquisition Strategy

The HIMARS program is currently in Full Rate Production (FRP) and awarded the FRP-5 contract December 2009. HIMARS follow-on HTI efforts include the Increased Crew Protection, Enhanced Command and Control, Improved Initialization, and Long Range Communications.

E. Performance Metrics

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

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0603778A: *MLRS PRODUCT IMPROVEMENT PROGRAM*	**PROJECT** 090: *MLRS HIMARS*

Product Development ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Risk Reduction/ Maturation Contract	SS/CPAF	LMMFC Texas	110.202	0.000		0.000		0.000		0.000	113.610	Continuing	0
Path through Operational Test	SS/CPFF	LMMFC Texas	11.455	0.000		0.000		0.000		0.000	11.809	Continuing	0
Work Directives/ Chassis and Cab	C	TACOM (S&S) Location could not be determined.	5.561	0.000		0.000		0.000		0.000	5.733	Continuing	0
Battle Command	SS/CPFF	CECOM STRICOM, AMRDEC, Techrizon, LMMFC,Texas	10.368	1.074		2.516		0.000		2.516	Continuing	Continuing	0
Government Support	C	AMCOM/ GSA RSA & TSM	16.709	0.256		0.294		0.000		0.294	Continuing	Continuing	0
Increased Crew Protection	SS/CPFF	LMMFC Texas	25.261	0.000		0.000		0.000		0.000	Continuing	Continuing	0
		Subtotal	179.556	1.330		2.810		0.000		2.810			0.000

Remarks

TACOM - Tank Automotive & Armaments Command; AMCOM - Aviation & Missile Command RSA - Redstone Arsenal Alabama; STRICOM - Simulation Training and Instrument CommandS&S - Stewart & Stevenson; GSA - General Services Administration LMMFC - Lockheed Martin Missile and Fire Control TSM - TRADOC System Manager; TBD - To Be Determined; N/A - Not Applicable CECOM - US Army Communication - Electronics CommandAMRDEC - Aviation and Missile Research Development and Engineering CenterSS - Sole Source; CPIF - Cost Plus Incentive Fee; CPAF - Cost Plus Award FeeCPFF - Cost Plus Fixed Fee; UA - Unit of Action

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
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Support ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Support Contract	C/CPFF	Camber Research/ S3/TMI Alabama	2.905	0.325		0.299		0.000		0.299	Continuing	Continuing	0
		Subtotal	2.905	0.325		0.299		0.000		0.299			0.000

Remarks

S3 - Systems Studies Simulation, Inc., TMI - Tec Masters Inc

Test and Evaluation ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Test Support	C	Fort Hood ATEC,APG MD,WSMR NM & RTTC RSA	42.489	0.224		0.111		0.000		0.111	Continuing	Continuing	0
		Subtotal	42.489	0.224		0.111		0.000		0.111			0.000

Remarks

APG MD - Aberdeen Proving Ground, MarylandWSMR NM - White Sands Missile Range, New MexicoRTTC RSA - Redstone Technical Test Center, Redstone Arsenal, AlabamaATEC - US Army Test and Evaluation Command

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0603778A: *MLRS PRODUCT IMPROVEMENT PROGRAM*	**PROJECT** 090: *MLRS HIMARS*

Management Services ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
In-House Support	C	PFRMS Project Office Redstone Arsenal, AL	8.887	0.108		0.147		0.000		0.147	Continuing	Continuing	0
		Subtotal	8.887	0.108		0.147		0.000		0.147			0.000

Remarks

PFRMS - Precision Fires Rocket and Missile Systems

	FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	1.987		3.367		0.000		3.367	Continuing	Continuing	Continuing

Remarks

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**											**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*				**R-1 ITEM NOMENCLATURE** PE 0603778A: *MLRS PRODUCT IMPROVEMENT PROGRAM*				**PROJECT** 093: *Multi-Launch Rocket System (MLRS)*			
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**Base FY 2011 Estimate**	**OCO FY 2011 Estimate**	**Total FY 2011 Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
093: *Multi-Launch Rocket System (MLRS)*	3.981	4.514	3.691	0.000	3.691	1.447	0.962	0.978	0.994	Continuing	Continuing
Quantity of RD&TE Articles											

A. Mission Description and Budget Item Justification

The Multiple Launch Rocket and Missile System (MLRS) is a full spectrum, combat proven, all weather, 24/7 lethal and responsive, Precision Strike weapons system that is organic/ assigned to Fires Brigades supporting Brigade Combat Teams. The MLRS launcher provides critical missile precision strike, operational shaping fires, counterfire, and close support destructive and suppressive fires. The launcher is complimented by the MLRS Family of Munitions (MFOM) to include the Guided Multiple Launch Rocket System (GMLRS), and the Army Tactical Missile System (ATACMS) Family of Munitions (AFOM), capable of engaging targets up to a range of 300 kilometers. The MLRS product improvement program provides funding for research, development, and integration efforts to the MLRS necessary for sustainment, obsolescence mitigation, reliability improvements, incorporation of advanced technologies, and decreasing the logistics footprint. This effort includes performing technical assessments, concept studies, and risk reduction efforts for incorporation of future requirements. The MLRS product improvement program maintains compliance with Intra-Army Interoperability and Digital Communications via Joint Variable Message Format.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	**FY 2010**	**Base FY 2011**	**OCO FY 2011**	**Total FY 2011**
Program #1	3.981	4.387	3.691	0.000	3.691
Perform Command, Control, Communications, Computers, and Intelligence (C4I)/Interoperability Certification Tests and the Improved Operational Timeline, conduct Network Interoperability Testing/Certification. Perform technical assessments, concept studies, obsolescence mitigation, crew protection enhancements, and risk reduction.					
FY 2009 Accomplishments: FY 2009					

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0603778A: *MLRS PRODUCT IMPROVEMENT PROGRAM*	**PROJECT** 093: *Multi-Launch Rocket System (MLRS)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2010 Plans: FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #2 Small Business Innovative Research/Small Business Technology Transfer *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	0.000	0.127	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	3.981	4.514	3.691	0.000	3.691

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0603778A: *MLRS PRODUCT IMPROVEMENT PROGRAM*	**PROJECT** 093: *Multi-Launch Rocket System (MLRS)*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• Ord. #1: *MLRS Mods(C67500)*	1.866	22.423	8.217	0.000	8.217	8.253	6.939	14.204	14.437	Continuing	Continuing
• Ord. #2: *MLRS Mod Initial Spares (CA0265)*	1.037	1.018	1.014	0.000	1.014	1.033	1.052	1.071	1.089	Continuing	Continuing

D. Acquisition Strategy

The MLRS product improvement program ensures compliance as defined in the Department of Defense (DoD) Information Technical Standards. Funding is provided to several Government Agencies/Laboratories each Fiscal Year in support of this program. Support efforts also include Enhanced C2, Interoperability Certifications, obsolescence mitigation, increased crew protection, and Information Assurance compliance.

E. Performance Metrics

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

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0603778A: *MLRS PRODUCT IMPROVEMENT PROGRAM*	**PROJECT** 093: *Multi-Launch Rocket System (MLRS)*

Product Development ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Contract	C/CPFF	LMMFC-D Dallas, Texas	22.028	0.442		0.000		0.000		0.000	Continuing	Continuing	0
Government Support	C	AMRDEC-RSA AL FT SILL OK, CECOM-NJ	6.678	2.322		2.126		0.000		2.126	Continuing	Continuing	0
		Subtotal	28.706	2.764		2.126		0.000		2.126			0.000

Remarks

CPFF - Cost Plus Fixed Fee LMMFC-D - Lockheed Martin Missile and Fire Control-Dallas N/A - Not Applicable AMRDEC - United States Army Research, Development, and Engineering Command RSA AL - Redstone Arsenal, Alabama OK - Oklahoma CECOM - United States Army Communication - Electronics Command

Support ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Support Contract	C/Various	Multiple Location could not be determined.	0.673	0.700		0.725		0.000		0.725	Continuing	Continuing	0
		Subtotal	0.673	0.700		0.725		0.000		0.725			0.000

Remarks

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0603778A: *MLRS PRODUCT IMPROVEMENT PROGRAM*	**PROJECT** 093: *Multi-Launch Rocket System (MLRS)*

Test and Evaluation ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Test Support, Joint Interoperability Test Certificate	C	CTSF Ft. Hood, Texas	1.308	0.000		0.500		0.000		0.500	Continuing	Continuing	0
Test Support	C	AMCOM RTTC, Redstone Arsenal, Alabama	0.308	0.725		0.000		0.000		0.000	Continuing	Continuing	0
Test Support - 2	C	WSMR New Mexico	0.442	0.000		0.000		0.000		0.000	Continuing	.442	0
		Subtotal	2.058	0.725		0.500		0.000		0.500			0.000

Remarks

CTSF - Central Test Support Facility AMCOM - Army Missile Command RTTC-Redstone Technical Test Center WSMR - White Sands Missile Range

Management Services ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
In-House Support	C	PFRMS Proj Ofc Redstone Arsenal, Alabama	3.115	0.325		0.340		0.000		0.340	Continuing	Continuing	0
		Subtotal	3.115	0.325		0.340		0.000		0.340			0.000

Remarks

PFRMS - Precision Fires Rocket and Missile Systems

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0603778A: *MLRS PRODUCT IMPROVEMENT PROGRAM*	**PROJECT** 093: *Multi-Launch Rocket System (MLRS)*

	FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	4.514		3.691		0.000		3.691	Continuing	Continuing	Continuing

Remarks

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**											**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*				**R-1 ITEM NOMENCLATURE** PE 0603778A: *MLRS PRODUCT IMPROVEMENT PROGRAM*				**PROJECT** 784: *GUIDED MLRS*			
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**Base FY 2011 Estimate**	**OCO FY 2011 Estimate**	**Total FY 2011 Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
784: *GUIDED MLRS*	46.317	8.911	2.582	0.000	2.582	2.634	2.697	11.156	12.041	Continuing	Continuing
Quantity of RD&TE Articles											

A. Mission Description and Budget Item Justification

Guided Multiple Launch Rocket System (GMLRS) munitions are the Army's primary organic Joint Expeditionary, all-weather, all-terrain, 24/7, tactical range precision guided rockets employed by modular Fires Brigades supporting Brigade Combat Teams, Divisions, Joint Special Operations Force, and Joint Force combatant commanders. GMLRS are the primary munitions for units fielded with the High Mobility Artillery Rocket System (HIMARS) and Multiple Launch Rocket System (MLRS) M270A1 rocket and missile launcher platforms. GMLRS provides close, medium and long range pin point precision and area fires to destroy, suppress and shape threat forces and protect friendly forces against: cannon, mortar, rocket and missile artillery; light materiel and armor; personnel; command and control; and air defense surface targets. There are two variants of GMLRS; GMLRS with Dual Purpose Improved Conventional Munitions (DPICM) and GMLRS with a 200 pound class high explosive warhead (Unitary). The GMLRS DPICM is a five nation cooperative program among France, Germany, Italy, United Kingdom and the United States. The GMLRS Unitary is a modification to the GMLRS DPICM integrating a multi-mode fuze and high explosive warhead making it an all-weather, low collateral damage, precision rocket. This modification expands the MLRS target set into urban and complex environments, adds point targets, and supports Troops in Contact (TIC). The GMLRS alternative warhead will replace DPICM and service the DPICM target set and leave zero unexploded ordnance on the battlefield. This effort includes development and test activities. Obsolescence and cost reduction studies begin FY11, with an additional emphasis on MLRS Common Test Equipment (MCTE) upgrades and future insensitive munition (IM) technology studies beginning FY14. In the more than 1500 rockets fired in Operation Iraqi Freedom (OIF)/Operation Enduring Freedom (OEF), the GMLRS Unitary Rocket has demonstrated high effectiveness and low collateral damage while supporting TIC. Continued GMLRS Unitary development efforts will incorporate trajectory shaping capability into the flight software. Material changes will provide operational flexibility and capability against an expanded target set. GMLRS is also a key component of the Marine Corps Future Fighting Effort.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	**FY 2010**	**Base FY 2011**	**OCO FY 2011**	**Total FY 2011**
Program #1	3.749	1.886	1.734	0.000	1.734
Perform technical assessments, concept studies, prepare milestone documentation and risk reduction					

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0603778A: *MLRS PRODUCT IMPROVEMENT PROGRAM*	**PROJECT** 784: *GUIDED MLRS*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2009 Accomplishments: FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #2 Conduct Development and Engineering for IM Program *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	4.784	2.534	0.000	0.000	0.000
Program #3	23.279	1.058	0.848	0.000	0.848

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0603778A: *MLRS PRODUCT IMPROVEMENT PROGRAM*	**PROJECT** 784: *GUIDED MLRS*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Conduct Development Engineering; Design and Develop; Perform Integration and Test of Multi-Mode Fuzes and Alternative Warheads *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #4 Conduct system test and evaluation activities *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	14.505	3.199	0.000	0.000	0.000

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0603778A: *MLRS PRODUCT IMPROVEMENT PROGRAM*	**PROJECT** 784: *GUIDED MLRS*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #5	0.000	0.234	0.000	0.000	0.000
Small Business Innovative Research/Small Business Technology Transfer Programs					
FY 2009 Accomplishments: FY 2009					
FY 2010 Plans: FY 2010					
Base FY 2011 Plans: FY 2011 Base					
OCO FY 2011 Plans: FY 2011 OCO					
Accomplishments/Planned Programs Subtotals	46.317	8.911	2.582	0.000	2.582

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• Ord. #1: *Missile Procurement Army - GMLRS (C64400)*	309.205	353.311	353.268	0.000	353.268	314.784	326.763	337.778	347.079	Continuing	Continuing

D. Acquisition Strategy

The MLRS Product Improvement Program project is intended to support streamlined product improvement initiative as they are identified by the material developer or combat developer. This project also supports insensitive munition (IM) activities to improve the overall posture of the system all the way down to component level. The product office also leverages this project to investigate and develop alternative material changes to improve the GMLRS family of munitions. Future initiatives could include a service life extension program to extend the shelf life of the GMLRS rocket.

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0603778A: *MLRS PRODUCT IMPROVEMENT PROGRAM*	**PROJECT** 784: *GUIDED MLRS*

E. Performance Metrics

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

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0603778A: *MLRS PRODUCT IMPROVEMENT PROGRAM*	**PROJECT** 784: *GUIDED MLRS*

Product Development ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
EMD DPICM Contract	SS/CPAF	LMMFCS Dallas TX	91.194	0.000		0.000		0.000		0.000	0	Continuing	0
EMD Unitary Contract/ Multiple	SS/CPFF	LMMFCS Dallas TX	208.015	3.563		1.388		0.000		1.388	Continuing	Continuing	0
Government Support	C	AMCOM/ AMRDEC RSA	62.510	1.643		0.338		0.000		0.338	Continuing	Continuing	0
		Subtotal	361.719	5.206		1.726		0.000		1.726			0.000

Remarks

DPICM - Dual Purpose Improved Conventional Munitions; SS/CPAF - Sole Source/Cost Plus Award Fee; SS/CPFF - Sole Source/Cost Plus Fixed Fee; LMMFCS - Lockheed Martin Missile and Fire Control System; TX - Texas; AMCOM-Aviation & Missile Command; AMRDEC - U.S. Army Research, Development & Engineering Command; RSA - Redstone Arsenal, Alabama; N/A - Not Applicable

Support ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Support Contract	C/CPFF	Camber Research/ S3/TMI Alabama	19.704	0.506		0.257		0.000		0.257	Continuing	Continuing	0
		Subtotal	19.704	0.506		0.257		0.000		0.257			0.000

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0603778A: *MLRS PRODUCT IMPROVEMENT PROGRAM*	**PROJECT** 784: *GUIDED MLRS*

Support ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**

Remarks

C/CPFF-Cost/Cost Plus Fixed FeeS3-Systems Studies Simulation, Inc.TMI-Tec Masters, Inc.

Test and Evaluation ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Test Support	C	WSMR NM	94.853	2.600		0.000		0.000		0.000	Continuing	Continuing	0
		Subtotal	94.853	2.600		0.000		0.000		0.000			0.000

Remarks

WSMR, NM - White Sands Missile Range, New Mexico

Management Services ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
In-House Support	C	PFRMS Proj Ofc RSA	23.012	0.599		0.599		0.000		0.599	Continuing	Continuing	0

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0603778A: *MLRS PRODUCT IMPROVEMENT PROGRAM*	**PROJECT** 784: *GUIDED MLRS*

Management Services ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
		Subtotal	23.012	0.599		0.599		0.000		0.599			0.000

Remarks

PFRMS - Precision Fires Rocket and Missile Systems

	FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	8.911		2.582		0.000		2.582	Continuing	Continuing	Continuing

Remarks

Exhibit R-4, PB 2011 Army **RDT&E Schedule Profile**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0603778A: *MLRS PRODUCT IMPROVEMENT PROGRAM*	**PROJECT** 784: *GUIDED MLRS*

	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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
Alternative Warhead Milestone A			#																									
GMLRS FRP V					#																							
Technical Assessment/Concept Studies/Cost Reduction Studies								#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	

Exhibit R-4A, PB 2011 Army **RDT&E Schedule Details**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0603778A: *MLRS PRODUCT IMPROVEMENT PROGRAM*	**PROJECT** 784: *GUIDED MLRS*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Alternative Warhead Milestone A	3	2009	3	2009
GMLRS FRP V	1	2010	1	2010
Technical Assessment/Concept Studies/Cost Reduction Studies	4	2010	3	2015

Exhibit R-5, PB 2011 Army **RDT&E Termination Liability**								**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*				**R-1 ITEM NOMENCLATURE** PE 0603778A: *MLRS PRODUCT IMPROVEMENT PROGRAM*				**PROJECT** 784: *GUIDED MLRS*
Cost ($ in Millions)	**FY 2009**	**FY 2010**	**FY 2011**	**FY 2012**	**FY 2013**	**FY 2014**	**FY 2015**	
Program Termination Liability	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

Notes

The GMLRS Program Prime Contract incorporates the "Limitation of Funds" Clause (DFARS 52.232-22) to limit the Government's liability. For the GMLRS Program, the "Limitation of Funds" Clause limits the Government's financial liability per the contract to those funds placed on contract plus costs associated with the orderly termination of contractual actions.

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**											**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*				**R-1 ITEM NOMENCLATURE** PE 0603778A: *MLRS PRODUCT IMPROVEMENT PROGRAM*				**PROJECT** 78G: *GMLRS ALTERNATIVE WARHEADS*			
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**Base FY 2011 Estimate**	**OCO FY 2011 Estimate**	**Total FY 2011 Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
78G: *GMLRS ALTERNATIVE WARHEADS*	0.000	12.137	41.979	0.000	41.979	43.577	31.477	31.179	29.572	Continuing	Continuing
Quantity of RD&TE Articles											

A. Mission Description and Budget Item Justification

Guided Multiple Launch Rocket System (GMLRS) munitions are the Army's primary organic Joint Expeditionary, all-weather, all-terrain, 24/7, tactical range precision guided rockets employed by modular Fires Brigades supporting Brigade Combat Teams, Divisions, Joint Special Operations Force, and Joint Force combatant commanders. GMLRS are the primary munitions for units fielded with the High Mobility Artillery Rocket System (HIMARS) and Multiple Launch Rocket System (MLRS) M270A1 rocket and missile launcher platforms. GMLRS provides close, medium and long range pin point precision and area fires to destroy, suppress and shape threat forces and protect friendly forces against: cannon, mortar, rocket and missile artillery; light materiel and armor; personnel; command and control; and air defense surface targets. GMLRS is a major upgrade/replacement for the aging M26/A1/A2 rocket inventory that integrates a guidance and control package and an improved rocket motor achieving greater range and precision accuracy requiring fewer rockets to defeat targets than current artillery rockets, thereby reducing the logistics burden. There are two variants of GMLRS; GMLRS with Dual Purpose Improved Conventional Munitions (DPICM) and GMLRS with a 200 pound class high explosive warhead (Unitary). The GMLRS Alternative Warhead (AW) is a material replacement for DPICM warheads that are currently present in the M-26, the M-26A2, and M-30 (GMLRS DPICM) rockets. The GMLRS AW is being developed to eliminate the risks of Unexploded Ordnance (UXO) to a threshold level of less than one (1)percent (Objective zero (0) percent) in accordance with recent Department of Defense (DoD) policy. It fills a Warfighting Capability Gap left by the future removal of current cluster munitions from the battlefield. A Configuration Steering Board (CSB) was convened on 22 Oct 2008 to consider potential changes to the GMLRS DPICM program and address the concept refinement of GMLRS AW program. The outcome of the CSB was the signature of two Acquisition Decision Memorandums signed on 7 NOV 2008, which directed the cessation of U.S. Army DPICM production after FRP-III deliveries, and the development of a competitive procurement strategy for the GMLRS AW Program. The AW Program strategy will consist of a Technology Demonstration (TD) phase during which the Army will evaluate proposals submitted by three competing contractors to provide technology solutions, demonstrating an alternative warhead for DPICM that satisfies the MLRS ORD, dated 14 Nov 2003. The GMLRS AW will be effective against the DPICM target set. This effort includes development, integration and test activities for the payload, dispense mechanism (if required), proximity sensor (if required), electronic safe and arm device/fuze, and associated flight software.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	**FY 2010**	**Base FY 2011**	**OCO FY 2011**	**Total FY 2011**
Program #1	0.000	4.072	22.938	0.000	22.938

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0603778A: *MLRS PRODUCT IMPROVEMENT PROGRAM*	**PROJECT** 78G: *GMLRS ALTERNATIVE WARHEADS*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Conduct Development Engineering, Design Component Testing, and Performance Analysis *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #2	0.000	3.614	10.967	0.000	10.967
Perform Technical Assessments and Concept Studies *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0603778A: *MLRS PRODUCT IMPROVEMENT PROGRAM*	**PROJECT** 78G: *GMLRS ALTERNATIVE WARHEADS*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #3	0.000	2.032	3.148	0.000	3.148
Prepare Milestone Documentation, Risk Reduction and Program Reviews					
FY 2009 Accomplishments: FY 2009					
FY 2010 Plans: FY 2010					
Base FY 2011 Plans: FY 2011 Base					
OCO FY 2011 Plans: FY 2011 OCO					
Program #4	0.000	2.080	4.926	0.000	4.926
Conduct System Test and Evaluation Activities					
FY 2009 Accomplishments: FY 2009					
FY 2010 Plans: FY 2010					
Base FY 2011 Plans: FY 2011 Base					
OCO FY 2011 Plans: FY 2011 OCO					

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0603778A: *MLRS PRODUCT IMPROVEMENT PROGRAM*	**PROJECT** 78G: *GMLRS ALTERNATIVE WARHEADS*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #5	0.000	0.339	0.000	0.000	0.000
SBIR/STTR					
FY 2009 Accomplishments: FY 2009					
FY 2010 Plans: FY 2010					
Base FY 2011 Plans: FY 2011 Base					
OCO FY 2011 Plans: FY 2011 OCO					
Accomplishments/Planned Programs Subtotals	0.000	12.137	41.979	0.000	41.979

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

The GMLRS AW rocket will also be a product improved version of the current GMLRS DPICM rocket. The GMLRS Program strategy relative to design technology is to identify leading technologies, offerors, and hardware through an open competition between three potential warheads. A Request for Proposal process has been used to solicit offerors, with the most mature, cost effective and capable choices chosen for further development. At the conclusion of the Technology Demonstration (TD) Phase, the government will make a downselect to one technology to be fully developed and integrated during Engineering and Manufacturing Development Phase.

E. Performance Metrics

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

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0603778A: *MLRS PRODUCT IMPROVEMENT PROGRAM*	**PROJECT** 78G: *GMLRS ALTERNATIVE WARHEADS*

Product Development ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
AWP Contracts (Multiple)	SS/CPFF	GD-OTS Niceville, FL. ATK, Plymouth, MN. Aerojet, Sacram	0.000	5.429		30.584		0.000		30.584	Continuing	Continuing	0
Government Support	C	AMCOM/ AMRDEC RSA	0.000	1.461		2.404		0.000		2.404	Continuing	Continuing	0
		Subtotal	0.000	6.890		32.988		0.000		32.988			0.000

Remarks

AWP-Alternative Warhead Program; C/FFP-Cost/Firm Fixed Price/SS/CPFF-Sole Source/Cost Plus Fixed Fee; AMCOM-Army Materiel Command;AMRDEC-U.S. Army Research, Development & Engineering Command; RSA-Redstone Arsenal, Alabama; N/A-Not Applicable; GD-OTS-General Dynamics-Ordnance and Tactical Systems; FL-Florida; ATK-Alliant Techsystems, Inc.; MN-Minnesota; LMMFCS-Lockheed Martin Missile and Fire Control System; TX-Texas

Support ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Support Contract	C/CPFF	Camber Research/ S3/TMI Alabama	0.000	0.506		1.029		0.000		1.029	Continuing	Continuing	0
		Subtotal	0.000	0.506		1.029		0.000		1.029			0.000

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0603778A: *MLRS PRODUCT IMPROVEMENT PROGRAM*	**PROJECT** 78G: *GMLRS ALTERNATIVE WARHEADS*

Support ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**

Remarks

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

Test and Evaluation ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Test Support	C	WSMR NM	0.000	1.977		4.347		0.000		4.347	Continuing	Continuing	0
		Subtotal	0.000	1.977		4.347		0.000		4.347			0.000

Remarks

WSMR,NM-White Sands Missile Range, New Mexico

Management Services ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
In-House Support	C	PFRMS Proj Ofc RSA	0.000	2.764		3.615		0.000		3.615	Continuing	Continuing	0

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0603778A: *MLRS PRODUCT IMPROVEMENT PROGRAM*	**PROJECT** 78G: *GMLRS ALTERNATIVE WARHEADS*

Management Services ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
		Subtotal	0.000	2.764		3.615		0.000		3.615			0.000

Remarks

PFRMS-Precision Fires Rocket and Missile Systems

	FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	12.137		41.979		0.000		41.979	Continuing	Continuing	Continuing

Remarks

Exhibit R-4, PB 2011 Army **RDT&E Schedule Profile**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0603778A: *MLRS PRODUCT IMPROVEMENT PROGRAM*	**PROJECT** 78G: *GMLRS ALTERNATIVE WARHEADS*

	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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
Warhead Flight Demonstrations							#																					
System PDR									#																			
Milestone B											#																	
Critical Design Review (CDR)															#													
Production Qualification Testing																		#	#									
Limited User Test																					#							
Milestone C																								#				

Exhibit R-4A, PB 2011 Army **RDT&E Schedule Details**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0603778A: *MLRS PRODUCT IMPROVEMENT PROGRAM*	**PROJECT** 78G: *GMLRS ALTERNATIVE WARHEADS*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Warhead Flight Demonstrations	3	2010	3	2010
System PDR	1	2011	1	2011
Milestone B	3	2011	3	2011
Critical Design Review (CDR)	3	2012	3	2012
Production Qualification Testing	2	2013	3	2013
Limited User Test	1	2014	1	2014
Milestone C	4	2014	4	2014

Exhibit R-2, PB 2011 Army **RDT&E Budget Item Justification**	**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0208058A: *Joint High Speed Vessel (JHSV)*

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	Base FY 2011 Estimate	OCO FY 2011 Estimate	Total FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	2.926	3.066	3.153	0.000	3.153	3.135	3.239	3.296	3.347	Continuing	Continuing
JH1: *JOINT HIGH SPEED VESSEL MANUFACTURING TECHNOLOGY*	2.986	3.066	3.153	0.000	3.153	3.135	3.239	3.296	3.347	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Joint High Speed Vessel (JHSV) program is a merger of the Army's Theater Support Vessel (TSV) program and the Marine Corps/Navy High Speed intra-theater surface Connector (HSC) program into a joint (multi-service) High Speed Vessel program.The JHSV program takes advantage of inherent commonality hull forms to create a more flexible asset for the Department of Defense and leverage the Navy's core competency in ship acquisition. The JHSV program will provide high speed intra-theater surface connector capability to rapidly deploy troops and equipment together and then immediately transition to execute, even in the absence of developed infrastructure, and conduct deployment and sustainment activities in support of multiple simultaneous, distributed, decentralized battles and campaigns. The primary missions include: support to Theater Security Cooperation Program (TSCP) and Global War on Terrorism (GWOT), littoral maneuver, and seabasing support. Department of Army (DA) and Department of Navy (DoN) will maintain separate and distinct funding streams to support this joint program. DA will resource to the critical Army requirement set validated for the joint Initial Capabilities Document (ICD) for High Speed Intra-theater Surface Connector (HSC)and the Capability Development Document (CDD) for JHSV . DA and DoN will focus on the development of common capabilities, each Department will source their unique developmental costs for unique service capabilities that cannot be incorporated into a combined solution set. FY10/11 funding will procure for the Army Integrated Logistics Support (ILS)/Integrated Electronic Technical Manuals.(IETMs).

Exhibit R-2, PB 2011 Army **RDT&E Budget Item Justification**	**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0208058A: *Joint High Speed Vessel (JHSV)*

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	2.926	3.082	3.170	0.000	3.170
Current President's Budget	2.926	3.066	3.153	0.000	3.153
Total Adjustments	0.000	-0.016	-0.017	0.000	-0.017
• Congressional General Reductions		0.000			
• Congressional Directed Reductions					
• Congressional Rescissions		-0.016			
• Congressional Adds		0.000			
• Congressional Directed Transfers					
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Adjustments to Budget Years	0.000	0.000	-0.017	0.000	-0.017

Change Summary Explanation

Funding in FY11 realigned to support Army higher priority requirements.

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**											**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*				**R-1 ITEM NOMENCLATURE** PE 0208058A: *Joint High Speed Vessel (JHSV)*				**PROJECT** JH1: *JOINT HIGH SPEED VESSEL MANUFACTURING TECHNOLOGY*			
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**Base FY 2011 Estimate**	**OCO FY 2011 Estimate**	**Total FY 2011 Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
JH1: *JOINT HIGH SPEED VESSEL MANUFACTURING TECHNOLOGY*	2.986	3.066	3.153	0.000	3.153	3.135	3.239	3.296	3.347	Continuing	Continuing
Quantity of RD&TE Articles											

A. Mission Description and Budget Item Justification

The Joint High Speed Vessel (JHSV) program is a merger of the Army's Theater Support Vessel (TSV) program and the Marine Corps/Navy High Speed intra-theater surface Connector (HSC) program into a joint (multi-service) High Speed Vessel program.The JHSV program takes advantage of inherent commonality hull forms to create a more flexible asset for the Department of Defense and leverage the Navy's core competency in ship acquisition. The JHSV program will provide high speed intra-theater surface connector capability to rapidly deploy troops and equipment together and then immediately transition to execute, even in the absence of developed infrastructure, and conduct deployment and sustainment activities in support of multiple simultaneous, distributed, decentralized battles and campaigns. The primary missions include: support to Theater Security Cooperation Program (TSCP) and Overseas Contingency Operations (OCO), littoral maneuver, and seabasing support. Department of Army (DA) and Department of Navy (DoN) will maintain separate and distinct funding streams to support this joint program. DA will resource to the critical Army requirement set validated for the joint Initial Capabilities Document (ICD) for High Speed Intra-theater Surface Connector (HSC)and the Capability Development Document (CDD) for JHSV . DA and DoN will focus on the development of common capabilities, each Department will source their unique developmental costs for unique service capabilities that cannot be incorporated into a combined solution set. FY10/11 funding will procure for the Army Integrated Logistics Support (ILS)/Integrated Electronic Technical Manuals.(IETMs).

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	**FY 2010**	**Base FY 2011**	**OCO FY 2011**	**Total FY 2011**
Program #1	1.182	0.000	0.000	0.000	0.000
FY09: Provide Program Management Support					
FY 2009 Accomplishments: FY 2009					

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0208058A: *Joint High Speed Vessel (JHSV)*	**PROJECT** JH1: *JOINT HIGH SPEED VESSEL MANUFACTURING TECHNOLOGY*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2010 Plans: FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #2 FY10: Provide Program Management Support *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	0.000	0.900	0.000	0.000	0.000
Program #3 FY11: Provide Program Management Support	0.000	0.000	1.071	0.000	1.071

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0208058A: *Joint High Speed Vessel (JHSV)*	**PROJECT** JH1: *JOINT HIGH SPEED VESSEL MANUFACTURING TECHNOLOGY*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2009 Accomplishments: FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #4 FY09: Provides Acquisition/Documentation Development. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	0.500	0.000	0.000	0.000	0.000
Program #5	0.000	0.080	0.000	0.000	0.000

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0208058A: *Joint High Speed Vessel (JHSV)*	**PROJECT** JH1: *JOINT HIGH SPEED VESSEL MANUFACTURING TECHNOLOGY*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY10: Provides Acquisition/Documentation Development *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #6	0.000	0.000	0.082	0.000	0.082
FY11: Provides Acquisition/Documentation Development *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0208058A: *Joint High Speed Vessel (JHSV)*	**PROJECT** JH1: *JOINT HIGH SPEED VESSEL MANUFACTURING TECHNOLOGY*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #7	1.304	0.000	0.000	0.000	0.000
FY09: Continues Technical/Design Development *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #8	0.000	2.000	0.000	0.000	0.000
FY10: Integrated Logistics Support (ILS)/Integrated Electronic Technical Manuals (IETMs) *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0208058A: *Joint High Speed Vessel (JHSV)*	**PROJECT** JH1: *JOINT HIGH SPEED VESSEL MANUFACTURING TECHNOLOGY*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #9	0.000	0.000	2.000	0.000	2.000
FY11: Integrated Logistics Support (ILS)/Integrated Electronic Technical Manuals (IETMs)					
FY 2009 Accomplishments: FY 2009					
FY 2010 Plans: FY 2010					
Base FY 2011 Plans: FY 2011 Base					
OCO FY 2011 Plans: FY 2011 OCO					
Program #10	0.000	0.000	0.000	0.000	0.000
FY09: Small Business Innovative Research/Small Business Technology Transfer Programs					
FY 2009 Accomplishments: FY 2009					
FY 2010 Plans: FY 2010					
Base FY 2011 Plans: FY 2011 Base					
OCO FY 2011 Plans: FY 2011 OCO					

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0208058A: *Joint High Speed Vessel (JHSV)*	**PROJECT** JH1: *JOINT HIGH SPEED VESSEL MANUFACTURING TECHNOLOGY*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #11	0.000	0.086	0.000	0.000	0.000
FY10: Small Business Innovative Research/Small Business Technology Transfer Programs					
FY 2009 Accomplishments: FY 2009					
FY 2010 Plans: FY 2010					
Base FY 2011 Plans: FY 2011 Base					
OCO FY 2011 Plans: FY 2011 OCO					
Accomplishments/Planned Programs Subtotals	2.986	3.066	3.153	0.000	3.153

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• Ord. #1: *OPA 3, M11203, Joint High Speed Vessel (JHSV),*	168.348	203.042	202.764	0.000	202.764	223.845	18.000	18.600	19.100	Continuing	Continuing

D. Acquisition Strategy

The JHSV program will combine the two separate programs (Theater Support Vessel (TSV) - Army and High Speed Connector (HSC) - Navy) and take advantage of inherent commonality of hull forms to create a more flexible asset for the Department of Defense. Based on the efforts accomplished and data collected to date by the two services, it appears that a hardware solution will incorporate the evolutionary development of commercial based high speed vessel technology employing integrated military unique capabilities/adaptations. The JHSV would be acquired competitively and production would be based in the United States. The Joint High Speed Vessel (JHSV) program's updated Acquisition Strategy is currently under development. The JHSV program Milestone A Defense Acquisition Board (DAB) was in April 2006. Milestone B occurred November 2008.

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0208058A: *Joint High Speed Vessel (JHSV)*	**PROJECT** JH1: *JOINT HIGH SPEED VESSEL MANUFACTURING TECHNOLOGY*

E. Performance Metrics

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

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0208058A: *Joint High Speed Vessel (JHSV)*	**PROJECT** JH1: *JOINT HIGH SPEED VESSEL MANUFACTURING TECHNOLOGY*

Product Development ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Acquisition/Documentation Development	C	PEO Ships Washington Navy Yard DC	6.497	0.080		0.082		0.000		0.082	0	Continuing	0
Technical/Design Development	C	PEO Ships Washington Navy Yard DC	16.389	0.000		0.000		0.000		0.000	0	Continuing	0
		Subtotal	22.886	0.080		0.082		0.000		0.082	0.000		0.000

Remarks

Support ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Integrated Logistics Support (ILS)/Integrated Electronic Technical Manuals (IETMs)	C	Nothing entered for Activity and Location. Location could not be determined.	0.000	2.000		2.000		0.000		2.000	0	Continuing	0
		Subtotal	0.000	2.000		2.000		0.000		2.000	0.000		0.000

Remarks

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0208058A: *Joint High Speed Vessel (JHSV)*	**PROJECT** JH1: *JOINT HIGH SPEED VESSEL MANUFACTURING TECHNOLOGY*

Management Services ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Program Management Support	C	PM Force Projection TACOM, Warren, MI	3.118	0.900		1.071		0.000		1.071	0	Continuing	0
SBIR/STTR	C	Nothing entered for Activity and Location. Location could not be determined.	0.000	0.086		0.000		0.000		0.000	0	Continuing	0
		Subtotal	3.118	0.986		1.071		0.000		1.071	0.000		0.000

Remarks

	FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	3.066		3.153		0.000		3.153	Continuing	Continuing	Continuing

Remarks

Exhibit R-2, PB 2011 Army **RDT&E Budget Item Justification**	**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203726A: *Adv Field Artillery Tactical Data System*

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	Base FY 2011 Estimate	OCO FY 2011 Estimate	Total FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	16.200	29.174	24.622	0.000	24.622	16.497	16.735	16.921	17.081	Continuing	Continuing
322: *Adv Fa Tac Data Sys/Eff Cntrl Sys (AFATDS/ECS)*	16.200	17.330	12.835	0.000	12.835	10.680	10.942	11.138	11.314	Continuing	Continuing
F19: *JADOCS*	0.000	11.844	11.787	0.000	11.787	5.817	5.793	5.783	5.767	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Advanced Field Artillery Tactical Data System (AFATDS) performs Command and Control, increases Situational Awareness and automates fire support coordination for the Army, Navy, Air Force and Marine Corps. AFATDS automates the planning, coordinating and controlling of all fire support assets in the Joint battlespace (field artillery, mortars, close air support, naval gunfire, attack helicopters, and offensive electronic warfare) from Echelons Above Corps to Battery or Platoon in support of all levels of conflict. As a result of Operation Iraqi Freedom (OIF)/Operation Enduring Freedom (OEF), AFATDS has implemented precision fires capabilities in new/improved munitions such as Multiple Launch Rocket System (MLRS) Unitary Vertical Attack, Excalibur, Smart and 155 Bonus. Additional implemented capabilities include automatic conduct of Unit Fratricide Avoidance Checks and Collateral Damage Avoidance. AFATDS will field New Non Line of Sight - Launch System (NLOS-LS) Precision Attack Munition (PAM) and improved Command and Control (C2) for the United States Marine Corps (USMC) Firing platform and its new munitions. This project is a replacement system for the Initial Fire Support Automated System (IFSAS), Battery Computer System (BCS) and Fire Direction System (FDS). AFATDS will interoperate with the other Army Battle Command Systems, current and future Army, Navy and Air Force Command and Control weapon systems, and the German, French, British, and Italian fire support systems. The system is composed of common hardware/software employed in varying configurations at different operational facilities (or nodes) and unique system software interconnected by tactical communications in the form of a software-driven, automated network. The system uses non-developmental, rugged common hardware/software, including the Unix Laptop Computer (ULC), Compact Computer Unit (CCU), Notebook Computer Unit (NCU) as well as vehicle installation kits (IKs). The current system support comes from the successful fielding of AFATDS Version A96 through 6.3.2, 6.4.0.1, 6.4.0.2, 6.5 and 6.5.0.1. (out of cycle Windows based operating system). Version 6.5.0.1 is being fielded now. The total force will be fielded a Windows based platform by fiscal year 2013.Joint Automated Deep Operations Coordination System (JADOCS) is a Joint, Interagency, and Multinational (JIM) Targeting, Mission Management, and Common Operational Picture (COP) Windows based software suite which functions as a complementary system to the Advanced Field Artillery Tactical Data System (AFATDS). JADOCS provides integration and synergy between multiple Command & Control (C2) systems of the uniformed services, and Joint and combined elements involved in the targeting process and performs coordination and calculates collateral damage. JADOCS Mission Managers support this coordination amongst Warfighter functional areas to rapidly execute critical missions. JADOCS is a component of the Integrated Fires Family of Systems (FOS) and complementary to the Army Battle Command Systems (ABCS) System of Systems (SoS).

Exhibit R-2, PB 2011 Army **RDT&E Budget Item Justification**	**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203726A: *Adv Field Artillery Tactical Data System*

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	16.605	23.727	21.269	0.000	21.269
Current President's Budget	16.200	29.174	24.622	0.000	24.622
Total Adjustments	-0.405	5.447	3.353	0.000	3.353
• Congressional General Reductions		-0.153			
• Congressional Directed Reductions					
• Congressional Rescissions		0.000			
• Congressional Adds		5.600			
• Congressional Directed Transfers					
• Reprogrammings	0.023	0.000			
• SBIR/STTR Transfer	-0.428	0.000			
• Adjustments to Budget Years	0.000	0.000	3.353	0.000	3.353

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**											**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*				**R-1 ITEM NOMENCLATURE** PE 0203726A: *Adv Field Artillery Tactical Data System*				**PROJECT** 322: *Adv Fa Tac Data Sys/Eff Cntrl Sys (AFATDS/ ECS)*			
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**Base FY 2011 Estimate**	**OCO FY 2011 Estimate**	**Total FY 2011 Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
322: *Adv Fa Tac Data Sys/Eff Cntrl Sys (AFATDS/ECS)*	16.200	17.330	12.835	0.000	12.835	10.680	10.942	11.138	11.314	Continuing	Continuing
Quantity of RD&TE Articles											

A. Mission Description and Budget Item Justification

The Advanced Field Artillery Tactical Data System (AFATDS) performs Command and Control, increases Situational Awareness and automates fire support coordination for the Army, Navy, Air Force and Marine Corps. AFATDS automates the planning, coordinating and controlling of all fire support assets in the Joint battlespace (field artillery, mortars, close air support, naval gunfire, attack helicopters, and offensive electronic warfare) from Echelons Above Corps to Battery or Platoon in support of all levels of conflict. As a result of Operation Iraqi Freedom (OIF)/Operation Enduring Freedom (OEF), AFATDS has implemented precision fires capabilities in new/improved munitions such as Multiple Launch Rocket System (MLRS) Unitary Vertical Attack, Excalibur, Smart and 155 Bonus. Additional implemented capabilities include automatic conduct of Unit Fratricide Avoidance Checks and Collateral Damage Avoidance. AFATDS will field New Non Line of Sight - Launch System (NLOS-LS) Precision Attack Munition (PAM) and improved Command and Control (C2) for the United States Marine Corps (USMC) Firing platform and its new munitions. This project is a replacement system for the Initial Fire Support Automated System (IFSAS), Battery Computer System (BCS) and Fire Direction System (FDS). AFATDS will interoperate with the other Army Battle Command Systems, current and future Army, Navy and Air Force Command and Control weapon systems, and the German, French, British, and Italian fire support systems. The system is composed of common hardware/software employed in varying configurations at different operational facilities (or nodes) and unique system software interconnected by tactical communications in the form of a software-driven, automated network. The system uses non-developmental, rugged common hardware/software, including the Unix Laptop Computer (ULC), Compact Computer Unit (CCU), Notebook Computer Unit (NCU) as well as vehicle installation kits (IKs). The current system support comes from the successful fielding of AFATDS Version A96 through 6.3.2, 6.4.0.1, 6.4.0.2, 6.5 and 6.5.0.1.(out of cycle Windows based operating system). Version 6.5.0.1 is being fielded now. The total force will be fielded a Windows based platform by fiscal year 2013.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	**FY 2010**	**Base FY 2011**	**OCO FY 2011**	**Total FY 2011**
Program #1	0.947	1.025	1.087	0.000	1.087
Provide program support for AFATDS (V6.6 (BC 10-Marshall)), (V6.7 (BC 11-MacArthur)), (V6.8 (BC 11 - Eisenhower))					

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203726A: *Adv Field Artillery Tactical Data System*	**PROJECT** 322: *Adv Fa Tac Data Sys/Eff Cntrl Sys (AFATDS/ ECS)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2009 Accomplishments: FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #2 Complete AFATDS (V 6.6). Continue development of (V6.7) and (V6.8). Initiate (V6.9) development efforts. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	12.653	7.618	8.748	0.000	8.748
Program #3	0.000	5.600	0.000	0.000	0.000

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203726A: *Adv Field Artillery Tactical Data System*	**PROJECT** 322: *Adv Fa Tac Data Sys/Eff Cntrl Sys (AFATDS/ ECS)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Voice Recognition/Technology Insertion *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #4	2.600	2.800	3.000	0.000	3.000
Conduct and support test activities *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #5	0.000	0.287	0.000	0.000	0.000
Small Business Innovative Research/Small Business Technology transfer program					
FY 2009 Accomplishments: FY 2009					
FY 2010 Plans: FY 2010					
Base FY 2011 Plans: FY 2011 Base					
OCO FY 2011 Plans: FY 2011 OCO					
Accomplishments/Planned Programs Subtotals	16.200	17.330	12.835	0.000	12.835

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• Ord. #1: *OPA (B28600)*	33.578	1.536	4.240	0.000	4.240	0.337	0.000	0.245	0.000	Continuing	Continuing
• Ord. #2: *OPA (B28620)*	8.492	28.951	35.608	0.000	35.608	34.614	35.342	18.601	10.683	Continuing	Continuing
• Ord. #3: *Spares*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

D. Acquisition Strategy

AFATDS has been fielded since 1996, with the original AFATDS Version 96 Materiel Release. It has been updated with subsequent releases reflecting the Spiral development strategy of the program. AFATDS Version 6.3.2 was released in January 2004, and AFATDS Version 6.4.0.1 (out of cycle) was released in May 2007 and AFATDS Version 6.4.0.2 (out of cycle) released in Sep 2007. Full Materiel Release of AFATDS V6.5 (Software Block 2) was achieved in December 2008. Full Materiel Release of AFATDS 6.5.0.1 (Windows version)was achieved in Aug 2009.Development efforts will continue to enhance Command and Control for precision weapons, Excalibur Height above Ellipsoid (HAE), Active

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
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Weapon Target pairing and Unexploded Ordnance (UXO) area computations. It will also provide backward interoperability to Pass and Subscribe Services (PASS) and AFATDS XML Engine (AXE) for Software Block 2 (SWB2) to enable connection to SWB1/1+ versions. AFATDS Capability Development Document (CDD) is under development and currently going through worldwide Army staffing. Joint Requirements Oversight Council (JROC) approval is expected in Fiscal Year 2010. AFATDS also continues to develop to Battle Command Capability set requirements. In accordance with the TRADOC requirements document approved in 2008, entitled Battle Command Essential Capability, software capability will be developed in 2-year increments as capability sets designed to Collaborate, Collapse and Converge Battle Command products. The product development funded under this R-Form is an integral part of the Army Battle Command System (ABCS), a system of systems, under a strategy designed to optimize opportunity for improved interoperability among the systems, to capture the benefits of competition where possible and to ensure the rapid integration of new capability into warfighter systems. This strategy is designed to reduce the physical footprint, logistics support requirements and increase operational efficiency.

E. Performance Metrics

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

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203726A: *Adv Field Artillery Tactical Data System*	**PROJECT** 322: *Adv Fa Tac Data Sys/Eff Cntrl Sys (AFATDS/ ECS)*

Product Development ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Software Development	C/CPAF	Raytheon Systems Corp Ft. Wayne, IN	257.067	13.148		8.673		0.000		8.673	Continuing	Continuing	0
		Subtotal	257.067	13.148		8.673		0.000		8.673			0.000

Remarks

Support ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Information Assurance	C	CSC Eatontown, NJ	0.060	0.070		0.075		0.000		0.075	0	Continuing	0
		Subtotal	0.060	0.070		0.075		0.000		0.075	0.000		0.000

Remarks

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203726A: *Adv Field Artillery Tactical Data System*	**PROJECT** 322: *Adv Fa Tac Data Sys/Eff Cntrl Sys (AFATDS/ ECS)*

Test and Evaluation ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Test Support	C	Titan Ft. Sill, OK and various contractors	10.754	1.800		2.000		0.000		2.000	Continuing	Continuing	0
Limited User Test/ Government Confidence Demo	C	Army Test & Evaluation Command (ATEC)/ Fire Support Test Directorate (FSTD) Location could not be determined.	9.052	1.000		1.000		0.000		1.000	Continuing	Continuing	0
		Subtotal	19.806	2.800		3.000		0.000		3.000			0.000

Remarks

Management Services ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Program Management	C	PM Battle Command (BC) Ft. Monmouth, NJ	12.335	1.025		1.087		0.000		1.087	Continuing	Continuing	0
SBIR/STTR	C	Taxes Location could not be determined.	0.000	0.287		0.000		0.000		0.000	0	Continuing	0

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
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Management Services ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
		Subtotal	12.335	1.312		1.087		0.000		1.087			0.000

Remarks

	FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	17.330		12.835		0.000		12.835	Continuing	Continuing	Continuing

Remarks

Exhibit R-4, PB 2011 Army **RDT&E Schedule Profile**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203726A: *Adv Field Artillery Tactical Data System*	**PROJECT** 322: *Adv Fa Tac Data Sys/Eff Cntrl Sys (AFATDS/ ECS)*

	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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
Fielding V6.5 (BC 09.0)	#	#	#																									
Materiel Release V6.6 (BC 10 - Marshall)					#																							
Fielding V6.6 (BC 10 - Marshall)					#	#	#																					
Materiel Release V6.7 (BC 11 - MacArthur)								#																				
Fielding V6.7 (BC 11 - MacArthur)								#	#	#	#																	
Development V6.8 (BC 13 - Eisenhower)				#	#	#	#	#	#	#																		
Materiel Release V6.8 (BC 13 - Eisenhower)																#												
Fielding V6.8 (BC 13 - Eisenhower)																#	#	#	#									
Development V6.9 (BC 15 - Arnold)													#	#	#	#	#	#	#	#	#							
Materiel Release V6.9 (BC 15 - Arnold)																								#				

Exhibit R-4A, PB 2011 Army **RDT&E Schedule Details**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203726A: *Adv Field Artillery Tactical Data System*	**PROJECT** 322: *Adv Fa Tac Data Sys/Eff Cntrl Sys (AFATDS/ ECS)*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Fielding V6.5 (BC 09.0)	1	2009	3	2009
Materiel Release V6.6 (BC 10 - Marshall)	1	2010	1	2010
Fielding V6.6 (BC 10 - Marshall)	1	2010	3	2010
Materiel Release V6.7 (BC 11 - MacArthur)	4	2010	4	2010
Fielding V6.7 (BC 11 - MacArthur)	4	2010	3	2011
Development V6.8 (BC 13 - Eisenhower)	4	2009	2	2011
Materiel Release V6.8 (BC 13 - Eisenhower)	4	2012	4	2012
Fielding V6.8 (BC 13 - Eisenhower)	4	2012	3	2013
Development V6.9 (BC 15 - Arnold)	1	2012	1	2014
Materiel Release V6.9 (BC 15 - Arnold)	4	2014	4	2014

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**											**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*				**R-1 ITEM NOMENCLATURE** PE 0203726A: *Adv Field Artillery Tactical Data System*				**PROJECT** F19: *JADOCS*			
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**Base FY 2011 Estimate**	**OCO FY 2011 Estimate**	**Total FY 2011 Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
F19: *JADOCS*	0.000	11.844	11.787	0.000	11.787	5.817	5.793	5.783	5.767	Continuing	Continuing
Quantity of RD&TE Articles											

A. Mission Description and Budget Item Justification

Joint Automated Deep Operations Coordination System (JADOCS) is a Joint, Interagency, and Multinational (JIM) Targeting, Mission Management, and Common Operational Picture (COP) Windows based software suite which functions as a complementary system to the Advanced Field Artillery Tactical Data System (AFATDS). JADOCS provides integration and synergy between multiple Command & Control (C2) systems of the uniformed services, and joint and combined elements involved in the targeting process and performs coordination and calculates collateral damage. JADOCS Mission Managers support this coordination amongst Warfighter functional areas to rapidly execute critical missions. JADOCS enables coordination and de-confliction of conventional and asymmetric war-fighting missions. JADOCS uses a map-oriented Graphical User Interface (GUI) and overlays as a framework for information display. JADOCS is fielded to Air Force, Navy and Marine Corps units and the Army staff sections involved in the targeting process at Army Service Component Command, Corps, Division and Brigade Combat Team levels. JADOCS provides the Combatant Commands with the capability to plan and direct theater counter-fire and precision strike operations through the real time synchronization of US and Coalition assets. The application provides the Warfighter with a combination of tools, services and Mission Managers for rapid "system of systems" integration, visualization, coordination and deconfliction of critical mission information. It not only enhances C4ISR systems in the areas of strike planning but also in situational awareness, joint and combined interoperability and force transition in war. JADOCS is a component of the Integrated Fires Family of Systems (FOS) and complementary to the Army Battle Command Systems (ABCS) System of Systems (SoS).

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	**FY 2010**	**Base FY 2011**	**OCO FY 2011**	**Total FY 2011**
Program #1	0.000	0.571	0.630	0.000	0.630
Provide program support for JADOCS software blocks (BC 10), (BC 11-MacArthur) and (BC 13 - Eisenhower)					
FY 2009 Accomplishments: FY 2009					

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2010 Plans: FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #2 Provide development for JADOCS software blocks (BC 10), (BC 11-MacArthur) and (BC 13 - Eisenhower) *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	0.000	8.750	8.750	0.000	8.750
Program #3 Conduct and Support Test Activities	0.000	2.191	2.407	0.000	2.407

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2009 Accomplishments: FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #4 SIBR/STTR *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	0.000	0.332	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	0.000	11.844	11.787	0.000	11.787

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
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C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• Ord. #1: *Office Secretary of Defense (OSD)/Defense Acquisition Executive (DAE)*	5.295	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	5.295
• Ord. #2: *Joint Forces Command (JFCOM) 0201298N*	1.829	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	1.829
• Ord. #3: *Office Secretary of Defence (OSD)/Procurement*	1.947	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	1.947
• Ord. #4: *Overseas Contingency Operations (OCO)/OMA*	4.425	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	4.425

D. Acquisition Strategy

In FY 2003, the Automated Deep Operations Coordination System (ADOCS) was renamed the Joint Automated Deep Operations Coordination System (JADOCS) and was transitioned to Product Manager, Fire Support Command and Control (FSC2). Currently, operational control resides with Product Director, Fire Support Command & Control (FSC2) under Army Project Manager, Battle Command.JADOCS has operated as a graduated Advanced Concept Technology Demonstration (ACTD) program since 2005. In 2008, the Vice Chief of Staff Army approved JADOCS for Acquisition program status under the Capabilities Development for Rapid Transition (CDRT) program. Commencing in FY 10 and continuing through FY 15, the Army will provide funding for its requirements under JADOCS.JADOCS is presently heavily embedded in the architecture at USCENTCOM, USPACOM ,USFK and USEUCOM, including their subordinate commands. JADOCS is distributed to over 200 servers, 2600 workstations and 4000 users worldwide. Additionally, JADOCS is established within the coalition community. The Republic of Korea, the United Kingdom and NATO have Foreign Military Sales (FMS) cases. In accordance with the Training and Doctrine Command (TRADOC) requirements document approved in 2008, entitled Battle Command Essential Capability, software capability will be developed in 2-year increments as capability sets designed to Collaborate, Collapse and Converge Battle Command products. The product development funded under this R-Form is an integral part of the Army Battle Command System (ABCS), a system of systems, under a strategy designed to optimize opportunity for improved interoperability among the systems, to capture the benefits of competition where possible and to ensure the rapid integration of new capability into Warfighter systems. This strategy is designed to reduce the physical footprint, logistics support requirements and increase operational efficiency.

E. Performance Metrics

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

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203726A: *Adv Field Artillery Tactical Data System*	**PROJECT** F19: *JADOCS*

Product Development ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Software Development & Test	C/CPFF	TBD Location could not be determined.	0.000	8.750		8.750		0.000		8.750	0	Continuing	0
		Subtotal	0.000	8.750		8.750		0.000		8.750	0.000		0.000

Remarks

Support ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Program Management - Government	C	Topographic Engineering Center (TEC) Ft. Belvoir, VA	0.000	0.150		0.175		0.000		0.175	0	Continuing	0
		Subtotal	0.000	0.150		0.175		0.000		0.175	0.000		0.000

Remarks

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203726A: *Adv Field Artillery Tactical Data System*	**PROJECT** F19: *JADOCS*

Test and Evaluation ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Test Support	C	Army/Navy/Air Force - Various Locations Location could not be determined.	0.000	2.191		2.407		0.000		2.407	0	Continuing	0
		Subtotal	0.000	2.191		2.407		0.000		2.407	0.000		0.000

Remarks

Management Services ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Business/Technical Services	C	Chenega Federal Systems Alaska	0.000	0.421		0.455		0.000		0.455	0	Continuing	0
SIBR/STTR	C	Nothing entered for Activity and Location. Location could not be determined.	0.000	0.332		0.000		0.000		0.000	0	Continuing	0
		Subtotal	0.000	0.753		0.455		0.000		0.455	0.000		0.000

Remarks

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203726A: *Adv Field Artillery Tactical Data System*	**PROJECT** F19: *JADOCS*

	FY 2010		**Base FY 2011**		**OCO FY 2011**		**Total FY 2011**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Project Cost Totals	11.844		11.787		0.000		11.787	Continuing	Continuing	Continuing

Remarks

Exhibit R-4, PB 2011 Army **RDT&E Schedule Profile**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203726A: *Adv Field Artillery Tactical Data System*	**PROJECT** F19: *JADOCS*

	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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
Materiel Release - Marshall				#																								
Fielding - Marshall				#	#																							
Software Development (BC 11) Capability Set 11-12 (McArthur)	#	#	#	#	#	#	#																					
Materiel Release - McArthur								#																				
Fielding - McArthur								#	#	#																		
Software Development (BC 13) Capability Set 13-14 (Eisenhower)							#	#	#	#	#	#																
Materiel Release - Eisenhower																#												
Fielding - Eisenhower																	#	#	#									
Software Development (BC 15) Capability Set 15-16 (Arnold)												#	#	#	#	#	#	#	#	#								
Materiel Release - Arnold																								#				
Fielding - Arnold																									#	#	#	

Exhibit R-4A, PB 2011 Army **RDT&E Schedule Details**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203726A: *Adv Field Artillery Tactical Data System*	**PROJECT** F19: *JADOCS*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Materiel Release - Marshall	4	2009	4	2009
Fielding - Marshall	4	2009	1	2010
Software Development (BC 11) Capability Set 11-12 (McArthur)	1	2009	3	2010
Materiel Release - McArthur	4	2010	4	2010
Fielding - McArthur	4	2010	2	2011
Software Development (BC 13) Capability Set 13-14 (Eisenhower)	3	2010	4	2011
Materiel Release - Eisenhower	4	2012	4	2012
Fielding - Eisenhower	1	2013	3	2013
Software Development (BC 15) Capability Set 15-16 (Arnold)	4	2011	4	2013
Materiel Release - Arnold	4	2014	4	2014
Fielding - Arnold	1	2015	3	2015

Exhibit R-2, PB 2011 Army **RDT&E Budget Item Justification**	**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203735A: *Combat Vehicle Improvement Programs*

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	Base FY 2011 Estimate	OCO FY 2011 Estimate	Total FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	139.100	196.393	204.481	0.000	204.481	142.105	77.172	55.339	45.659	Continuing	Continuing
330: *ABRAMS TANK IMPROVE PROG*	37.113	108.296	107.479	0.000	107.479	87.836	77.172	55.339	45.659	Continuing	Continuing
371: *BRADLEY BASE SUSTAIN*	99.987	88.097	97.002	0.000	97.002	54.269	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

This Program Element (PE) corrects vehicle deficiencies identified in Army operations; continues technical system upgrades to include the integration of applicable technologies on ground systems; addresses needed evolutionary enhancements to tracked combat vehicles; and, develops technology improvements which have application to or insertion opportunities across multiple Ground Combat Systems vehicles. This PE provides combat effectiveness and Operating and Support (O&S) cost reduction enhancements for the Abrams tanks and Bradley Fighting Vehicles through a series of product improvements.This project funds improvements to the Abrams Family of Vehicles (FOV). The Abrams mission is to provide necessary firepower, mobility and survivability to overmatch all current and emerging enemy threats in achieving decisive dominant maneuver. The M1A2 SEP (current production model) refers to a System Enhancement Package incorporated on the tank in 1998, which upgraded the M1A2's computer systems and its night vision capabilities. Since that time, the M1A2 SEP has virtually reached its upper limits for space, weight, and power (SWaP). The Abrams tank is expected to be in service through 2045 and will be modernized in accordance with a revised capabilities document to: (1) posture the tank infrastructure to enable incremental growth as a hedge against other risks and contingencies, (2) maintain threat overmatch to deter aggression, project power and protect US interests and allies around the globe - especially with regard to the lessons of counterinsurgency learned during the tanks successful campaigns during Operation Iraqi Freedom, and (3) leverage the mature and relevant technology enhancements from the Army Research & Development Technology base. The Abrams tank must embark on a modernization effort in order to remain relevant and maintain threat overmatch capability. The objective is to maintain Survivability, Combat Overmatch and reduce O&S costs through an evolutionary approach with incremental development. The Bradley Fighting Vehicle System (BFVS) improvements will provide the Heavy Brigade Combat Team (HBCT) with an improved capability to effectively fight in current and future environments. The BFVS improvements will buyback the A3 performance to meet Operational Requirements Document standards and maintain combat over match through a combination of enhanced survivability, mobility and situational awareness subsystems. Improved survivability will leverage and build on lessons learned from Operation Iraqi Freedom to ensure protection against current and future threats in both asymmetric and full spectrum warfare. This provides the Bradley fleet the capability to complement the Abrams Tank and Ground Combat Vehicle in the HBCT. This also provides the HBCT commander with the necessary capabilities to employ the Bradley and Abrams in a combined arms approach as well as appropriate mounted and dismounted schemes of maneuver on current and future battlefields.

Exhibit R-2, PB 2011 Army **RDT&E Budget Item Justification**	**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203735A: *Combat Vehicle Improvement Programs*

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	143.041	190.301	205.558	0.000	205.558
Current President's Budget	139.100	196.393	204.481	0.000	204.481
Total Adjustments	-3.941	6.092	-1.077	0.000	-1.077
• Congressional General Reductions		0.000			
• Congressional Directed Reductions					
• Congressional Rescissions		0.000			
• Congressional Adds		7.120			
• Congressional Directed Transfers					
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-4.006	-5.299			

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**											**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*				**R-1 ITEM NOMENCLATURE** PE 0203735A: *Combat Vehicle Improvement Programs*				**PROJECT** 330: *ABRAMS TANK IMPROVE PROG*			
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**Base FY 2011 Estimate**	**OCO FY 2011 Estimate**	**Total FY 2011 Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
330: *ABRAMS TANK IMPROVE PROG*	37.113	108.296	107.479	0.000	107.479	87.836	77.172	55.339	45.659	Continuing	Continuing
Quantity of RD&TE Articles											

A. Mission Description and Budget Item Justification

The Abrams Fleet Modernization program will utilize an evolutionary acquisition approach with incremental development. This incremental approach will provide upgrades identified as critical from Operation Iraqi Freedom, emerging threats, and operational interoperability within the approved requirement documents. The incremental strategy allows Abrams to continuously modernize the fleet and provide timely performance enhancements. After having conducted a Material Development Decision (MDD), Increment 1 will begin in 2010 in the pre-Milestone B phase. By fall 2010 a Preliminary Design Review will be executed, and a Technology Readiness Level (TRL) 6 will be reached by Milestone B. At the same time Increment 2 will begin in the Material Solution Analysis Phase and reach Milestone A by fall 2010.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	**FY 2010**	**Base FY 2011**	**OCO FY 2011**	**Total FY 2011**
Program #1	0.485	22.500	22.500	0.000	22.500
Systems Engineering/project management, to include requirements decomposition & flow down, trade studies, modeling & simulation, risk management					
FY 2009 Accomplishments: FY 2009					
FY 2010 Plans: FY 2010					
Base FY 2011 Plans: FY 2011 Base					

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203735A: *Combat Vehicle Improvement Programs*	**PROJECT** 330: *ABRAMS TANK IMPROVE PROG*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
OCO FY 2011 Plans: FY 2011 OCO					
Program #2 Vehicle Architecture & Software, to include architecture synthesis and concepting, vetronics and software subsystem definition, power distribution architecture definition, specification development, Net-Centric and IA compliance activities *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	0.464	14.893	15.529	0.000	15.529
Program #3 Lethality Systems, to include cannon integration & characterization, fire control enhancements, future munitions integration, sensor development and integration, specification development *FY 2009 Accomplishments:* FY 2009	0.000	6.900	7.500	0.000	7.500

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203735A: *Combat Vehicle Improvement Programs*	**PROJECT** 330: *ABRAMS TANK IMPROVE PROG*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2010 Plans: FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #4 Survivability Systems, to include armor modeling and analysis, system design and integration, hit avoidance and signature management analysis, specification development *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	0.000	6.200	7.200	0.000	7.200
Program #5 Mobility Systems, to include fuel efficiency improvement analysis, reliability/maintainability analysis, track & suspension design, specification development	0.000	7.700	7.900	0.000	7.900

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203735A: *Combat Vehicle Improvement Programs*	**PROJECT** 330: *ABRAMS TANK IMPROVE PROG*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2009 Accomplishments: FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #6 Auxiliary Systems, to include Auxiliary Power Unit development, Nuclear/ Biological/Chemical detection & protection technology investigation, specification development *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	0.000	9.000	9.000	0.000	9.000
Program #7	0.283	3.000	0.500	0.000	0.500

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203735A: *Combat Vehicle Improvement Programs*	**PROJECT** 330: *ABRAMS TANK IMPROVE PROG*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Battle Command/Communication Integration *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #8	0.000	2.500	2.500	0.000	2.500
Mobility, Survivability, Vetronics and Software Integration *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203735A: *Combat Vehicle Improvement Programs*	**PROJECT** 330: *ABRAMS TANK IMPROVE PROG*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #9	2.120	19.000	24.000	0.000	24.000
Improved Lethality (Sensor Integration, Advanced Munitions, Cannon Integration). *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #10	4.600	6.500	6.500	0.000	6.500
Government Engineering Support *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203735A: *Combat Vehicle Improvement Programs*	**PROJECT** 330: *ABRAMS TANK IMPROVE PROG*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #11	0.345	0.000	0.000	0.000	0.000
Improved Situational Awareness/Supportability/Survivability (e.g. Driver's Rear Facing Camera, 360 Situational Awareness (SA), Active Protection System (APS), Environmental Systems (TMS/NBC), Improved Diagnostics and Embedded Training). *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #12	26.165	0.000	0.000	0.000	0.000
Advanced Technology Assessments and Insertion (System Engineering/ Electronic Architecture/Battle Command/ Communications) *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010					

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203735A: *Combat Vehicle Improvement Programs*	**PROJECT** 330: *ABRAMS TANK IMPROVE PROG*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Base FY 2011 Plans: FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #13 Transmission - Integral Generator *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	0.000	0.000	4.200	0.000	4.200
Program #14 Test and Evaluation *FY 2009 Accomplishments:* FY 2009	0.251	0.150	0.150	0.000	0.150

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203735A: *Combat Vehicle Improvement Programs*	**PROJECT** 330: *ABRAMS TANK IMPROVE PROG*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2010 Plans: FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #15 GCS Open Architecture Electronic Enhancements (Engineering analysis and investigation in advanced electronic architecture technology opportunities for ground combat systems modernization. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	2.400	0.000	0.000	0.000	0.000
Program #16 Current Force Common Active Protection System Radar	0.000	1.600	0.000	0.000	0.000

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203735A: *Combat Vehicle Improvement Programs*	**PROJECT** 330: *ABRAMS TANK IMPROVE PROG*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2009 Accomplishments: FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #17 Combat Vehicle Electrical Power - 21st Century (Combat Vehicle Evaluation Program (CVEP)-21) *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	0.000	3.120	0.000	0.000	0.000
Program #18	0.000	2.400	0.000	0.000	0.000

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203735A: *Combat Vehicle Improvement Programs*	**PROJECT** 330: *ABRAMS TANK IMPROVE PROG*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Vibration Management Enhancement Program *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #19	0.000	2.833	0.000	0.000	0.000
Small Business Innovative Research/Small Business Technology Transfer Programs (SBIR/STTR) *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203735A: *Combat Vehicle Improvement Programs*	**PROJECT** 330: *ABRAMS TANK IMPROVE PROG*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Accomplishments/Planned Programs Subtotals	37.113	108.296	107.479	0.000	107.479

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• Ord. #1: *Abrams Upgrade Program (GA0750)*	580.543	185.038	183.000	0.000	183.000	188.823	282.717	280.829	278.599	0	1,979.549
• Ord. #2: *Abrams Vehicle Modification (GA0700)*	737.057	183.262	230.907	0.000	230.907	160.137	0.000	0.000	0.000	0	1,311.363

D. Acquisition Strategy

Contractor selection for FY2011 and beyond pending Milestone B decision for Increment 1 and Milestone A decision for Increment 2.

E. Performance Metrics

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

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203735A: *Combat Vehicle Improvement Programs*	**PROJECT** 330: *ABRAMS TANK IMPROVE PROG*

Product Development ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Systems Engineering/ project management	C	TARDEC Location could not be determined.	0.000	22.500		22.500		0.000		22.500	0	Continuing	0
Vehicle Architecture & Software	C/TBD	TBD Location could not be determined.	0.000	14.893		15.529		0.000		15.529	0	Continuing	0
Lethality Systems	C/TBD	TBD Location could not be determined.	0.000	6.900		7.500		0.000		7.500	0	Continuing	0
Survivability Systems	C/TBD	TBD Location could not be determined.	0.000	6.200		7.200		0.000		7.200	0	Continuing	0
Mobility Systems	C/TBD	TBD Location could not be determined.	0.000	7.700		7.900		0.000		7.900	0	Continuing	0
Auxiliary Systems	C/TBD	TBD Location could not be determined.	0.000	11.833		9.000		0.000		9.000	0	Continuing	0
Cannon Integration	C	ARDEC Location could not be determined.	0.000	12.200		17.500		0.000		17.500	0	Continuing	0
Sensor Integration	C	CECOM-NVESD Location could not be determined.	0.000	6.800		6.500		0.000		6.500	0	Continuing	0
Battle Command/ Communication Integration	C	CECOM/PEO C3T Location could not be determined.	0.000	3.000		0.500		0.000		0.500	0	Continuing	0

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203735A: *Combat Vehicle Improvement Programs*	**PROJECT** 330: *ABRAMS TANK IMPROVE PROG*

Product Development ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Mobility/Survivability/ Vetronics/Software Integration	C	TARDEC Location could not be determined.	0.000	2.500		2.500		0.000		2.500	0	Continuing	0
Improved Situational Awareness/Supportability/ Survivability	C/TBD	General Dynamics Sterling Heights, MI	18.500	0.000		0.000		0.000		0.000	0	Continuing	0
Improved Lethality	C	PM MAS	1.430	0.000		0.000		0.000		0.000	0	Continuing	0
Advance Technology Insertion/ Systems Enginering, Electronic Architecture, Battle Command/Comms	C/TBD	General Dynamics Sterling Heights, MI/To Be Determined	12.020	0.000		0.000		0.000		0.000	0	Continuing	0
Transmission - Integral Generator	C/TBD	Allison Transmission Indianapolis, IN	0.000	0.000		4.200		0.000		4.200	0	Continuing	0
Ground Combat Systems (GCS) Open Architecture Electronic Enhancements	C	Curtis Wright Roseland NJ	0.000	0.000		0.000		0.000		0.000	0	Continuing	0
Current Force Common Active Protection System Radar	C/TBD	TBD Location could not be determined.	0.000	1.600		0.000		0.000		0.000	0	Continuing	0
Combat Vehicle Elctrrical Power - 21st Century (CVEP-21)	C/CPFF	Allison Transmission Indianapolis, IN	0.000	3.120		0.000		0.000		0.000	0	Continuing	0
Vibration Management Enhancement Program	C/TBD	TBD	0.000	2.400		0.000		0.000		0.000	0	Continuing	0

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203735A: *Combat Vehicle Improvement Programs*	**PROJECT** 330: *ABRAMS TANK IMPROVE PROG*

Product Development ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
		Location could not be determined.											
			Subtotal 31.950	101.646		100.829		0.000		100.829	0.000		0.000

Remarks

Contractor, award date and type of contract is to be determined (TBD) due to ongoing development of acquisition strategy.

Support ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Engineering Support	C	Various Location could not be determined.	5.068	6.500		6.500		0.000		6.500	0	Continuing	0
			Subtotal 5.068	6.500		6.500		0.000		6.500	0.000		0.000

Remarks

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203735A: *Combat Vehicle Improvement Programs*	**PROJECT** 330: *ABRAMS TANK IMPROVE PROG*

Test and Evaluation ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Advance Technology Preparation and Testing	C	Aberdeen Proving Ground MD; Yuma Proving Ground, AZ; White Sands Missile	7.000	0.150		0.150		0.000		0.150	0	Continuing	0
		Subtotal	7.000	0.150		0.150		0.000		0.150	0.000		0.000

Remarks

	FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	108.296		107.479		0.000		107.479	Continuing	Continuing	Continuing

Remarks

Exhibit R-4, PB 2011 Army **RDT&E Schedule Profile**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203735A: *Combat Vehicle Improvement Programs*	**PROJECT** 330: *ABRAMS TANK IMPROVE PROG*

	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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 Decision						#																						
Increment 1						#																						
Preliminary Design Review							#																					
Milestone B							#																					
Critical Design Review										#																		
Prototype Testing								#	#	#	#	#	#	#	#	#												
Milestone C																	#											
First Unit Equipped																											#	
Increment 2																				#								
Milestone A							#																					
Preliminary Design Review - 2																#												
Milestone B - 2																	#											
Critical Design Review - 2																						#						

Exhibit R-4A, PB 2011 Army **RDT&E Schedule Details**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203735A: *Combat Vehicle Improvement Programs*	**PROJECT** 330: *ABRAMS TANK IMPROVE PROG*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Material Development Decision	2	2010	2	2010
Increment 1	2	2010	2	2010
Preliminary Design Review	3	2010	3	2010
Milestone B	3	2010	3	2010
Critical Design Review	2	2011	2	2011
Prototype Testing	4	2010	4	2012
Milestone C	1	2013	1	2013
First Unit Equipped	3	2015	3	2015
Increment 2	4	2013	4	2013
Milestone A	3	2010	3	2010
Preliminary Design Review - 2	4	2012	4	2012
Milestone B - 2	1	2013	1	2013
Critical Design Review - 2	2	2014	2	2014

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**											**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*				**R-1 ITEM NOMENCLATURE** PE 0203735A: *Combat Vehicle Improvement Programs*				**PROJECT** 371: *BRADLEY BASE SUSTAIN*			
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**Base FY 2011 Estimate**	**OCO FY 2011 Estimate**	**Total FY 2011 Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
371: *BRADLEY BASE SUSTAIN*	99.987	88.097	97.002	0.000	97.002	54.269	0.000	0.000	0.000	Continuing	Continuing
Quantity of RD&TE Articles											

A. Mission Description and Budget Item Justification

The Bradley Fighting Vehicle System (BFVS) improvements will provide the Heavy Brigade Combat Team (HBCT) with an improved capability to effectively fight in current and future environments. The BFVS improvements will buyback the A3 performance to meet Operational Requirements Document standards and maintain combat over match through a combination of enhanced survivability, mobility and situational awareness subsystems. Improved survivability will leverage and build on lessons learned from Operation Iraqi Freedom to ensure protection against current and future threats in both asymmetric and full spectrum warfare. This provides the Bradley fleet the capability to complement the Abrams Tank and Ground Combat Vehicle in the HBCT. This also provides the HBCT commander with the necessary capabilities to employ the Bradley and Abrams in a combined arms approach as well as appropriate mounted and dismounted schemes of maneuver on current and future battlefields.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	**FY 2010**	**Base FY 2011**	**OCO FY 2011**	**Total FY 2011**
Program #1	62.500	34.800	77.102	0.000	77.102
Bradley A3 Block 2					
FY 2009 Accomplishments: FY 2009					
FY 2010 Plans: FY 2010					
Base FY 2011 Plans: FY 2011 Base					

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203735A: *Combat Vehicle Improvement Programs*	**PROJECT** 371: *BRADLEY BASE SUSTAIN*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
OCO FY 2011 Plans: FY 2011 OCO					
Program #2	37.487	50.831	19.900	0.000	19.900
Support Costs *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #3	0.000	0.000	0.000	0.000	0.000
Test Support *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010					

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203735A: *Combat Vehicle Improvement Programs*	**PROJECT** 371: *BRADLEY BASE SUSTAIN*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Base FY 2011 Plans: FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #4 Small Business Innovative Research/Small Business Technology Transfer Programs (SBIR/STTR) *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	0.000	2.466	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	99.987	88.097	97.002	0.000	97.002

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• Ord. #1: *G80718 Bradley Program*	394.800	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	394.800
• Ord. #2: *GZ2400 Bradley Program (MOD)*	1,095.588	768.332	215.133	0.000	215.133	0.000	44.292	46.805	46.433	122.800	2,339.383

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203735A: *Combat Vehicle Improvement Programs*	**PROJECT** 371: *BRADLEY BASE SUSTAIN*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• Ord. #3: *GZ2500 Bradley Training Devices (MOD)*	10.954	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	15.606

D. Acquisition Strategy

The Acquisition Strategy for the Bradley A3 Block 2 Program will be addressed as part of the Materiel Development Decision in 3rd quarter FY2010

E. Performance Metrics

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

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203735A: *Combat Vehicle Improvement Programs*	**PROJECT** 371: *BRADLEY BASE SUSTAIN*

Product Development ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Bradley A3 Block 2 Program	C	To be determined Location could not be determined.	0.000	34.800		77.102		0.000		77.102	34.369	Continuing	0
Electronic System Modeling	SS/FFP	Curtiss Wright Santa Clarita, CA	1.408	0.000		0.000		0.000		0.000	0	Continuing	0
Vehicle Health Management	SS/FFP	DRS TEM Huntsville, AL	4.000	0.000		0.000		0.000		0.000	0	Continuing	0
		Subtotal	5.408	34.800		77.102		0.000		77.102	34.369		0.000

Remarks

Support ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
PMO	C	PMO Warren, MI	0.000	6.500		6.500		0.000		6.500	4.000	Continuing	0
Contractor Engineering Support	SS/FFP	BAE San Jose, CA	0.000	40.597		0.000		0.000		0.000	0	Continuing	0
Government Engineering Support	C	Various sites Location could not be determined.	0.000	6.200		13.400		0.000		13.400	10.900	Continuing	0
		Subtotal	0.000	53.297		19.900		0.000		19.900	14.900		0.000

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203735A: *Combat Vehicle Improvement Programs*	**PROJECT** 371: *BRADLEY BASE SUSTAIN*

Support ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**

Remarks

Test and Evaluation ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Test Support	C	Government Test Sites Location could not be determined.	0.000	0.000		0.000		0.000		0.000	5.000	Continuing	0
		Subtotal	0.000	0.000		0.000		0.000		0.000	5.000		0.000

Remarks

	FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	88.097		97.002		0.000		97.002	Continuing	Continuing	Continuing

Remarks

Exhibit R-4, PB 2011 Army **RDT&E Schedule Profile**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203735A: *Combat Vehicle Improvement Programs*	**PROJECT** 371: *BRADLEY BASE SUSTAIN*

	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Bradley A3 Block 2 Program			#	#	#	#	#	#	#	#	#	#	#	#	#													
Materiel Development Decision						#																						
Milestone A							#																					
Technical Development								#	#	#	#	#	#	#	#													
System Requirements Review									#																			
System Functional Review												#																
Milestone B																#												

Exhibit R-4A, PB 2011 Army **RDT&E Schedule Details**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203735A: *Combat Vehicle Improvement Programs*	**PROJECT** 371: *BRADLEY BASE SUSTAIN*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Bradley A3 Block 2 Program	3	2009	3	2012
Materiel Development Decision	2	2010	2	2010
Milestone A	3	2010	3	2010
Technical Development	4	2010	3	2012
System Requirements Review	1	2011	1	2011
System Functional Review	4	2011	4	2011
Milestone B	4	2012	4	2012

Exhibit R-2, PB 2011 Army **RDT&E Budget Item Justification**	**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203744A: *Aircraft Modifications/Product Improvement Programs*

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	Base FY 2011 Estimate	OCO FY 2011 Estimate	Total FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	298.640	212.992	134.999	0.000	134.999	154.611	124.093	115.692	103.473	Continuing	Continuing
028: *Aerial Common Sensor (ACS) (MIP)*	20.828	0.074	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
430: *IMPR CARGO HELICOPTER*	13.584	10.743	21.039	0.000	21.039	50.740	50.685	52.577	53.477	Continuing	Continuing
504: *BLACK HAWK RECAPITALIZATION/ MODERNIZATION*	34.196	38.953	20.640	0.000	20.640	22.231	22.192	22.783	22.853	Continuing	Continuing
D12: *LONGBOW APACHE OPERATIONAL SYSTEMS DEVELOP*	34.940	13.214	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
D17: *APACHE BLOCK III*	192.169	149.029	93.320	0.000	93.320	81.640	51.216	40.332	27.143	Continuing	Continuing
D18: *UTILITY FW CARGO AIRCRAFT*	2.923	0.979	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

FY 2011 budget request funds aviation development of modifications and improvements for the Guardrail Common Sensor/Aerial Common Sensor, the Improved Cargo Helicopter (ICH), the UH-60A/L Black Hawk Recapitalization/ Modernization.

Exhibit R-2, PB 2011 Army **RDT&E Budget Item Justification**	**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203744A: *Aircraft Modifications/Product Improvement Programs*

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	459.424	209.401	124.567	0.000	124.567
Current President's Budget	298.640	212.992	134.999	0.000	134.999
Total Adjustments	-160.784	3.591	10.432	0.000	10.432
• Congressional General Reductions		-2.099			
• Congressional Directed Reductions					
• Congressional Rescissions		0.000			
• Congressional Adds		5.690			
• Congressional Directed Transfers					
• Reprogrammings	5.004	0.000			
• SBIR/STTR Transfer	-8.078	0.000			
• Adjustments to Budget Years	0.000	0.000	10.432	0.000	10.432

Change Summary Explanation

Change Summary Explanation: Funding - FY 2009: $157.71 million rescinded from Aerial Common Sensor.

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**											**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*				**R-1 ITEM NOMENCLATURE** PE 0203744A: *Aircraft Modifications/Product Improvement Programs*				**PROJECT** 028: *Aerial Common Sensor (ACS) (MIP)*			
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**Base FY 2011 Estimate**	**OCO FY 2011 Estimate**	**Total FY 2011 Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
028: *Aerial Common Sensor (ACS) (MIP)*	20.828	0.074	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RD&TE Articles											

A. Mission Description and Budget Item Justification

(U) Aerial Common Sensor (ACS) is an Airborne Reconnaissance, Surveillance and Target Acquisition (RSTA)/Intelligence, Surveillance, and Reconnaissance (ISR) capability directly supporting Battlespace Awareness for tactical commanders in irregular warfare scenarios. Specifically, ACS will provide real-time, persistent, precision, networked, wide-area, high-capacity, multi-sensor intelligence collection capability throughout the joint battlespace. ACS will quickly produce actionable intelligence that provides commanders and soldiers critical shared situational understanding delivered with the speed, accuracy, and timeliness necessary to conduct successful and when necessary, lethal joint operations. ACS will support focused Intelligence Preparation of the Battlespace (IPB), Indications and Warnings (I&W), precision targeting, battle damage assessment (BDA), Situational Development, battle command, and Force Protection. Each of these will be synchronized with operations in order to develop and maintain situational awareness and reduce clutter in the maneuver environment. ACS will be a manned, fixed-wing aircraft capable of worldwide deployment carrying multiple sensor payloads and intelligence processing, appropriate air/ground/ satellite data links, and air crew (i.e., pilots and intelligence systems operations). The RSTA/ISR payload will consist of a suite of modular, scaleable Signals Intelligence (SIGINT), Imagery Intelligence (IMINT), Ground Moving Target Indicator (GMTI) and Measurement and Signature Intelligence (MASINT) sensors and processors that can operate alone or simultaneously in combination with each other (e.g., automated cross-cueing). The intelligence processing suite onboard ACS and in the ground station, provided by the Distributed Common Ground System-Army (DCGS-A), will integrate the products from all ACS Sensor payloads as well as the sensor feeds from other joint force sensors, including manned/ unmanned (MUM) teaming with Army Unmanned Aircraft Systems (UAS), to provide a correlated near-real-time picture of the tactical operational environment with the greatest degree of granularity possible. Onboard communications will consist of a robust set of line-of-sight (LOS) and satellite communications (SATCOM) datalinks that will enable direct linkage to Brigade Combat Teams, Manned-Unmanned teaming with Army UAS, wideband/worldwide connectivity to DCGS and the Global Information Grid, and interoperability with other Army, Joint and National RSTA/ISR assets. ACS will be a critical and integral component of the future force.The Department of Defense (DoD) has redefined the Aerial Common Sensor Program as the Enhanced Medium Altitude Reconnaissance and Surveillance System (EMARSS). The 2010 Appropriations conference report acknowledged that the Army is no longer pursing ACS as a single multi-Intelligence platform. The EMARSS program will be funded through PE 0307207A - Aerial Common Sensor Project 024 and 655626 - Aerial Common Sensor Project AC5.

B. Accomplishments/Planned Program ($ in Millions)

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	**PROJECT** 028: *Aerial Common Sensor (ACS) (MIP)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #1	20.828	0.000	0.000	0.000	0.000
Datalink Risk Reduction efforts, Advance Quicklook Settlement					
FY 2009 Accomplishments: FY 2009					
FY 2010 Plans: FY 2010					
Base FY 2011 Plans: FY 2011 Base					
OCO FY 2011 Plans: FY 2011 OCO					
Program #2	0.000	0.074	0.000	0.000	0.000
Program Office Management					
FY 2009 Accomplishments: FY 2009					
FY 2010 Plans: FY 2010					
Base FY 2011 Plans: FY 2011 Base					
OCO FY 2011 Plans: FY 2011 OCO					

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	**PROJECT** 028: *Aerial Common Sensor (ACS) (MIP)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Accomplishments/Planned Programs Subtotals	20.828	0.074	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• Ord. #1: *ACS NSA MIP*	3.690	2.094	0.000	0.000	6.748	7.395	7.395	7.395	7.395	Continuing	Continuing
• Ord. #2: *CHALS NSA MIP*	3.912	1.777	0.000	0.000	3.837	4.182	4.179	4.179	4.179	Continuing	Continuing
• Ord. #3: *GRCS NSA MIP*	6.669	2.885	0.000	0.000	3.424	3.602	3.601	3.601	3.601	Continuing	Continuing
• Ord. #4: *Army PE 0307207A Project 024*	0.000	210.035	0.000	0.000	300.363	237.286	248.297	388.495	176.500	0	1,560.976

D. Acquisition Strategy

The Department of Defense (DoD) has redefined the Aerial Common Sensor Program as the Enhanced Medium Altitude Reconnaissance and Surveillance System (EMARSS). The 2010 Appropriations conference report acknowledged that the Army is no longer pursing ACS as a single multi-Intelligence platform. The EMARSS program will be funded through PE 0307207A - Aerial Common Sensor Project 024 and 655626 - Aerial Common Sensor Project AC5.

E. Performance Metrics

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

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	**PROJECT** 028: *Aerial Common Sensor (ACS) (MIP)*

Product Development ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
MR-TCDL Advanced Technology Program	SS	Northrop Grumman Space & Mission Systems Corp Redondo Beach CA	0.000	0.000		0.000		0.000		0.000	0	Continuing	0
Advance Quickfix Settlement Costs	C	Boeing Sunnyvale, CA	0.000	0.000		0.000		0.000		0.000	0	Continuing	0
GRCS ITADS	C	Nothing entered for Activity and Location. Location could not be determined.	0.000	0.000		0.000		0.000		0.000	0	Continuing	0
		Subtotal	0.000	0.000		0.000		0.000		0.000	0.000		0.000

Remarks

FY10 and out years funded with PE 0307207A - Aerial Common Sensor (ACS) Project 024

Management Services ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
PMO Staff/travel/O/H expenses	C	PM AC Sensors; Ft. Monmouth NJ	28.381	0.074		0.074		0.000		0.074	Continuing	Continuing	0

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	**PROJECT** 028: *Aerial Common Sensor (ACS) (MIP)*

Management Services ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Program SETA Support	C	CACI /NJ/DC Location could not be determined.	11.921	0.000		0.000		0.000		0.000	Continuing	Continuing	7.004
		Subtotal	40.302	0.074		0.074		0.000		0.074			7.004

Remarks

	FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.074		0.000		0.000		0.000	Continuing	Continuing	Continuing

Remarks

Exhibit R-4, PB 2011 Army **RDT&E Schedule Profile**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	**PROJECT** 028: *Aerial Common Sensor (ACS) (MIP)*

	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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 Decision (MDD)					#																							
Contract Award IPR						#																						
Engineering Manufacturing & Development						#	#	#	#	#	#																	
SRR/SFR							#																					
System Design Review									#																			
CT/DT									#	#																		
DT/OT & LUT										#	#																	
MS C											#																	
LRIP											#	#	#	#														
IOT&E													#															
Full Rate Production														#														
Production														#	#	#	#	#	#	#	#	#	#	#	#	#	#	

Exhibit R-4A, PB 2011 Army **RDT&E Schedule Details**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	**PROJECT** 028: *Aerial Common Sensor (ACS) (MIP)*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Material Development Decision (MDD)	1	2010	1	2010
Contract Award IPR	2	2010	2	2010
Engineering Manufacturing & Development	2	2010	3	2011
SRR/SFR	3	2010	3	2010
System Design Review	1	2011	1	2011
CT/DT	1	2011	2	2011
DT/OT & LUT	2	2011	3	2011
MS C	3	2011	3	2011
LRIP	3	2011	2	2012
IOT&E	1	2012	1	2012
Full Rate Production	2	2012	2	2012
Production	2	2012	3	2015

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**											**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*				**R-1 ITEM NOMENCLATURE** PE 0203744A: *Aircraft Modifications/Product Improvement Programs*				**PROJECT** 430: *IMPR CARGO HELICOPTER*			
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**Base FY 2011 Estimate**	**OCO FY 2011 Estimate**	**Total FY 2011 Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
430: *IMPR CARGO HELICOPTER*	13.584	10.743	21.039	0.000	21.039	50.740	50.685	52.577	53.477	Continuing	Continuing
Quantity of RD&TE Articles											

A. Mission Description and Budget Item Justification

The CH-47 Chinook is a twin-turbine, tandem-rotor, heavy-lift transport helicopter with a useful load of up to 25,000 pounds. As the Army's only heavy lift helicopter, the CH-47 is an essential component of the Army Future Force. The CH-47F program fills the Army's Aviation Transformation Chinook requirement. Key product improvements integrate the CH-47F Common Avionics Architecture System (CAAS) digital cockpit which will provide future growth potential to meet the Net-Ready Key Performance Parameters (KPPs) and also includes a digital data bus that permits installation of enhancedcommunication and navigation equipment for improved situational awareness, mission performance, and survivability. The CH-47 program funds the developmental improvements to the T55-GA-714A engines which includes a redesigned N1 Drive Train and a new torque system and the Airframe Component Improvement Program that includes development of new Rotor Blades that will result in significant performance improvement for the Chinook such as gaining an additional 1500 lbs of lift, improving erosion protection, and reducing retreating blade stall.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	**FY 2010**	**Base FY 2011**	**OCO FY 2011**	**Total FY 2011**
Program #1	0.489	0.548	0.503	0.000	0.503
Continue in-house and Program Management Administration					
FY 2009 Accomplishments: FY 2009					
FY 2010 Plans: FY 2010					
Base FY 2011 Plans: FY 2011 Base					

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	**PROJECT** 430: *IMPR CARGO HELICOPTER*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
OCO FY 2011 Plans: FY 2011 OCO					
Program #2 714 Engine Component Improvement Program *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	3.955	6.292	6.800	0.000	6.800
Program #3 Airframe Component Improvement Program *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010	5.940	3.602	3.593	0.000	3.593

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	**PROJECT** 430: *IMPR CARGO HELICOPTER*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Base FY 2011 Plans: FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #4 Health and Usage Monitoring (HUMS) *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	3.200	0.000	0.000	0.000	0.000
Program #5 Rotary Wing Helicopter Crash Worthy Seating *FY 2009 Accomplishments:* FY 2009	0.000	0.000	10.143	0.000	10.143

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	**PROJECT** 430: *IMPR CARGO HELICOPTER*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2010 Plans: FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #6 Small Business Innovative Research/Small Business Technology Transfer Programs (SBIR/STTR) *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	0.000	0.301	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	13.584	10.743	21.039	0.000	21.039

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	**PROJECT** 430: *IMPR CARGO HELICOPTER*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• Ord. #1: *APA, SSN AA0252, CH-47 CARGO HELICOPTER MODS (MYP) (Including Adv Proc and Initial Spares)*	730.253	102.876	0.000	0.000	74.368	80.353	195.501	288.754	315.091	6,622.220	8,409.416
• Ord. #2: *APA, SSN AA05105000, CH-47 SLEP*	0.000	345.939	0.000	0.000	299.918	427.322	588.551	631.834	754.968	2,073.835	5,122.367
• Ord. #3: *APA, SSN A05008, CH-47 CARGO HELICOPTER NEW BUILD (Including Adv Proc)*	592.211	706.024	0.000	0.000	882.995	865.231	187.141	282.525	259.962	155.000	3,931.089

D. Acquisition Strategy

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

E. Performance Metrics

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

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	**PROJECT** 430: *IMPR CARGO HELICOPTER*

Product Development ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
EMD	C/CPIF	ATTC Ft Rucker, AL	117.221	0.000		0.000		0.000		0.000	0	117.221	117.098
TOCR	C/CPIF	RDEC Huntsville, AL	1.600	0.000		0.000		0.000		0.000	0	1.600	1.600
Low Maintenance Rotor Hub	C/CPIF	Boeing Philadelphia, PA	7.685	0.000		0.000		0.000		0.000	0	7.685	0
Technical Support	C/CPFF	ATTC Ft Rucker, AL	10.158	0.000		0.000		0.000		0.000	0	Continuing	0
714 Engine Component Improvement Program	C/CPFF	Honeywell Alberque, NM	23.055	6.292		6.800		0.000		6.800	0	Continuing	0
Airframe Component Improvement Program	C	Nothing entered for Activity and Location. Location could not be determined.	10.018	3.602		3.593		0.000		3.593	0	Continuing	0
Health and Usage Monitoring (HUMS)	C	Nothing entered for Activity and Location. Location could not be determined.	39.600	0.000		0.000		0.000		0.000	0	Continuing	0
Rotary Wing Helicopter Crash Worthy Seating	C	Nothing entered for Activity and Location. Location could not be determined.	0.000	0.000		10.143		0.000		10.143	0	Continuing	0
		Subtotal	209.337	9.894		20.536		0.000		20.536	0.000		118.698

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	**PROJECT** 430: *IMPR CARGO HELICOPTER*

Product Development ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**

Remarks

Support ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
PMO/OGA	C	Various government Location could not be determined.	15.929	0.548		0.503		0.000		0.503	0	Continuing	0
SBIR/STTR	C	Nothing entered for Activity and Location. Location could not be determined.	0.814	0.301		0.000		0.000		0.000	0	Continuing	0
		Subtotal	16.743	0.849		0.503		0.000		0.503	0.000		0.000

Remarks

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	**PROJECT** 430: *IMPR CARGO HELICOPTER*

Test and Evaluation ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
DT/OT	C	Various government Location could not be determined.	25.257	0.000		0.000		0.000		0.000	0	20.507	0
Live Fire Test & Eval	C	Contract/Govt Location could not be determined.	6.365	0.000		0.000		0.000		0.000	0	6.365	0
Live Fire Test & Eval - 2	C	Nothing entered for Activity and Location. Location could not be determined.	0.050	0.000		0.000		0.000		0.000	0	.050	0
Test Analysis	C	Various Government Location could not be determined.	1.500	0.000		0.000		0.000		0.000	0	1.500	0
		Subtotal	33.172	0.000		0.000		0.000		0.000	0.000	28.422	0.000

Remarks

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	**PROJECT** 430: *IMPR CARGO HELICOPTER*

Management Services ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
CAMBER/Westar	SS/FP	Huntsville AL	3.901	0.000		0.000		0.000		0.000	0	3.901	3.901
		Subtotal	3.901	0.000		0.000		0.000		0.000	0.000	3.901	3.901

Remarks

	FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	10.743		21.039		0.000		21.039	Continuing	Continuing	Continuing

Remarks

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**											**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*				**R-1 ITEM NOMENCLATURE** PE 0203744A: *Aircraft Modifications/Product Improvement Programs*				**PROJECT** 504: *BLACK HAWK RECAPITALIZATION/ MODERNIZATION*			
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**Base FY 2011 Estimate**	**OCO FY 2011 Estimate**	**Total FY 2011 Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
504: *BLACK HAWK RECAPITALIZATION/ MODERNIZATION*	34.196	38.953	20.640	0.000	20.640	22.231	22.192	22.783	22.853	Continuing	Continuing
Quantity of RD&TE Articles											

A. Mission Description and Budget Item Justification

The UH-60 BLACK HAWK serves as the Army's utility helicopter in the Future Force. It is used for air assault, general support, aeromedical evacuation (MEDEVAC), and command and control in active and reserve component theater, corps, division, and Table of Distribution and Allowances (TDA) units. The UH-60A entered service in fiscal year 1978 (FY78), and the newer model UH-60L in FY89. The Army's last procurement of UH-60L helicopters was FY06. The Army has established a recapitalization goal for its systems of maintaining the fleet's average age at the design half-life or less. The UH-60 was designed for a 20 year service life. The oldest UH-60As are now over 32 years old, and the average age of the UH-60A fleet is 21 years old. The increased operational tempo, coupled with the technological age of the basic airframe, components, and systems, is having an adverse impact on the operational readiness (OR) and operating and support (O&S) costs of the over 1500 aircraft UH-60 fleet. In addition, the UH-60A/L helicopters lack the necessary digital avionics architecture to meet current and future Army and Joint Service interoperability communication requirements. The Army has determined that an upgrade program is required to address these issues. An Operational Requirements Document (ORD) for recapitalization of the BLACK HAWK fleet was approved by the Joint Requirements Oversight Council (JROC) in March, 2001. The ORD describes an evolutionary, block approach to transform the utility helicopter force to one that is more deployable, responsive, and less expensive to operate. A revised ORD was signed by the JROC on July 24, 2006, updating key performance parameters for survivability and force protection. The UH-60M provides a common platform for the modernized air ambulance MEDEVAC mission equipment package (MEP). RDTE funds are required to develop, integrate, test and qualify the UH-60M Upgrade configuration. FY05 funded the initial efforts to move the UH-60M program to an Upgrade configuration which includes the Fly By Wire (FBW), Full Authority Digital Engine Control (FADEC) and the Common Avionics Architecture System (CAAS), which is the common cockpit to be used by UH-60M, CH-47 and Special Operations. Incorporation of CAAS will minimize the future sustainment costs for these aircraft platforms. A successful UH-60M Upgrade IPR decision was obtained in January 2006. On May 18, 2007, the Office of the Secretary of Defense (OSD) Overarching Integrated Product Team (OIPT) report recommended approval for the UH-60M program to enter Full Rate Production (FRP) and approved the Army request for advanced procurement for seven UH-60M Upgrade aircraft and recommended a paper Defense Acquisition Board (DAB). On June 26, 2007, the Black Hawk Full Rate Production (FRP) Acquisition Decision Memorandum (ADM) was signed. The approved ADM authorizes entry into FRP for the Black Hawk Upgrade Program to include both the UH-60M and HH-60M baseline aircraft. The ADM also provided for FY08 advanced procurement for long lead items to support the initial cut-in aircraft for the UH/HH-60M Upgrade effort. Based on increasing demands for helicopters to support Army Force Generation Model (AFORGEN) requirements, the Configuration Steering Board (CSB) recommended to the Defense Acquisition Executive (DAE) to restructure the UH-60 Modernization Program. The recommendation included three parts: 1) producing UH-60M baseline aircraft only; 2) complete DT on FBW aircraft; and 3) migrate selected technologies from the upgrade development efforts to the baseline configuration. The recommendation has been submitted to the DAE.FY10 funds continue on-going development of the FADEC integration program, FBW, the common avionics architecture system, and efforts for the development and test of the

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	**PROJECT** 504: *BLACK HAWK RECAPITALIZATION/ MODERNIZATION*

UH-60M Upgrade aircraft.FY11 funds continue on-going development of the FADEC integration program, FBW, the common avionics architecture system, and the development and testing of the UH-60M Upgrade aircraft.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #1	9.195	6.337	2.904	0.000	2.904
Continue airframe, avionics and power plant development based on finalized configuration as a result of airframe CDR. Conduct System Preliminary Design Review and Critical Design Review *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #2	5.600	9.978	7.982	0.000	7.982
Software Development - includes failure modes and effects criticality analysis; software design descriptions; qualification testing of mission critical computer resources; update software requirements specifications and multiplex interface control documents; and prepare software design descriptions *FY 2009 Accomplishments:* FY 2009					

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	**PROJECT** 504: *BLACK HAWK RECAPITALIZATION/ MODERNIZATION*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2010 Plans: FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #3 Continue Producibility Engineering and Planning (PEP) as well as manufacturing planning and control *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	1.797	0.000	0.000	0.000	0.000
Program #4 Prototype build and delivery to support Development Testing (DT)	3.390	0.000	0.000	0.000	0.000

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	**PROJECT** 504: *BLACK HAWK RECAPITALIZATION/ MODERNIZATION*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2009 Accomplishments: FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #5 Testing (Conduct flight testing, EME testing and ground testing) *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	7.899	14.650	9.525	0.000	9.525
Program #6	1.135	0.000	0.000	0.000	0.000

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	**PROJECT** 504: *BLACK HAWK RECAPITALIZATION/ MODERNIZATION*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Preparation of training documentation for Logistics Demonstration Familiarization Course, Government Test Pilot Familiarization Course and Test Data Collection Training Course *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #7 Conduct training course to support test *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	1.029	0.000	0.000	0.000	0.000

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	**PROJECT** 504: *BLACK HAWK RECAPITALIZATION/ MODERNIZATION*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #8	0.286	0.174	0.136	0.000	0.136
Maintain Continuous Acquisition and Life Cycle Support (CALS)/Contractor Integrated Technical Information Service (CITIS) and deliver Interface Control Documents (ICD's)					
FY 2009 Accomplishments: FY 2009					
FY 2010 Plans: FY 2010					
Base FY 2011 Plans: FY 2011 Base					
OCO FY 2011 Plans: FY 2011 OCO					
Program #9	0.141	0.092	0.093	0.000	0.093
Support Equipment					
FY 2009 Accomplishments: FY 2009					
FY 2010 Plans: FY 2010					
Base FY 2011 Plans: FY 2011 Base					

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	**PROJECT** 504: *BLACK HAWK RECAPITALIZATION/ MODERNIZATION*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
OCO FY 2011 Plans: FY 2011 OCO					
Program #10 Full Authority Digital Engine Control (FADEC) Integration *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	1.974	1.100	0.000	0.000	0.000
Program #11 Operator Situational Awareness System - MEDEVAC *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010	1.750	0.000	0.000	0.000	0.000

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	**PROJECT** 504: *BLACK HAWK RECAPITALIZATION/ MODERNIZATION*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Base FY 2011 Plans: FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #12 UH-60 Aviation Software Performance Assessment Test Bed *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	0.000	5.690	0.000	0.000	0.000
Program #13 Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) *FY 2009 Accomplishments:* FY 2009	0.000	0.932	0.000	0.000	0.000

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	**PROJECT** 504: *BLACK HAWK RECAPITALIZATION/ MODERNIZATION*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2010 Plans: FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Accomplishments/Planned Programs Subtotals	34.196	38.953	20.640	0.000	20.640

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• Ord. #1: *A05002 BLACK HAWK (MYP)*	1,111.479	1,390.822	1,351.098	40.500	1,391.598	1,575.968	1,422.890	1,439.108	1,441.680	Continuing	Continuing

D. Acquisition Strategy

The UH-60 BLACK HAWK will serve as the Army's utility helicopter in the Future Force. The Army revised the acquisition strategy for the UH-60M to procure new UH-60M helicopters in lieu of Recap/Upgrade. This program addresses current UH-60 fleet aging problems such as decreasing operational readiness (OR) rates and increasing Operations and Sustainment costs, including all top-ten cost drivers, and provides a common, modernized platform for the UH-60 utility and MEDEVAC fleet of the future. The program will be executed over four phases: Pre-System Development/Demonstration Phase (FY00-01), System Development/Demonstration Phase (Baseline FY01-07) (Upgrade FY05-11), Production/Readiness Phase (FY05-26), and Operations and Sustainment Phase (FY06-FY45). .

E. Performance Metrics

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

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	**PROJECT** 504: *BLACK HAWK RECAPITALIZATION/ MODERNIZATION*

Product Development ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Design, Integration & Qualification Contract	SS/CPAF	Sikorsky Aircraft Co Stratford, CT	364.215	0.000		0.000		0.000		0.000	0	Continuing	0
UH-60M Upgrade Pre-Planned Product Improvement Contract	SS/CPAF	Sikorsky Aircraft Co Stratford, CT	247.033	23.543		13.364		0.000		13.364	0	Continuing	0
Development Support - Organic	C	UH PMO/matrix Location could not be determined.	22.042	0.324		0.329		0.000		0.329	0	Continuing	0
Development Support - Contractor	C/FP	Support Contractors Location could not be determined.	17.325	1.410		0.972		0.000		0.972	0	Continuing	0
IMD-HUMS Development Support - Organic	C	Aviation Applied Tech Directorate (AATD) Matrix Location could not be determined.	6.953	0.000		0.000		0.000		0.000	0	Continuing	0
IMD-HUMS Development Support - Contractor	C/FP	Goodrich Vergennes, VT	46.862	0.000		0.000		0.000		0.000	0	Continuing	0
MAST Development Support - Organic	C	Other Government Agency Support Location could not be determined.	1.429	0.000		0.000		0.000		0.000	0	Continuing	0
MAST Development Support - Contractor	C	Smith Industries Clear Water , FL	5.708	0.000		0.000		0.000		0.000	0	Continuing	0
	C		1.920	0.200		0.000		0.000		0.000	0	Continuing	0

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	**PROJECT** 504: *BLACK HAWK RECAPITALIZATION/ MODERNIZATION*

Product Development ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Full Authority Digital Engine Control (FADEC) Development - Organic		Nothing entered for Activity and Location. Location could not be determined.											
Full Authority Digital Engine Control (FADEC) Development - Contractor	C	Nothing entered for Activity and Location. Location could not be determined.	14.991	0.900		0.000		0.000		0.000	0	Continuing	0
Internal Reprogramming - Payback for FY03	C	Nothing entered for Activity and Location. Location could not be determined.	3.413	0.000		0.000		0.000		0.000	0	Continuing	0
HALS	C	Nothing entered for Activity and Location. Location could not be determined.	12.675	0.000		0.000		0.000		0.000	0	Continuing	0
Performance Support System - NG (Apache)	C	Other Government Agency Support Location could not be determined.	1.000	0.000		0.000		0.000		0.000	0	Continuing	0
Transfer to Apache	C	Nothing entered for Activity and Location.	3.000	0.000		0.000		0.000		0.000	0	Continuing	0

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	**PROJECT** 504: *BLACK HAWK RECAPITALIZATION/ MODERNIZATION*

Product Development ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
		Location could not be determined.											
Improved Turbine Engine Program (ITEP) Engine Development and Qualification	C	TBD Location could not be determined.	2.000	0.000		0.000		0.000		0.000	90.059	Continuing	0
Operator Situational Awareness System - MEDEVAC	C	Nothing entered for Activity and Location. Location could not be determined.	2.400	0.000		0.000		0.000		0.000	0	Continuing	0
UH-60 Aviation Software Performance Assessment Test Bed	C	Nothing entered for Activity and Location. Location could not be determined.	0.000	5.690		0.000		0.000		0.000	0	Continuing	0
Aircraft Component Remediation	C	Nothing entered for Activity and Location. Location could not be determined.	0.000	0.000		0.000		0.000		0.000	0	Continuing	0
		Subtotal	752.966	32.067		14.665		0.000		14.665	90.059		0.000

Remarks

IMD-HUMS demonstration program was funded in FY02-05 and is separate from the UH-60M program.MAST demonstration program was funded in FY04 and FY05 and is separate from the UH-60M and the HUMS programs.

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	**PROJECT** 504: *BLACK HAWK RECAPITALIZATION/ MODERNIZATION*

Support ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Cost Analysis Support	C	AMCOM Matrix Location could not be determined.	0.876	0.081		0.082		0.000		0.082	0	Continuing	0
Logistics Analysis Support - Organic	C	AMCOM Matrix Location could not be determined.	1.892	0.259		0.130		0.000		0.130	0	Continuing	0
Logistics Analysis Support - Support Contractor	C	Support Contractor Location could not be determined.	1.960	0.216		0.179		0.000		0.179	0	Continuing	0
		Subtotal	4.728	0.556		0.391		0.000		0.391	0.000		0.000

Remarks

Test and Evaluation ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Test Planning, Test and Evaluation	C	Various Activities Location could not be determined.	33.663	4.967		4.700		0.000		4.700	0	Continuing	0
Test Planning, Test and Evaluation - 2	C	Various Activities Location could not be determined.	0.746	0.239		0.000		0.000		0.000	0	Continuing	0

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	**PROJECT** 504: *BLACK HAWK RECAPITALIZATION/ MODERNIZATION*

Test and Evaluation ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
		Subtotal	34.409	5.206		4.700		0.000		4.700	0.000		0.000

Remarks

Management Services ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
PM Support - Organic	C	UH PMO/matrix Location could not be determined.	10.059	0.665		0.670		0.000		0.670	0	Continuing	0
PM Support - Contract	C/FP	AMCOM Express Contractor Location could not be determined.	5.596	0.459		0.214		0.000		0.214	0	Continuing	0
SIBR/STTR	C	Nothing entered for Activity and Location. Location could not be determined.	4.383	0.000		0.000		0.000		0.000	0	Continuing	0
		Subtotal	20.038	1.124		0.884		0.000		0.884	0.000		0.000

Remarks

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	**PROJECT** 504: *BLACK HAWK RECAPITALIZATION/ MODERNIZATION*

	FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	38.953		20.640		0.000		20.640	Continuing	Continuing	Continuing

Remarks

Exhibit R-4, PB 2011 Army **RDT&E Schedule Profile**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	**PROJECT** 504: *BLACK HAWK RECAPITALIZATION/ MODERNIZATION*

	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
UH-60M Upgrade LUT			#																									

Exhibit R-4A, PB 2011 Army **RDT&E Schedule Details**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	**PROJECT** 504: *BLACK HAWK RECAPITALIZATION/ MODERNIZATION*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
UH-60M Upgrade LUT	3	2009	3	2009

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**											**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*				**R-1 ITEM NOMENCLATURE** PE 0203744A: *Aircraft Modifications/Product Improvement Programs*				**PROJECT** D12: *LONGBOW APACHE OPERATIONAL SYSTEMS DEVELOP*			
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**Base FY 2011 Estimate**	**OCO FY 2011 Estimate**	**Total FY 2011 Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
D12: *LONGBOW APACHE OPERATIONAL SYSTEMS DEVELOP*	34.940	13.214	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RD&TE Articles											

A. Mission Description and Budget Item Justification

FY10 funding continues the Light Weight Missile Launcher (LWML) development, testing, and integration. First Unit Equipped is planned for 1st quarter FY12. The LWML will provide weight savings per launcher, commonality, producibility and improved electronics reliability to the Apache fleet. The LWML project was competitively awarded in FY08 as an incrementally funded FFP contract. In addition, the AAH PMO and the Night Vision and Electronic Sensors Directorate (NVESD) mutually agreed to enter into a Technology Transition Agreement (TTA) for the purpose of defining technology deliverables from the Electronic Image Intensifier (EI2) for Pilotage Technology Transition Initiative (TTI) to the Arrowhead Modernized-Target Acquisition Designation Sight/Pilot Night Vision Sensor (M-TADS/PNVS) program. A new camera will provide high quality, Aviator's Night Vision Imaging System (ANVIS)-equivalent (the current Army aviation night goggles) performance imagery that can be fused with thermal imagery for improved nighttime pilotage and situational awareness over a broader range of degraded visual conditions. FY09: Project D12, Longbow Apache Operational System Development, was funded for the accelerated fielding of the Composite Main Rotor Blade (CMRB), the development of four new Apache Maintenance Part Task Trainers (PTT), and the development of a Light Weight Missile Launcher (LWML), an upgrade to the current M299 launcher. An updated state-of-the-art CMRB is in development for the Block III Apache. The effort in this project provides funding for qualification and enables accelerated fielding for the Longbow Apache Attack Helicopter Block I/II fleet. The CMRB provides twice the time on wing and provides more lift which will have a significant impact to combat operations in OIF/OEF. The development of Apache Maintenance Part Task Trainers addresses the requirements of the US Army Aviation Logistics School for additional maintenance training devices to meet the increasing volume of initial entry students for Military Occupational Specialties 15R and 15Y. The new AH-64D Maintenance PTT are: Wing PTT, Integrated Pressurized Air System PTT, Gun PTT, and Multiplex PTT. FY 2010 total does not include any previously requested funding for current FY 2009 Overseas Contingency Operations (OCO) requirements, and no FY 2010 OCO funds have been previously requested in the RDTE Project of D12.FY 2009 funding totals do not include any previously requested funding for current FY 2009 Overseas Contingency Operations (OCO) requirements, and no FY 2009 OCO funds have been previously requested in the RDTE Project of D12.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	**FY 2010**	**Base FY 2011**	**OCO FY 2011**	**Total FY 2011**
Program #1	11.432	0.000	0.000	0.000	0.000

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Boeing Non-Recurring Engineering (NRE) Contract -- CMRB Acceleration Development *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #2 SOFSA/L3 Inc. NRE Contract -- Apache Maintenance PTT *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	13.950	0.000	0.000	0.000	0.000

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #3	9.558	10.018	0.000	0.000	0.000
Light Weight Missile Launcher (LWML) NRE Contract [Note: FY08 funds were moved with a 1414 action to the LWML Program and PM JAMS will report on the funding.] *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #4	0.000	0.000	0.000	0.000	0.000
Kiowa Warrior Vehicle Health & Usage Management System (add will be moved to PE 0604220) *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base					

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	**PROJECT** D12: *LONGBOW APACHE OPERATIONAL SYSTEMS DEVELOP*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
OCO FY 2011 Plans: FY 2011 OCO					
Program #5 Electronic Image Intensifier Technology Transition Initiative (EI2 TTI) *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	0.000	2.826	0.000	0.000	0.000
Program #6 Small Business Innovative Research/Small Business Technology Transfer Programs *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010	0.000	0.370	0.000	0.000	0.000

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Base FY 2011 Plans: FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Accomplishments/Planned Programs Subtotals	34.940	13.214	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• Ord. #1: *APA, SSN: AA6606*	1,816.922	589.050	393.769	199.200	592.969	314.719	194.549	72.039	75.056	590.123	4,245.427
• Ord. #2: *APA, SSN A05111*	0.000	218.626	493.831	0.000	493.831	723.691	1,204.748	1,650.747	1,233.025	5,358.900	10,883.568
• Ord. #3: *RDTE, 0203744A, D17*	192.169	150.013	93.320	0.000	93.320	81.640	51.216	40.332	27.143	Continuing	Continuing

D. Acquisition Strategy

There is no funding in this project for FY11.FY10, EI2 TTI -- NVESD is performing developmental flight testing with NVESD aircraft. Operational testing will be in the Apache aircraft. NVESD will manage the AAH PMO'S flight testing. FY10, LWML -- These funds are to complete contractor design, test, logistics development, and Government airworthiness qualification testing. Prior year funds have been used to initiate and sustain the contract for those activities. Missile R&D funds were originally utilized for specification development, Request for Proposal generation, and contractor source selection. The project has traditional review and continuation points with Preliminary and Critical Design Reviews, a Production Readiness Review, and In-Process Review for a production decision. First Unit Equipped will be 1st quarter FY12.

E. Performance Metrics

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

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	**PROJECT** D12: *LONGBOW APACHE OPERATIONAL SYSTEMS DEVELOP*

Product Development ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Boeing NRE -- CRMB	C/CPFF	Boeing Company Mesa, AZ	0.641	0.000		0.000		0.000		0.000	0	Continuing	12.073
SOFSA/L3 Inc. NRE -- TADSS	C/CPFF	SOFSA/L3 Inc. Lexington, KY	0.000	0.000		0.000		0.000		0.000	0	Continuing	13.950
Lockheed Martin -- LWML	C/FFP	LM Missiles & Fire Control Orlando, FL	0.000	3.907		0.000		0.000		0.000	0	Continuing	13.465
Kiowa Warrior (add will be moved)	C	Nothing entered for Activity and Location. Location could not be determined.	0.000	0.000		0.000		0.000		0.000	0	Continuing	0
		Subtotal	0.641	3.907		0.000		0.000		0.000	0.000		39.488

Remarks

Support ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Small Business Innovative Research (SBIR) / Small Business Technology Transfer (STTR) Programs	C	Nothing entered for Activity and Location.	0.000	0.370		0.000		0.000		0.000	0	Continuing	0

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	**PROJECT** D12: *LONGBOW APACHE OPERATIONAL SYSTEMS DEVELOP*

Support ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
		Location could not be determined.											
		Subtotal	0.000	0.370		0.000		0.000		0.000	0.000		0.000

Remarks

Test and Evaluation ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Light Weight Missile Launcher (LWML)	C	(see Major Performers) Location could not be determined.	0.000	6.111		0.000		0.000		0.000	0	Continuing	6.111
Elec Image Intensifier Tech Transition (EI2 TTI)	C	NVESD Ft. Belvoir, VA	0.000	2.826		0.000		0.000		0.000	0	Continuing	2.826
		Subtotal	0.000	8.937		0.000		0.000		0.000	0.000		8.937

Remarks

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	**PROJECT** D12: *LONGBOW APACHE OPERATIONAL SYSTEMS DEVELOP*

	FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	13.214		0.000		0.000		0.000	Continuing	Continuing	Continuing

Remarks

Exhibit R-4, PB 2011 Army **RDT&E Schedule Profile**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	**PROJECT** D12: *LONGBOW APACHE OPERATIONAL SYSTEMS DEVELOP*

	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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
Airworthiness Certification -- CMRB				#																								
First Delivery -- CMRB Block I/II Fleet								#																				
First Delivery IPAS PTT & Wing PTT				#																								
First Delivery Gun PTT					#																							
First Delivery Multiplex PTT								#																				
LWML PDR	#																											
LWML Integration		#	#	#	#																							
Electronic Image Intensifier Technology Transition Initiative (EI2 TTI)				#	#	#	#																					

Exhibit R-4A, PB 2011 Army **RDT&E Schedule Details**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	**PROJECT** D12: *LONGBOW APACHE OPERATIONAL SYSTEMS DEVELOP*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Airworthiness Certification -- CMRB	4	2009	4	2009
First Delivery -- CMRB Block I/II Fleet	4	2010	4	2010
First Delivery IPAS PTT & Wing PTT	4	2009	4	2009
First Delivery Gun PTT	1	2010	1	2010
First Delivery Multiplex PTT	4	2010	4	2010
LWML PDR	1	2009	1	2009
LWML Integration	2	2009	1	2010
Electronic Image Intensifier Technology Transition Initiative (EI2 TTI)	4	2009	3	2010

Exhibit R-5, PB 2011 Army **RDT&E Termination Liability**								**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*				**R-1 ITEM NOMENCLATURE** PE 0203744A: *Aircraft Modifications/Product Improvement Programs*				**PROJECT** D12: *LONGBOW APACHE OPERATIONAL SYSTEMS DEVELOP*
Cost ($ in Millions)	**FY 2009**	**FY 2010**	**FY 2011**	**FY 2012**	**FY 2013**	**FY 2014**	**FY 2015**	
Program Termination Liability	0.000	3.492	1.285	0.000	0.000	0.000	0.000	

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**											**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*				**R-1 ITEM NOMENCLATURE** PE 0203744A: *Aircraft Modifications/Product Improvement Programs*				**PROJECT** D17: *APACHE BLOCK III*			
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**Base FY 2011 Estimate**	**OCO FY 2011 Estimate**	**Total FY 2011 Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
D17: *APACHE BLOCK III*	192.169	149.029	93.320	0.000	93.320	81.640	51.216	40.332	27.143	Continuing	Continuing
Quantity of RD&TE Articles											

A. Mission Description and Budget Item Justification

Project D17, Apache Block III (AB3) funding is for the non-recurring engineering (NRE), development, and testing work associated with the planned remanufacture of 642 Apache aircraft into Block III-configured aircraft (deliveries to begin in FY12). AB3 is a result of the continuously evolving process to keep the Apache fleet viable on the battlefield. AB3 is the long-term sustainment effort for the fleet while meeting current and future operational capability requirements. The AB3 program is the remanufacture of the aging Apache fleet integrating proven technologies into a mature weapon system platform. AB3 will add significant combat capability while addressing obsolescence issues to ensure the aircraft remains a realistic combat multiplier beyond 2025. AB3 will address current system shortfalls by integrating: Unmanned Aircraft System (UAS) Level III-IV Control Capability, Improved Situational Awareness, an Upgraded Communications Suite, Improved Drive and Propulsion Systems, Improved Targeting Capability, Increased Computer Processing Capability and Speed, Improved Navigation Systems, and Improved Diagnostics and Maintainability. FY 2011 funding totals do not include any previously requested funding for current FY 2011 Overseas Contingency Operations (OCO) requirements, and no FY 2011 OCO funds have been previously requested in the RDTE Project D17.FY 2010 funding totals did not include any previously requested funding for current FY 2010 Overseas Contingency Operations (OCO) requirements, and no FY 2010 OCO funds have been previously requested in the RDTE Project D17.FY 2009 funding totals did not include any previously requested funding for current FY 2009 Overseas Contingency Operations (OCO) requirements, and no FY 2009 OCO funds have been previously requested in the RDTE Project D17.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	**FY 2010**	**Base FY 2011**	**OCO FY 2011**	**Total FY 2011**
Program #1	145.312	107.474	78.200	0.000	78.200
Boeing NRE Contracts					
FY 2009 Accomplishments: FY 2009					

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	**PROJECT** D17: *APACHE BLOCK III*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2010 Plans: FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #2 Longbow Limited Liability NRE Contracts *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	26.000	13.000	5.000	0.000	5.000
Program #3 Block III NRE Program Support Activities	7.828	12.185	3.320	0.000	3.320

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	**PROJECT** D17: *APACHE BLOCK III*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2009 Accomplishments: FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #4 Operational Assessments *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	6.430	7.174	6.800	0.000	6.800
Program #5	6.599	4.996	0.000	0.000	0.000

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	**PROJECT** D17: *APACHE BLOCK III*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Management Services *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #6 Small Business Innovative Research/Small Business Technology Transfer Programs *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	0.000	4.200	0.000	0.000	0.000

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	**PROJECT** D17: *APACHE BLOCK III*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Accomplishments/Planned Programs Subtotals	192.169	149.029	93.320	0.000	93.320

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• Ord. #1: *APA, SSN AA6605*	1,816.922	589.050	363.769	199.200	562.969	314.719	194.549	72.039	75.056	590.123	4,215.427
• Ord. #2: *APA, SSN A05111*	0.000	218.626	493.831	0.000	493.831	723.691	1,204.748	1,650.747	1,233.025	5,358.900	10,883.568
• Ord. #3: *RDTE, PE273744D12*	25.382	13.214	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	38.596

D. Acquisition Strategy

The NRE will encompass subsystem integration and will utilize existing test aircraft, incorporate the technical insertions, and initiate appropriate qualification and operational flight-testing. The Low Rate Initial Production (LRIP) effort will include a total quantity of 51 aircraft, which will take 39 months for delivery. These 51 LRIP aircraft are to be used for operational testing, First Unit Equipped (FUE), and training base fielding. In FY10, a contract for Apache Block III Lot 1 (8 aircraft), initiating LRIP, will be awarded with options for Lot 2a (16 aircraft) & Lot 2b (19 aircraft) and Lot 2c (8 aircraft). In FY13, a contract for Apache Block III Lot 3 (56 aircraft), initiating Full Rate Production, will be awarded with options for Lot 4 (58 aircraft), Lot 5 (62 aircraft, and continuing through to a total of 691 aircraft.Contractor Support is anticipated to support Apache Block III Lot 6 deliveries. Training device concurrency will be maintained with each technical insertion. FY09 advanced material procurement supports the LRIP deliveries in FY 12. All SDD efforts will be awarded as Cost Reimbursable. The LRIP and production efforts will be awarded as Firm Fixed Price (FFP) and include the Advanced Procurement requirements. As the acquisition strategy and plan unfolds, multi-year authority may be requested for the out years.

E. Performance Metrics

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

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	**PROJECT** D17: *APACHE BLOCK III*

Product Development ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Boeing Contracts	C	Mesa AZ	332.177	107.474		78.200		0.000		78.200	148.189	Continuing	708.747
Longbow Limited Liability (LBL) Contracts	C	Orlando FL	96.000	13.000		5.000		0.000		5.000	1.696	Continuing	119.696
Lockheed Martin Contracts	C	Orlando FL	0.000	0.000		0.000		0.000		0.000	0	0	0
		Subtotal	428.177	120.474		83.200		0.000		83.200	149.885		828.443

Remarks

Support ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Block III NRE Support	C/Various	Various Activities Location could not be determined.	14.122	12.185		3.320		0.000		3.320	21.182	Continuing	72.180
SBIR/STTR	C	Nothing entered for Activity and Location. Location could not be determined.	0.000	4.200		0.000		0.000		0.000	0	Continuing	0
		Subtotal	14.122	16.385		3.320		0.000		3.320	21.182		72.180

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	**PROJECT** D17: *APACHE BLOCK III*

Support ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**

Remarks

Test and Evaluation ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Operational Assessments, Test Integration Working Group (TWIG), TEMP, etc.	C/Various	Various Activities Location could not be determined.	3.766	7.174		6.800		0.000		6.800	12.226	Continuing	33.757
		Subtotal	3.766	7.174		6.800		0.000		6.800	12.226		33.757

Remarks

Management Services ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Management Svcs (In-House, Travel, etc.)	C/Various	PMO AAH Matrix Support, AMCOM Express	19.277	4.996		0.000		0.000		0.000	0	Continuing	24.574

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	**PROJECT** D17: *APACHE BLOCK III*

Management Services ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
		Subtotal	19.277	4.996		0.000		0.000		0.000	0.000		24.574

Remarks

	FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	149.029		93.320		0.000		93.320	Continuing	Continuing	Continuing

Remarks

Exhibit R-4, PB 2011 Army **RDT&E Schedule Profile**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	**PROJECT** D17: *APACHE BLOCK III*

	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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
Force Develop Test & Evaluation (FDTE)				#																								
Limited User Test (LUT) I				#																								
Milestone C						#																						

Exhibit R-4A, PB 2011 Army **RDT&E Schedule Details**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	**PROJECT** D17: *APACHE BLOCK III*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Force Develop Test & Evaluation (FDTE)	4	2009	4	2009
Limited User Test (LUT) I	4	2009	4	2009
Milestone C	2	2010	2	2010

Exhibit R-5, PB 2011 Army **RDT&E Termination Liability**								**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*				**R-1 ITEM NOMENCLATURE** PE 0203744A: *Aircraft Modifications/Product Improvement Programs*				**PROJECT** D17: *APACHE BLOCK III*
Cost ($ in Millions)	**FY 2009**	**FY 2010**	**FY 2011**	**FY 2012**	**FY 2013**	**FY 2014**	**FY 2015**	
Program Termination Liability	18.600	19.700	15.100	9.380	8.200	5.200	4.100	

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**											**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*				**R-1 ITEM NOMENCLATURE** PE 0203744A: *Aircraft Modifications/Product Improvement Programs*				**PROJECT** D18: *UTILITY FW CARGO AIRCRAFT*			
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**Base FY 2011 Estimate**	**OCO FY 2011 Estimate**	**Total FY 2011 Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
D18: *UTILITY FW CARGO AIRCRAFT*	2.923	0.979	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RD&TE Articles											

A. Mission Description and Budget Item Justification

This Project supports Test and Evaluation of the Joint Cargo Aircraft (JCA). The RDT&E funds are to support statutorily-mandated Live Fire Test and Evaluation (LFT&E) including survivability/susceptibility assessment and Initial Operational Test and Evaluation (IOT&E). The LFT&E will involve system, subsystem- and component-level live fire testing. Additionally, survivability/susceptibility characterization assessments of nuclear, biological, chemical, and electromagnetic capabilities will be performed.The FY 2009 funds supported Production Qualification Testing and the statutorily mandated LFT&E.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	**FY 2010**	**Base FY 2011**	**OCO FY 2011**	**Total FY 2011**
Program #1	1.486	0.000	0.000	0.000	0.000
Production Qualification Test (PQT)					
FY 2009 Accomplishments: FY 2009					
FY 2010 Plans: FY 2010					
Base FY 2011 Plans: FY 2011 Base					
OCO FY 2011 Plans: FY 2011 OCO					

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	**PROJECT** D18: *UTILITY FW CARGO AIRCRAFT*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #2	1.437	0.000	0.000	0.000	0.000
Live Fire Test & Evaluation (LFT&E) Testing *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #3	0.000	0.952	0.000	0.000	0.000
JCA PQT and LFT&E non-Army requirements *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	**PROJECT** D18: *UTILITY FW CARGO AIRCRAFT*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #4	0.000	0.027	0.000	0.000	0.000
Small Business Innovative Research/Small Business Technology Transfer Programs					
FY 2009 Accomplishments: FY 2009					
FY 2010 Plans: FY 2010					
Base FY 2011 Plans: FY 2011 Base					
OCO FY 2011 Plans: FY 2011 OCO					
Accomplishments/Planned Programs Subtotals	2.923	0.979	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• Ord. #1: *A11000 JOINT CARGO AIRCRAFT*	261.681	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	261.681
• Ord. #2: *USAF PE0401138F/Project 5259 Joint Cargo Aircraft*	16.271	9.353	26.471	0.000	26.471	19.220	6.764	0.000	0.000	0	78.079
	0.000	319.050	351.315	0.000	351.315	576.450	19.209	22.220	29.691	0	1,317.935

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	**PROJECT** D18: *UTILITY FW CARGO AIRCRAFT*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• Ord. #3: *USAF BA 02/Item No. 10b/ Joint Cargo Aircraft*											

D. Acquisition Strategy

The Joint Cargo Aircraft's acquisition strategy is based on leveraging the commercial market. The contract was awarded in June 2007, to procure a previously developed and fielded, low-risk, commercially available aircraft and Mission Equipment Package (MEP). A protest immediately followed, which resulted in a 100 day stop work order. The program was restarted in October 2007. These aircraft possess open architecture systems that will support technology insertions as improvements become available.The JCA program was established to correct operational shortfalls with respect to time sensitive mission critical requirements.

E. Performance Metrics

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

Exhibit R-2, PB 2011 Army **RDT&E Budget Item Justification**	**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303150A: *WWMCCS/Global Command and Control System*

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	Base FY 2011 Estimate	OCO FY 2011 Estimate	Total FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	12.599	11.972	13.024	0.000	13.024	1.632	7.977	8.123	8.254	0	76.605
C86: *ARMY GLOBAL C2 SYSTEM*	12.599	11.972	13.024	0.000	13.024	1.632	7.977	8.123	8.254	Continuing	Continuing

A. Mission Description and Budget Item Justification

Global Command and Control System-Army (GCCS-A): This project is the Army component system that directly supports the implementation of the Global Command and Control System Family of Systems. GCCS-A provides automated command and control tools for Army Strategic and Operational Theater Commanders to enhance warfighter capabilities throughout the spectrum of conflict during joint and combined operations in support of the National Command Authority (NCA). The GCCS-A developed software systems dramatically improves the Army's ability to analyze courses of action; develop and manage Army Forces; and ensure feasibility of war plans. GCCS-A provides a client-server layered architecture and functional best-of-breed software applications to develop a totally integrated component of the Global Command and Control System Family of Systems that integrates the GCCS-Joint picture with the Army Battle Command Systems. The GCCS-A strategic tools have been modernized and replaced by DRRS-A, a suite of web based applications for Army Readiness, Force Registration and Force Projection.

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	12.879	12.034	0.000	0.000	0.000
Current President's Budget	12.599	11.972	13.024	0.000	13.024
Total Adjustments	-0.280	-0.062	13.024	0.000	13.024
• Congressional General Reductions		-0.062			
• Congressional Directed Reductions					
• Congressional Rescissions		0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers					
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-0.280	0.000			
• Adjustments to Budget Years	0.000	0.000	13.024	0.000	13.024

Change Summary Explanation

Change Summary Explanation: Funding FY 11: +13.024 million increase to support Battle Command requirements.

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**											**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*				**R-1 ITEM NOMENCLATURE** PE 0303150A: *WWMCCS/Global Command and Control System*				**PROJECT** C86: *ARMY GLOBAL C2 SYSTEM*			
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**Base FY 2011 Estimate**	**OCO FY 2011 Estimate**	**Total FY 2011 Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
C86: *ARMY GLOBAL C2 SYSTEM*	12.599	11.972	13.024	0.000	13.024	1.632	7.977	8.123	8.254	Continuing	Continuing
Quantity of RD&TE Articles											

A. Mission Description and Budget Item Justification

Global Command and Control System-Army (GCCS-A): This project is the Army component system that directly supports the implementation of the Global Command and Control System Family of Systems. GCCS-A provides automated command and control tools for Army Strategic and Operational Theater Commanders to enhance warfighter capabilities throughout the spectrum of conflict during Joint and combined operations in support of the National Command Authority (NCA). The GCCS-A developed software systems dramatically improves the Army's ability to analyze courses of action; develop and manage Army Forces; and ensure feasibility of war plans. GCCS-A provides a client-server layered architecture and functional best-of-breed software applications to develop a totally integrated component of the Global Command and Control System Family of Systems that integrates the GCCS-Joint picture with the Army Battle Command Systems. The GCCS-A strategic tools have been modernized and replaced by Defense Readiness Reporting System-Army (DRRS-A), a suite of web based applications for Army Readiness, Force Registration and Force Projection.GCCS-Army is a part of the GCCS Family of Systems (FoS). As such and responding to Congressional direction (Section 247 of Fiscal Year 2010 NDAA), it will form the basis for the evolution of new command and control capabilities within the Department of Defense. While sustaining and synchronizing currently fielded operations, the Army will modernize and enhance current capabilities to support both the Service and Joint warfighter as a part of a synchronized, orchestrated DoD-wide effort that will transition the current GCCS FoS into a more agile, net-centric, services-oriented environment. These efforts will take advantage of both streamlined processes within the requirements community, such as the "IT Box" and ongoing changes in the information technology acquisition process, as described in Ch 6 of the March 2009 Report of the DSB Task Force on DoD Policies and Procedures for the Acquisition of Information Technology (Section 804 of Fiscal Year 2010 NDAA).

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	**FY 2010**	**Base FY 2011**	**OCO FY 2011**	**Total FY 2011**
Program #1	0.135	0.266	0.274	0.000	0.274
Perform Software and System Engineering Services					
FY 2009 Accomplishments:					
FY 2009					

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303150A: *WWMCCS/Global Command and Control System*	**PROJECT** C86: *ARMY GLOBAL C2 SYSTEM*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2010 Plans: FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #2 Accomplish Software Development of automated Command and Control tools *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	10.870	9.741	10.986	0.000	10.986
Program #3 Perform Data Engineering	0.759	0.883	0.828	0.000	0.828

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303150A: *WWMCCS/Global Command and Control System*	**PROJECT** C86: *ARMY GLOBAL C2 SYSTEM*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2009 Accomplishments: FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #4 Conduct Test and Evaluation *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	0.244	0.237	0.316	0.000	0.316
Program #5	0.591	0.610	0.620	0.000	0.620

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303150A: *WWMCCS/Global Command and Control System*	**PROJECT** C86: *ARMY GLOBAL C2 SYSTEM*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Perform Program Support and Management Efforts *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #6	0.000	0.235	0.000	0.000	0.000
Small Business Innovative Research/Small Business Technology Transfer Programs *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303150A: *WWMCCS/Global Command and Control System*	**PROJECT** C86: *ARMY GLOBAL C2 SYSTEM*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Accomplishments/Planned Programs Subtotals	12.599	11.972	13.024	0.000	13.024

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• Ord. #1: *BA8250 Global Command & Control System-Army (GCCSA)*	31.420	22.923	20.387	0.000	20.387	15.820	17.844	13.707	4.401	Continuing	Continuing

D. Acquisition Strategy

GCCS-A was slated for replacement by the future Department of Defense (DoD) Command and Control (C2) system, the Net Enabled Command Capability (NECC) program. The NECC program was cancelled by the Defense Acquisition Executive (DAE) on 2 November 2009. The GCCS-A will be maintained and upgraded as necessary until a future DoD C2 system is available. The strategy for Defense Readiness Reporting System-Army (DRRS-A) is based on annual software releases integrating HQDA (Office of Defense Readiness) directed changes. In accordance with the TRADOC requirements document approved in 2008, entitled GCCS-A Battle Command Essential Capability, software capability will be developed in 2-year increments as capability sets designed to Collaborate, Collapse and Converge Battle Command products. The product development funded under this R-Form is an integral part of the Army Battle Command System (ABCS), a system of systems, under a strategy designed to optimize opportunity for improved interoperability among the systems, to capture the benefits of competition where possible and to ensure the rapid integration of new capability into warfighter systems. This strategy is designed to reduce the physical footprint, logistics support requirements and increase operational efficiency.

E. Performance Metrics

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

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303150A: *WWMCCS/Global Command and Control System*	**PROJECT** C86: *ARMY GLOBAL C2 SYSTEM*

Product Development ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Software Development	C	Lockheed Martin Corp Springfield, VA	136.391	3.527		0.000		0.000		0.000	Continuing	Continuing	0
Software Development - 2	C	TBD Location could not be determined.	0.000	4.927		7.489		0.000		7.489	0	Continuing	0
Defense Readiness Reporting System-Army	C	Accenture Camden, NJ	1.748	1.025		3.000		0.000		3.000	0	Continuing	0
Developmental Hardware/ Licensing	C	Various Location could not be determined.	0.005	0.000		0.230		0.000		0.230	0	Continuing	0
Technical Management	C	PM BC Fort Monmouth, NJ	38.101	0.000		0.000		0.000		0.000	Continuing	Continuing	0
Matrix	C	CECOM Fort Monmouth, NJ & Fort Belvoir, VA	5.189	0.262		0.267		0.000		0.267	Continuing	Continuing	0
System Engineering	C	Various Location could not be determined.	4.777	0.266		0.274		0.000		0.274	Continuing	Continuing	0
ABCS System Engineering & Integration Efforts	C	PEO C3T Fort Monmouth, NJ	1.514	0.000		0.000		0.000		0.000	0	1.514	1.514
GFE	C	Various Location could not be determined.	1.464	0.000		0.000		0.000		0.000	0	1.464	1.465
Product Studies	C	SAIC VA	2.391	0.000		0.000		0.000		0.000	0	2.391	2.391

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303150A: *WWMCCS/Global Command and Control System*	**PROJECT** C86: *ARMY GLOBAL C2 SYSTEM*

Product Development ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
COE Support	C	Various Location could not be determined.	1.766	0.000		0.000		0.000		0.000	0	1.766	1.766
		Subtotal	193.346	10.007		11.260		0.000		11.260			7.136

Remarks

Support ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
FCBS/CSC	C	Various Location could not be determined.	2.389	0.000		0.000		0.000		0.000	0	2.389	2.389
INRI	C	Various Location could not be determined.	0.200	0.000		0.000		0.000		0.000	0	.200	.200
Support Contractors	C	Nothing entered for Activity and Location. Location could not be determined.	9.347	0.883		0.828		0.000		0.828	Continuing	Continuing	0
		Subtotal	11.936	0.883		0.828		0.000		0.828			2.589

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303150A: *WWMCCS/Global Command and Control System*	**PROJECT** C86: *ARMY GLOBAL C2 SYSTEM*

Support ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**

Remarks

Test and Evaluation ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Government	C	Various Location could not be determined.	4.254	0.237		0.116		0.000		0.116	0	Continuing	5.106
EPG	C	Various Location could not be determined.	0.786	0.000		0.000		0.000		0.000	0	.786	.786
ATEC	C	Various Location could not be determined.	2.602	0.000		0.200		0.000		0.200	Continuing	Continuing	0
		Subtotal	7.642	0.237		0.316		0.000		0.316			5.892

Remarks

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303150A: *WWMCCS/Global Command and Control System*	**PROJECT** C86: *ARMY GLOBAL C2 SYSTEM*

Management Services ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Program Office Management	C	PM BC Ft. Monmouth, NJ	8.547	0.610		0.620		0.000		0.620	Continuing	Continuing	0
SBIR	C	PM BC Ft. Monmouth, NJ	0.000	0.235		0.000		0.000		0.000	0	Continuing	0
		Subtotal	8.547	0.845		0.620		0.000		0.620			0.000

Remarks

	FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	11.972		13.024		0.000		13.024	Continuing	Continuing	Continuing

Remarks

Exhibit R-4, PB 2011 Army **RDT&E Schedule Profile**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303150A: *WWMCCS/Global Command and Control System*	**PROJECT** C86: *ARMY GLOBAL C2 SYSTEM*

	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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
Block 4.2 Software Development/Software Fixes						#	#	#	#	#	#																	

Exhibit R-4A, PB 2011 Army **RDT&E Schedule Details**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303150A: *WWMCCS/Global Command and Control System*	**PROJECT** C86: *ARMY GLOBAL C2 SYSTEM*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Block 4.2 Software Development/Software Fixes	2	2010	3	2011

Exhibit R-2, PB 2011 Army **RDT&E Budget Item Justification**	**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303158A: *Joint Command and Control Program (JC2)*

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	Base FY 2011 Estimate	OCO FY 2011 Estimate	Total FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	13.228	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	13.228
714: *JOINT COMMAND AND CONTROL - ARMY*	13.228	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

Net-Enabled Command Capability (NECC) program was cancelled by the Defense Acquisition Executive (DAE) on 2 November 2009. This project, 714, funded Army project management costs and integration and test costs to accomplish Army implementaiton of NECC. The following is the descripiton of the intended program.Net-Enabled Command Capability (NECC) is the DoD's principal Command and Control (C2) capability that will be accessible in a net-centric environment and focused on providing the Commander with the data and information needed to make timely, effective and informed decisions. NECC draws from the C2 community to evolve current and provide new C2 capabilities into a fully integrated, interoperable, collaborative Joint solution. Warfighters will be able to rapidly adapt to changing mission needs by defining and tailoring their information environment and drawing on capabilities that enable the efficient, timely and effective command of forces and control of engagements. The Joint Requirements Oversight Council Memorandum 163-03 (JROCM 163-03) established a need for, and directed, evolving the current Global Command and Control System (GCCS) Family of Systems (FOS) into a single joint C2 architecture and capabilities-based implementation. This implementation (NECC) will be based on Global Information Grid (GIG) Enterprise Services (GES) and consists of joint mission capability packages. NECC will deliver continuous C2 enhancements to the Warfighter. The program will be founded on a single, net-centric, services-based C2 architecture and provide the decision support infrastructure that will enable the Warfighter to access, display, and understand the information necessary to make efficient, timely, and effective decisions. NECC will be responsive to the Warfighter through loosely coupled capability needs, development, test, and user engagement processes. The program will leverage existing and evolving C2 capabilities and centers of excellence with its ABC commitment to Adopt-before-Buy, Buy-before-Create. Key to ABC is adaptation of commercial best practices, architectures and standards for C2. The NECC program will ensure that our C2 capability evolves toward increased net-centricity and Joint mission integration. NECC is a Joint Acquisition Category (ACAT) 1D Major Defense Acquisition Program and Major Automated Information System. The lead component for the Joint Program is the Defense Information Systems Agency (DISA). Each Service, to include the Army, has established a Component Program Management Office (CPMO) to implement the NECC solution within its agency.The Joint Requirements Oversight Council Memorandum 163-03 (JROCM 163-03) established a need for, and directed, evolving the current Global Command and Control System (GCCS) Family of Systems (FOS) into a single joint C2 architecture and capabilities-based implementation. This implementation (NECC) will be based on Global Information Grid (GIG) Enterprise Services (GES) and consists of joint mission capability packages. NECC will deliver continuous C2 enhancements to the Warfighter. The program will be founded on a single, net-centric, services-based C2 architecture and provide the decision support infrastructure that will enable the Warfighter to access, display, and understand the information necessary to make efficient, timely, and effective decisions. NECC will be responsive to the Warfighter through loosely coupled capability needs, development, test, and user engagement processes. The program will leverage existing and evolving C2 capabilities and centers of excellence with its ABC commitment to Adopt-before-Buy, Buy-before-Create. Key to ABC is adaptation of commercial best practices, architectures and standards for C2. The NECC program will ensure that our C2 capability evolves toward increased net-centricity and Joint mission integration. NECC is a Joint Acquisition Category (ACAT) 1D Major Defense Acquisition Program and Major Automated Information

Exhibit R-2, PB 2011 Army **RDT&E Budget Item Justification**	**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303158A: *Joint Command and Control Program (JC2)*

System. The lead component for the Joint Program is the Defense Information Systems Agency (DISA). Each Service, to include the Army, has established a Component Program Management Office (CPMO) to implement the NECC solution within its agency. This project, 714, funds Army project management costs and integration and test costs to accomplish Army implementation of NECC.

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	15.153	20.365	23.126	0.000	23.126
Current President's Budget	13.228	0.000	0.000	0.000	0.000
Total Adjustments	-1.925	-20.365	-23.126	0.000	-23.126
• Congressional General Reductions		-20.365			
• Congressional Directed Reductions					
• Congressional Rescissions		0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers					
• Reprogrammings	-1.500	0.000			
• SBIR/STTR Transfer	-0.425	0.000			
• Adjustments to Budget Years	0.000	0.000	-23.126	0.000	-23.126

Change Summary Explanation

Change Summary Explanation: Funding - FY 2010 & FY 2011: The Net-Enabled Command Capability (NECC) program was cancelled by the Defense Acquisition Executive (DAE) on 2 November 2009.

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**											**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*				**R-1 ITEM NOMENCLATURE** PE 0303158A: *Joint Command and Control Program (JC2)*				**PROJECT** 714: *JOINT COMMAND AND CONTROL - ARMY*			
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**Base FY 2011 Estimate**	**OCO FY 2011 Estimate**	**Total FY 2011 Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
714: *JOINT COMMAND AND CONTROL - ARMY*	13.228	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RD&TE Articles											

A. Mission Description and Budget Item Justification

Net-Enabled Command Capability (NECC) program was cancelled by the Defense Acquisition Executive (DAE) on 2 November 2009. This project, 714, funded Army project management costs and integration and test costs to accomplish Army implementaiton of NECC. The following is the descripiton of the intended program.Net-Enabled Command Capability (NECC) is the DoD's principal Command and Control (C2) capability that will be accessible in a net-centric environment and focused on providing the Commander with the data and information needed to make timely, effective and informed decisions. NECC draws from the C2 community to evolve current and provide new C2 capabilities into a fully integrated, interoperable, collaborative Joint solution. Warfighters will be able to rapidly adapt to changing mission needs by defining and tailoring their information environment and drawing on capabilities that enable the efficient, timely and effective command of forces and control of engagements. The Joint Requirements Oversight Council Memorandum 163-03 (JROCM 163-03) established a need for, and directed, evolving the current Global Command and Control System (GCCS) Family of Systems (FOS) into a single joint C2 architecture and capabilities-based implementation. This implementation (NECC) will be based on Global Information Grid (GIG) Enterprise Services (GES) and consists of joint mission capability packages. NECC will deliver continuous C2 enhancements to the Warfighter. The program will be founded on a single, net-centric, services-based C2 architecture and provide the decision support infrastructure that will enable the Warfighter to access, display, and understand the information necessary to make efficient, timely, and effective decisions. NECC will be responsive to the Warfighter through loosely coupled capability needs, development, test, and user engagement processes. The program will leverage existing and evolving C2 capabilities and centers of excellence with its ABC commitment to Adopt-before-Buy, Buy-before-Create. Key to ABC is adaptation of commercial best practices, architectures and standards for C2. The NECC program will ensure that our C2 capability evolves toward increased net-centricity and Joint mission integration. NECC is a Joint Acquisition Category (ACAT) 1D Major Defense Acquisition Program and Major Automated Information System. The lead component for the Joint Program is the Defense Information Systems Agency (DISA). Each Service, to include the Army, has established a Component Program Management Office (CPMO) to implement the NECC solution within its agency.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	**FY 2010**	**Base FY 2011**	**OCO FY 2011**	**Total FY 2011**
Program #1	7.596	0.000	0.000	0.000	0.000

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303158A: *Joint Command and Control Program (JC2)*	**PROJECT** 714: *JOINT COMMAND AND CONTROL - ARMY*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Perform Software Development Necessary to Integrate Capability Modules onto Army Platforms *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #2	0.638	0.000	0.000	0.000	0.000
Conduct Test and Evaluation to Meet Interoperability Requirements *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303158A: *Joint Command and Control Program (JC2)*	**PROJECT** 714: *JOINT COMMAND AND CONTROL - ARMY*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #3	4.994	0.000	0.000	0.000	0.000
Perform Program Support and Management Efforts *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #4	0.000	0.000	0.000	0.000	0.000
Small Business Innovative Research/Small Business Technology Transfer Programs *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303158A: *Joint Command and Control Program (JC2)*	**PROJECT** 714: *JOINT COMMAND AND CONTROL - ARMY*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Accomplishments/Planned Programs Subtotals	13.228	0.000	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

Net-Enabled Command Capability (NECC) program was cancelled by the Defense Acquisition Executive (DAE) on 2 November 2009. The requirement for a Joint Command and Control Capability remains valid and efforts continue to define the way forward for a new command and control capability program strategy.

E. Performance Metrics

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

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303158A: *Joint Command and Control Program (JC2)*	**PROJECT** 714: *JOINT COMMAND AND CONTROL - ARMY*

Support ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Systems Engineering	C	Various Location could not be determined.	0.050	0.000		0.000		0.000		0.000	0	Continuing	0
Integration Efforts	C	Various Location could not be determined.	0.000	0.000		0.000		0.000		0.000	0	Continuing	0
		Subtotal	0.050	0.000		0.000		0.000		0.000	0.000		0.000

Remarks

Test and Evaluation ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Test Support - Government	C	Government Matrix/CTSF Ft. Hood, TX	0.250	0.000		0.000		0.000		0.000	0	Continuing	0
		Subtotal	0.250	0.000		0.000		0.000		0.000	0.000		0.000

Remarks

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303158A: *Joint Command and Control Program (JC2)*	**PROJECT** 714: *JOINT COMMAND AND CONTROL - ARMY*

Management Services ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Government	C	Various Location could not be determined.	4.184	0.000		0.000		0.000		0.000	Continuing	Continuing	0
Contractor	C	Various Location could not be determined.	2.697	0.000		0.000		0.000		0.000	0	Continuing	0
SBIR/STTR	C	Nothing entered for Activity and Location. Location could not be determined.	0.000	0.000		0.000		0.000		0.000	0	Continuing	0
		Subtotal	6.881	0.000		0.000		0.000		0.000			0.000

Remarks

	FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing

Remarks

Exhibit R-2, PB 2011 Army **RDT&E Budget Item Justification**	**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203759A: *Force XXI Battle Command, Brigade and Below (FBCB2)*

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	Base FY 2011 Estimate	OCO FY 2011 Estimate	Total FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	22.688	0.000	3.935	0.000	3.935	0.000	0.000	0.000	0.000	0	30.558
120: *Force XXI Battle Cmd, Brigade & Below (FBCB2)*	22.688	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
122: *JOINT BATTLE COMMAND - PLATFORM (JBC-P)*	0.000	0.000	3.935	0.000	3.935	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

Force XXI Battle Command Brigade and Below (FBCB2) consists of FBCB2 and Joint Battle Command - Platforms (JBC-P) hardware and software.The Force XXI Battle Command Brigade and Below (FBCB2) is a digital, battle command information system that provides integrated, on-the-move, timely, relevant battle command information to tactical combat, combat support and combat service support leaders and soldiers. FBCB2 incorporates state-of-the-art information technology to allow commanders to concentrate combat system effects rather than combat forces, enabling units to be both more survivable and more lethal. FBCB2 provides the capability to pass orders and graphics allowing the warfighter to visualize the commander's intent and scheme of maneuver. FBCB2 affords combat forces the capability to retain the tactical/operational initiatives under all mission, enemy, terrain, troops, and time available conditions to enable faster decisions, real/near-real-time communications and response. FBCB2 as a key component of the Army Battle Command System (ABCS), completes the information flow process from brigade to platform and across platforms within the brigade task force and across brigade boundaries. FBCB2 system provides a dual based capability consisting of both terrestrial (EPLRS) and satellite based (L-Band) systems. The system includes a Pentium based processor, display unit, keyboard, removable hard disk drive cartridge, and a platform specific installation kit. The satellite based system, more commonly known as Blue Force Tracking (BFT), includes an L-Band transceiver that employs commercial satellite services in lieu of tactical terrestrial radios. Currently over 88,000 total systems have been fielded with approximately 25,000 systems in support of Operation Enduring Freedom (OEF)/Operation Iraqi Freedom (OIF). FBCB2 RDTE Funding for Project Code 120 ends in FY09.$3.935 million has been added to Project Code 122 for JBC-P C2/SA Convergence in FY11.

Exhibit R-2, PB 2011 Army **RDT&E Budget Item Justification**	**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203759A: *Force XXI Battle Command, Brigade and Below (FBCB2)*

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	23.341	0.000	0.000	0.000	0.000
Current President's Budget	22.688	0.000	3.935	0.000	3.935
Total Adjustments	-0.653	0.000	3.935	0.000	3.935
• Congressional General Reductions		0.000			
• Congressional Directed Reductions					
• Congressional Rescissions		0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers					
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			

Change Summary Explanation

Change Summary Explanation: FY11 FBCB2 RDTE funding of $3.935 million is for C2/SA Convergence. It uses Project Code 122. FBCB2 RDTE Funding in FY09 and Prior used Project Code 120.FY09 SBIR/STTR Reduction of $0.653 million is reflected in the FY2009 Actual.

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**											**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*				**R-1 ITEM NOMENCLATURE** PE 0203759A: *Force XXI Battle Command, Brigade and Below (FBCB2)*				**PROJECT** 120: *Force XXI Battle Cmd, Brigade & Below (FBCB2)*			
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**Base FY 2011 Estimate**	**OCO FY 2011 Estimate**	**Total FY 2011 Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
120: *Force XXI Battle Cmd, Brigade & Below (FBCB2)*	22.688	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RD&TE Articles											

A. Mission Description and Budget Item Justification

The Force XXI Battle Command Brigade and Below (FBCB2) is a digital, battle command information system that provides integrated, on-the-move, timely, relevant battle command information to tactical combat, combat support and combat service support leaders and soldiers. FBCB2 incorporates state-of-the-art information technology to allow commanders to concentrate combat system effects rather than combat forces, enabling units to be both more survivable and more lethal. FBCB2 provides the capability to pass orders and graphics allowing the warfighter to visualize the commander's intent and scheme of maneuver. FBCB2 affords combat forces the capability to retain the tactical/operational initiatives under all mission, enemy, terrain, troops, and time available conditions to enable faster decisions, real/near-real-time communications and response. FBCB2 as a key component of the Army Battle Command System (ABCS), completes the information flow process from brigade to platform and across platforms within the brigade task force and across brigade boundaries. FBCB2 system provides a dual based capability consisting of both terrestrial (EPLRS) and satellite based (L-Band) systems. The system includes a Pentium based processor, display unit, keyboard, removable hard disk drive cartridge, and a platform specific installation kit. The satellite based system, more commonly known as Blue Force Tracking (BFT), includes an L-Band transceiver that employs commercial satellite services in lieu of tactical terrestrial radios. Currently over 88,000 systems have been fielded to the Army, Marine Corps, and other service, with approximately 25,000 systems in support of Operation Enduring Freedom (OEF)/Operation Iraqi Freedom (OIF). Program RDTE funding ended in FY09.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	**FY 2010**	**Base FY 2011**	**OCO FY 2011**	**Total FY 2011**
Program #1	4.000	0.000	0.000	0.000	0.000
Continue test and evaluation efforts to support Army Software Blocking schedule.					
FY 2009 Accomplishments: FY 2009					

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203759A: *Force XXI Battle Command, Brigade and Below (FBCB2)*	**PROJECT** 120: *Force XXI Battle Cmd, Brigade & Below (FBCB2)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2010 Plans: FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #2 PM FBCB2 Program Management *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	1.867	0.000	0.000	0.000	0.000
Program #3 Continue development of FBCB2 Joint Capabilities Release (JCR) to include Army and Marine Corp Common Battle Command Product Line (BCPL) initiatives, communications connectivity, and high speed data networks capabilities.	9.937	0.000	0.000	0.000	0.000

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203759A: *Force XXI Battle Command, Brigade and Below (FBCB2)*	**PROJECT** 120: *Force XXI Battle Cmd, Brigade & Below (FBCB2)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2009 Accomplishments: FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #4 Initiate systems development efforts against current Combat Identification Capability gaps for accuracy/latency of Blue Position reporting, density of systems and joint coalition interoperability. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	3.884	0.000	0.000	0.000	0.000
Program #5	3.000	0.000	0.000	0.000	0.000

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203759A: *Force XXI Battle Command, Brigade and Below (FBCB2)*	**PROJECT** 120: *Force XXI Battle Cmd, Brigade & Below (FBCB2)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Develop and test cross domain security solution to permit uncleared users to operate systems on a Type 1 secured network. Provide interface to unclassified sensor networks and logistics data. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Accomplishments/Planned Programs Subtotals	22.688	0.000	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• Ord. #1: *OPA - W61900*	282.217	514.119	39.786	135.500	175.286	29.382	0.000	0.000	0.000	0	1,001.004
• Ord. #2: *OPA - BS9736 (Spares)*	5.055	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	7.556
• Ord. #3: *OMA - 432142*	11.024	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	30.840

D. Acquisition Strategy

The FBCB2 development effort follows an evolutionary acquisition strategy to support Product Line Architecture, Army/Marine Corps convergence, Army Battle Command System (ABCS) interoperability and Army Software Blocking requirements. A Full Rate Production (FRP) decision review conducted by the Army Systems Acquisition Review Council (ASARC) in Aug 2004 authorized the FBCB2 program to enter into the Production and Deployment phase. Development efforts were executed via an Indefinite Delivery/Indefinite Quantity (ID/IQ) Cost Plus Award/Fixed Fee type contract.

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203759A: *Force XXI Battle Command, Brigade and Below (FBCB2)*	**PROJECT** 120: *Force XXI Battle Cmd, Brigade & Below (FBCB2)*

E. Performance Metrics

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

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203759A: *Force XXI Battle Command, Brigade and Below (FBCB2)*	**PROJECT** 122: *JOINT BATTLE COMMAND - PLATFORM (JBC-P)*

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	Base FY 2011 Estimate	OCO FY 2011 Estimate	Total FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
122: *JOINT BATTLE COMMAND - PLATFORM (JBC-P)*	0.000	0.000	3.935	0.000	3.935	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RD&TE Articles											

A. Mission Description and Budget Item Justification

Joint Battle Command - Platforms (JBC-P), which includes Blue Force Tracking and Army Aviation, provides true Joint force Command and Control (C2) Situational Awareness (SA) and communications (e.g., terrestrial, celestial) capability at the platform level through command center locations (e.g., Network Operations Centers, Theater Operation Commands (TOCs), Brigade Command Posts) and enables mission accomplishment across the entire spectrum of Joint military operations. JBC-P serves as the cornerstone for Joint Blue Force Situational Awareness (JBFSA). It provides continuous near-real-time identification of friendly locations to populate the Joint Common Operating Picture (JCOP). Joint Battle Command - Platforms (JBC-P) enhances Joint Combat Identification to increase combat effectiveness and reduces fratricide in a secure environment. It enables Joint, net-centric C2/ Battle Command by seamlessly passing/sharing relevant information vertically and horizontally, within all levels of command, regardless of Service unit hierarchy. In addition to utilizing the existing FBCB2/BFT system, JBC-P system hardware consists of a family of computers (e.g., handhelds, tablets, ruggedized computers, beacons and in-dash computers), communications equipment (e.g., satellite tranceivers/antennas), encryption devices (e.g., KGV-72), and ancillary equipment (e.g., Mission Data Loader, Disk Duplicator, cables, installation kits, etc.).$3.935 million is programmed for FY11 RDTE to pay for JBC-P C2/SA Convergence.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #1	0.000	0.000	3.935	0.000	3.935
C2/SA Convergence					
FY 2009 Accomplishments:					
FY 2009					
FY 2010 Plans:					
FY 2010					

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203759A: *Force XXI Battle Command, Brigade and Below (FBCB2)*	**PROJECT** 122: *JOINT BATTLE COMMAND - PLATFORM (JBC-P)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Base FY 2011 Plans: FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Accomplishments/Planned Programs Subtotals	0.000	0.000	3.935	0.000	3.935

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• Ord. #1: *OPA W61990*	0.000	17.188	0.147	0.000	0.147	64.961	86.203	179.469	125.857	Continuing	Continuing
• Ord. #2: *RDTE 654805/589*	0.000	37.710	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	37.710
• Ord. #3: *RDTE 654804/593*	0.000	0.000	70.628	0.000	70.628	28.786	3.964	2.974	1.981	Continuing	Continuing

D. Acquisition Strategy

The JBC-P program was Joint Requirements Oversight Council (JROC) approved in May 2008. RDTE funding for JBC-P begins in FY10. $3.935 million in FY11 funding for Command and Control/Situational Awareness (C2/SA) Convergence was programmed under this PE (273759) under Project No. 122. Other RDTE funds for JBC-P were programmed in PE 654805, Project No. 589 (for FY10) and PE 654804, Project No. 593 (for FY11 and beyond).Software Development will be primarily executed through a Memorandum Of Understanding/Memorandum of Agreement with the Army Research and Development Engineering Command (RDECOM) System Engineering Directorate (SED).Hardware Procurement will be executed through a competitive contracting approach.The current estimated Acquisition Schedule, as shown in the R-4 Forms, is based on the approved JBC-P Acquisition Strategy.

E. Performance Metrics

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

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203759A: *Force XXI Battle Command, Brigade and Below (FBCB2)*	**PROJECT** 122: *JOINT BATTLE COMMAND - PLATFORM (JBC-P)*

Product Development ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Software/Systems Engineering	C	Nothing entered for Activity and Location. Location could not be determined.	0.000	0.000		3.620		0.000		3.620	Continuing	Continuing	0
Software Development	C	Nothing entered for Activity and Location. Location could not be determined.	0.000	0.000		0.000		0.000		0.000	0	Continuing	0
Hardware Development	C	Nothing entered for Activity and Location. Location could not be determined.	0.000	0.000		0.000		0.000		0.000	0	Continuing	0
		Subtotal	0.000	0.000		3.620		0.000		3.620			0.000

Remarks

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203759A: *Force XXI Battle Command, Brigade and Below (FBCB2)*	**PROJECT** 122: *JOINT BATTLE COMMAND - PLATFORM (JBC-P)*

Support ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
PM Office Support	C	Nothing entered for Activity and Location. Location could not be determined.	0.000	0.000		0.315		0.000		0.315	0	Continuing	0
Matrix Support	C	Nothing entered for Activity and Location. Location could not be determined.	0.000	0.000		0.000		0.000		0.000	0	Continuing	0
Miscellaneous Contractor Support	C	Nothing entered for Activity and Location. Location could not be determined.	0.000	0.000		0.000		0.000		0.000	0	Continuing	0
		Subtotal	0.000	0.000		0.315		0.000		0.315	0.000		0.000

Remarks

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203759A: *Force XXI Battle Command, Brigade and Below (FBCB2)*	**PROJECT** 122: *JOINT BATTLE COMMAND - PLATFORM (JBC-P)*

Test and Evaluation ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Contractor Test Support	C	Nothing entered for Activity and Location. Location could not be determined.	0.000	0.000		0.000		0.000		0.000	0	Continuing	0
		Subtotal	0.000	0.000		0.000		0.000		0.000	0.000		0.000

Remarks

Management Services ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Cost Category Item is empty.	C	Nothing entered for Activity and Location. Location could not be determined.	0.000	0.000		0.000		0.000		0.000	0	Continuing	0
		Subtotal	0.000	0.000		0.000		0.000		0.000	0.000		0.000

Remarks

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203759A: *Force XXI Battle Command, Brigade and Below (FBCB2)*	**PROJECT** 122: *JOINT BATTLE COMMAND - PLATFORM (JBC-P)*

	FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000		3.935		0.000		3.935	Continuing	Continuing	Continuing

Remarks

Exhibit R-4, PB 2011 Army **RDT&E Schedule Profile**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203759A: *Force XXI Battle Command, Brigade and Below (FBCB2)*	**PROJECT** 122: *JOINT BATTLE COMMAND - PLATFORM (JBC-P)*

	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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
JBC-P			#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	
Development IPR			#																									
Contract Award						#																						
Development Test (DT)									#																			
Operational Assessment										#	#																	
Limited Initial Rate of Production (LRIP) IPR											#																	
LRIP Production Award												#																
Development Phase					#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	
Full Rate Production (FRP) Decision Review															#													

Exhibit R-4A, PB 2011 Army **RDT&E Schedule Details**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203759A: *Force XXI Battle Command, Brigade and Below (FBCB2)*	**PROJECT** 122: *JOINT BATTLE COMMAND - PLATFORM (JBC-P)*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
JBC-P	3	2009	3	2015
Development IPR	3	2009	3	2009
Contract Award	2	2010	2	2010
Development Test (DT)	1	2011	1	2011
Operational Assessment	2	2011	3	2011
Limited Initial Rate of Production (LRIP) IPR	3	2011	3	2011
LRIP Production Award	4	2011	4	2011
Development Phase	1	2010	3	2015
Full Rate Production (FRP) Decision Review	3	2012	3	2012

Exhibit R-2, PB 2011 Army **RDT&E Budget Item Justification**	**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203801A: *Missile/Air Defense Product Improvement Program*

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	Base FY 2011 Estimate	OCO FY 2011 Estimate	Total FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	34.189	39.068	24.280	0.000	24.280	56.457	52.588	40.582	9.621	Continuing	Continuing
036: *PATRIOT PROD IMP PGM*	6.816	11.232	11.473	0.000	11.473	45.864	42.032	40.582	9.621	Continuing	Continuing

A. Mission Description and Budget Item Justification

PATRIOT is an advanced Surface-to-Air guided missile system with a high probability of kill capable of operation in the presence of Electronic Countermeasures (ECM) and able to conduct multiple simultaneous engagements against high performance air breathing targets and ballistic missiles likely to be encountered by US Forces. The Patriot Product Improvement Program provides for the upgrade of the Patriot System through individual materiel changes. The Patriot Product Improvement Program upgrades the Patriot system to address operational lessons learned, enhancements to joint force interoperability, and other system performance improvements to provide overmatch capability with the emerging threat. DF8 The PATRIOT advanced missile system plays a critical part in the integrated battlefield. DF8 funding was provided by OSD to support expanding ongoing current Joint efforts to advance integrated battlefield capabilities. DF9 funding was provided to the Army by OSD as part of an ongoing Joint OSD-managed effort.

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	37.747	39.273	24.352	0.000	24.352
Current President's Budget	34.189	39.068	24.280	0.000	24.280
Total Adjustments	-3.558	-0.205	-0.072	0.000	-0.072
• Congressional General Reductions		-0.205			
• Congressional Directed Reductions					
• Congressional Rescissions		0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers					
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-3.558	0.000			
• Adjustments to Budget Years	0.000	0.000	-0.072	0.000	-0.072

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**											**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*				**R-1 ITEM NOMENCLATURE** PE 0203801A: *Missile/Air Defense Product Improvement Program*				**PROJECT** 036: *PATRIOT PROD IMP PGM*			
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**Base FY 2011 Estimate**	**OCO FY 2011 Estimate**	**Total FY 2011 Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
036: *PATRIOT PROD IMP PGM*	6.816	11.232	11.473	0.000	11.473	45.864	42.032	40.582	9.621	Continuing	Continuing
Quantity of RD&TE Articles											

A. Mission Description and Budget Item Justification

PATRIOT is an advanced Surface-to-Air guided missile system with a high probability of kill capable of operation in the presence of Electronic Countermeasures (ECM) and able to conduct multiple simultaneous engagements against high performance air breathing targets and ballistic missiles likely to be encountered by US Forces. The Patriot Product Improvement Program provides for the upgrade of the Patriot System through individual materiel changes.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	**FY 2010**	**Base FY 2011**	**OCO FY 2011**	**Total FY 2011**
Program #1	6.816	11.232	11.473	0.000	11.473
Software Improvement for Threat Evolution *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #2	0.000	0.000	0.000	0.000	0.000

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203801A: *Missile/Air Defense Product Improvement Program*	**PROJECT** 036: *PATRIOT PROD IMP PGM*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Small Business Innovative Research/Small Business Technology Transfer Programs					
FY 2009 Accomplishments: FY 2009					
FY 2010 Plans: FY 2010					
Base FY 2011 Plans: FY 2011 Base					
OCO FY 2011 Plans: FY 2011 OCO					
Accomplishments/Planned Programs Subtotals	6.816	11.232	11.473	0.000	11.473

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

The design objective of the Patriot system was to provide a baseline system capable of modification to cope with the evolving threat. This program minimizes technological risks and provides a means of enhancing system capability through planned upgrades of deployed systems. The Patriot Product Improvement program upgrades the Patriot system to address operational lessons learned, enhancements to joint force interoperability, and other system performance improvements to provide overmatch capability against the emerging threat. Upgrades are implemented through individual hardware and software materiel changes and fielded incrementally.

E. Performance Metrics

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

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203801A: *Missile/Air Defense Product Improvement Program*	**PROJECT** 036: *PATRIOT PROD IMP PGM*

Product Development ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Software Improvement for Threat Evolution	C/Various	Multiple Location could not be determined.	36.246	9.063		9.282		0.000		9.282	0	Continuing	0
Recapitalization	SS/CPIF	Multiple Location could not be determined.	97.601	0.000		0.000		0.000		0.000	0	97.601	0
SIAP	SS/FP	Raytheon MA	14.852	0.000		0.000		0.000		0.000	0	Continuing	0
Advanced Composite Radome	SS/CPIF	Multiple Location could not be determined.	3.100	0.000		0.000		0.000		0.000	0	3.100	0
		Subtotal	151.799	9.063		9.282		0.000		9.282	0.000		0.000

Remarks

Sole Source-Cost Plus Incentive Fee (SS-CPIF); Sole Source-Fixed Price (SS-FP)

Support ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
U.S. Contracts	C/FFP	IRTC Huntsville, AL	0.000	0.340		0.344		0.000		0.344	0	Continuing	0
		Subtotal	0.000	0.340		0.344		0.000		0.344	0.000		0.000

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203801A: *Missile/Air Defense Product Improvement Program*	**PROJECT** 036: *PATRIOT PROD IMP PGM*

Support ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**

Remarks

Remarks: Competitive-Firm Fixed Price (C-FFP)

Test and Evaluation ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
AMCOM	C	RSA AL	18.951	0.400		0.459		0.000		0.459	Continuing	Continuing	0
White Sands Missile Range	C	WSMR NM	14.547	0.270		0.229		0.000		0.229	Continuing	Continuing	0
RDEC and Other Govt Agencies	C	RSA AL	101.392	0.684		0.700		0.000		0.700	Continuing	Continuing	0
		Subtotal	134.890	1.354		1.388		0.000		1.388			0.000

Remarks

Military Interdepartmental Purchase Request (MIPR); Redstone Arsenal (RSA); Aviation and Missile Command (AMCOM);White Sands Missile Range (WSMR); Research and Development and Engineering Center

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203801A: *Missile/Air Defense Product Improvement Program*	**PROJECT** 036: *PATRIOT PROD IMP PGM*

Management Services ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
In-House Support	C	RSA AL	18.141	0.125		0.115		0.000		0.115	Continuing	Continuing	0
Matrix Support	C	RSA AL	5.917	0.350		0.344		0.000		0.344	Continuing	Continuing	0
		Subtotal	24.058	0.475		0.459		0.000		0.459			0.000

Remarks

Non-Applicable (N/A); Redstone Arsenal (RSA)

	FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	11.232		11.473		0.000		11.473	Continuing	Continuing	Continuing

Remarks

Exhibit R-4, PB 2011 Army **RDT&E Schedule Profile**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203801A: *Missile/Air Defense Product Improvement Program*	**PROJECT** 036: *PATRIOT PROD IMP PGM*

	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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
PDB 6.5 Fielding						#																						
PDB 7 Fielding														#														
Radar Digital Processor Development												#	#	#	#	#	#	#	#	#	#	#	#					

Exhibit R-4A, PB 2011 Army **RDT&E Schedule Details**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203801A: *Missile/Air Defense Product Improvement Program*	**PROJECT** 036: *PATRIOT PROD IMP PGM*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
PDB 6.5 Fielding	2	2010	2	2010
PDB 7 Fielding	2	2012	2	2012
Radar Digital Processor Development	4	2011	3	2014

Exhibit R-2, PB 2011 Army **RDT&E Budget Item Justification**	**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203802A: *Other Missile Product Improvement Programs*

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	Base FY 2011 Estimate	OCO FY 2011 Estimate	Total FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	5.167	3.979	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	9.146
781: *Hellfire UAV*	1.479	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
78J: *CLOSE COMBAT MSL MOD FAMILY OF MSLS (Javelin)*	3.688	3.979	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Laser HELLFIRE II missile requires replacement of the gyro and software modification to facilitate deployment from high altitudes and increased engagement geometries to defeat a broad target set ranging from heavy armor to urban structures. The modifications will be made to both the current AGM-114K or AGM-114K-2(shaped charge) and N (blast fragmentation) model missiles and result in an AGM-114 P+ configuration. The Javelin multi-purpose warhead (MPWH) provides increased safety through insensitive munitions (IM) improvements and improved lethality in military operations for urban terrain (MOUT) and other irregular warfare soft targets while maintaining lethality against heavy armor. The warhead design will use an advanced shaped-charge technology improvement.

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	5.209	0.000	0.000	0.000	0.000
Current President's Budget	5.167	3.979	0.000	0.000	0.000
Total Adjustments	-0.042	3.979	0.000	0.000	0.000
• Congressional General Reductions		-0.021			
• Congressional Directed Reductions					
• Congressional Rescissions		0.000			
• Congressional Adds		4.000			
• Congressional Directed Transfers					
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-0.042	0.000			

Change Summary Explanation

FY 2010 Congressional increase of $4.000 million for the Javelin Warhead Improvement Program.

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**											**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*				**R-1 ITEM NOMENCLATURE** PE 0203802A: *Other Missile Product Improvement Programs*				**PROJECT** 781: *Hellfire UAV*			
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**Base FY 2011 Estimate**	**OCO FY 2011 Estimate**	**Total FY 2011 Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
781: *Hellfire UAV*	1.479	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RD&TE Articles											

A. Mission Description and Budget Item Justification

The Laser HELLFIRE II missile requires replacement of the gyro and software modification to facilitate deployment from high altitudes and increased engagement geometries to defeat a broad target set ranging from heavy armor to urban structures. The missile will also be backwards compatible with current rotary wing platforms. The summary activities of the project are: a) replace the missile altitude gyro with an Inertial Measurement Unit (IMU), b) develop a modified digital communication link between the missile and the launcher/ platform required to perform Unmanned Aircraft Systems (UAS) functions, c) modify autopilot algorithms and associated software to take advantage of the enhanced engagement envelope offered by the IMU, and d) fully develop, test, and qualify the hardware and software for materiel release for Army fixed and rotary wing platforms. Modifications will be made to both the current AGM-114K or AGM-114K-2 (shaped charge) and N (blast fragmentation) model missiles and result in an AGM-114 P+ configuration. These missiles will be designated the P-4A (shaped charge warhead, with sleeve) and N-4 (metal augmenting charge warhead) configurations.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	**FY 2010**	**Base FY 2011**	**OCO FY 2011**	**Total FY 2011**
Program #1	0.113	0.000	0.000	0.000	0.000
Define and develop system requirements and preliminary design. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base					

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203802A: *Other Missile Product Improvement Programs*	**PROJECT** 781: *Hellfire UAV*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
OCO FY 2011 Plans: FY 2011 OCO					
Program #2 Develop test plans, test support equipment and testing. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	1.128	0.000	0.000	0.000	0.000
Program #3 Perform government engineering support *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010	0.238	0.000	0.000	0.000	0.000

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203802A: *Other Missile Product Improvement Programs*	**PROJECT** 781: *Hellfire UAV*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Base FY 2011 Plans: FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #4 Small Business Innovative Research/Small Business Technology Transfer Programs (SBIR/STTR) *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	0.000	0.000	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	1.479	0.000	0.000	0.000	0.000

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203802A: *Other Missile Product Improvement Programs*	**PROJECT** 781: *Hellfire UAV*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• Ord. #1: *C70100 Laser HELLFIRE Missile (Basic/IHW/HFII)*	253.124	227.101	31.881	190.460	222.341	0.000	0.000	90.208	87.442	0	880.216

D. Acquisition Strategy

The HELLFIRE AGM-114 P+ configuration is an in-house development effort that "leverages" previous experience associated with integration of HELLFIRE on the Air Force Predator Unmanned Aerial Vehicle (UAV) and the current Warrior System Design and Development effort (reviews, testing, and documentation). The end result of the missile modification/ integration effort will be an Engineering Change Proposal (ECP) defining the hardware and software changes to be incorporated into production of the missiles for the Warrior UAS and rotary wing platforms.

E. Performance Metrics

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

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**											**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*				**R-1 ITEM NOMENCLATURE** PE 0203802A: *Other Missile Product Improvement Programs*				**PROJECT** 78J: *CLOSE COMBAT MSL MOD FAMILY OF MSLS (Javelin)*			
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**Base FY 2011 Estimate**	**OCO FY 2011 Estimate**	**Total FY 2011 Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
78J: *CLOSE COMBAT MSL MOD FAMILY OF MSLS (Javelin)*	3.688	3.979	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RD&TE Articles											

A. Mission Description and Budget Item Justification

The Javelin multi-purpose warhead (MPWH) provides increased safety through insensitive munitions (IM) improvements and improved lethality in military operations for urban terrain (MOUT) and other irregular warfare soft targets while maintaining lethality against heavy armor. The warhead design will use an advanced shaped-charge technology improvement. A Congressional mark directed the modernization of the Javelin missile.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	**FY 2010**	**Base FY 2011**	**OCO FY 2011**	**Total FY 2011**
Program #1	3.688	3.979	0.000	0.000	0.000
Prototypes of MPWH designs have been fabricated in order to optimize fragmentation-penetration effects versus weight constraints to support accelerated design verification testing (DVT). Funds have been put on contract to initiate MPWH performance requirements definition, identify viable warhead manufacturers, document the MPWH mid-body housing design, and to develop a MPWH program plan. The FY10 funds will procure hardware and begin DVT. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base					

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203802A: *Other Missile Product Improvement Programs*	**PROJECT** 78J: *CLOSE COMBAT MSL MOD FAMILY OF MSLS (Javelin)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
OCO FY 2011 Plans: FY 2011 OCO					
Program #2	0.000	0.000	0.000	0.000	0.000
Small Business Innovative Research/Small Business Technology Transfer Programs (SBIR/STTR) *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Accomplishments/Planned Programs Subtotals	3.688	3.979	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• Ord. #1: *CC0007 Javelin (AAWS-M)*	367.888	258.553	163.929	0.000	163.929	136.082	108.876	114.718	120.846	0	1,270.892

D. Acquisition Strategy

The Javelin warhead development effort leverages state of the art warhead design technology to develop a multi-purpose warhead. After all required qualification testing is completed, the Close Combat Weapons Systems (CCWS) Project Office will pursue cutting the MPWH into the Javelin Block I missile production line.

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203802A: *Other Missile Product Improvement Programs*	**PROJECT** 78J: *CLOSE COMBAT MSL MOD FAMILY OF MSLS (Javelin)*

E. Performance Metrics

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

Exhibit R-2, PB 2011 Army **RDT&E Budget Item Justification**	**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0307207A: *Aerial Common Sensor (ACS)*

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	Base FY 2011 Estimate	OCO FY 2011 Estimate	Total FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	0.000	115.430	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	115.430
024: *AERIAL COMMON SENSOR (MIP)*	0.000	115.430	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

Note

Prior year funding contained in 0207344A/028; Funding in FY11 and beyond contained in 0605626A/AC5.

A. Mission Description and Budget Item Justification

The Aerial Common Sensor program has ben restructured and renamed the Enhanced Medium Altitude Reconnaissance and Surveillance System (EMARSS). EMARSS is the Army's future force airborne intelligence collection, processing, and targeting support system. EMARSS is a manned multi-INT Airborne Intelligence Surveillance and Reconnaissance (AISR) system that provides a persistent capability to detect, locate, classify/identify, and track surface targets in day/night, near-all-weather conditions with a high degree of timeliness and accuracy. EMARSS aircraft will be located within Aerial Exploitation Battalions (AEB), which are assigned to the U.S.Army Intelligence and Security Command (INSCOM). The EMARSS system will consist of a commercial derivative aircraft equipped with Electro-optic/Infrared (EO/IR) Full Motion Video (FMV) sensor, a COMINT collection system, an aerial precision Geolocation system, line-of-site (LOS) tactical and beyond line-of-site (LOS/BLOS) communications suites, two operator workstations and a self-protection suite. EMARSS will operate as a single platform in support of tactical missions. Mission altitude and flight tracks are chosen to optimize sensor data collection on the target area of interest while avoiding known threats. Flight tracks may be selected to strike a balance among the capabilities of multiple sensors, or to optimize collection from individual sensors based upon the daily collection tasking dictated by the tactical commanders Priority Intelligence Requirements (PIRs). EMARSS will provide efficient response to Combat Forces ISR tasking with centralized Processing, Exploitation & Dissemination (PED) of ISR while simultaneously transmitting critical FMV and intelligence products to engaged tactical forces. The National Security Agency's Military Intelligence Program (MIP) provides funding to support enhanced SIGINT capabilities. FY11 Base - No Request for this PE line.FY11 OCO - No Request for this PE line.Funding in FY11 and beyond has been shifted to PE 0605626A, project AC5, Aerial Common Sensor SDD.

Exhibit R-2, PB 2011 Army **RDT&E Budget Item Justification**	**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0307207A: *Aerial Common Sensor (ACS)*

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	0.000	210.035	300.321	0.000	300.321
Current President's Budget	0.000	115.430	0.000	0.000	0.000
Total Adjustments	0.000	-94.605	-300.321	0.000	-300.321
• Congressional General Reductions		-94.605			
• Congressional Directed Reductions					
• Congressional Rescissions		0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers					
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Adjustments to Budget Years	0.000	0.000	-300.321	0.000	-300.321

Change Summary Explanation

Change Summary Explanation: FY 2011: OSD directed that this MIP program be moved to it's own separate program element, 0605626A.

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**											**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*				**R-1 ITEM NOMENCLATURE** PE 0307207A: *Aerial Common Sensor (ACS)*				**PROJECT** 024: *AERIAL COMMON SENSOR (MIP)*			
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**Base FY 2011 Estimate**	**OCO FY 2011 Estimate**	**Total FY 2011 Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
024: *AERIAL COMMON SENSOR (MIP)*	0.000	115.430	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RD&TE Articles											

A. Mission Description and Budget Item Justification

The Aerial Common Sensor program has ben restructured and renamed the Enhanced Medium Altitude Reconnaissance and Surveillance System (EMARSS). EMARSS is the Army's future force airborne intelligence collection, processing, and targeting support system. EMARSS is a manned multi-INT Airborne Intelligence Surveillance and Reconnaissance (AISR) system that provides a persistent capability to detect, locate, classify/identify, and track surface targets in day/night, near-all-weather conditions with a high degree of timeliness and accuracy. EMARSS aircraft will be located within Aerial Exploitation Battalions (AEB), which are assigned to the U.S.Army Intelligence and Security Command (INSCOM). The EMARSS system will consist of a commercial derivative aircraft equipped with Electro-optic/Infrared (EO/IR) Full Motion Video (FMV) sensor, a COMINT collection system, an aerial precision Geolocation system, line-of-site (LOS) tactical and beyond line-of-site (LOS/BLOS) communications suites, two operator workstations and a self-protection suite. EMARSS will operate as a single platform in support of tactical missions. Mission altitude and flight tracks are chosen to optimize sensor data collection on the target area of interest while avoiding known threats. Flight tracks may be selected to strike a balance among the capabilities of multiple sensors, or to optimize collection from individual sensors based upon the daily collection tasking dictated by the tactical commanders Priority Intelligence Requirements (PIRs). EMARSS will provide efficient response to Combat Forces ISR tasking with centralized Processing, Exploitation & Dissemination (PED) of ISR while simultaneously transmitting critical FMV and intelligence products to engaged tactical forces. The National Security Agency's Military Intelligence Program (MIP) provides funding to support enhanced SIGINT capabilities. FY11 Base - No Request for this PE line.FY11 OCO - No Request for this PE line.Funding in FY11 and beyond has been shifted to PE 0605626A, project AC5, Aerial Common Sensor SDD.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	**FY 2010**	**Base FY 2011**	**OCO FY 2011**	**Total FY 2011**
Program #1	0.000	14.199	0.000	0.000	0.000
Supports Material Development Decision (MDD), EMD Source Selection activities, test support, Program Management Office (PMO)					

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0307207A: *Aerial Common Sensor (ACS)*	**PROJECT** 024: *AERIAL COMMON SENSOR (MIP)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2009 Accomplishments: FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #2 Start EMD contract, purchases 3 EMD aircraft, purchase GFE and technical support, DCGS-A on board processing. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	0.000	101.231	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	0.000	115.430	0.000	0.000	0.000

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0307207A: *Aerial Common Sensor (ACS)*	**PROJECT** 024: *AERIAL COMMON SENSOR (MIP)*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• Ord. #1: *Army PE 0605626A Project AC5*	0.000	0.000	211.500	0.000	211.500	31.400	3.200	0.000	0.000	0	246.100
• Ord. #2: *ACS NSA MIP*	3.690	2.022	1.350	0.000	1.350	10.634	9.554	7.395	7.395	Continuing	Continuing
• Ord. #3: *GRCS NSA MIP*	6.790	2.780	0.685	0.000	0.685	5.246	4.697	3.601	3.601	Continuing	Continuing
• Ord. #4: *Army PE 0203744A Project 028*	20.828	0.074	0.068	0.000	0.068	0.069	0.071	0.072	0.074	0	21.256

D. Acquisition Strategy

The Enhanced Medium Altitude Reconnaissance and Surveillance System (EMARSS) is a program of record based on an Army G-3/5/7 Directed Requirement (DR) signed 11 December 2009. The decision to pursue EMARSS is a direct result of relooking the Army's approach to the Airborne Intelligence Surveillance and Reconnaissance (ISR) construct and applying the lessons learned from current overseas operations. The Army plans to convene a Material Development Decision (MDD) review in 2Q FY10. The program will enter the acquisition process in the Engineering and Manufacturing Development (EMD) phase. The EMARSS EMD contract will be competitively awarded to a single contractor. An option for LRIP is anticipated to be part of this effort. MS C is scheduled for 4QFY11 and FRP in 3QFY12.

E. Performance Metrics

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

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0307207A: *Aerial Common Sensor (ACS)*	**PROJECT** 024: *AERIAL COMMON SENSOR (MIP)*

Product Development ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
EMARSS EMD	C/CPIF	TBD Location could not be determined.	0.000	88.101		0.000		0.000		0.000	0	Continuing	0
Vortex Data Links/PALS/ DBOS	C/FFP	L3COMM Warner Robins AFB	0.000	5.890		0.000		0.000		0.000	0	Continuing	0
Other GFE/COMSEC Equipment	C/TBD	TBD Location could not be determined.	0.000	0.870		0.000		0.000		0.000	0	Continuing	0
Airborne Precision Geo-Location (APG) System	C/TBD	NSA Location could not be determined.	0.000	1.270		0.000		0.000		0.000	7.628	Continuing	0
Cost Category Item is empty.	C	Nothing entered for Activity and Location. Location could not be determined.	0.000	0.000		0.000		0.000		0.000	0	Continuing	0
		Subtotal	0.000	96.131		0.000		0.000		0.000	7.628		0.000

Remarks

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0307207A: *Aerial Common Sensor (ACS)*	**PROJECT** 024: *AERIAL COMMON SENSOR (MIP)*

Support ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
DCGS-A & Orion S/W processing on Board	C/TBD	Various Location could not be determined.	0.000	5.100		0.000		0.000		0.000	0	Continuing	0
		Subtotal	0.000	5.100		0.000		0.000		0.000	0.000		0.000

Remarks

Test and Evaluation ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Test Support	C	Gov't/various Location could not be determined.	0.000	0.900		0.000		0.000		0.000	0	Continuing	0
Test Flight Ranges	C	Gov't/various Location could not be determined.	0.000	0.000		0.000		0.000		0.000	0	Continuing	0
		Subtotal	0.000	0.900		0.000		0.000		0.000	0.000		0.000

Remarks

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0307207A: *Aerial Common Sensor (ACS)*	**PROJECT** 024: *AERIAL COMMON SENSOR (MIP)*

Management Services ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
PMO Staff/travel/O/H expenses	C	PM AC Sensors: Ft. Monmouth, NJ; Aberdeen, MD	0.000	2.399		0.000		0.000		0.000	Continuing	Continuing	0
Program SETA Support	C	CACI BAH, USFalcon, LM: NJ/ DC	0.000	4.500		0.000		0.000		0.000	Continuing	Continuing	0
SETA Mgmt Support	SS/CPFF	Mitre: various Location could not be determined.	0.000	1.400		0.000		0.000		0.000	Continuing	Continuing	0
Gov't Matrix Support	C	Multiple: Ft. Monmouth NJ	0.000	2.400		0.000		0.000		0.000	Continuing	Continuing	0
Gov't Matrix Support - 2	C/CPFF	PMFW AMRDEC: Redstone, AL	0.000	2.600		0.000		0.000		0.000	Continuing	Continuing	0
		Subtotal	0.000	13.299		0.000		0.000		0.000			0.000

Remarks

	FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	115.430		0.000		0.000		0.000	Continuing	Continuing	Continuing

Remarks

Exhibit R-4, PB 2011 Army **RDT&E Schedule Profile**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0307207A: *Aerial Common Sensor (ACS)*	**PROJECT** 024: *AERIAL COMMON SENSOR (MIP)*

	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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 Decision (MDD)					#																							
Contract Award IPR						#																						
Engineering Manufacturing & Development						#	#	#	#	#	#																	
SRR/SFR							#																					
System Design Review									#																			
CT/DT									#	#																		
DT/OT & LUT										#	#																	
MS C											#																	
LRIP											#	#	#	#														
IOT&E													#															
Full Rate Production														#														
Production														#	#	#	#	#	#	#	#	#	#	#	#	#	#	

Exhibit R-4A, PB 2011 Army **RDT&E Schedule Details**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0307207A: *Aerial Common Sensor (ACS)*	**PROJECT** 024: *AERIAL COMMON SENSOR (MIP)*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Material Development Decision (MDD)	1	2010	1	2010
Contract Award IPR	2	2010	2	2010
Engineering Manufacturing & Development	2	2010	3	2011
SRR/SFR	3	2010	3	2010
System Design Review	1	2011	1	2011
CT/DT	1	2011	2	2011
DT/OT & LUT	2	2011	3	2011
MS C	3	2011	3	2011
LRIP	3	2011	2	2012
IOT&E	1	2012	1	2012
Full Rate Production	2	2012	2	2012
Production	2	2012	3	2015

Exhibit R-2, PB 2011 Army **RDT&E Budget Item Justification**	**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0702239A: *Avionics Component Improvement Program*

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	Base FY 2011 Estimate	OCO FY 2011 Estimate	Total FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	1.019	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	1.019
C92: *AVIONICS COMPONENT ANALYSIS*	0.991	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Avionics Component Improvement Program (AvCIP) is a Joint Services initiative to combat parts obsolescence, improve reliability, safety and accelerate technology infusion into avionics programs.

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	1.019	0.000	0.000	0.000	0.000
Current President's Budget	1.019	0.000	0.000	0.000	0.000
Total Adjustments	0.000	0.000	0.000	0.000	0.000
• Congressional General Reductions		0.000			
• Congressional Directed Reductions					
• Congressional Rescissions		0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers					
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-0.028	0.000			

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**											**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*				**R-1 ITEM NOMENCLATURE** PE 0702239A: *Avionics Component Improvement Program*				**PROJECT** C92: *AVIONICS COMPONENT ANALYSIS*			
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**Base FY 2011 Estimate**	**OCO FY 2011 Estimate**	**Total FY 2011 Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
C92: *AVIONICS COMPONENT ANALYSIS*	0.991	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RD&TE Articles											

A. Mission Description and Budget Item Justification

The Avionics Component Improvement Program (AvCIP) is a Joint Services initiative to combat parts obsolescence, improve reliability, safety and accelerate technology infusion into avionics programs.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	**FY 2010**	**Base FY 2011**	**OCO FY 2011**	**Total FY 2011**
Program #1	0.733	0.000	0.000	0.000	0.000
Determine critical avionics (communications, navigation, surveillance, sensors, combat identification, mission planning, and interoperability) deficiencies, prioritize and conduct initial technology improvements effort.					
FY 2009 Accomplishments: FY 2009					
FY 2010 Plans: FY 2010					
Base FY 2011 Plans: FY 2011 Base					
OCO FY 2011 Plans: FY 2011 OCO					

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0702239A: *Avionics Component Improvement Program*	**PROJECT** C92: *AVIONICS COMPONENT ANALYSIS*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #2	0.183	0.000	0.000	0.000	0.000
Identify software techniques and opportunities associated with open system architectures targeted to reduce initial and recurring avionics integration costs. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #3	0.075	0.000	0.000	0.000	0.000
Continue Program Management Support *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base					

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0702239A: *Avionics Component Improvement Program*	**PROJECT** C92: *AVIONICS COMPONENT ANALYSIS*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
OCO FY 2011 Plans: FY 2011 OCO					
Program #4	0.000	0.000	0.000	0.000	0.000
Small Business Innovative Research/Small Business Technology Transfer (SBIR/STTR) Reduction					
FY 2009 Accomplishments: FY 2009					
FY 2010 Plans: FY 2010					
Base FY 2011 Plans: FY 2011 Base					
OCO FY 2011 Plans: FY 2011 OCO					
Accomplishments/Planned Programs Subtotals	0.991	0.000	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

The Acquisition Strategy is to identify emerging avionics performance and obsolescence problems. AvCIP is an initiative that enables streamlined management of present-day common avionics/electronics critical readiness degraders, technology insertion opportunities and cost reduction solutions. The program will annually compete candidate solutions according to criticality of operational contribution, technical risk, return on investment, commonality and breadth of application across multiple platforms.

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0702239A: *Avionics Component Improvement Program*	**PROJECT** C92: *AVIONICS COMPONENT ANALYSIS*

E. Performance Metrics

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

Exhibit R-2, PB 2011 Army **RDT&E Budget Item Justification**	**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0708045A: *End Item Industrial Preparedness Activities*

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	Base FY 2011 Estimate	OCO FY 2011 Estimate	Total FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	88.975	102.867	61.098	0.000	61.098	74.193	80.828	82.253	92.656	Continuing	Continuing
E25: *MFG SCIENCE & TECH*	67.047	68.109	61.098	0.000	61.098	74.193	80.828	82.253	92.656	Continuing	Continuing
EA2: *MANTECH INITIATIVES (CA)*	21.928	34.758	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program element (PE) demonstrates manufacturing processes that enable producibility and affordability of emerging and enabling technologies. Initiatives within the PE result in cost savings and reduced risk of transitioning military-unique manufacturing processes into production. This PE also fosters the transfer of new/improved manufacturing technologies to the industrial base, including manufacturing efforts that have potential for high payoff across the spectrum of Army systems and/or significant impact on national manufacturing issues (project E25). Major investment areas include Aviation Systems, Armor and Survivability, Sensors, Electronics and Power Systems, Precision Munitions and Armaments, and Flexible Displays. Project EA2 funds congressional special interest items. Work in this PE is related to, and fully coordinated with, PE 0603710A (Night Vision Advanced Technology), PE 0602303A (Missile Technology), PE 0602105A (Materials Technology), PE 0602618A (Ballistics Technology), PE 0602601A (Combat Vehicle and Automotive Technology), and PE 0603005A (Combat Vehicle and Automotive Advanced Technology) and PE 0602705A (Electronics and Electronic Devices).The cited work is consistent with the Director, Defense Research and Engineering Strategic Plan, the Army Modernization Strategy, and the Army Science and Technology Master Plan. Work in this PE is performed by the Army Research, Development, and Engineering Command (RDECOM) and efforts are executed by the Army Research Laboratory (ARL) and appropriate Army Research, Development, and Engineering Centers (RDECs).

Exhibit R-2, PB 2011 Army **RDT&E Budget Item Justification**	**DATE:** February 2010
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B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	90.782	68.466	68.512	0.000	68.512
Current President's Budget	88.975	102.867	61.098	0.000	61.098
Total Adjustments	-1.807	34.401	-7.414	0.000	-7.414
• Congressional General Reductions		-0.539			
• Congressional Directed Reductions					
• Congressional Rescissions		0.000			
• Congressional Adds		34.940			
• Congressional Directed Transfers					
• Reprogrammings	0.616	0.000			
• SBIR/STTR Transfer	-2.423	0.000			
• Adjustments to Budget Years	0.000	0.000	-7.414	0.000	-7.414

Change Summary Explanation

FY10 Congressionally directed increases.FY11 funding realigned to higher priority efforts.

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**											**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*				**R-1 ITEM NOMENCLATURE** PE 0708045A: *End Item Industrial Preparedness Activities*				**PROJECT** E25: *MFG SCIENCE & TECH*			
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**Base FY 2011 Estimate**	**OCO FY 2011 Estimate**	**Total FY 2011 Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
E25: *MFG SCIENCE & TECH*	67.047	68.109	61.098	0.000	61.098	74.193	80.828	82.253	92.656	Continuing	Continuing
Quantity of RD&TE Articles											

A. Mission Description and Budget Item Justification

This project develops and demonstrates advanced manufacturing processes, equipment, and systems that enhance the quality and/or quantity of products, while achieving reductions in cost and/or transfer of improved manufacturing technologies to the industrial base. Efforts within this project have potential for high payoff across the spectrum of Army weapon systems, and significant positive impact on national manufacturing issues and the US industrial base. Current investment areas include: Aviation, Armor and Survivability, Sensors, Electronics and Power Systems, Precision Munitions and Armaments, and Display Technology. The cited work is consistent with the Director, Defense Research and Engineering Strategic Plan, the Army Modernization Strategy, and the Army Science and Technology Master Plan. Work in this project is performed by the Army Research, Development, and Engineering Command (RDECOM) and efforts are executed by the Army Research Laboratory (ARL) and appropriate Army Research, Development, and Engineering Centers (RDECs). The cited work is consistent with the Director, Defense Research and Engineering Strategic Plan, the Army Modernization Strategy, and the Army Science and Technology Master Plan. Work in this project is performed by the Army Research, Development, and Engineering Command (RDECOM) and efforts are executed by the Army Research Laboratory (ARL) and appropriate Army Research, Development, and Engineering Centers (RDECs).

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	**FY 2010**	**Base FY 2011**	**OCO FY 2011**	**Total FY 2011**
Program #1	4.000	3.843	5.000	0.000	5.000
Aviation Systems - Embedded Sensor Processes for Aviation Component Structures (ESPACS): In FY09, formed stabilizer with composite manufacturing processes suitable for flexible substrates high adhesive binding tolerances. In FY10, demonstrate lamination production compatibility with airframe fabrication and insertion into Apache Block III. Low Cost Cabin Floor Structures: In FY09, showed high yield processing and manufacture of survivable, affordable, repairable airframe components. In FY10, integrate materials, design, and manufacturing process controls for airframe components. Automation of Blade Erosion Coating: In FY11, will increase manufacturing yield and efficiency of anti-corrosion spray coating processes that will increase blade life and quality over current manual coating process. Advanced Ceramic Manufacturing and Machining: In FY11, will					

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
evaluate high yield manufacturing processes enabling application of new Ceramic Matrix Composite technologies that can significantly improve thrust, fuel consumption, and reliability compared to current T-700 helicopter engine. Validate low cost manufacturing solutions for structural components and transition to program of record. UAS Class IV weight Reductions/Performance Improvement Initiative: In FY11, will analyze composite processes to include mold flow control and strength to enable use of lower weight materials. Will demonstrate low cost production of lightweight components which increase UAV performance. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #2 Base Structural Armor: In FY09, demonstrated fabrication process controls of functional armor prototypes of laminated ceramics, composites, and model-centric based specifications of upper and lower hull materials suitable for combat and combat service support vehicles. In FY10, demonstrate manufacture of ballistic armor using hot pressed silicon carbide tiles, advanced ceramic composite lamination, and process controls to lower the cost, weight and material flaws for low rate production of combat vehicle modular armor. In FY11, will show production yield for ballistic and blast armors suitable for combat vehicles and add on protective modules with scalable protection requirements. Will show suitable base and add on armor production facilities to begin	14.092	14.695	13.293	0.000	13.293

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
transition of production protocols to Ground Combat Vehicle and other platform programs of record with these ballistic requirements. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #3 Overlay Armor: In FY09, integrated production of stiffening materials and demonstrated producible, affordable armor manufacturing processes that include hybridized fibrous metal matrix composites and 3-D composites backing. Developed low cost grinding methods for transparent armors. In FY10, develop the automated specifications and process controls to demonstrate 3-D hybrid composite armor for large transparent armored apertures and structures. In FY11, will demonstrate and qualify ballistic and blast armors, add on protective modules and limited production of build-to-print armor with automated specification controls. Will demonstrate low yield automated assembly of ceramic composites suitable for the fabrication of Ballistic, Hull & Turret, and high yield production of affordable Silcon Carbide (SiC) and Titanium (Ti). Transparent Spinel Armor: Will show high yield fabrication capability for ceramic composites with reduced weight and improved ballistic protection. Will demonstrate manufacture process of spinel armor plates in sizes up to 600 square inch which will reduce cost and weight for tactical vehicles.	14.000	14.694	13.293	0.000	13.293

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2009 Accomplishments: FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #4 Low Cost Manufacturing of Materials for Improved Warfighter Protection: In FY09, integrated hydrostatic and multifunctional material technologies, and completed full-scale implementation into various manufacturing lines including the process for protective materials used on advanced combat helmets and soldier systems. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	2.271	0.000	0.000	0.000	0.000

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #5	4.814	4.927	5.000	0.000	5.000
Sensors: Infrared Focal Plane Arrays: In FY09, showed production line of Indium-Tin-Oxide process for 8-in substrates for use in focal plane array assemblies and demonstrated high yield process for integration circuits for design and optimization. In FY10, demonstrate high yield processes for protection systems. Micro-Displays: In FY11, will demonstrate 4 inch wafer line with increased production yield. Will use new pixel manufacturing line to produce 6 inch wafers with increased display contrast and color performance. Will produce initial lots of wafers to conduct tradeoff and selected initial process improvements. Will demonstrate production line of variable lot size, with increase in wafer yield and reduced surface defects. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #6	3.500	2.956	3.000	0.000	3.000
Third Gen Infrared (IR) Dewar / Cooler Aperture: In FY09, integrated improved manufacturing components and processes for variable aperture and compact cold stage components to validate tooling documentation and performed manufacturing demonstration. In FY10, reduce weight, increase yield manufacture of cooled and uncooled systems and increase reliability and capacity for the optics used on guided weapons and surveillance sights. In FY11, will begin transition of optimized production process and configurations to combat and combat support program of record.					

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2009 Accomplishments: FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #7 Software Defined Radio (SDR) Components: In FY09, completed system integration and validation of improved manufacturing technologies and processes for RF chipset, power amplifiers, and wide-band tunable filter for low rate production. In FY10, transition manufacturing technologies to Joint Tactical Radio System (JTRS), both ManPack and Small Form Fit systems. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base	6.000	5.913	0.000	0.000	0.000

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
OCO FY 2011 Plans: FY 2011 OCO					
Program #8	4.270	3.942	5.119	0.000	5.119
Electronics/Power Systems - Silicon Carbide (SiC) Switches: In FY09, improved manufacturing techniques to produce 4 inch substrates, and reduced the manufacturing cost of low voltage diodes and switches by 20%. In FY10, show high efficiency manufacturing processes for SiC materials and reduced flaws in energy storage devices for electronic systems. High Definition Multi-band Focal Plane Arrays: In FY11, will increase focal plan array substrate diameter and growth yield, improve growth yield; will increase material growth and pixel fabrication processes to enable affordable large format, multi-color focal plane arrays for high definition infrared sensors that improve situational awareness and target detection. Will demonstrate low volume production of array and wafer size of 80 square centimeters. Chip Scale Atomic Clock: In FY11, will demonstrate vacuum environment manufacturing processes for components package of chip scale atomic clock. Will manufacture components packages with automatic filling techniques to improve yield.					
FY 2009 Accomplishments: FY 2009					
FY 2010 Plans: FY 2010					
Base FY 2011 Plans: FY 2011 Base					
OCO FY 2011 Plans: FY 2011 OCO					
Program #9	3.772	2.807	2.500	0.000	2.500

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Very High Power (VHP) Batteries: In FY09, developed and demonstrated efficient manufacturing process that increased cell performance from 1 kilowatt to 3 kilowatts, while minimizing cell capacity loss from 40 percent to 20 percent. In FY10, complete battery certifications and transition production capabilities to support of combat vehicles and/or weapon systems. In FY11, will demonstrate and transition efficient production line with reduced flaws and automated specifications and process controls. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #10 Low Cost Zinc Sulfide Missile Dome: In FY10, develop flow model to increase product yield of dome; develop extensive flow model and improve zinc sulfide (ZnS) chemical vapor deposition processes, and improve ZnS dome blank growth processes and improvements for demonstration and transition. In FY11, will optimize post-deposition treatments and scale-up reactor production for transition to PM NLOS-LS. *FY 2009 Accomplishments:* FY 2009	0.000	2.956	3.000	0.000	3.000

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2010 Plans: FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #11 Precision Munitions/Armaments, Scale up of (PAX-3): In FY09, demonstrated efficient process and optimization of PAX-3 explosives suitable for dual purpose munitions. In FY10, show production on large scale for bunker defeat munitions. Grenade Initiation Module (GIM): In FY11, will show automated process for the assembly GIM that eliminates the manual processes and validate reliability of the automatic process. Multi-Purpose Warhead Manufacturing Improvement: In FY11, will demonstrate molybdenum fast jet manufacturing improvements and refine charge process. Cost Improvement of solventless propellant: In FY11, will show reduced cost production processes for solvent less propellant. High Explosive Material: In FY11, will improve processing technology using modeling and simulation to enable the production of new generation insensitive munitions formulation. Will install equipment and demonstrate lowered production cost (from $5.00/lb to $4.25/lb) and improve yield of key ingredients used in explosive formulations for 155mm artillery, 60 mm mortar and Spider munitions. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010	3.312	2.690	2.893	0.000	2.893

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Base FY 2011 Plans: FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #12 Laser Ignition: In FY09, developed metal-to-ceramic brazing process and manufacturing methodology for Artillery Laser Ignition System (LIS) components. In FY10, demonstrate prototype laser ignition diodes using new manufacturing processes. Demonstrate Phase I laser diodes production lines and crystal assembly production controls. In FY11, will complete transition of production specifications, methodology and brazing process controls. Will demonstrate manufacturing protocols for compact crystal assembly and electronics to facilitate full scale production of modular assembly accessed at MRL 8. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	2.004	1.971	3.000	0.000	3.000
Program #13	5.012	4.927	5.000	0.000	5.000

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Flexible Display Technology: In FY09, demonstrated pilot production lines to manufacture reflective and emissive 7.5 inch displays. In FY10, increase yield, and demonstrate improved processing for higher resolution micro displays. In FY11, will demonstrate sensor manufacturing processes and demonstrate flexible electronics integrated with flexible displays for reduced sensor power and improved computational performance. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #14 Small Business Innovative Research/Small Business Technology Transfer Programs *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base	0.000	1.788	0.000	0.000	0.000

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
OCO FY 2011 Plans: FY 2011 OCO					
Accomplishments/Planned Programs Subtotals	67.047	68.109	61.098	0.000	61.098

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

Not applicable for this item.

E. Performance Metrics

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

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**											**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*				**R-1 ITEM NOMENCLATURE** PE 0708045A: *End Item Industrial Preparedness Activities*				**PROJECT** EA2: *MANTECH INITIATIVES (CA)*			
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**Base FY 2011 Estimate**	**OCO FY 2011 Estimate**	**Total FY 2011 Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
EA2: *MANTECH INITIATIVES (CA)*	21.928	34.758	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RD&TE Articles											

A. Mission Description and Budget Item Justification

Congressional Interest Item funding for Mantech Initiatives.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	**FY 2010**	**Base FY 2011**	**OCO FY 2011**	**Total FY 2011**
Program #1 Legacy Aerospace Gear Drive Re-Engineering Initiative. In FY09, demonstrated a 3D model-based inspection, modeling and production process for helicopter gears to reduce cost and lead time. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	1.994	1.990	0.000	0.000	0.000
Program #2	3.987	2.387	0.000	0.000	0.000

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Smart Machine Platform Initiative. In FY09, implemented a capability to manufacture parts with complicated part features more effectively. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #3 Spring Suspended Airless Tires for Convoy Protection. In FY09, produced several full-scale HMMWV tire prototypes using the cast urethane process to demonstrate improved performance over "run flat" tires. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base	2.790	0.000	0.000	0.000	0.000

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
OCO FY 2011 Plans: FY 2011 OCO					
Program #4 Manufacturing Metrology for Weapon System Production and Sustainment (M2WSPS). In FY09, developed software and processes to predict machine equipment needs capable of producing parts with required tolerances. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	1.754	0.000	0.000	0.000	0.000
Program #5 Advanced Modeling Technology for Large Structure Titanium Machining Initiative. In FY09, demonstrated reductions in machine planning and tool costs associated using intelligent machine planning technology for machining gun tubes and other weapon system parts. *FY 2009 Accomplishments:* FY 2009	0.797	0.795	0.000	0.000	0.000

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2010 Plans: FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #6 Vehicle Common Armor Manufacturing Process (VCAMP). In FY09, demonstrated automated welding of Titanium Armor using robotic welding for transition to Program of Record. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	1.994	0.000	0.000	0.000	0.000
Program #7 Superior Weapons Systems Through Castings. In FY09, demonstrated Net Shape molding which increased performance, allowed for lighter weight castings for both legacy and future systems.	1.595	1.592	0.000	0.000	0.000

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2009 Accomplishments: FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #8 Near-Net Shaped Direct-Sintered Silicon Carbide Torso Plates. In FY09, demonstrated sintered manufacturing torso plates which decreased weight and allowed for complex shapes. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	1.595	0.000	0.000	0.000	0.000
Program #9	1.435	1.194	0.000	0.000	0.000

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0708045A: *End Item Industrial Preparedness Activities*	**PROJECT** EA2: *MANTECH INITIATIVES (CA)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Solid State Processing of Titanium Alloys for Defense Material Armaments. In FY09, demonstrated Solid State manufacturing of Titanium for vehicles which reduced scrap waste and decrease touch labor. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #10 Network Centric Prototype Manufacturing. In FY09, Demonstrated manufacturing process data, captured during prototype hardware and will transition this data to manufacturers during production & sustainment which will reduce lead times, improve quality, and reduce costs. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base	3.987	3.979	0.000	0.000	0.000

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0708045A: *End Item Industrial Preparedness Activities*	**PROJECT** EA2: *MANTECH INITIATIVES (CA)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
OCO FY 2011 Plans: FY 2011 OCO					
Program #11 Spinel Transparent Armor Production Technology. This is a Congressional Interest Item. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	0.000	0.796	0.000	0.000	0.000
Program #12 Aging Weapons Systems Structural Repair. This is a Congressional Interest Item. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010	0.000	1.194	0.000	0.000	0.000

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0708045A: *End Item Industrial Preparedness Activities*	**PROJECT** EA2: *MANTECH INITIATIVES (CA)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Base FY 2011 Plans: FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #13 National Center for Defense Manufacturing and Machining. This is a Congressional Interest Item. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	0.000	1.591	0.000	0.000	0.000
Program #14 Achieving Lightweight Casting Solutions. This is a Congressional Interest Item. *FY 2009 Accomplishments:* FY 2009	0.000	1.592	0.000	0.000	0.000

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0708045A: *End Item Industrial Preparedness Activities*	**PROJECT** EA2: *MANTECH INITIATIVES (CA)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2010 Plans: FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #15 Lightweight Magnesium Parts for Military Applications. This is a Congressional Interest Item. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	0.000	1.592	0.000	0.000	0.000
Program #16 Improved Manufacturing Processes Demo Program for Army Tactical Vehicles. This is a Congressional Interest Item.	0.000	1.592	0.000	0.000	0.000

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0708045A: *End Item Industrial Preparedness Activities*	**PROJECT** EA2: *MANTECH INITIATIVES (CA)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2009 Accomplishments: FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #17 High Performance Alloy Materials/Advanced Manufacturing of Steel Castings. This is a Congressional Interest Item. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	0.000	2.387	0.000	0.000	0.000
Program #18	0.000	2.387	0.000	0.000	0.000

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0708045A: *End Item Industrial Preparedness Activities*	**PROJECT** EA2: *MANTECH INITIATIVES (CA)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
ARL 3D Model-Based Inspection and Scanning. This is a Congressional Interest Item. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #19 De-weighting Military Vehicles through Advanced Composites Manufacturing Technology. This is a Congressional Interest Item. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	0.000	2.945	0.000	0.000	0.000

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0708045A: *End Item Industrial Preparedness Activities*	**PROJECT** EA2: *MANTECH INITIATIVES (CA)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #20	0.000	3.263	0.000	0.000	0.000
Precision Strike Munitions Advancement with Integrated Millimeter Wave Power Sources to Satisfy Army. This is a Congressional Interest Item. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #21	0.000	3.482	0.000	0.000	0.000
Polymeric Web Run-Flat Tire Inserts for Convoy Protection. This is a Congressional Interest Item. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base					

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0708045A: *End Item Industrial Preparedness Activities*	**PROJECT** EA2: *MANTECH INITIATIVES (CA)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
OCO FY 2011 Plans: FY 2011 OCO					
Accomplishments/Planned Programs Subtotals	21.928	34.758	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

N/A

E. Performance Metrics

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

Exhibit R-2, PB 2011 Army **RDT&E Budget Item Justification**	**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303028A: *Security and Intelligence Activities*

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	Base FY 2011 Estimate	OCO FY 2011 Estimate	Total FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	3.189	9.777	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
H12: *INTEL SPT TO FORCE XX1*	3.189	7.644	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
H13: *INFORMATION DOMINANCE CENTER (IDC) - TIARA*	0.000	2.133	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

This Program Element supports the Global Horizontal Integration (GHI) which is a multi-phased Department of Defense Joint experiment, led by the Army, to build a capability for real-time fusion of multi-discipline and coalition intelligence available from tactical, operational, combined, and national levels. GHI and the Information Dominance Center are complementary programs, with GHI applying IDC capabilities to Joint and Coalition environments.

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	0.000	2.144	2.392	0.000	2.392
Current President's Budget	3.189	9.777	0.000	0.000	0.000
Total Adjustments	3.189	7.633	-2.392	0.000	-2.392
• Congressional General Reductions		0.000			
• Congressional Directed Reductions					
• Congressional Rescissions		0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers					
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			

Change Summary Explanation

Change Summary Explanation: Due to a technical error in the database the previous president's budget was not displayed in the Program Change Summary table. The FY 10 President's Budget amounts for FY 09 & FY 11 are the same as the current FY 11 BES submission. FY 10 President's Budget amount was $2,144. The delta between the FY 10 President's Budget and the current FY 11 BES submission is $7,644. The $7,644 is an anticipated Congressional increase to support FY 10 Overseas Contingency Operations efforts.

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**											**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*				**R-1 ITEM NOMENCLATURE** PE 0303028A: *Security and Intelligence Activities*				**PROJECT** H12: *INTEL SPT TO FORCE XX1*			
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**Base FY 2011 Estimate**	**OCO FY 2011 Estimate**	**Total FY 2011 Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
H12: *INTEL SPT TO FORCE XX1*	3.189	7.644	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RD&TE Articles											

A. Mission Description and Budget Item Justification

FY 2010 OCO: This program provides full spectrum information output (IO) support during operations, exercises, and other activities supporting both the Army and Joint warfighters, as well as a previously unrealized operational advantage to Army, Land Component and Joint Task Force Commanders by protecting their information and information systems while affecting adversary information and information systems, and providing warfighers with IO planning and field support.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	**FY 2010**	**Base FY 2011**	**OCO FY 2011**	**Total FY 2011**
Program #1	3.190	0.000	0.000	0.000	0.000
FY 2009 Base: Intelligenc Support Program Support *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #2	0.000	7.644	0.000	0.000	0.000

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303028A: *Security and Intelligence Activities*	**PROJECT** H12: *INTEL SPT TO FORCE XX1*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2010 OCO: Full spectrum information output (IO) development *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Accomplishments/Planned Programs Subtotals	3.190	7.644	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

N/A

E. Performance Metrics

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

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303028A: *Security and Intelligence Activities*	**PROJECT** H12: *INTEL SPT TO FORCE XX1*

Product Development ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
FY 2010 OCO: Full spectrum information output (IO) development	C	Nothing entered for Activity and Location. Location could not be determined.	0.000	0.000		7.644		0.000		7.644	0	0	0
		Subtotal	0.000	0.000		7.644		0.000		7.644	0.000	0.000	0.000

Remarks

Management Services ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
FY 2009 Base: Intelligenc Support Program Support	C	Nothing entered for Activity and Location. Location could not be determined.	0.000	3.190		0.000		0.000		0.000	0	0	0
		Subtotal	0.000	3.190		0.000		0.000		0.000	0.000	0.000	0.000

Remarks

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303028A: *Security and Intelligence Activities*	**PROJECT** H12: *INTEL SPT TO FORCE XX1*

	FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	7.644		0.000		0.000		0.000	Continuing	Continuing	Continuing

Remarks

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**											**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*				**R-1 ITEM NOMENCLATURE** PE 0303028A: *Security and Intelligence Activities*				**PROJECT** H13: *INFORMATION DOMINANCE CENTER (IDC) - TIARA*			
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**Base FY 2011 Estimate**	**OCO FY 2011 Estimate**	**Total FY 2011 Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
H13: *INFORMATION DOMINANCE CENTER (IDC) - TIARA*	0.000	2.133	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RD&TE Articles											

A. Mission Description and Budget Item Justification

INSCOM's RDTE program provides the Army with low-density, high-demand, extremely advanced offensive cyberspacetechnologies designed to degrade, deny, disrupt, or destroy adversary C4I and shape the operational warfighting environment in order to create conditions favorable to the application of other elements of national power.Justification: INSCOM conducts RDTE of offensive Cyberspace technologies in direct support of the full range of missions called for in the National Defense Strategy, Comprehensive National Cyber-Security Initiative, NationalSecurity Strategy, National Defense Guidance, NSPD-38, NSPD-54 and HSPD-23.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	**FY 2010**	**Base FY 2011**	**OCO FY 2011**	**Total FY 2011**
Program #1	0.000	2.144	2.392	0.000	2.392
Conducting Cyberspace technologies in direct support of the National Defense Strategy, Comprehensive National Cyber-Security Initiative, National Security Strategy, National Defense Guidance, NSPD-38, NSPD-54 and HSPD-23. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base					

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303028A: *Security and Intelligence Activities*	**PROJECT** H13: *INFORMATION DOMINANCE CENTER (IDC) - TIARA*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
OCO FY 2011 Plans: FY 2011 OCO					
Accomplishments/Planned Programs Subtotals	0.000	2.144	2.392	0.000	2.392

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

N/A

E. Performance Metrics

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

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303028A: *Security and Intelligence Activities*	**PROJECT** H13: *INFORMATION DOMINANCE CENTER (IDC) - TIARA*

Product Development ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Mobile Objects/ PHAEDRUS	C	Nothing entered for Activity and Location. Location could not be determined.	0.000	0.000		2.144		0.000		2.144	0	32.274	0
		Subtotal	0.000	0.000		2.144		0.000		2.144	0.000	32.274	0.000

Remarks

FY08 and FY09: Congressional Adds: Mobile Objects/PHAEDRUS to develop an analytical tool that leverages the value of merging structured and unstructured data into a consolidated result set providing the analyst with: 1.) a faster query and retrieval process, 2) a more comprehensive view of both types of data, and 3) enhanced situational awareness. This effort supports the development of a system that will help increase the user's recall (ability to extract relevant information) from disparaging sources and then process it to improve their understanding of the collected data.FY10-11: Global Horizontal Integration (GHI) is a multi-phased Department of Defense Joint experiment, led by the Army, to build a capability for real-time fusion of multi-discipline and coalition intelligence available from tactical, operational, combined, and national levels. GHI and the Information Dominance Center are complementary programs, with GHI applying IDC capabilities to Joint and Coalition environments.

	FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	2.133		0.000		0.000		0.000	Continuing	Continuing	Continuing

Remarks

Exhibit R-2, PB 2011 Army **RDT&E Budget Item Justification**	**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303140A: *Information Systems Security Program*

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	Base FY 2011 Estimate	OCO FY 2011 Estimate	Total FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	39.679	79.058	87.888	63.306	151.194	56.583	56.581	57.162	55.858	Continuing	Continuing
491: *INFORMATION ASSURANCE DEVELOPMENT*	39.679	47.201	55.009	0.000	55.009	56.583	56.581	57.162	55.858	Continuing	Continuing
501: *ARMY KEY MGT SYSTEM*	0.996	1.874	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
50B: *BIOMETRICS*	9.216	29.983	8.267	0.000	8.267	8.534	8.295	7.994	7.788	Continuing	Continuing
5PM: *DOD BIOMETRICS PROGRAM MANAGEMENT*	16.445	0.000	34.612	63.306	97.918	38.781	38.721	39.424	40.825	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Communications Security Equipment Program develops Information Systems Security (ISS) equipment and techniques required to combat threat Signal Intelligence capabilities and to insure the integrity of data networks. The Army's Research Development Test and Evaluation (RDTE) ISS program objective is to implement National Security Agency (NSA) developed security technology in Army information systems. Communications Security Equipment(COMSEC)technology ensures total signal and data security for all Army information systems to include any operational enhancement and specialized Army configurations. The Army Key Management System (AKMS) automates key generation and distribution while supporting joint interoperability. It provides communications and network planning with key management. AKMS is a part of the management/support infrastructure for the Warfighter Information Network - Tactical (WIN-T) program. Additional modifications to the AKMS baseline are required to support the emerging WIN-T architecture. System security engineering, integration of available Information Security (INFOSEC) products, development, and testing are provided to ensure that Command, Control, Communications and Computer Intelligence (C4I) systems are protected against malicious or accidental attacks. Several joint service/NSA working groups exist in the area of key management in order to avoid duplication and assure interoperability between all systems, including the establishment of standards and testing. The Defense Information Systems Agency (DISA) Multi-Level Security (MLS) working group coordinates all the different ongoing technology efforts. This program will also develop, integrate, and demonstrate Command and Control (C2) Protect Common Tools into C4I systems that manage, protect, detect and react to C2 system vulnerabilities, threats, reconfigurations, and reconstitutions. Modeling, simulation, and risk management tools will be used to develop C2 Protect capabilities, enabling the warfighter to distribute complete and unaltered information and maintain a dynamic, continuous synchronous operational force. Secretary of the Army (SA) is the Executive Agent (EA) and the Director, Biometrics Task Force (BTF) is the Executive Manager (EM) for DoD Biometrics. The BTF provides for the next generation enterprise development to support all DoD Services for continuous improvement in technologies that support the Warfighter's ability to exercise identity dominance over non-traditional enemies. The BTF will (1) synchronize and integrate existing and new technologies throughout DoD; (2) provide identity dominance, protection and management through integrated joint biometric programs; and, (3) enhance the DoD authoritative biometric repository to provide timely, accurate and comprehensive identity superiority to the Warfighter. The Department of Defense (DoD) Biometrics Program Management Office is responsible for developing two enduring programs: the Biometrics Enabling Capability (BEC) and Joint Personnel Identification Version 2 (JPIv2). BEC will be the DOD biometric enterprise authoritative

Exhibit R-2, PB 2011 Army **RDT&E Budget Item Justification**	**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303140A: *Information Systems Security Program*

database and repository. JPIv2 will provide an Army tactical biometric collection capability to capture a person's biometric data and enroll them into the DoD enterprise authoritative biometric database to positively identify, and verify the identity of actual or potential adversaries. JPIv2 moved to Program Element 0307665A Project Unit B17 beginning in FY11. Additionally, the office is responsible for three Quick Reaction Capability (QRC) programs currently being used to support the Warfighter: Next Generation Automated Biometric Identification System (NG-ABIS), which is prototype database; Biometrics Automated Toolset-Army (BAT-A), which is a tactical collection device; and Biometric Identification System for Access (BISA) for base access within CENTCOM AOR.

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	41.153	74.355	72.581	0.000	72.581
Current President's Budget	39.679	79.058	87.888	63.306	151.194
Total Adjustments	-1.474	4.703	15.307	63.306	78.613
• Congressional General Reductions		0.000			
• Congressional Directed Reductions					
• Congressional Rescissions		0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers					
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			

Change Summary Explanation

Change Summary Explanation: Funding - FY 2011: Anticipated FY 11 Overseas Operation Contigency increase for the Biometric NG-ABIS program.

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**											**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*				**R-1 ITEM NOMENCLATURE** PE 0303140A: *Information Systems Security Program*				**PROJECT** 491: *INFORMATION ASSURANCE DEVELOPMENT*			
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**Base FY 2011 Estimate**	**OCO FY 2011 Estimate**	**Total FY 2011 Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
491: *INFORMATION ASSURANCE DEVELOPMENT*	39.679	47.201	55.009	0.000	55.009	56.583	56.581	57.162	55.858	Continuing	Continuing
Quantity of RD&TE Articles											

A. Mission Description and Budget Item Justification

This project implements National Security Agency (NSA) developed security technologies in Army information systems. Project objectives are to provide systems security mechanisms through encryption, trusted software or standard operating procedures, and to integrate these mechanisms into specified systems, securing operations in as transparent a manner as possible. This entails architecture studies, modeling, system integration and testing, installation kits, and certification and accreditation of Automation Information Systems. Project will also assess, develop, integrate and demonstrate information assurance (IA) common tools (hardware and software) providing protection for fixed infrastructure post, camp and station networks as well as efforts on tactical networks. The cited work is consistent with Strategic Planning Guidance, and the Army Modernization Plan.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	**FY 2010**	**Base FY 2011**	**OCO FY 2011**	**Total FY 2011**
Program #1	1.550	0.000	0.000	0.000	0.000
FY09: This one year congressional add developed technologies and techniques to secure the Army's digital networks against hostile intelligent services. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base					

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303140A: *Information Systems Security Program*	**PROJECT** 491: *INFORMATION ASSURANCE DEVELOPMENT*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
OCO FY 2011 Plans: FY 2011 OCO					
Program #2 Crypto Mod and Key Management Program. In FY09: Evaluate the performance (CM) compliant devices, including KG250AlM/T, KG255, KIV7M, KSV-21, SECNET 54, KG240A, KG245A/X, KGI75D and KG75A. Evaluate new Software releases for existing devices including STE, SECTERA Wire-line Adaptor, SECNET 54, KG 175D, KIV-7M, KOV26, VIPER and Secure Mobile Environment Personal Electronic Device (SME/PED). Developed and tested SME/PED device. Tested and evaluated Army secure network devices to HAIPIS 3.X and IPV6. Performance evaluation of Commercial COMSEC Evaluation Program (CCEP), new emerging products, IAW AR 700-142. Evaluate the performance of new software releases of the Simple Key Loader (SKL). *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	6.883	0.000	0.000	0.000	0.000
Program #3 Crypto Mod and Key Management Program. In FY10: Will evaluate the performance of CM compliant 10 G and SONET - devices, including KG245X, KG75A, and KG340. Evaluate the performance of alternate and special	0.000	8.735	0.000	0.000	0.000

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303140A: *Information Systems Security Program*	**PROJECT** 491: *INFORMATION ASSURANCE DEVELOPMENT*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
purpose "last-mile" devices including the RSKL and TKL. Evaluate the performance of software releases and changes to EKMS and AKMS. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #4 Crypto Mod and Key Management Program. In FY11: Evaluate the performance CM compliant devices, including new software releases to HAIPE 4.0 devices. As part of Comprehensive National Cybersecurity Initiative (CNCI) integration, begin migration to NSA approved - COTS solutions, including secure laptop and data-at-rest solutions. Evaluate the performance of initial software releases to KMI CI-2. Begin to evaluate the performance of initial AKMS/EKMS to KMI transition strategies. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010	0.000	0.000	33.005	0.000	33.005

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303140A: *Information Systems Security Program*	**PROJECT** 491: *INFORMATION ASSURANCE DEVELOPMENT*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Base FY 2011 Plans: FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #5 Tactical C2 Protect Tools - In FY09: developed/validated/enhanced IA tools for the tactical warfighter, including network access control (i.e. firewalIs). Performed vulnerability assessments/performance testing on system-of-systems to be fielded in the near term as well as current legacy tools to ensure their effectiveness against current threats IAW SoS NVA, 3 Star Forum. COTS IA tools planned for deployment evaluated for use to support the CNCI. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	4.589	0.000	0.000	0.000	0.000
Program #6 Tactical C2 Protect Tools - In FY10: Will develop near term research and development such as the Tactical IA tools evaluation detection software to be utilized to support our current/near term operations. Develop tools (ie.,	0.000	6.040	0.000	0.000	0.000

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303140A: *Information Systems Security Program*	**PROJECT** 491: *INFORMATION ASSURANCE DEVELOPMENT*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Linux hardening Armadillo tool to be used by all Army Certification Agencies (ACA) as well as other Programs of Record (POR) throughout the Army). *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #7 Tactical C2 Protect Tools - In FY11: Develop and transition of research and development solutions to cognizant customers (i.e. Tactical IA tools evaluations to the Central Technical Support Facility (CTSF) and start integration efforts of mature research and development solutions to support transition. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base	0.000	0.000	22.004	0.000	22.004

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
OCO FY 2011 Plans: FY 2011 OCO					
Program #8	0.000	0.349	0.000	0.000	0.000
FY10: Small Business Innovative Research/Small Business Technology Transfer Program *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Accomplishments/Planned Programs Subtotals	13.022	15.124	55.009	0.000	55.009

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

The objective of this project is to develop, integrate and validate hardware and software solutions that will secure current and objective architecture and electronic business/commerce transactions. Project focuses on completing development and evaluation of Battle Command and control IA common tools and the procurement and institutionalization of information assurance related hardware and software, as well as techniques and procedures. The objective of the DOD Crypto Modernization Program is to provide adaptive, flexible, and programmable cryptographic systems using best practices, lessons learned and programmatic management to meet the challenge of modernizing the Army's aging cryptographic systems.

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303140A: *Information Systems Security Program*	**PROJECT** 491: *INFORMATION ASSURANCE DEVELOPMENT*

E. Performance Metrics

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

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303140A: *Information Systems Security Program*	**PROJECT** 491: *INFORMATION ASSURANCE DEVELOPMENT*

Product Development ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
System Engineering	C/Various	CECOM RDEC Ft. Monmouth, NJ	44.072	7.569		5.402		0.000		5.402	Continuing	Continuing	0
Hardware/Software Engineering	C/Various	CECOM RDEC Ft. Monmouth, NJ	5.224	0.000		0.000		0.000		0.000	0	Continuing	0
C2 Protect Common Tools	C/Various	Multiple Location could not be determined.	9.899	0.000		0.000		0.000		0.000	Continuing	Continuing	0
Engineering Support	C/Various	CECOM RDEC Ft. Monmouth, NJ	7.847	0.000		0.000		0.000		0.000	0	Continuing	0
Engineering Support - 2	C	Lockheed Martin/ SRI Int. Eatontown, NJ	2.047	0.000		0.000		0.000		0.000	Continuing	1.918	0
Information Assurance System Engineering Support	C	MITRE McLean, VA	2.013	0.400		0.400		0.000		0.400	0	Continuing	0
Malicious Mobile Code Analysis	C	ILEX Tinton Falls NJ	0.577	0.000		0.000		0.000		0.000	0	.577	0
Information Assurance System Engineering Support - 2	C	DSCI Consulting Eatontown, NJ	3.587	0.000		0.000		0.000		0.000	Continuing	3.587	0
Engineering Support - 3	C	VIATECH Eatontown, NJ	0.000	2.104		0.000		0.000		0.000	Continuing	Continuing	0
Tactical Intrusion Detection System	C	MIT Cambridge, MA	0.135	0.000		0.000		0.000		0.000	0	.135	0
M&S for Information Assurance Trainer	C	Atlantic Consulting Services	1.020	0.000		0.000		0.000		0.000	0	1.020	0

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303140A: *Information Systems Security Program*	**PROJECT** 491: *INFORMATION ASSURANCE DEVELOPMENT*

Product Development ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
		Shrewsbury, NJ											
Defense Healthcare Information Assurance Program	C/Various	CIO/G6 BMO Crystal City, VA	12.027	0.000		0.000		0.000		0.000	0	12.027	0
DoD Biometrics Program	C/Various	CIO/G6 BMO Crystal City, VA	18.280	0.000		0.000		0.000		0.000	0	18.280	0
Crypto Mod	C/Various	CECOM RDEC Ft. Monmouth, NJ	0.424	0.000		0.000		0.000		0.000	0	.274	0
Engineering Support - 4	C	CACI Eatontown, NJ	0.000	0.000		0.550		0.000		0.550	0	1.450	0
Engineering Support - 5	C	Booz Allen Hamilton Eatontown, NJ	1.093	0.000		0.000		0.000		0.000	0	1.593	0
Engineering Support - 6	C	CSC Eatontown, NJ	2.844	3.500		3.500		0.000		3.500	Continuing	Continuing	0
Engineering Support - 7	C	VIATECH Eatontown, NJ	0.000	1.551		2.053		0.000		2.053	0	Continuing	0
		Subtotal	111.089	15.124		11.905		0.000		11.905			0.000

Remarks

	FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	47.201		55.009		0.000		55.009	Continuing	Continuing	Continuing

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**							**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*		**R-1 ITEM NOMENCLATURE** PE 0303140A: *Information Systems Security Program*			**PROJECT** 491: *INFORMATION ASSURANCE DEVELOPMENT*		
	FY 2010	**Base FY 2011**	**OCO FY 2011**	**Total FY 2011**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**

Remarks

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303140A: *Information Systems Security Program*	**PROJECT** 501: *ARMY KEY MGT SYSTEM*

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	Base FY 2011 Estimate	OCO FY 2011 Estimate	Total FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
501: *ARMY KEY MGT SYSTEM*	0.996	1.874	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RD&TE Articles											

A. Mission Description and Budget Item Justification

Provides Commander with an automated capability to plan, engineer, distribute, and manage all systems that employ Electronic Key, Electronic Protection (EP), and Signal Operating Instructions (SOI). - Army Key Management System (AKMS) AKMS consists of two Workstations, one hosting Local COMSEC Management Software (LCMS) for COMSEC Management, one hosting Automated Communication Engineering System (ACES) for Cryptonet Planning and the Simple Key Loader (SKL). - LCMS is the Communications Security (COMSEC) accounting and generation software that provides Information Systems with Cryptographic Key capability. - ACES provides Information Systems with Cryptonet Planning & SOI/EP Fill for Combat Net and supports Coalition Joint Spectrum Management Planning Tool (CJSMPT). - SKLs move the ACES/LCMS data to End Crypto Units (ECUs). - CJSMPT software enables more efficient and accurate management of critical spectrum resources supporting de-confliction of Improvised Explosive Device (IED) Jammers and Blue Force comms.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #1	0.618	1.221	0.000	0.000	0.000
Continue enhancements and support of next set of software tools for the AKMS workstation to support Army modularity requirements. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base					

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303140A: *Information Systems Security Program*	**PROJECT** 501: *ARMY KEY MGT SYSTEM*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
OCO FY 2011 Plans: FY 2011 OCO					
Program #2	0.328	0.450	0.000	0.000	0.000
Engineering Support *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #3	0.050	0.150	0.000	0.000	0.000
Test and Evaluation *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010					

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303140A: *Information Systems Security Program*	**PROJECT** 501: *ARMY KEY MGT SYSTEM*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Base FY 2011 Plans: FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #4 Small Business Innovative Research/Small Business Technology Transfer Programs *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	0.000	0.053	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	0.996	1.874	0.000	0.000	0.000

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303140A: *Information Systems Security Program*	**PROJECT** 501: *ARMY KEY MGT SYSTEM*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• Ord. #1: *BA1201 TSEC - AKMS*	34.811	29.432	25.959	0.000	25.959	12.562	9.203	5.919	6.022	Continuing	Continuing

D. Acquisition Strategy

AKMS Milestone III was conducted/approved in FY99. LCMS completed fielding of software v5.0.3 in FY09 to all COMSEC custodians to provide Encrypted Key capability. LCMS hardware refresh will begin 2QFY10. The AKMS acquisition strategy to procure Simple Key Loaders was updated in an Acquisition Decision Memorandum (ADM) approved by the PEO C3T Milestone Decision Authority (MDA) 3QFY02. SKL Fielding began 3QFY05 and continue. SKL software v5.0 was released 4QFY08. SAIC began efforts in 1QFY09 to upgrade SKL software and v6.0 will be released 2QFY10 to provide interoperability with emerging systems (all services). ACES software v1.9 development was completed and released 1QFY09. ACES software v2.0 development began in FY09 and will be released 2QFY10. ACES hardware refresh will occur FY10. CJSMPT software v2.0 was completed 1QFY09, the Approval to Operate (ATO) was received 1QFY09, and a Joint Military Utility Assessment (JMUA) was successfully conducted 2QFY09. A limited deployment of CJSMPT is being conducted in FY10. FY 10 will continue enhancement and support of next generation of AKMS software tools to meet emerging Army systems' requirements.There is no RDTE funding programmed beyond FY10.

E. Performance Metrics

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

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**											**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*				**R-1 ITEM NOMENCLATURE** PE 0303140A: *Information Systems Security Program*				**PROJECT** 50B: *BIOMETRICS*			
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**Base FY 2011 Estimate**	**OCO FY 2011 Estimate**	**Total FY 2011 Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
50B: *BIOMETRICS*	9.216	29.983	8.267	0.000	8.267	8.534	8.295	7.994	7.788	Continuing	Continuing
Quantity of RD&TE Articles											

A. Mission Description and Budget Item Justification

Secretary of the Army (SA) is the Executive Agent (EA) and the Director, Biometrics Task Force (BTF) is the Executive Manager (EM) for DoD Biometrics. The BTF will (1) synchronize and integrate existing and new technologies; (2) provide identity dominance, protection and management through integrated joint biometric programs; and, (3) enhance the DoD authoritative biometric repository to provide timely, accurate and comprehensive identity superiority to the Warfighter. The BTF provides conformance testing, supports test and evaluation (T&E) of commercial Off-the-Shelf (COTS) biometric devices, develops standards and performance measures, and provides technical implementation and integration to DoD Biometrics. The BTF provides for the next generation enterprise development to support all DoD Services for continuous improvement in technologies that support the Warfighter's ability to exercise identity dominance over non-traditional enemies.This Project (50B) was previously under PE 0303140A, Project 491. Beginning with FY11, PM DoD Biometrics funding is reported under Project 5PM.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	**FY 2010**	**Base FY 2011**	**OCO FY 2011**	**Total FY 2011**
Program #1	8.464	0.000	8.267	0.000	8.267
FY2009/2010/2011 Base - BTF FY2009 Accomplishments include: Developing technologies that require validation in an operational environment that support the following DoD Biometric S&T Requirement Capability Areas: Biometric Collection from a Distance; Mobile and Tactical Biometric Collection Devices; Rapid Capture and Vetting Process; Latent Biometric Capture Capability; Increasingly Accurate and/or Multimodal Sensor Devices/Matching Capability; Biometric Architecture and Storage Infrastructure; and, Interoperable Sharing. Development and integration of an authoritative DoD DNA biometric profile repository. Developing Identification-based Decision Processes to Ensure Confident Transaction (IDProTECT), a friendly repository, that will enable the biometric link to root identities, enabling enhanced personnel security investigations; and, allow physical and logical access, by maintaining the full biometric identity sets on all DoD friendly personnel. FY2010/2011 Planned Program: The BTF will continue to develop and integrate biometric capabilities that					

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303140A: *Information Systems Security Program*	**PROJECT** 50B: *BIOMETRICS*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
include new/emerging technologies and modalities to support the Warfighter and Interagency operations. These resources provide for development of new matching algorithms, software enhancement, equipment design, data storage technology, matching capabilities and exploitation that proven may be transitioned to enduring capabilities. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #2 FY 2010 OCO: Development of Next Generation Automated Biometric Identification System (NG ABIS) to provide continuity of operations and begin development of Blue Force/Identification-based Decision Process To Enable Confident Transactions (IDProTECT) system. FY2010 (BTF): Funding continues to support IDProTECT development to ensure identity protection of US persons and to enhance anti-terrorism/force protection posture by positively identifying individuals requiring access to DoD facilities, systems, or services. Funding also will be used to conduct an Analysis of Alternatives for the Biometrics Enterprise System. Biometrics Interagency Interoperability (BII) supports implementation of Homeland Security Presidential Directive 24 (HSPD-24). BII also provides mutual compatible methods and procedures across DoD in the collection, storage, use, analysis, and sharing of biometric and associated biographic and contextual information of individuals in a lawful and appropriate manner while respecting their information privacy and other legal rights under United States law.	0.000	2.220	0.000	0.000	0.000

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303140A: *Information Systems Security Program*	**PROJECT** 50B: *BIOMETRICS*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2009 Accomplishments: FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #3 FY 2010: Funding for DoD Biometrics Program Management (0303140A/5PM) *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	0.000	27.763	0.000	0.000	0.000
Program #4	0.752	0.000	0.000	0.000	0.000

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303140A: *Information Systems Security Program*	**PROJECT** 50B: *BIOMETRICS*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2009: Small Business Innovative Research/Small Business Technology Transfer Programs *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Accomplishments/Planned Programs Subtotals	9.216	29.983	8.267	0.000	8.267

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• Ord. #1: *TA0600 - Information Systems Security Program*	2.543	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	2.543
• Ord. #2: *432144 - Operations and Maintenance Army*	12.003	14.001	23.397	0.000	23.397	19.622	20.635	20.643	21.637	Continuing	Continuing
• Ord. #3: *135197 - Operations and Maintenance Army*	280.300	148.318	146.665	0.000	146.665	0.000	0.000	0.000	0.000	0	575.283

D. Acquisition Strategy

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

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
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E. Performance Metrics

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

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303140A: *Information Systems Security Program*	**PROJECT** 50B: *BIOMETRICS*

Product Development ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Base: Enterprise Development	C/Various	Various Location could not be determined.	72.045	0.000		8.267		0.000		8.267	Continuing	Continuing	0
FY 10 Base: Funding for DoD Biometrics Program Management	C	Nothing entered for Activity and Location. Location could not be determined.	0.000	27.763		0.000		0.000		0.000	0	Continuing	0
FY 10 OCO: Development of Next Generation Automated Biometric Identification System (NG ABIS)	C	Nothing entered for Activity and Location. Location could not be determined.	0.000	2.220		0.000		0.000		0.000	0	Continuing	0
		Subtotal	72.045	29.983		8.267		0.000		8.267			0.000

Remarks

Support ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
N/A	C	Nothing entered for Activity and Location.	0.000	0.000		0.000		0.000		0.000	0	0	0

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303140A: *Information Systems Security Program*	**PROJECT** 50B: *BIOMETRICS*

Support ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
		Location could not be determined.											
		Subtotal	0.000	0.000		0.000		0.000		0.000	0.000	0.000	0.000

Remarks

Test and Evaluation ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
N/A	C	Nothing entered for Activity and Location. Location could not be determined.	0.000	0.000		0.000		0.000		0.000	0	0	0
		Subtotal	0.000	0.000		0.000		0.000		0.000	0.000	0.000	0.000

Remarks

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303140A: *Information Systems Security Program*	**PROJECT** 50B: *BIOMETRICS*

Management Services ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
N/A	C	Nothing entered for Activity and Location. Location could not be determined.	0.000	0.000		0.000		0.000		0.000	0	0	0
		Subtotal	0.000	0.000		0.000		0.000		0.000	0.000	0.000	0.000

Remarks

	FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	29.983		8.267		0.000		8.267	Continuing	Continuing	Continuing

Remarks

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**											**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*				**R-1 ITEM NOMENCLATURE** PE 0303140A: *Information Systems Security Program*				**PROJECT** 5PM: *DOD BIOMETRICS PROGRAM MANAGEMENT*			
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**Base FY 2011 Estimate**	**OCO FY 2011 Estimate**	**Total FY 2011 Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
5PM: *DOD BIOMETRICS PROGRAM MANAGEMENT*	16.445	0.000	34.612	63.306	97.918	38.781	38.721	39.424	40.825	Continuing	Continuing
Quantity of RD&TE Articles											

A. Mission Description and Budget Item Justification

The Department of Defense (DoD) Biometrics Program Management Office is responsible for developing two Programs of Record: the Biometrics Enabling Capability (BEC), previously named Biometric Enterprise Core Capability (BECC) and Joint Personnel Identification Version 2 (JPIv2), previously named Biometric Family of Capabilities for Full Spectrum Operations (BFCFSO). BEC will be the DoD biometric enterprise authoritative database and repository. Envisioned capabilities include multi-modal storage and matching, state-of-the-art Service Oriented Architecture, management portal, Watch List capability, and interoperability with the FBI, Department of Homeland Security, National Ground Intelligence Center's Biometric Intelligence Repository (BIR) and other agencies. BEC development will be informed by a prototype capability, the Next Generation Automated Biometric Identification System (NG-ABIS), being developed, sustained and enhanced by PM DoD Biometrics as a Quick Reaction Capability (QRC) based on a U.S. Central Command (CENTCOM) Joint Urgent Operational Needs Statement (JUONS) using Overseas Contingency Operations (OCO) funds. JPIv2 will provide an Army tactical biometric collection capability to capture a person's biometric data and enroll them into the DoD enterprise authoritative biometric database to positively identify, and verify the identity of actual or potential adversaries. Capabilities envisioned for JPIv2 will be configurable for multiple operational mission environments. JPIv2 development will be informed by prototype collection capabilities provided by the Biometrics Automated Toolset-Army (BAT-A), also a QRC being developed, sustained, and enhanced, and sustainment of Handheld Interagency Identity Detection Equipment (HIIDE) by PM DoD Biometrics. PM DoD Biometrics is also responsible for development and sustainment of biometrically enabled Base Access QRC, Biometric Identification System for Access (BISA), based on a CENTCOM JUONs for base access within CENTCOM AOR. BISA is identified as a "niche" system and not currently planned as a program of record. Utilizing an evolutionary approach, both BEC and JPIv2 programs of record capabilities will be delivered in increments to achieve stated requirements. An Analysis of Alternatives (AoA) for each program is currently being conducted and the Capability Development Document (CDD) will be completed in 2011 based on the recommendations of the AoA. In FY2010, this part of this program was reflected under Project Unit 50B under this Program Element. Beginning in FY2011, JPIv2 moved from this Program Element to Program Element 0307665A Project Unit BI7. FY2011 Core Funding: BEC: Engineering and Manufacturing Development (EMD) contract execution for development, test and validation of BEC program of record requirements, capabilities and functionality. Provides for development, test and verification of new matching algorithms, equipment and system design and solution architecting, data storage technology and exploitation. FY2011 efforts will continue to support operational biometric capabilities that include new/emerging technologies and modalities to support the Warfighter and Interagency operations, supporting the implementation of Homeland Security Presidential Directive 24 (HSPD-24). Continued development of enterprise system scalability and processing capability and integration of additional emerging modalities and technologies into the prototype and Continuity of Operations (COOP) systems.

B. Accomplishments/Planned Program ($ in Millions)

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303140A: *Information Systems Security Program*	**PROJECT** 5PM: *DOD BIOMETRICS PROGRAM MANAGEMENT*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #1	16.445	0.000	0.000	0.000	0.000
FY2009 Core Funding: PM DoD Biometrics developed, integrated, tested, and deployed Next Generation Automated Biometric Identification System (NG ABIS) ahead of schedule on January 29, 2009, in response to CENTCOM JUONS (Joint Urgent Operational Needs Statement). This enabling capability quadrupled the effective lethality of the previous prototype system by introducing three new modalities for biometric matching (face, iris, palm) and significantly upgraded the fingerprint algorithm to achieve matches three-to-ten times faster and achieve matches on previously missed fingerprint submissions. The improved responsiveness (from hours and minutes to minutes and seconds) enables Warfighters to make quicker release-or-detain decisions and increases survivability by reducing exposure time while in austere environments. Supported planning and begin execution of activities required to achieve a favorable milestone decision in FY10 to enter Engineering and Manufacturing Development for BEC. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #2	0.000	9.869	0.000	0.000	0.000
FY2010 Core Funding: Supports planning and execution of activities to achieve a favorable milestone decision to enter Engineering and Manufacturing Development for BEC contracts supporting the both programs. FY2010 Core funding in the amount of $38.238 is reported under Project Unit 50B under this Program Element.					

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303140A: *Information Systems Security Program*	**PROJECT** 5PM: *DOD BIOMETRICS PROGRAM MANAGEMENT*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2009 Accomplishments: FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #3 FY2011 Core Funding: BEC: Engineering and Manufacturing Development (EMD) contract execution for development, test and validation of BEC program of record requirements, capabilities and functionality. Provides for development, test and verification of new matching algorithms, equipment and system design and solution architecting, data storage technology and exploitation. FY2011 efforts will continue to support operational biometric capabilities that include new/emerging technologies and modalities to support the Warfighter and Interagency operations, supporting the implementation of Homeland Security Presidential Directive 24 (HSPD-24). Continued development of enterprise system scalability and processing capability and integration of additional emerging modalities and technologies into the production and COOP systems. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010	0.000	0.000	34.612	0.000	34.612

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303140A: *Information Systems Security Program*	**PROJECT** 5PM: *DOD BIOMETRICS PROGRAM MANAGEMENT*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Base FY 2011 Plans: FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #4 FY2011 OCO Funding: The appropriate breakout for the FY11 OCO $63,306K RDTE request should be $25.134M of RDTE funds and $38.172M of OPA funds. The request erroneously portrayed all funding as RDTE. The $25.134M RDTE request for NG-ABIS will resource required labor costs for development, integration, test and verification efforts supporting projected capabilities surrounding enhanced web services, interoperability with designated federal agencies' biometric capabilities enhanced classification capabilities, quality improvement of data enterprise data sets, integration of additional biometric modalities and enabling multiple vendor's biometric search algorithm, system upgrades to Mission Assurance Category 1, processing and capacity increases for meeting Homeland Security Presidential Directive 24 (HSPD 24)/ National Security Presidential Directive 59 (NSPD 59) objectives. The other $38.172M, which should have been submitted as OPA, supports a validated OPA requirement to provide COTS-based hardware and software components required for achieving Mission Assurance Category 1 (MAC-1) security posture; and equipment and software for projected system upgrades and additional processing capacity and capabilities to meet objectives of Homeland Security Presidential Directive 24 (HSPD-24) / National Security Presidential Directive 59 (NSPD-59) and interagency biometric data sharing. Resources will also support the purchase of additional hardware and software components to deliver required Exposed Service Oriented Architecture (SOA) Web Services capability and provisioning of a conformant testing environment. *FY 2009 Accomplishments:* FY 2009	0.000	0.000	0.000	63.306	63.306

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303140A: *Information Systems Security Program*	**PROJECT** 5PM: *DOD BIOMETRICS PROGRAM MANAGEMENT*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2010 Plans: FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Accomplishments/Planned Programs Subtotals	16.445	9.869	34.612	63.306	97.918

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• Ord. #1: *TA0600 - Information Systems Security Program, Other Procurment, Army OCO*	0.000	17.585	0.000	71.165	71.165	0.000	0.000	0.000	0.000	0	88.750
• Ord. #2: *TA0600 - Information Systems Security Program, Other Procurment, Army Base*	0.000	5.581	8.482	0.000	8.482	2.327	24.821	2.306	9.813	0	53.330
• Ord. #3: *432144 - Operations and Maintenance , Army Base*	0.000	0.884	1.712	0.000	1.712	1.735	1.782	1.822	1.864	0	9.799
• Ord. #4: *135197 - Operations and Maintenance, Army OCO*	0.000	17.585	298.162	0.000	298.162	0.000	0.000	0.000	0.000	0	315.747

D. Acquisition Strategy

The USD(AT&L) designated DoD Biometrics as an Acquisition Category (ACAT) 1 - Special Interest Program on 2 September 2008. On 6 July 2009, the USD (AT&L) directed the Army to conduct an Analysis of Alternatives (AoA) for each program. The Capabilities Development Document (CDD) will be completed based on the recommendations of the AoA. The Acquisition Strategy of DoD Biometrics is to support and sustain the current QRC prototype systems, NG-ABIS, BAT-A, HIIDE and BISA and to continue sustainment,

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303140A: *Information Systems Security Program*	**PROJECT** 5PM: *DOD BIOMETRICS PROGRAM MANAGEMENT*

development and enhancement of these systems while the BEC and JPIv2 capabilities are in development. QRC prototype systems will continue to be sustained with OCO funding until the enduring programs are fielded.

E. Performance Metrics

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

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303140A: *Information Systems Security Program*	**PROJECT** 5PM: *DOD BIOMETRICS PROGRAM MANAGEMENT*

Product Development ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Base: Products Development	C/TBD	Various Location could not be determined.	0.000	0.862		17.796		26.808		44.604	0	Continuing	0
		Subtotal	0.000	0.862		17.796		26.808		44.604	0.000		0.000

Remarks

An Analysis of Alternatives (AoA) for each program is currently being conducted and the Capability Development Document (CDD) will be completed in 2011 based on the recommendations of the AoA.EMD contract award and development efforts scheduled to begin following MS B decision.

Support ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Civilian Personnel	C	Nothing entered for Activity and Location. Location could not be determined.	0.000	0.500		4.000		0.000		4.000	0	Continuing	0
		Subtotal	0.000	0.500		4.000		0.000		4.000	0.000		0.000

Remarks

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303140A: *Information Systems Security Program*	**PROJECT** 5PM: *DOD BIOMETRICS PROGRAM MANAGEMENT*

Test and Evaluation ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
IA, T&E, Threat Assements, Interoperability Certifications	C/TBD	Various Location could not be determined.	0.000	0.500		0.800		0.000		0.800	0	Continuing	0
		Subtotal	0.000	0.500		0.800		0.000		0.800	0.000		0.000

Remarks

Management Services ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
PM Management Services	C/TBD	Various Location could not be determined.	0.000	1.207		12.016		0.000		12.016	0	Continuing	0
		Subtotal	0.000	1.207		12.016		0.000		12.016	0.000		0.000

Remarks

	FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000		34.612		63.306		97.918	Continuing	Continuing	Continuing

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303140A: *Information Systems Security Program*	**PROJECT** 5PM: *DOD BIOMETRICS PROGRAM MANAGEMENT*

	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011	Cost To Complete	Total Cost	Target Value of Contract

Remarks

Exhibit R-4, PB 2011 Army **RDT&E Schedule Profile**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303140A: *Information Systems Security Program*	**PROJECT** 5PM: *DOD BIOMETRICS PROGRAM MANAGEMENT*

	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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
Milestone Decision									#																			
System Development									#	#	#	#	#	#	#	#												

Exhibit R-4A, PB 2011 Army **RDT&E Schedule Details**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303140A: *Information Systems Security Program*	**PROJECT** 5PM: *DOD BIOMETRICS PROGRAM MANAGEMENT*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Milestone Decision	1	2011	1	2011
System Development	1	2011	4	2012

Exhibit R-2, PB 2011 Army **RDT&E Budget Item Justification**	**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303141A: *Global Combat Support System*

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	Base FY 2011 Estimate	OCO FY 2011 Estimate	Total FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	107.693	143.979	125.569	0.000	125.569	77.329	47.731	51.545	46.436	Continuing	Continuing
083: *GLOBAL COMBAT SUPPORT SYS - ARMY (GCSS-ARMY)*	70.720	116.126	95.623	0.000	95.623	72.705	34.282	45.144	39.936	Continuing	Continuing
08A: *PRODUCT LIFECYCLE MANAGEMENT PLUS (PLM+)*	36.973	27.853	29.946	0.000	29.946	4.624	13.449	6.401	6.500	Continuing	Continuing

A. Mission Description and Budget Item Justification

Global Combat Support System-Army (GCSS-Army) has two components: a functional component titled GCSS-Army (Field/Tactical) (F/T) and a technology enabler component titled Product Lifecycle Management Plus (PLM+). GCSS-Army (F/T) coupled with GCSS-Army (PLM+) are information and communications technology investments that will provide key enabling support to the transformation of the Army into a network-centric, knowledge-based future force. The GCSS-Army approved Joint Capability Description Document (CDD) requires an enterprise approach to replace current logistics and maintenance Standard Army Management Information Systems (STAMIS). GCSS-Army (F/T) will provide the Army's Combat Support/Combat Service Support (CS/CSS) warfighter with a seamless flow of timely, accurate, accessible and secure information management that gives combat forces a decisive edge. PLM+ will provide interfaces to external systems and limited Master Data Management. GCSS-Army will implement best business practices to streamline supply, accountability, maintenance, distribution, and reporting procedures in support of the future force transition path of the Army Campaign Plan.

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	104.588	144.733	127.274	0.000	127.274
Current President's Budget	107.693	143.979	125.569	0.000	125.569
Total Adjustments	3.105	-0.754	-1.705	0.000	-1.705
• Congressional General Reductions		0.000			
• Congressional Directed Reductions					
• Congressional Rescissions		0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers					
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**											**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*				**R-1 ITEM NOMENCLATURE** PE 0303141A: *Global Combat Support System*				**PROJECT** 083: *GLOBAL COMBAT SUPPORT SYS - ARMY (GCSS-ARMY)*			
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**Base FY 2011 Estimate**	**OCO FY 2011 Estimate**	**Total FY 2011 Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
083: *GLOBAL COMBAT SUPPORT SYS - ARMY (GCSS-ARMY)*	70.720	116.126	95.623	0.000	95.623	72.705	34.282	45.144	39.936	Continuing	Continuing
Quantity of RD&TE Articles											

A. Mission Description and Budget Item Justification

Global Combat Support System-Army will provide the Army's Sustainment warfighter with a seamless flow of timely, accurate, accessible, actionable, and secure information not readily available today that gives combat forces a decisive edge. GCSS-Army will modernize automated logistics by implementing best business practices to streamline supply operations, maintenance operations, property accountability, and tactical logistics and financial management and integration procedures in support of the Future Force transition path of the Army Campaign Plan. This effort will implement a comprehensive logistics automation solution for the field (deployable) Army and provide the Commander on the battlefield with an integrated, interoperable view of the battle-space in time to support decisions that will affect the outcome of combat operations, combat power, and planning for future operations. This solution implements Commercial-Off-The-Shelf (COTS) Enterprise Resource Planning (ERP) products from SAP AG. This will also allow the Army to retire multiple custom designed stand-alone business software baselines optimized to existing Army business processes and replace them with a single integrated business software baseline that has been optimized to industry defined best business practices. GCSS-Army is a key component of the Federated ERP Integration solution that will optimize tactical logistics and finance domain business processes into a single federated approach. It will eliminate the need for extensive maintenance and modification of aging, diverse software systems resulting in improved and efficient change control and configuration management through implementation of an enterprise system.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	**FY 2010**	**Base FY 2011**	**OCO FY 2011**	**Total FY 2011**
Program #1	9.748	10.323	10.529	0.000	10.529
PM Operations					
FY 2009 Accomplishments:					
FY 2009					

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303141A: *Global Combat Support System*	**PROJECT** 083: *GLOBAL COMBAT SUPPORT SYS - ARMY (GCSS-ARMY)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2010 Plans: FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #2 GCSS-Army ERP *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	60.972	105.803	85.094	0.000	85.094
Program #3 Small Business Innovative Research/Small Business Technology Transfer Programs	0.000	0.000	0.000	0.000	0.000

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303141A: *Global Combat Support System*	**PROJECT** 083: *GLOBAL COMBAT SUPPORT SYS - ARMY (GCSS-ARMY)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2009 Accomplishments: FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Accomplishments/Planned Programs Subtotals	70.720	116.126	95.623	0.000	95.623

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• Ord. #1: *OPA SSN: W00800, STACOMP*	2.270	21.110	36.220	0.000	36.220	147.260	182.250	173.000	158.000	Continuing	Continuing
• Ord. #2: *OMA APE: 432612*	4.138	10.030	10.170	0.000	10.170	26.760	47.780	69.400	81.000	Continuing	Continuing

D. Acquisition Strategy

GCSS-Army has an evolutionary acquisition strategy as defined in DoD Directive 5000.01 and DoD Instruction 5000.02 and will define, develop and produce/deploy an initial, militarily useful (and supportable) operational capability based upon proven technology, time-phased requirements, projected threat assessments, and demonstrated manufacturing capabilities in as short a time as possible. The system will be developed in multiple increments as functional capabilities are defined and as integration and synchronization opportunities with related systems present opportunities for subsequent increments. Increment I will be a viable stand alone capability that will not require subsequent increments to be operational. GCSS-Army Increment I will consist of three releases. Release 1.0 is an initial prototype of retail supply capability that has been deployed to the 11th Armored Cavalry Regiment at the National Training Center as part of an operational assessment and continuous evaluation. Release 1.1 will add the capabilities of Unit Level Supply, Maintenance,

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303141A: *Global Combat Support System*	**PROJECT** 083: *GLOBAL COMBAT SUPPORT SYS - ARMY (GCSS-ARMY)*

Property Book, and Finance (support to tactical supply and maintenance). Release 1.2 will add Ammunition (Class V management), Environmental Health and Safety and Finance Functionality (e.g., Cost Management)).

E. Performance Metrics

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

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303141A: *Global Combat Support System*	**PROJECT** 083: *GLOBAL COMBAT SUPPORT SYS - ARMY (GCSS-ARMY)*

Product Development ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Enterprise Resource Planning (ERP) Implementation	C	Northrop Grumman Midlothian, VA	0.000	102.470		80.719		0.000		80.719	Continuing	Continuing	0
Tactical Combat Developer	C	CASCOM Ft Lee,VA	11.495	1.250		1.275		0.000		1.275	Continuing	Continuing	0
		Subtotal	11.495	103.720		81.994		0.000		81.994			0.000

Remarks

Support ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
PM Support	C/FP	MPRI-L3 Colonial Heights, VA	22.160	1.000		1.020		0.000		1.020	Continuing	Continuing	0
Engineering and Security	C	ISEC Ft Huachuca, AZ	16.582	1.522		1.553		0.000		1.553	Continuing	Continuing	0
Technical Services	C/FP	Log Mgt Institute McLean, VA	14.836	3.429		3.497		0.000		3.497	Continuing	Continuing	0
		Subtotal	53.578	5.951		6.070		0.000		6.070			0.000

Remarks

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303141A: *Global Combat Support System*	**PROJECT** 083: *GLOBAL COMBAT SUPPORT SYS - ARMY (GCSS-ARMY)*

Test and Evaluation ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Army Evaluation Center	C	Alexandria VA	2.557	2.083		3.100		0.000		3.100	Continuing	Continuing	0
		Subtotal	2.557	2.083		3.100		0.000		3.100			0.000

Remarks

Management Services ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
PMO Operations	C	NA Location could not be determined.	33.885	4.372		4.459		0.000		4.459	Continuing	Continuing	0
		Subtotal	33.885	4.372		4.459		0.000		4.459			0.000

Remarks

	FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	116.126		95.623		0.000		95.623	Continuing	Continuing	Continuing

Remarks

Exhibit R-4, PB 2011 Army **RDT&E Schedule Profile**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303141A: *Global Combat Support System*	**PROJECT** 083: *GLOBAL COMBAT SUPPORT SYS - ARMY (GCSS-ARMY)*

	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Increment 1/Release 1.1 DTOE						#	#																					
Independent Govt Test and Release 1.1 OA/CE							#	#																				
Increment 1 - Milestone C									#																			
Increment 1 - IOT&E											#																	
Increment 1 - Full Fielding													#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	
Increment 1 - Initial Operational Capability (IOC)													#															

Exhibit R-4A, PB 2011 Army **RDT&E Schedule Details**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303141A: *Global Combat Support System*	**PROJECT** 083: *GLOBAL COMBAT SUPPORT SYS - ARMY (GCSS-ARMY)*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Increment 1/Release 1.1 DTOE	2	2010	3	2010
Independent Govt Test and Release 1.1 OA/CE	3	2010	4	2010
Increment 1 - Milestone C	1	2011	1	2011
Increment 1 - IOT&E	3	2011	3	2011
Increment 1 - Full Fielding	1	2012	3	2015
Increment 1 - Initial Operational Capability (IOC)	1	2012	1	2012

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**											**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*				**R-1 ITEM NOMENCLATURE** PE 0303141A: *Global Combat Support System*				**PROJECT** 08A: *PRODUCT LIFECYCLE MANAGEMENT PLUS (PLM+)*			
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**Base FY 2011 Estimate**	**OCO FY 2011 Estimate**	**Total FY 2011 Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
08A: *PRODUCT LIFECYCLE MANAGEMENT PLUS (PLM+)*	36.973	27.853	29.946	0.000	29.946	4.624	13.449	6.401	6.500	Continuing	Continuing
Quantity of RD&TE Articles											

A. Mission Description and Budget Item Justification

Army Enterprise Systems Integration Program (AESIP), formerly Product Life-Cycle Management Plus (PLM+)) mission is to integrate Army business processes by providing a single source for enterprise hub services, centralized master data management, and business intelligence and analytics. AESIP will support the Army's federated approach and enable the integration of end-to-end logistical and financial processes. The Army has successfully addressed concerns about the lack of integration of ERPs by leveraging AESIP core capabilities and expanding those benefits across the Army enterprise. AESIP will be an Army specific commercial off-the-shelf (COTS) web portal implementation via the NetWeaver Platform from developer Systems Applications and Products (SAP) American Group to support Army process scenarios and requirements that will provide core compentencies:Enterprsie Service Bus (Hub Services) - For a Service oriented, Single Point of Entry to connect, mediate, and control the exchange of dataBusiness Intelligence/Business Warehouse - Aggregates data from ERP and non-ERP systems to provide flexible Enterprise level reportingEnterprise Master Data - For a single source of authoritative data and improved workflow and business processes Hence the AESIP solution establishes a framework for a fully integrated ERP centric environment that will ultimately provide Commanders Total Visibility from Factory to Foxhole thereby ensuring delivery of the right equipment to the right unit at the right time, while reducing backlogs of material on the battlefield.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	**FY 2010**	**Base FY 2011**	**OCO FY 2011**	**Total FY 2011**
Program #1	32.570	12.556	14.190	0.000	14.190
Product Development					
FY 2009 Accomplishments: FY 2009					
FY 2010 Plans: FY 2010					

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303141A: *Global Combat Support System*	**PROJECT** 08A: *PRODUCT LIFECYCLE MANAGEMENT PLUS (PLM+)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Base FY 2011 Plans: FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #2 Test and Evaluation *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	0.550	0.322	0.332	0.000	0.332
Program #3 PM Operations *FY 2009 Accomplishments:* FY 2009	3.853	8.535	8.791	0.000	8.791

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303141A: *Global Combat Support System*	**PROJECT** 08A: *PRODUCT LIFECYCLE MANAGEMENT PLUS (PLM+)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2010 Plans: FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #4 Small Business Innovative Research/Small Business Technology Transfer Programs *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	0.000	6.440	6.633	0.000	6.633
Accomplishments/Planned Programs Subtotals	36.973	27.853	29.946	0.000	29.946

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303141A: *Global Combat Support System*	**PROJECT** 08A: *PRODUCT LIFECYCLE MANAGEMENT PLUS (PLM+)*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• Ord. #1: *OPA SSN: W11001, PLM+*	0.000	10.233	11.599	0.000	11.599	10.642	4.604	4.835	6.812	Continuing	Continuing
• Ord. #2: *OMA APE: 423612*	1.554	17.220	23.186	0.000	23.186	26.226	26.901	31.069	27.596	Continuing	Continuing

D. Acquisition Strategy

As a component of GCSS-Army, AESIP employs an evolutionary acquisition strategy as defined in DoD Directive 5000.1 and DoD Instruction 5000.2, and will define, develop and produce/deploy an initial, militarily useful (and supportable) operational capability based upon proven technology, time-phased requirements, projected threat assessments, and demonstrated manufacturing capabilities in as short a time as possible. The system will be developed in multiple increments as functional capabilities are defined and as integration and synchronization opportunities with related systems present opportunities for subsequent increments. Increment I will be a viable stand alone capability that will not require subsequent increments to be operational. AESIP will follow the same Release 1.1 and 1.2 schedule as GCSS-Army by providing Enterprise Service Bus (Hub Services), Enterprise Material Master Data, and Business Intelligence/Business Warehouse capabilities in support of the entire GCSS-Army program.

E. Performance Metrics

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

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303141A: *Global Combat Support System*	**PROJECT** 08A: *PRODUCT LIFECYCLE MANAGEMENT PLUS (PLM+)*

Product Development ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Enterprise Resource Planning (ERP) Implementation	C	Computer Sciences Corporation Falls Church VA	49.214	12.556		14.190		0.000		14.190	Continuing	Continuing	0
Enterprise Resource Planning (ERP) Implementation - 2	C	TBD Location could not be determined.	0.000	6.440		6.633		0.000		6.633	Continuing	Continuing	0
		Subtotal	49.214	18.996		20.823		0.000		20.823			0.000

Remarks

Support ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
PM Support	C/FP	L3 (Titan Corp) Colonial Heights, VA	2.821	2.323		2.393		0.000		2.393	Continuing	Continuing	0
PM Support - 2	C	LMI/ILLUMINA Tysons Corner, VASAIC, MITREMcLean, VA	1.500	3.509		3.614		0.000		3.614	Continuing	Continuing	0
		Subtotal	4.321	5.832		6.007		0.000		6.007			0.000

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303141A: *Global Combat Support System*	**PROJECT** 08A: *PRODUCT LIFECYCLE MANAGEMENT PLUS (PLM+)*

Support ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**

Remarks

Test and Evaluation ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Test and Evaluation	C	ATEC JITC, CTSF & ISEC	0.550	0.322		0.332		0.000		0.332	Continuing	Continuing	0
		Subtotal	0.550	0.322		0.332		0.000		0.332			0.000

Remarks

Management Services ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
PMO Operations	C	NA Location could not be determined.	3.545	2.703		2.784		0.000		2.784	Continuing	Continuing	0

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303141A: *Global Combat Support System*	**PROJECT** 08A: *PRODUCT LIFECYCLE MANAGEMENT PLUS (PLM+)*

Management Services ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
		Subtotal	3.545	2.703		2.784		0.000		2.784			0.000

Remarks

	FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	27.853		29.946		0.000		29.946	Continuing	Continuing	Continuing

Remarks

Exhibit R-4, PB 2011 Army **RDT&E Schedule Profile**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303141A: *Global Combat Support System*	**PROJECT** 08A: *PRODUCT LIFECYCLE MANAGEMENT PLUS (PLM+)*

	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Increment 1 - Milestone C									#																			
Increment 1 - IOT&E											#																	

Exhibit R-4A, PB 2011 Army **RDT&E Schedule Details**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303141A: *Global Combat Support System*	**PROJECT** 08A: *PRODUCT LIFECYCLE MANAGEMENT PLUS (PLM+)*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Increment 1 - Milestone C	1	2011	1	2011
Increment 1 - IOT&E	3	2011	3	2011

Exhibit R-2, PB 2011 Army **RDT&E Budget Item Justification**	**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303142A: *SATCOM Ground Environment (SPACE)*

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	Base FY 2011 Estimate	OCO FY 2011 Estimate	Total FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	46.799	39.889	33.694	0.000	33.694	32.923	46.131	45.336	44.725	Continuing	Continuing
253: *DSCS-DCS (PHASE II)*	7.665	7.088	11.447	0.000	11.447	8.758	8.661	8.596	8.736	Continuing	Continuing
456: *MILSATCOM SYSTEM ENGINEERING*	15.375	28.638	22.247	0.000	22.247	24.165	37.470	36.740	35.989	Continuing	Continuing
562: *MBAND INT SAT TERM MIST*	23.759	4.163	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

Military Satellite Communication (MILSATCOM) systems are joint program/project efforts to satisfy ground mobile requirements for each Service, the Joint Chiefs of Staff (JCS), the National Command Authority, the combatant commanders, the National Security Agency, the Office of the Secretary of Defense, and other governmental, non-DoD users. The worldwide MILSATCOM systems are: Ultra High Frequency (UHF) Follow-On Satellite System; Air Force Satellite (FLTSAT/AFSAT) system; the Mobile User Objective System (MUOS); the Super High Frequency (SHF) Defense Satellite Communications System (DSCS); the Wideband Global SATCOM (WGS); the MILSTAR Extremely High Frequency (EHF)(Low Data Rate (LDR) and Medium Data Rate (MDR); the Advanced Extremely High Frequency (AEHF); and future MILSATCOM capabilities, all of these systems are required to support legacy, interim and emerging communication space architectures and Objective Force requirements. The Army is responsible for materiel development, acquisition, product improvement, testing, fielding and integrated logistics support of ground satellite terminals and SATCOM control subsystems and all associated equipment used to provide range extension of Command, Control and Communications Systems for the Warfighter. The Army also participates in the development of MILSATCOM programs, including architectures, payloads, waveforms, antennas and terminal developments to ensure US Army equities are appropriately addressed with our sister services. This includes technology assessment efforts associated with the integration of MILSATCOM components to US Army Landwarnet This responsibility also includes maintaining the life cycle logistics support required to achieve end-to-end connectivity and interoperability, satisfying JCS Command, Control, Communications and Intelligence (C3I) in support of the President, JCS, combatant commanders, Military Departments, Department of State, and other government Departments and Agencies.This program is designated as a DoD Space Program.

Exhibit R-2, PB 2011 Army **RDT&E Budget Item Justification**	**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303142A: *SATCOM Ground Environment (SPACE)*

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	58.902	40.097	111.712	0.000	111.712
Current President's Budget	46.799	39.889	33.694	0.000	33.694
Total Adjustments	-12.103	-0.208	-78.018	0.000	-78.018
• Congressional General Reductions		-0.208			
• Congressional Directed Reductions					
• Congressional Rescissions		0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers					
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-1.606	0.000			
• Adjustments to Budget Years	0.000	0.000	-78.018	0.000	-78.018

Change Summary Explanation

Change Summary Explanation: Funding - FY 2011 : Funding realigned ($78,018) to other Army priorities.

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**											**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*				**R-1 ITEM NOMENCLATURE** PE 0303142A: *SATCOM Ground Environment (SPACE)*				**PROJECT** 253: *DSCS-DCS (PHASE II)*			
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**Base FY 2011 Estimate**	**OCO FY 2011 Estimate**	**Total FY 2011 Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
253: *DSCS-DCS (PHASE II)*	7.665	7.088	11.447	0.000	11.447	8.758	8.661	8.596	8.736	Continuing	Continuing
Quantity of RD&TE Articles											

A. Mission Description and Budget Item Justification

This project provides funds to develop strategic and tactical Ground Subsystem equipment and software in support of Joint Chiefs of Staff (JCS) validated Command, Control, Communications and Intelligence (C3I) requirements for the worldwide Defense Enterprise Wideband SATCOM System (DEWSS) and the expansion of the Wideband Global SATCOM (WGS) constellation. It is composed of the Super High Frequency (SHF) Defense Satellite Communications System (DSCS) and WGS programs. Continuing upgrades for the DSCS and WGS are vital to support the emerging power projection and rapid deployment role of the Armed Forces. DSCS and WGS provide Warfighters multiple channels of tactical connectivity as well as interfaces with strategic networks and national decision-makers.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	**FY 2010**	**Base FY 2011**	**OCO FY 2011**	**Total FY 2011**
Program #1	3.953	0.000	0.000	0.000	0.000
Continue the development of the DSCS Integrated Management System (DIMS) Interface Software program					
FY 2009 Accomplishments: FY 2009					
FY 2010 Plans: FY 2010					
Base FY 2011 Plans: FY 2011 Base					
OCO FY 2011 Plans: FY 2011 OCO					

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303142A: *SATCOM Ground Environment (SPACE)*	**PROJECT** 253: *DSCS-DCS (PHASE II)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #2	1.126	2.067	3.889	0.000	3.889
Netcentic Systems Engineering and Analysis					
FY 2009 Accomplishments: FY 2009					
FY 2010 Plans: FY 2010					
Base FY 2011 Plans: FY 2011 Base					
OCO FY 2011 Plans: FY 2011 OCO					
Program #3	0.000	2.500	5.000	0.000	5.000
Initiate integration and test eforts on the Remote Monitor Control Equipment (RMCE)					
FY 2009 Accomplishments: FY 2009					
FY 2010 Plans: FY 2010					
Base FY 2011 Plans: FY 2011 Base					
OCO FY 2011 Plans: FY 2011 OCO					

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303142A: *SATCOM Ground Environment (SPACE)*	**PROJECT** 253: *DSCS-DCS (PHASE II)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #4	2.391	2.521	2.588	0.000	2.588
Continue SATCOM Engineering Lab (SEL), PM Admin, and Systems Engineering Technical Assistance (SETA) efforts					
FY 2009 Accomplishments: FY 2009					
FY 2010 Plans: FY 2010					
Base FY 2011 Plans: FY 2011 Base					
OCO FY 2011 Plans: FY 2011 OCO					
Program #5	0.195	0.000	0.000	0.000	0.000
Small Business Innovative Research/Small Business technology Transfer Programs (SBIR/STTR)					
FY 2009 Accomplishments: FY 2009					
FY 2010 Plans: FY 2010					
Base FY 2011 Plans: FY 2011 Base					

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303142A: *SATCOM Ground Environment (SPACE)*	**PROJECT** 253: *DSCS-DCS (PHASE II)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
OCO FY 2011 Plans: FY 2011 OCO					
Accomplishments/Planned Programs Subtotals	7.665	7.088	11.477	0.000	11.477

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• Ord. #1: *DEWSS Other Procurement Army*	63.702	144.650	115.744	0.000	115.744	116.573	176.329	110.068	104.263	Continuing	Continuing

D. Acquisition Strategy

The Remote Monitoring and Control Equipment (RMCE) will provide the capability to remotely operate several Control subsystems to effect WGS payload control and monitoring from a Wideband SATCOM Operations Center (WSOC) to a non-collocated earth terminal location. To operate these Control subsystems remotely (Gapfiller Satellite Configuration Control Element (GSCCE), Wideband Global SATCOM Spectrum Monitoring System (WGSMS), Joint Management and Operation System (JMOS), Replacement FM Orderwire (RFMOW), Global Terrestrial Critical Control Circuit System (GTC3S) and Interference Resolution) some system NRE modifications will be necessary. PM DCATS employs Netcentric Systems Engineering to develop the technology for new ground segment equipments which will include studies, risk mitigation, system integration and advanced demonstrations for Netcentric Baseband and Policy Based Control to accommodate technology insertion, data sharing, remote operations, architecture efforts and use of commercial technology to conform to Department of Defense (DoD) requirements.

E. Performance Metrics

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

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303142A: *SATCOM Ground Environment (SPACE)*	**PROJECT** 253: *DSCS-DCS (PHASE II)*

Product Development ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
DIMS Software	C/CPFF	JHU/APL Laurel, MD	36.726	0.000		0.000		0.000		0.000	0	Continuing	44.029
RMCE GSCCE	C/FFP	Boeing Colorado Springs, Col	0.000	1.100		3.500		0.000		3.500	0	Continuing	0
RMCE Integration	C/FFP	JHU/APL Laurel, MD	0.000	1.400		1.500		0.000		1.500	0	Continuing	0
		Subtotal	36.726	2.500		5.000		0.000		5.000	0.000		44.029

Remarks

JHU/APL - John Hopkins University/Applied Physics Laboratory

Support ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Matrix Support	C	Fort Monmouth NJ	7.950	0.376		0.368		0.000		0.368	Continuing	Continuing	0
SETA Support	C/CPFF	Fort Monmouth NJ	3.753	0.000		0.000		0.000		0.000	Continuing	Continuing	0
Netcentric Systems Engineering	C/CPFF	Fort Monmouth NJ	4.281	2.067		3.859		0.000		3.859	Continuing	Continuing	0
Core Support	C/Various	Fort Monmouth	4.663	0.735		0.810		0.000		0.810	Continuing	Continuing	0

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303142A: *SATCOM Ground Environment (SPACE)*	**PROJECT** 253: *DSCS-DCS (PHASE II)*

Support ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
		NJ											
		Subtotal	20.647	3.178		5.037		0.000		5.037			0.000

Remarks

Test and Evaluation ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
JSEC	C	Fort Monmouth NJ	8.715	0.760		0.760		0.000		0.760	Continuing	Continuing	0
		Subtotal	8.715	0.760		0.760		0.000		0.760			0.000

Remarks

JSEC - Joint Satellite Engineering Center

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303142A: *SATCOM Ground Environment (SPACE)*	**PROJECT** 253: *DSCS-DCS (PHASE II)*

Management Services ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
PM Admin	C/Various	Fort Monmouth NJ	6.095	0.650		0.650		0.000		0.650	Continuing	Continuing	0
		Subtotal	6.095	0.650		0.650		0.000		0.650			0.000

Remarks

	FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	7.088		11.447		0.000		11.447	Continuing	Continuing	Continuing

Remarks

Exhibit R-4, PB 2011 Army **RDT&E Schedule Profile**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303142A: *SATCOM Ground Environment (SPACE)*	**PROJECT** 253: *DSCS-DCS (PHASE II)*

	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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
DIMS Testing V5.2	#	#																										
DIMS Materiel Release V5.2		#	#																									
DIMS Testing V6.0			#	#																								
DIMS Materiel Release V 6.0					#																							
RMCE GSCCE					#	#	#	#	#	#	#																	
RMCE Integration					#	#	#	#	#	#	#																	

Exhibit R-4A, PB 2011 Army **RDT&E Schedule Details**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303142A: *SATCOM Ground Environment (SPACE)*	**PROJECT** 253: *DSCS-DCS (PHASE II)*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
DIMS Testing V5.2	1	2009	2	2009
DIMS Materiel Release V5.2	2	2009	3	2009
DIMS Testing V6.0	3	2009	4	2009
DIMS Materiel Release V 6.0	1	2010	1	2010
RMCE GSCCE	1	2010	3	2011
RMCE Integration	1	2010	3	2011

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**											**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*				**R-1 ITEM NOMENCLATURE** PE 0303142A: *SATCOM Ground Environment (SPACE)*				**PROJECT** 456: *MILSATCOM SYSTEM ENGINEERING*			
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**Base FY 2011 Estimate**	**OCO FY 2011 Estimate**	**Total FY 2011 Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
456: *MILSATCOM SYSTEM ENGINEERING*	15.375	28.638	22.247	0.000	22.247	24.165	37.470	36.740	35.989	Continuing	Continuing
Quantity of RD&TE Articles											

A. Mission Description and Budget Item Justification

MILSATCOM System Engineering provides centralized funding for US Army participation in the development of MILSATCOM programs. This includes engineering, technical and Cost As An Independent Variable (CAIV) related analyses supporting architecture, payloads, network and terminal requirement and design decisions across all MILSATCOM programsMILSATCOM System Engineering also supports experimentation and/or development of new and emerging SATCOM related technologies. This includes prototyping efforts to address technology gaps identified by US Army Program of Records (POR) in the US Army Technology Transition Matrix. FY2011 funds suppport increased efforts in the area of Protected Communications and other related efforts.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	**FY 2010**	**Base FY 2011**	**OCO FY 2011**	**Total FY 2011**
Program #1	1.125	3.000	1.600	0.000	1.600
Protected Advanced EHF (AEHF) Communications System Engineering *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base					

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303142A: *SATCOM Ground Environment (SPACE)*	**PROJECT** 456: *MILSATCOM SYSTEM ENGINEERING*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
OCO FY 2011 Plans: FY 2011 OCO					
Program #2	1.100	2.000	1.300	0.000	1.300
Wideband Global SATCOM (WGS) Communications System Engineering *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #3	5.586	10.155	4.000	0.000	4.000
Experimentation, development, testing and certification of critical SATCOM and SOTM communication and network technologies. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010					

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303142A: *SATCOM Ground Environment (SPACE)*	**PROJECT** 456: *MILSATCOM SYSTEM ENGINEERING*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Base FY 2011 Plans: FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #4 Intelligence, Surveillance, Reconnanisance (ISR) POR Migration to OPM WIN T SATCOM Solutions. Includes Reginal Hub Node (RHN) mods, Joint Management and Operations Subsystem (JMOS) mods, Terminal Certifications (WGS) *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	1.964	1.000	1.500	0.000	1.500
Program #5 Federal Communications Commission/ International Telecommunciations Union (FCC/ITU) SOTM Regulatory Proposals/Analyses/Modifications	1.100	1.200	1.130	0.000	1.130

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303142A: *SATCOM Ground Environment (SPACE)*	**PROJECT** 456: *MILSATCOM SYSTEM ENGINEERING*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2009 Accomplishments: FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #6 Protected COTM Technical Reference Terminal Prototyping *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	0.000	9.000	10.617	0.000	10.617
Program #7	0.000	1.500	2.100	0.000	2.100

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303142A: *SATCOM Ground Environment (SPACE)*	**PROJECT** 456: *MILSATCOM SYSTEM ENGINEERING*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Protected Wide Area Network (WAN) Prototyping *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #8 Small Business Innovative Research/Small Business Technology Transfer Programs *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	0.000	0.783	0.000	0.000	0.000

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303142A: *SATCOM Ground Environment (SPACE)*	**PROJECT** 456: *MILSATCOM SYSTEM ENGINEERING*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #9	1.500	0.000	0.000	0.000	0.000
Soldier Network Extension (SNE) SATCOM Terminal development in support of WIN-T Increment 2 Communications Network. Includes Antenna and Modem modifications required per Increment 2 DT/LUT *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #10	3.000	0.000	0.000	0.000	0.000
Transformational Satellite (TSAT) Communications System Engineering *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base					

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303142A: *SATCOM Ground Environment (SPACE)*	**PROJECT** 456: *MILSATCOM SYSTEM ENGINEERING*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
OCO FY 2011 Plans: FY 2011 OCO					
Accomplishments/Planned Programs Subtotals	15.375	28.638	22.247	0.000	22.247

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

This project funds advanced systems engineering, research, development, test and evaluation of new and emerging technologies to optimize terminal performance and communications control. Once the technologies are mature and deemed feasible, funding and management responsibility for implementation of the technology will transition to Army PORs.

E. Performance Metrics

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

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303142A: *SATCOM Ground Environment (SPACE)*	**PROJECT** 456: *MILSATCOM SYSTEM ENGINEERING*

Product Development ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Protected Advanced EHF and WGS Communications Syststem Engineering	C	Various Location could not be determined.	19.351	3.300		2.169		0.000		2.169	0	Continuing	0
Experimentation, development , testing & certification of SATCOM & SOTM communciation & networking.	C	Various Location could not be determined.	0.000	6.438		4.000		0.000		4.000	0	Continuing	0
Protected COTM Tactical Reference Terminal Prototyping and Protected Wide Area Network Prototyping	C	Various Location could not be determined.	0.000	8.000		5.088		0.000		5.088	0	Continuing	0
Terminal Upgrades, SNE, Engineering Support	C	General Dynamics Taunton MA	1.524	0.000		0.000		0.000		0.000	0	Continuing	0
		Subtotal	20.875	17.738		11.257		0.000		11.257	0.000		0.000

Remarks

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303142A: *SATCOM Ground Environment (SPACE)*	**PROJECT** 456: *MILSATCOM SYSTEM ENGINEERING*

Support ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Engineering (In House)	C	Core Matrix	15.852	2.000		2.000		0.000		2.000	Continuing	Continuing	0
Engineering Contractors Support	C	JANUS BAH, Linquest, JHU APL	22.135	4.000		3.800		0.000		3.800	Continuing	Continuing	0
System Architecture & Analysis	C	MIT Lincoln Labs Lexington, MA; MITRE, CERDEC	13.063	0.400		0.400		0.000		0.400	Continuing	Continuing	0
		Subtotal	51.050	6.400		6.200		0.000		6.200			0.000

Remarks

Test and Evaluation ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Test Support	C	MIT Lincoln Labs Lexington, MA, General Dyanamics, Tauton MA	17.998	0.400		1.500		0.000		1.500	Continuing	Continuing	0
Terminal Certification, ISR POR Migration	C	John Hopkins Unversity	0.000	0.400		0.600		0.000		0.600	0	Continuing	0

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
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Test and Evaluation ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
		Applied Physics Laboratory , MD											
Testing, Certification	C	CERDEC Support Technical Testing Location could not be determined.	0.000	2.500		1.500		0.000		1.500	Continuing	Continuing	0
		Subtotal	17.998	3.300		3.600		0.000		3.600			0.000

Remarks

Management Services ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Program Oversight	C	In-House Location could not be determined.	0.000	0.400		0.440		0.000		0.440	Continuing	Continuing	0
Advanced Architecture/ Advanced Wideband System Architecture	C	MIT Lincoln Labs Lexington MA and General Dynamics Taunton, MA , Linquest, M	8.024	0.800		0.750		0.000		0.750	Continuing	Continuing	0
		Subtotal	8.024	1.200		1.190		0.000		1.190			0.000

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303142A: *SATCOM Ground Environment (SPACE)*	**PROJECT** 456: *MILSATCOM SYSTEM ENGINEERING*

Management Services ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**

Remarks

	FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	28.638		22.247		0.000		22.247	Continuing	Continuing	Continuing

Remarks

Exhibit R-4, PB 2011 Army **RDT&E Schedule Profile**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303142A: *SATCOM Ground Environment (SPACE)*	**PROJECT** 456: *MILSATCOM SYSTEM ENGINEERING*

	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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
Protected COTM Tactical Reference Terminal Development Strategy				#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#				
Protected Wide Area Network (WAN) Prototyping				#	#	#	#	#	#	#	#	#	#	#	#													

Exhibit R-4A, PB 2011 Army **RDT&E Schedule Details**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303142A: *SATCOM Ground Environment (SPACE)*	**PROJECT** 456: *MILSATCOM SYSTEM ENGINEERING*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Protected COTM Tactical Reference Terminal Development Strategy	4	2009	4	2014
Protected Wide Area Network (WAN) Prototyping	4	2009	3	2012

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**											**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*				**R-1 ITEM NOMENCLATURE** PE 0303142A: *SATCOM Ground Environment (SPACE)*				**PROJECT** 562: *MBAND INT SAT TERM MIST*			
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**Base FY 2011 Estimate**	**OCO FY 2011 Estimate**	**Total FY 2011 Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
562: *MBAND INT SAT TERM MIST*	23.759	4.163	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RD&TE Articles											

A. Mission Description and Budget Item Justification

A. Mission Description and Budget Item Justification: Multi-band Integrated Satellite Terminal (MIST) funds were to develop the high capacity communications capability (HC3) for Increment 1. The HC3 was to provide high data rate communications capabilities that would be pervasively integrated into the Army's Future Modular Force communication architecture, as well as other Service and Joint communication architectures. As a result of recent Department of Defense (DoD) decision to terminate the Transformational Satellite Communications System (TSAT), the HC3 program has been restructured. Various risk mitigation studies and analyses will be executed with tri-service participation in order to further lower risk prior the development of a follow on satellite terminal. FY10 is the last year of funding and the FY10 funds will support detailed studies and analyses of future MILSATCOM capabilities to support Army requirements.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	**FY 2010**	**Base FY 2011**	**OCO FY 2011**	**Total FY 2011**
Program #1	5.010	0.000	0.000	0.000	0.000
High capacity communications capability studies/efforts that include Waveform porting issues and high speed/ capacity Cryptographic development					
FY 2009 Accomplishments: FY 2009					
FY 2010 Plans: FY 2010					
Base FY 2011 Plans: FY 2011 Base					

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303142A: *SATCOM Ground Environment (SPACE)*	**PROJECT** 562: *MBAND INT SAT TERM MIST*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
OCO FY 2011 Plans: FY 2011 OCO					
Program #2 Antenna/RF and Modem Analysis and risk mitigation efforts *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	15.036	0.000	0.000	0.000	0.000
Program #3 Requirements process/analysis *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010	3.713	4.047	0.000	0.000	0.000

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303142A: *SATCOM Ground Environment (SPACE)*	**PROJECT** 562: *MBAND INT SAT TERM MIST*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Base FY 2011 Plans: FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #4 Small Business Innovative Research/Small Business Technology Transfer Program *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	0.000	0.116	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	23.759	4.163	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

Plans are starting to be developed for a follow on satellite terminal to support recent DoD budget decisions.

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303142A: *SATCOM Ground Environment (SPACE)*	**PROJECT** 562: *MBAND INT SAT TERM MIST*

E. Performance Metrics

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

Exhibit R-2, PB 2011 Army **RDT&E Budget Item Justification**	**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305204A: *Tactical Unmanned Aerial Vehicles*

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	Base FY 2011 Estimate	OCO FY 2011 Estimate	Total FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	100.454	202.116	54.300	0.000	54.300	90.418	31.790	31.729	31.751	Continuing	Continuing
114: *Tactical Unmanned Aerial Vehicle (TUAV) (MIP)*	12.169	59.616	1.672	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
11A: *Advanced Payload Develop & Spt (MIP)*	22.177	39.444	40.252	0.000	40.252	86.077	27.496	27.517	27.501	Continuing	Continuing
11B: *TSP DEVELOPMENT (MIP)*	0.000	21.534	5.336	0.000	5.336	0.000	0.000	0.000	0.000	Continuing	Continuing
123: *JOINT TECHNOLOGY CENTER SYSTEM INTEGRATION (MIP)*	2.351	4.388	6.698	0.000	6.698	4.341	4.294	4.212	4.250	Continuing	Continuing
D09: *EXTENDED RANGE UAV (MIP)*	61.767	73.187	123.156	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
D10: *SUAV (MIP)*	1.990	3.947	0.342	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Tactical Unmanned Aerial Vehicle (TUAV) Shadow 200 provides the Army Brigade Commander with dedicated Reconnaissance, Surveillance and Target Acquisition (RSTA), Intelligence, Battle Damage Assessment (BDA) and Force Protection. The Shadow provides the Brigade Commander with critical battlefield intelligence and targeting information in the rapid cycle time required for success at the tactical level. The TUAV Shadow system air vehicle meets the required operating range of 50 kilometers and remains on station for up to five hours. The TUAV Shadow system consists of four air vehicles (each configured with an EO/IR sensor payload), launcher and ground control and support equipment including: power generation, communications equipment, automated recovery equipment, one system remote video terminals, vehicle mounted shelters, and High Mobility Multipurpose Wheeled Vehicles with trailer(s). Each system is equipped with one Maintenance Section Multifunctional (MSM) Vehicle and is supported at the division level by a Mobile Maintenance Facility (MMF). Project 11A Advance Payload Development supports the Army's transformation by developing payloads for brigade combat team, division, and corps UASs in accordance with Headquarters Department of the Army and Training and Doctrine Command UAS priorities. The Synthetic Aperture Radar/Ground Moving Target Indicator (SAR/GMTI) payload will provide a wide-area search capability with a built-in imaging mode that provides essential all-weather surveillance and increased situational awareness. The SAR/GMTI payload is a complementary system of the Army's Future Combat System (FCS) Class IV UAV and is a principal payload for the Extended Range Multi-Purpose (ERMP) UAS. The EO/IR w/Laser Designator (LD) is currently in development for the ERMP system and has potential application to other platforms. The EO/IR/LD will provide a day/night capability to collect and display continuous imagery with the ability to designate targets of interest for attack by laser guided precision weapons. Project 11B Tactical SIGINT Payload (TSP) is an Unmanned Aerial Vehicle (UAV) mounted SIGINT sensor that detects radio frequency (RF) emitters. TSP, a key FCS component, is capable of providing the Brigade Combat Team (BCT)

Exhibit R-2, PB 2011 Army **RDT&E Budget Item Justification**	**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305204A: *Tactical Unmanned Aerial Vehicles*

Land Commander with an overwatch and a penetrating SIGINT system capable of detecting, identifying, locating, and providing geolocation information on RF emitters throughout the Area of Operations (AO). The BCT commander will deploy TSP to provide sensor coverage where FCS ground vehicles cannot perform the SIGINT mission due to radio line of sight blockage. TSP is developing sensors for BCT applications to detect low-power radio emitters. The SIGINT payload is scalable and designed to provide maximum flexibility for the BCT mission profile. TSP will provide near real time (NRT) actionable intelligence that can immediately be used in the commanders decision cycle. The TSP electronic emitter information will be correlated with data from other systems, e.g. Prophet and Aerial Common Sensor (ACS) to provide precise targeting information for immediate engagement. The TSP sensors are critical to providing full coverage Intelligence, Surveillance and Reconnaissance (ISR) information for Future Force capabilities for FCS and contributing to the Joint ISR net. Project 123 JTC/SIL is a joint facility that develops, integrates and supports the enhancement of its Multiple Unified Simulation Environment (MUSE) capability for Army systems and operational concepts. The JTC/SIL conducts prototype hardware and software development (i.e., TUAV Tactical Unmanned Control System (TUCS), TUAV Institutional Mission Simulation (IMS) Trainer, TUAV C4I module), modeling and simulation support. The MUSE develops real-time, operator in-the-loop simulations that are capable of tactical Hardware-In-the-Loop (HWIL) interoperability for multiple intelligence systems, that may be integrated with larger simulations in support of Service training and exercises. MUSE provides a realistic operational environment, supporting a wide range of C4I applications. This project funds the management of the JTC/SIL and MUSE enhancements.The Extended Range Multi-Purpose (ERMP) Unmanned Aircraft System (UAS) will provide a real-time responsive capability to conduct long-dwell, wide area reconnaissance, surveillance, target acquisition, communications relay, and attack missions (up to 4 HELLFIRE Missiles aboard) to the Division Commander. The ER/MP addresses an ever increasing demand for greater range, altitude, endurance and payload flexibility, which enables dynamic mission changes while in flight. The ER/MP will be fielded as a system to a company level organization assigned to each of the 10 active Army Divisions Combat Aviation Brigades (CAB) providing a capability that is responsive to supported units based on the division Commander's priorities. The ER/MP system consists of 12 MQ-1C Sky Warrior aircraft with Electro-Optical/Infrared, Synthetic Aperture Radar with Ground Moving Target Indicator (EO/IR/SAR/GMTI), Communications Relay and precision weapons as payloads; Ground equipment includes 5 One System Ground Control Stations (OSGCS), 5 Ground Data Terminals (GDT), 2 Portable Ground Control Stations (PGCS), 2 Portable Ground Data Terminals (PGDT), a Satellite Communication (SATCOM) Ground Data Terminal (SGDT) and other associated ground support equipment. The acquisition strategy capitalizes upon competitive forces, bringing cutting edge improvements at the best cost and value to support the major thrusts of the DoD UAS Roadmap, and the imperatives of Army modernization and Army Aviation Transformation. This includes a heavy fuel engine, 30 mission hours of endurance (24 hours on station at 300 KM range), Tactical Common Data Link technology, network connectivity that reduces information cycle time and enhances overall battle space awareness, teaming with manned platforms, and steps toward integration of UAS into national and international airspace. The ability to operate multiple Sky Warrior aircraft simultaneously from a single One System Ground Control Station (currently mission and Air Data Relay Aircraft), a 3,200 pound gross take off weight (with growth to 3,600 pounds), Fowler flaps which improve take-off and landing performance, Automatic Take-off and Landing and the flexibility to operate with or without SATCOM data links are characteristics which make this system a significant combat multiplier.The Small Unmanned Aircraft System (SUAS) program provides the ground maneuver battalions and below with situational awareness and enhanced force protection. SUAS is a man portable unmanned aircraft system capable of handling a wide variety of Intelligence, Surveillance & Reconnaissance (ISR) tasks at Battalion and below. The SUAS aircraft has a wingspan of 4.5 feet and weighs 4.2 pounds. It is hand-launched, and provides aerial observation, day or night, at line-of-sight ranges up to 10 kilometers. The aircraft has an endurance rate of 90 minutes and can deliver color or infrared imagery in real time to the ground control and remote viewing stations. SUAS obtained Milestone C approval 6 Oct 05 and successfully completed IOT&E June 06.

Exhibit R-2, PB 2011 Army **RDT&E Budget Item Justification**	**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305204A: *Tactical Unmanned Aerial Vehicles*

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	103.930	202.521	138.895	0.000	138.895
Current President's Budget	100.454	202.116	54.300	0.000	54.300
Total Adjustments	-3.476	-0.405	-84.595	0.000	-84.595
• Congressional General Reductions		-15.906			
• Congressional Directed Reductions					
• Congressional Rescissions		0.000			
• Congressional Adds		6.000			
• Congressional Directed Transfers					
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Adjustments to Budget Years	0.000	9.501	0.000	0.000	0.000

Change Summary Explanation

Change Summary Explanation: Funding - FY 2011: Funds realigned to higher priority Army requirements.

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**											**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*				**R-1 ITEM NOMENCLATURE** PE 0305204A: *Tactical Unmanned Aerial Vehicles*				**PROJECT** 114: *Tactical Unmanned Aerial Vehicle (TUAV) (MIP)*			
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**Base FY 2011 Estimate**	**OCO FY 2011 Estimate**	**Total FY 2011 Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
114: *Tactical Unmanned Aerial Vehicle (TUAV) (MIP)*	12.169	59.616	1.672	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RD&TE Articles											

A. Mission Description and Budget Item Justification

The Tactical Unmanned Aerial Vehicle (TUAV) Shadow 200 provides the Army Brigade Commander with dedicated Reconnaissance, Surveillance and Target Acquisition (RSTA), Intelligence, Battle Damage Assessment (BDA) and Force Protection. The Shadow provides the Brigade Commander with critical battlefield intelligence and targeting information in the rapid cycle time required for success at the tactical level. The TUAV Shadow system air vehicle meets the required operating range of 50 kilometers and remains on station for up to five hours. The TUAV Shadow system consists of four air vehicles (each configured with an EO/IR sensor payload), launcher and ground control and support equipment including: power generation, communications equipment, automated recovery equipment, one system remote video terminals, vehicle mounted shelters, and High Mobility Multipurpose Wheeled Vehicles with trailer(s). Each system is equipped with one Maintenance Section Multifunctional (MSM) Vehicle and is supported at the division level by a Mobile Maintenance Facility (MMF). The TUAV has logged over 469,632 flight hours since Jun 01, most of which were flown in support of Operation Iraqi Freedom and Operation Enduring Freedom. Block upgrades are required for continued improvement and interoperability. Common Systems Integration is required to ensure interoperability with other manned and unmanned weapon systems, to include incorporation of a Universal Ground Control Station (UGCS), trainer upgrades, and One System Remote Video Transceiver (OSRVT). Small Sense and Avoid System (SSAASy) is required to meet the requirement for a traffic alert and collision avoidance system and to allow for operations in the National Airspace (NAS). Development of an extended wing provides for weight growth from the integration of Tactical Common Data Link (TCDL) and provides increased endurance.FY 2011 Base funds will be used for OIF Improvements/Block Upgrades/Capability Improvements, specifically: development of a heavy fuel engine; airframe modifications to support all weather payload requirements; and integration of SAR, SIGINT, HD payloads. Additionally, funds will be for System Engineering/Reliability Solutions (to include avionics reliability improvements to meet emerging national airspace requirements) and TCDL Test Support.Beginning in FY 2011, funding for this project shifts to PE 0305233A Project RQ7. Due to an error in allocating the funds to the new PE, $1.672 million still remains in the Project 114 in FY 2011 and is reflected ONLY in the total funding line above. The correct PE/Proj (0305233A/RQ7) includes the $1.672 million amount ONLY in Accomplishments/Planned Program (R2a) and Cost Analysis (R3). This separate reporting mitigates any appearance of double funding.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	**FY 2010**	**Base FY 2011**	**OCO FY 2011**	**Total FY 2011**
Program #1	1.200	5.665	0.000	0.000	0.000

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305204A: *Tactical Unmanned Aerial Vehicles*	**PROJECT** 114: *Tactical Unmanned Aerial Vehicle (TUAV) (MIP)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Base: OIF Improvements / Block Upgrades / Capability Improvements *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #2 Base: 4th Generation Wireless Exploitation *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	0.000	2.400	0.000	0.000	0.000

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305204A: *Tactical Unmanned Aerial Vehicles*	**PROJECT** 114: *Tactical Unmanned Aerial Vehicle (TUAV) (MIP)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #3	3.908	0.000	0.000	0.000	0.000
Base: Small Sense and Avoid System (SSAASy)/Shadow Flight in the National Airspace					
FY 2009 Accomplishments: FY 2009					
FY 2010 Plans: FY 2010					
Base FY 2011 Plans: FY 2011 Base					
OCO FY 2011 Plans: FY 2011 OCO					
Program #4	0.000	0.000	0.000	0.000	0.000
Base: System Engineering / Reliability Solutions					
FY 2009 Accomplishments: FY 2009					
FY 2010 Plans: FY 2010					
Base FY 2011 Plans: FY 2011 Base					
OCO FY 2011 Plans: FY 2011 OCO					

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305204A: *Tactical Unmanned Aerial Vehicles*	**PROJECT** 114: *Tactical Unmanned Aerial Vehicle (TUAV) (MIP)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #5	5.782	2.264	0.000	0.000	0.000
Base: Test Support (TCDL - Tactical Common Data Link) *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #6	0.231	16.124	0.000	0.000	0.000
Base: Common System Integration (UGCS, Trainers, OSRVT) *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305204A: *Tactical Unmanned Aerial Vehicles*	**PROJECT** 114: *Tactical Unmanned Aerial Vehicle (TUAV) (MIP)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #7	0.000	1.600	0.000	0.000	0.000
Base: TUAS Heavy Fuel Engine (HFE) *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #8	0.000	0.000	0.000	0.000	0.000
Shadow Encryption *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305204A: *Tactical Unmanned Aerial Vehicles*	**PROJECT** 114: *Tactical Unmanned Aerial Vehicle (TUAV) (MIP)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #9	0.350	0.234	0.000	0.000	0.000
Base: Program Management Support					
FY 2009 Accomplishments: FY 2009					
FY 2010 Plans: FY 2010					
Base FY 2011 Plans: FY 2011 Base					
OCO FY 2011 Plans: FY 2011 OCO					
Program #10	0.698	1.829	0.000	0.000	0.000
Base: Other Government Agencies (OGA)					
FY 2009 Accomplishments: FY 2009					
FY 2010 Plans: FY 2010					
Base FY 2011 Plans: FY 2011 Base					
OCO FY 2011 Plans: FY 2011 OCO					

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305204A: *Tactical Unmanned Aerial Vehicles*	**PROJECT** 114: *Tactical Unmanned Aerial Vehicle (TUAV) (MIP)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #11	0.000	29.500	0.000	0.000	0.000
OCO; Shadow Encryption -- Type 2 Interim Encryption System (TIES)					
FY 2009 Accomplishments: FY 2009					
FY 2010 Plans: FY 2010					
Base FY 2011 Plans: FY 2011 Base					
OCO FY 2011 Plans: FY 2011 OCO					
Accomplishments/Planned Programs Subtotals	12.169	59.616	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• Ord. #1: *TUAV Procurement/ OPA (BA0330)*	167.906	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
• Ord. #2: *TUAV Procurement/ APA (A00018)*	0.000	607.900	505.015	97.800	602.815	37.541	40.360	86.984	148.594	0	1,524.194
• Ord. #3: *Initial Spares - TUAV (BS9738)*	2.349	2.743	2.628	0.000	2.628	0.000	0.000	0.000	0.000	Continuing	Continuing
	0.000	0.000	9.477	0.000	9.477	50.487	78.084	38.667	22.527	0	199.242

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305204A: *Tactical Unmanned Aerial Vehicles*	**PROJECT** 114: *Tactical Unmanned Aerial Vehicle (TUAV) (MIP)*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• Ord. #4: *PE 0305233A RQ-7 UAV RDTE*											

D. Acquisition Strategy

A System Capability Demonstration (SCD) was conducted with four contractors. The results from the SCD in conjunction with proposal evaluations resulted in the competitive down select of a Best Value TUAV system. A successful Milestone II ASARC was conducted 21 Dec 99, and a TUAV LRIP contract was awarded to AAI Corporation 27 Dec 99. In order to accelerate fielding of the TUAV system, a second LRIP for four systems was awarded 30 Mar 01 following a successful OPTEMPO test. In order to maintain accelerated fielding and continue ramp up to full rate production, a third LRIP was awarded in Mar 02. A successful LRIP program led to a MS III decision 25 Sep 02. The full rate production contract was awarded 27 Dec 02. Continued development of the selected TUAV system will be accomplished through a series of modifications and retrofits such as Tactical Common Data Link (TCDL), Communications Relay, Laser Designator, and reliability upgrades.

E. Performance Metrics

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

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305204A: *Tactical Unmanned Aerial Vehicles*	**PROJECT** 114: *Tactical Unmanned Aerial Vehicle (TUAV) (MIP)*

Product Development ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Base: Target Location Error (TLE) / TCDL/ JTRS / Laser Designator	SS/CPFF	AAI Corporation MD	52.200	0.000		0.000		0.000		0.000	0	Continuing	52.200
Base: OIF Improvements / Block Upgrades / Capability Improvements	SS/CPFF	AAI Corporation MD	13.918	5.665		0.000		0.000		0.000	0	Continuing	12.449
Base: Re-Wing	SS/CPFF	AAI Corporation MD / Other Government Agency	10.600	0.000		0.000		0.000		0.000	0	Continuing	1.500
Base: Shadow Flight in NAS	SS/CPFF	AAI Corporation MD/ Other	0.000	0.000		0.000		0.000		0.000	0	Continuing	0
Base: Common System Integration (UCGS, Trainers, OSRVT)	SS/CPFF	AAI Corporation MD / Other Government Agency	7.082	16.124		0.000		0.000		0.000	0	Continuing	0
Base: TUAS Heavy Fuel Engine	SS/CPFF	AAI Corporation MD / Other	0.000	1.600		0.000		0.000		0.000	0	Continuing	0
Base: LALHAV	SS	AAI Corporation MD / Other Government Agency	2.000	0.000		0.000		0.000		0.000	0	Continuing	0
Base: Small Sense and Avoid System (SSAASy)	SS	AAI Corporation MD/Other Government Agency	0.000	0.000		0.000		0.000		0.000	0	Continuing	0
	SS/CPFF	AAI Corporation	0.000	0.000		0.000		0.000		0.000	0	Continuing	0

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305204A: *Tactical Unmanned Aerial Vehicles*	**PROJECT** 114: *Tactical Unmanned Aerial Vehicle (TUAV) (MIP)*

Product Development ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Base: System Engineering / Reliability Solutions		MD											
OCO: FY10 OCO Shadow Encryption	C	Various Location could not be determined.	0.000	29.500		0.000		0.000		0.000	0	Continuing	0
Base: Fourth Generation Wireless Exploitation	SS/CPFF	AAI Corporation MD	0.000	2.400		0.000		0.000		0.000	0	Continuing	0
		Subtotal	85.800	55.289		0.000		0.000		0.000	0.000		66.149

Remarks

Support ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Contractor Engineering Support	C	Various Contractors Location could not be determined.	11.117	1.079		0.000		0.000		0.000	Continuing	Continuing	0
Government Engineering and Logistics Support	C	AMRDEC & IMMC Redstone Arsenal, AL	8.008	0.750		0.000		0.000		0.000	Continuing	Continuing	0
	C	AMRDEC	14.760	0.000		0.000		0.000		0.000	0	Continuing	1.476

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305204A: *Tactical Unmanned Aerial Vehicles*	**PROJECT** 114: *Tactical Unmanned Aerial Vehicle (TUAV) (MIP)*

Support ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Government Engineering Support - Extended Range		Redstone Arsenal, AL											
		Subtotal	33.885	1.829		0.000		0.000		0.000			1.476

Remarks

Test and Evaluation ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Rolling Take Off	C	Various Location could not be determined.	17.815	0.000		0.000		0.000		0.000	Continuing	Continuing	0
Development Testing/ TCDL - Tactical Common Data Link	C	Various Location could not be determined.	9.971	2.264		0.000		0.000		0.000	0	Continuing	4.354
		Subtotal	27.786	2.264		0.000		0.000		0.000			4.354

Remarks

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305204A: *Tactical Unmanned Aerial Vehicles*	**PROJECT** 114: *Tactical Unmanned Aerial Vehicle (TUAV) (MIP)*

Management Services ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Program Management Personnel	C	PM UAS Redstone, AL	9.443	0.234		0.000		0.000		0.000	Continuing	Continuing	0
		Subtotal	9.443	0.234		0.000		0.000		0.000			0.000

Remarks

	FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	59.616		1.672		0.000		0.000	Continuing	Continuing	Continuing

Remarks

Exhibit R-4, PB 2011 Army **RDT&E Schedule Profile**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305204A: *Tactical Unmanned Aerial Vehicles*	**PROJECT** 114: *Tactical Unmanned Aerial Vehicle (TUAV) (MIP)*

	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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
Shadow Flight in NAS					#																							
TUAS Heavy Fuel Engine					#																							
OCO Shadow Encryption					#	#	#																					

Exhibit R-4A, PB 2011 Army **RDT&E Schedule Details**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305204A: *Tactical Unmanned Aerial Vehicles*	**PROJECT** 114: *Tactical Unmanned Aerial Vehicle (TUAV) (MIP)*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Shadow Flight in NAS	1	2010	1	2010
TUAS Heavy Fuel Engine	1	2010	1	2010
OCO Shadow Encryption	1	2010	3	2010

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**											**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*				**R-1 ITEM NOMENCLATURE** PE 0305204A: *Tactical Unmanned Aerial Vehicles*				**PROJECT** 11A: *Advanced Payload Develop & Spt (MIP)*			
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**Base FY 2011 Estimate**	**OCO FY 2011 Estimate**	**Total FY 2011 Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
11A: *Advanced Payload Develop & Spt (MIP)*	22.177	39.444	40.252	0.000	40.252	86.077	27.496	27.517	27.501	Continuing	Continuing
Quantity of RD&TE Articles											

A. Mission Description and Budget Item Justification

This project supports the Army's transformation by developing payloads for brigade combat team, division, and corps Unmanned Air Vehicles (UAV) and unmanned systems in accordance with Headquarters Department of the Army (HQDA) and Training and Doctrine Command (TRADOC) UAV priorities. The STARLite Synthetic Aperture Radar/Ground Moving Target Indicator (SAR/GMTI) payload will provide a wide-area search capability with a built-in imaging mode that provides essential all-weather surveillance and increased situational awareness. The STARLite payload is a principal payload for the Extended Range/Multi-Purpose (ER/MP) UAV. The Electro Optical Infra Red w/Laser Designator (EO/IR/LD) Common Sensor Payload (CSP) is being developed and built at the direction of the Vice Chief of Staff of the Army for the ER/MP system and has potential application to other platforms. CSP will provide a day/night capability to collect and display continuous imagery with the ability to designate targets of interest for attack by laser guided precision weapons. Additional initiatives will continue to focus on the transition of technologies directly supporting emerging requirements and the Army's Current and Future Force. The Tactical Signals Intelligence (SIGINT) Payload (TSP) is an Unmanned Aircraft System (UAS) mounted SIGINT sensor that detects radio frequency (RF) emitters. TSP, through handoff from the Combat Aviation Brigade, is capable of providing the Brigade Combat Team (BCT) Land Commander with an overwatch and penetrating SIGINT system capable of detecting, identifying, locating, and providing geolocation information on RF emitters throughout the Area of Operations. The TSP is scalable and modular, designed to provide maximum flexibility for the BCT mission profile. TSP will provide near real time actionable intelligence that can immediately be used in the commander's decision cycle. The TSP electronic emitter information will be correlated with data from other systems (e.g. Prophet and Enhanced Medium Altitude Reconnaissance and Surveillance System (EMARSS), at a Distributed Common Ground Station-Army (DCGS-A) node to provide precise targeting information for immediate engagement. TSP maps and aligns with the 2009 Under Secretary of Defense for Intelligence Cross Cutting study and Force Sizing Assessment with Airborne Precision Geolocation and Tactical SIGINT capabilities. TSP also supports the 2009 Office of the Secretary of Defense Cross-Cutting Study: 6 Overarching Axioms for Information Warfare, Intelligence, Surveillance, and Reconnaissance (ISR) Force Sizing, VCJCS Update, 25 Apr 09, with SIGINT (Geolocation) and SIGINT (Internals). TSP sensors are critical to providing coverage ISR / Reconnaissance Surveillance, and Target Acquisition (RSTA) information and contributing to the Joint ISR net.FY11 Base development dollars in the amount of $29.252 million continues to support system test and integration, Increment 1 enhancements of the SAR/GMTI payload and continued Non Recurring Engineering (NRE), design, build integration and testing of the High Definition Target Location Accuracy (HD/TLA) upgrades for the EO/IR/LD CSP.

B. Accomplishments/Planned Program ($ in Millions)

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305204A: *Tactical Unmanned Aerial Vehicles*	**PROJECT** 11A: *Advanced Payload Develop & Spt (MIP)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #1	0.609	0.000	11.000	0.000	11.000
Tactical SIGINT Payload (TSP) - includes Development, Test and Evaluation *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #2	11.412	0.000	0.000	0.000	0.000
CSP (EO/IR/LD) - includes NRE, prototypes, integration and testing efforts. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305204A: *Tactical Unmanned Aerial Vehicles*	**PROJECT** 11A: *Advanced Payload Develop & Spt (MIP)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #3	10.156	6.802	6.730	0.000	6.730
STARLite (SAR/GMTI) - includes Increment 1 Performance Enhancements and Platform Integration					
FY 2009 Accomplishments: FY 2009					
FY 2010 Plans: FY 2010					
Base FY 2011 Plans: FY 2011 Base					
OCO FY 2011 Plans: FY 2011 OCO					
Program #4	0.000	32.642	22.522	0.000	22.522
CSP (EO/IR/LD) HD/TLA Upgrade - includes NRE, prototype manufacturing, integration and testing efforts.					
FY 2009 Accomplishments: FY 2009					
FY 2010 Plans: FY 2010					
Base FY 2011 Plans: FY 2011 Base					
OCO FY 2011 Plans: FY 2011 OCO					

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305204A: *Tactical Unmanned Aerial Vehicles*	**PROJECT** 11A: *Advanced Payload Develop & Spt (MIP)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Accomplishments/Planned Programs Subtotals	22.177	39.444	40.252	0.000	40.252

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• Ord. #1: *Advanced TUAV Payloads (B00302)*	65.664	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	65.664
• Ord. #2: *Payload UAV (A00020)*	0.000	87.207	100.413	0.000	100.413	119.730	188.970	146.091	112.895	Continuing	Continuing
• Ord. #3: *0305204A 11B Tactical SIGINT Payload*	0.000	21.534	5.336	0.000	5.336	0.000	0.000	0.000	0.000	Continuing	Continuing

D. Acquisition Strategy

Common Sensor Payload (CSP) EO/IR/LD is a KPP requirement for the MQ-1C Extended Range Multi Purpose (ERMP) UAS. The acquisition strategy for the CSP program was based on a full and open competition for the Army. It was briefed and approved at the Army Systems Acquisition Review Council (ASARC) in Dec 2006. A competitive contract was awarded in Nov 07 to Raytheon for the design, build, test and delivery of 27 Common Sensor Payloads. A new requirement was identified which includes a need for High Definition Target Location Accuracy (HD/TLA) to be included within the CSP unit. The HD/TLA upgrade is within scope of the current contract and will be incorporated into the contract via an Engineering Change Proposal (ECP). Milestone C is planned for FY10.STARLite SAR/GMTI is a threshold requirement for the MQ-1C ERMP UAS. The acquisition strategy for STARLite is for five years of production which was based on a full and open competition for the Army. A competitive contract was awarded in April 2008 to Northrop Grumman for the build, test and delivery of 28 STARLite units with the option for improvements to the Increment 1 (Increased Range and Reliability) system as well as integration and test onto the ERMP UAV platform. STARLite is being procured to support the Independent Operational Test and Evaluation (IOT&E) planned for 3rd Qtr FY12.TSP System Development and Demonstration (SDD) Phase for Future Combat Systems (FCS) requirements was completed in FY08. The SIGINT requirement for FCS was moved to Objective and funding was removed in FY08. As such, prototype deliveries for TSP fulfilled an operational requirement with USSOCOM.TSP is a Threshold (when available) requirement for the MQ-1C ERMP UAS. The TSP Program will be based on a full and open competitive solicitation and will be focused on starting with a mature TRL 6+ sensor for integration and test onto the ERMP platform and into the Distribute Common Ground Station-Army workstation. NRE will occur in an EMD phase to meet the full set of threshold SIGINT requirements and complete integration and test. Following EMD, a Milestone C/LRIP decision will be sought to procure TSP systems to support an IOT&E planned for FY13. Following the IOT&E, a FRP decision will be sought in FY13 to support the fielding timelines of the MQ-1C ERMP UAS platform.

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305204A: *Tactical Unmanned Aerial Vehicles*	**PROJECT** 11A: *Advanced Payload Develop & Spt (MIP)*

E. Performance Metrics

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

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305204A: *Tactical Unmanned Aerial Vehicles*	**PROJECT** 11A: *Advanced Payload Develop & Spt (MIP)*

Product Development ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
CSP (EO/IR/LD) NRE, test & Prototype Manufacturing	C/CPFF	Raytheon McKinney, TX	28.125	0.000		0.000		0.000		0.000	Continuing	Continuing	0
STARLite (SAR/GMTI) Increment 1 Enhancement (Reliability)	C/CPFF	Northrop Grumman Linthicum, MD	0.000	4.500		3.668		0.000		3.668	Continuing	Continuing	0
CSP (EO/IR/LD) HD/TLA Upgrade NRE, design, and Prototype Manufacturing	C/CPFF	Raytheon McKinney, TX	0.000	20.877		9.441		0.000		9.441	Continuing	Continuing	0
TSP Training Development	C/TBD	TBD Location could not be determined.	0.000	0.000		0.126		0.000		0.126	Continuing	Continuing	0
TSP Other Licensing and Equipment	C/TBD	TBD Location could not be determined.	0.000	0.000		0.381		0.000		0.381	Continuing	Continuing	0
		Subtotal	28.125	25.377		13.616		0.000		13.616			0.000

Remarks

Support ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
ERMP Integration Support	C	PM UAS/Various	19.772	6.000		8.286		0.000		8.286	Continuing	Continuing	0

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
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Support ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
		Location could not be determined.											
TSP Engineering Support	C/FFP	Various Location could not be determined.	0.000	0.000		1.908		0.000		1.908	Continuing	Continuing	0
		Subtotal	19.772	6.000		10.194		0.000		10.194			0.000

Remarks

Test and Evaluation ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
CSP (EO/IR/LD) Testing	C	Various Location could not be determined.	2.009	0.000		0.000		0.000		0.000	Continuing	Continuing	0
STARLite (SAR/GMTI) Increment 1 & 2 Testing	C	TBD Location could not be determined.	0.000	1.588		2.359		0.000		2.359	Continuing	Continuing	0
CSP (EO/IR/LD) HD/TLA Testing	C	TBD Location could not be determined.	0.000	3.059		1.915		0.000		1.915	Continuing	Continuing	0
	C	Various	0.000	0.000		6.908		0.000		6.908	Continuing	Continuing	0

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
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Test and Evaluation ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
TSP Development Test and OT Prep		Location could not be determined.											
TSP Continuous Evaluation	C	ATEC FT Belvior, Va	0.000	0.000		0.650		0.000		0.650	Continuing	Continuing	0
		Subtotal	2.009	4.647		11.832		0.000		11.832			0.000

Remarks

Government, contractor and test support contained in the ERMP Integration Support under Support Costs.

Management Services ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Program Mgmt Personnel	C	PM RUS Ft. Monmouth, NJ	3.348	3.420		3.583		0.000		3.583	Continuing	Continuing	0
Program Mgmt Personnel (TSP)	C	PM ACS Ft. Monmouth, NJ	0.000	0.000		0.000		0.000		0.000	Continuing	Continuing	0
TSP Program Management	C	PM Aerial Common Sensors, Fort Monmouth, NJ	0.000	0.000		0.373		0.000		0.373	Continuing	Continuing	0
TSP Matrix Support	C	CERDEC Fort Monmouth, NJ	0.000	0.000		0.654		0.000		0.654	Continuing	Continuing	0

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
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Management Services ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
		Subtotal	3.348	3.420		4.610		0.000		4.610			0.000

Remarks

	FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	39.444		40.252		0.000		40.252	Continuing	Continuing	Continuing

Remarks

Exhibit R-4, PB 2011 Army **RDT&E Schedule Profile**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305204A: *Tactical Unmanned Aerial Vehicles*	**PROJECT** 11A: *Advanced Payload Develop & Spt (MIP)*

	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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
STARLite (SAR/GMTI) Increment 1 Performance Enhancements and Testing	#	#	#	#	#	#	#	#	#	#	#																	
STARLite (SAR/GMTI) Testing			#	#	#	#	#	#	#	#	#	#	#															
CSP (EO/IR/LD) Testing	#	#	#	#	#																							
CSP (EO/IR/LD) HD/TLA Testing										#	#	#	#	#														
CSP (EO/IR/LD) HD/TLA NRE					#	#	#	#	#	#	#	#																
CSP (EO/IR/LD) HD/TLA Production														#	#	#	#	#	#	#	#	#	#	#	#	#	#	
Advanced Payload Development														#	#	#	#	#	#	#	#	#	#	#	#	#	#	

Exhibit R-4A, PB 2011 Army **RDT&E Schedule Details**		**DATE:** February 2010
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Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
STARLite (SAR/GMTI) Increment 1 Performance Enhancements and Testing	1	2009	3	2011
STARLite (SAR/GMTI) Testing	3	2009	1	2012
CSP (EO/IR/LD) Testing	1	2009	1	2010
CSP (EO/IR/LD) HD/TLA Testing	2	2011	2	2012
CSP (EO/IR/LD) HD/TLA NRE	1	2010	4	2011
CSP (EO/IR/LD) HD/TLA Production	2	2012	3	2015
Advanced Payload Development	2	2012	3	2015

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**											**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*				**R-1 ITEM NOMENCLATURE** PE 0305204A: *Tactical Unmanned Aerial Vehicles*				**PROJECT** 11B: *TSP DEVELOPMENT (MIP)*			
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**Base FY 2011 Estimate**	**OCO FY 2011 Estimate**	**Total FY 2011 Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
11B: *TSP DEVELOPMENT (MIP)*	0.000	21.534	5.336	0.000	5.336	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RD&TE Articles											

A. Mission Description and Budget Item Justification

The Tactical Signals Intelligence (SIGINT) Payload (TSP) is an Unmanned Aircraft System (UAS) mounted SIGINT sensor that detects radio frequency (RF) emitters. TSP, through handoff from the Combat Aviation Brigade, is capable of providing the Tactical Land Commander with an overwatch and penetrating SIGINT system capable of detecting, identifying, locating, and providing geolocation information on RF emitters throughout the Area of Operations. The TSP is scalable and modular, designed to provide maximum flexibility. TSP will provide near real time actionable intelligence that can immediately be used in the commander's decision cycle. The TSP electronic emitter information will be correlated with data from other systems (e.g. Prophet and Enhanced Medium Altitude Reconnaissance and Surveillance System (EMARSS), at a Distributed Common Ground System-Army (DCGS-A) node to provide precise targeting information for immediate engagement. TSP maps and aligns with the 2009 Under Secretary of Defense for Intelligence Cross Cutting study and Force Sizing Assessment with Airborne Precision Geolocation and Tactical SIGINT capabilities. TSP also supports the 2009 Office of the Secretary of Defense Cross-Cutting Study: 6 Overarching Axioms for Information Warfare, Intelligence, Surveillance, and Reconnaissance (ISR) Force Sizing, VCJCS Update, 25 Apr 09, with SIGINT (Geolocation) and SIGINT (Internals). TSP sensors are critical to providing Reconnaissance, Surveillance, and Target Acquisition (RSTA) information and contributing to the Joint ISR netJustification: FY11 funds continued integration of TSP sensor onto the Extended Range Multi Purpose (ERMP) UAS and into the Distributed Common Ground System-Army (DCGS-A).

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	**FY 2010**	**Base FY 2011**	**OCO FY 2011**	**Total FY 2011**
Program #1	0.000	4.062	0.000	0.000	0.000
Development Testing and OT Prep					
FY 2009 Accomplishments: FY 2009					
FY 2010 Plans: FY 2010					

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305204A: *Tactical Unmanned Aerial Vehicles*	**PROJECT** 11B: *TSP DEVELOPMENT (MIP)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Base FY 2011 Plans: FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #2 EMD Production Representatives *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	0.000	6.686	0.000	0.000	0.000
Program #3 EMD NRE, Training Development,Other Licensing and Equipment Support, Program Management and Engineering Support *FY 2009 Accomplishments:* FY 2009	0.000	10.786	5.336	0.000	5.336

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305204A: *Tactical Unmanned Aerial Vehicles*	**PROJECT** 11B: *TSP DEVELOPMENT (MIP)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2010 Plans: FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Accomplishments/Planned Programs Subtotals	0.000	21.534	5.336	0.000	5.336

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• Ord. #1: *NSA MIP (TSP)*	6.433	0.657	1.171	0.000	1.171	9.605	8.669	6.795	6.795	0	40.125
• Ord. #2: *A00020 Payload UAV*	0.000	14.832	20.000	0.000	20.000	0.000	49.000	49.000	49.000	0	181.832
• Ord. #3: *0305204A 11A Tactical SIGINT Payload*	0.609	0.000	11.000	0.000	11.000	0.000	0.000	0.000	0.000	0	11.609

D. Acquisition Strategy

TSP System Development and Demonstration (SDD) Phase for Future Combat Systems (FCS) requirements was completed in FY08. The SIGINT requirement for FCS was moved to Objective and funding removed in FY08. As such, prototype deliveries for TSP fulfilled an operational requirement with USSOCOM. TSP is a Threshold (when available) requirement for the MQ-1C Extended Range Multi Purpose (ERMP) UAS. The TSP Program will be based on a full and open competitive solicitation in FY10 and will be focused on starting with a mature TRL 6+ sensor for integration and test into the Distribute Common Ground Station-Army workstation in FY11. In FY11-FY12, the TSP system will be integrated onto the ERMP platform to reach an Initial Operational Test and Evaluation in early FY13. Non-Recurring Engineering (NRE) will occur in an EMD phase to meet the full set of threshold SIGINT requirements and complete integration and test. Following EMD, a Milestone C/Low-Rate Initial Production decision will be sought to procure TSP systems to support an Independent Operational Test and Evaluation (IOT&E) planned for FY13. Following the IOT&E, a Full-Rate Production decision will be sought in FY13 to support the fielding timelines of the MQ-1C ERMP UAS platform.

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305204A: *Tactical Unmanned Aerial Vehicles*	**PROJECT** 11B: *TSP DEVELOPMENT (MIP)*

E. Performance Metrics

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

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305204A: *Tactical Unmanned Aerial Vehicles*	**PROJECT** 11B: *TSP DEVELOPMENT (MIP)*

Product Development ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
TSP EMD NRE	C/CPFF	TBD Location could not be determined.	0.000	2.639		5.336		0.000		5.336	0	Continuing	0
TSP EMD Production Representatives	C/CPFF	TBD Location could not be determined.	0.000	6.686		0.000		0.000		0.000	0	Continuing	0
Training Development	C/TBD	TBD Location could not be determined.	0.000	3.291		0.000		0.000		0.000	0	Continuing	0
Other Licensing and Equipment	C/TBD	TBD Location could not be determined.	0.000	2.465		0.000		0.000		0.000	0	Continuing	0
		Subtotal	0.000	15.081		5.336		0.000		5.336	0.000		0.000

Remarks

Support ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Engineering Support	C/FFP	MITRE McLean, VA	1.573	0.290		0.000		0.000		0.000	0	Continuing	0
Engineering Support - 2	C/FFP	Various	0.440	1.276		0.000		0.000		0.000	0	Continuing	0

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305204A: *Tactical Unmanned Aerial Vehicles*	**PROJECT** 11B: *TSP DEVELOPMENT (MIP)*

Support ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
		Location could not be determined.											
		Subtotal	2.013	1.566		0.000		0.000		0.000	0.000		0.000

Remarks

Test and Evaluation ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Developmental Test and OT Prep	C	Various Location could not be determined.	4.139	3.491		0.000		0.000		0.000	0	Continuing	0
Continuous Evaluation	C	ATEC Ft Belvoir, VA	0.500	0.500		0.000		0.000		0.000	0	Continuing	0
		Subtotal	4.639	3.991		0.000		0.000		0.000	0.000		0.000

Remarks

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305204A: *Tactical Unmanned Aerial Vehicles*	**PROJECT** 11B: *TSP DEVELOPMENT (MIP)*

Management Services ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Program Management	C	PM Aerial Common Sensors, Fort Monmouth, NJ	2.092	0.327		0.000		0.000		0.000	0	Continuing	0
Matrix Support	C	CERDEC Fort Monmouth, NJ	2.125	0.569		0.000		0.000		0.000	0	Continuing	0
		Subtotal	4.217	0.896		0.000		0.000		0.000	0.000		0.000

Remarks

	FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	21.534		5.336		0.000		5.336	Continuing	Continuing	Continuing

Remarks

Exhibit R-4, PB 2011 Army **RDT&E Schedule Profile**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305204A: *Tactical Unmanned Aerial Vehicles*	**PROJECT** 11B: *TSP DEVELOPMENT (MIP)*

	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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
Milestone B						#																						
TSP EMD Award							#																					
System Integration and Test							#	#	#	#	#	#	#	#	#	#	#											
Limited Users Test										#	#																	
Milestone C											#																	
TSP LRIP											#	#	#	#	#	#	#											
Independent Operational Test and Evaluation																	#											
TSP Full Rate Production Decision																	#											

Exhibit R-4A, PB 2011 Army **RDT&E Schedule Details**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305204A: *Tactical Unmanned Aerial Vehicles*	**PROJECT** 11B: *TSP DEVELOPMENT (MIP)*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Milestone B	2	2010	2	2010
TSP EMD Award	3	2010	3	2010
System Integration and Test	3	2010	1	2013
Limited Users Test	2	2011	3	2011
Milestone C	3	2011	3	2011
TSP LRIP	3	2011	1	2013
Independent Operational Test and Evaluation	1	2013	1	2013
TSP Full Rate Production Decision	1	2013	1	2013

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**											**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*				**R-1 ITEM NOMENCLATURE** PE 0305204A: *Tactical Unmanned Aerial Vehicles*				**PROJECT** 123: *JOINT TECHNOLOGY CENTER SYSTEM INTEGRATION (MIP)*			
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**Base FY 2011 Estimate**	**OCO FY 2011 Estimate**	**Total FY 2011 Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
123: *JOINT TECHNOLOGY CENTER SYSTEM INTEGRATION (MIP)*	2.351	4.388	6.698	0.000	6.698	4.341	4.294	4.212	4.250	Continuing	Continuing
Quantity of RD&TE Articles											

A. Mission Description and Budget Item Justification

The Joint Technology Center/System Integration Laboratory (JTC/SIL) is a joint facility that develops, integrates and supports the enhancement of its Multiple Unified Simulation Environment (MUSE) capability for Army systems and operational concepts. The JTC/SIL conducts prototype hardware and software development, the UAS Institutional Mission Simulator (IMS) trainer for the Shadow, Hunter, and ERMP programs, and modeling and simulation support. The MUSE is a real-time, operator in-the-loop simulation that may be integrated with larger simulations in support of Army and Joint training and exercises. The MUSE is also employed as a Mission Rehearsal Tool for ongoing combat operations. This project funds the management of the JTC/SIL and MUSE enhancements. This system supports the Legacy to Objective transition path of the Transformation Campaign Plan (TCP).

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	**FY 2010**	**Base FY 2011**	**OCO FY 2011**	**Total FY 2011**
Program #1	1.957	1.867	3.902	0.000	3.902
Product Development					
FY 2009 Accomplishments: FY 2009					
FY 2010 Plans: FY 2010					
Base FY 2011 Plans: FY 2011 Base					

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305204A: *Tactical Unmanned Aerial Vehicles*	**PROJECT** 123: *JOINT TECHNOLOGY CENTER SYSTEM INTEGRATION (MIP)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
OCO FY 2011 Plans: FY 2011 OCO					
Program #2	0.000	2.000	2.000	0.000	2.000
Support cost in support of OSD Joint Interoperability Requirements *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #3	0.394	0.521	0.796	0.000	0.796
Management Services *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010					

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305204A: *Tactical Unmanned Aerial Vehicles*	**PROJECT** 123: *JOINT TECHNOLOGY CENTER SYSTEM INTEGRATION (MIP)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Base FY 2011 Plans: FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Accomplishments/Planned Programs Subtotals	2.351	4.388	6.698	0.000	6.698

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• Ord. #1: *PE 0305204N Navy*	1.700	1.700	1.700	0.000	1.700	1.700	1.700	1.700	1.700	Continuing	Continuing
• Ord. #2: *PE 0305205F Air Force*	2.000	2.000	2.000	0.000	2.000	2.000	2.000	2.000	2.000	Continuing	Continuing

D. Acquisition Strategy

Continued MUSE development will be accomplished through a combination of Government in-house functional directorate support using a variety of existing contract vehicles.

E. Performance Metrics

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

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305204A: *Tactical Unmanned Aerial Vehicles*	**PROJECT** 123: *JOINT TECHNOLOGY CENTER SYSTEM INTEGRATION (MIP)*

Product Development ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
MUSE Development	SS/FFP	AMC/AMCOM/ AMRDEC/SED/ Redstone Arsenal AL	13.258	1.867		3.902		0.000		3.902	0	Continuing	.143
		Subtotal	13.258	1.867		3.902		0.000		3.902	0.000		0.143

Remarks

Support ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Interoperability Support	SS/FFP	AMC/RDECOM/ AMRDEC Redstone Arsenal, AL	0.000	2.000		2.000		0.000		2.000	0	Continuing	.075
		Subtotal	0.000	2.000		2.000		0.000		2.000	0.000		0.075

Remarks

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305204A: *Tactical Unmanned Aerial Vehicles*	**PROJECT** 123: *JOINT TECHNOLOGY CENTER SYSTEM INTEGRATION (MIP)*

Management Services ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
JTC/SIL Management Personnel	C	JTC/SIL/Redstone Arsenal AL	2.526	0.521		0.796		0.000		0.796	0	Continuing	1.806
		Subtotal	2.526	0.521		0.796		0.000		0.796	0.000		1.806

Remarks

	FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	4.388		6.698		0.000		6.698	Continuing	Continuing	Continuing

Remarks

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**											**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*				**R-1 ITEM NOMENCLATURE** PE 0305204A: *Tactical Unmanned Aerial Vehicles*				**PROJECT** D09: *EXTENDED RANGE UAV (MIP)*			
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**Base FY 2011 Estimate**	**OCO FY 2011 Estimate**	**Total FY 2011 Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
D09: *EXTENDED RANGE UAV (MIP)*	61.767	73.187	123.156	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RD&TE Articles											

A. Mission Description and Budget Item Justification

The Extended Range Multi-Purpose (ERMP) Unmanned Aircraft System (UAS) will provide a real-time responsive capability to conduct long-dwell, wide area reconnaissance, surveillance, target acquisition, communications relay, and attack missions (up to 4 HELLFIRE Missiles aboard) to the Division Commander. The ERMP addresses an ever increasing demand for greater range, altitude, endurance and payload flexibility which enables dynamic mission changes while in flight. The ERMP program will deliver 14 systems, 12 to support active Army requirements and 2 to support Special Operations requirements. The ERMP will be fielded as a system to a company evel organization assigned to each of the 10 active Army Divisions Combat Aviation Brigades (CAB) providing a capability that is responsive to supported units based on the division Commander's priorities. The ERMP system consists of 12 MQ-1C Sky Warrior aircraft with Electro-Optical/Infrared, Synthetic Aperture Radar with Ground Moving Target Indicator (EO/IR/SAR/GMTI), Communications Relay and precision weapons as payloads; Ground equipment includes 5 One System Ground Control Stations (OSGCS), 5 Ground Data Terminals (GDT), 2 Portable Ground Control Stations (PGCS), 2 Portable Ground Data Terminals (PGDT), a Satellite Communication (SATCOM) Ground Data Terminal (SGDT) and other associated ground support equipment. The acquisition strategy capitalizes upon competitive forces, bringing cutting edge improvements at the best cost and value to support the major thrusts of the DoD UAS Roadmap, and the imperatives of Army modernization and Army Aviation Transformation. This includes a heavy fuel engine, 30 mission hours of endurance (24 hours on station at 300 KM range), Tactical Common Data Link technology, network connectivity that reduces information cycle time and enhances overall battle space awareness, teaming with manned platforms, and steps toward integration of UAS into national and international airspace. The ability to operate multiple Sky Warrior aircraft simultaneously from a single One System Ground Control Station (currently mission and Air Data Relay Aircraft), a 3,200 pound gross take off weight (with growth to 3,600 pounds), Fowler flaps which improve take-off and landing performance, Automatic Take-off and Landing and the flexibility to operate with or without SATCOM data links are characteristics which make this system a significant combat multiplier. RDT&E funds continue to resource the Engineering Manufacturing and Development (EMD) phase for ERMP, as well as continuing improvements after EMD. FY 2011 funding will provide for continued system development and integration, developmental test, Limited User Testing (LUT), and Initial Operational Test and Evaluation (IOT&E).Beginning in FY 2011, ERMP RDT&E funding has been moved to PE 0305219A to comply with Seciton 214 of the FY 2009 National Defense Authorization Act to submit the ERMP budget in a dedicated Program Element. However, due to an error in allocating the funds to new PE $123.156 million remains in the Project for FY 2011.

B. Accomplishments/Planned Program ($ in Millions)

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305204A: *Tactical Unmanned Aerial Vehicles*	**PROJECT** D09: *EXTENDED RANGE UAV (MIP)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #1	50.079	40.116	0.000	0.000	0.000
ERMP EMD System including Electro-Optical / Infrared, Synthetic Aperture Radar, and communications Relay Payloads					
FY 2009 Accomplishments: FY 2009					
FY 2010 Plans: FY 2010					
Base FY 2011 Plans: FY 2011 Base					
OCO FY 2011 Plans: FY 2011 OCO					
Program #2	5.600	13.373	0.000	0.000	0.000
Government Test Support including IOT&E, LUT, Logistics Demonstration Operational Tempo (OPTEMPO)					
FY 2009 Accomplishments: FY 2009					
FY 2010 Plans: FY 2010					
Base FY 2011 Plans: FY 2011 Base					

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305204A: *Tactical Unmanned Aerial Vehicles*	**PROJECT** D09: *EXTENDED RANGE UAV (MIP)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
OCO FY 2011 Plans: FY 2011 OCO					
Program #3	0.000	2.900	0.000	0.000	0.000
ERMP System Training and Training Equipment Development *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #4	6.088	16.798	0.000	0.000	0.000
ERMP Support including Engineering and Program Management *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010					

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305204A: *Tactical Unmanned Aerial Vehicles*	**PROJECT** D09: *EXTENDED RANGE UAV (MIP)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Base FY 2011 Plans: FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Accomplishments/Planned Programs Subtotals	61.767	73.187	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• Ord. #1: *TUAV - Extended Range / Multi-Purpose - OPA (B00305)*	89.044	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	247.679
• Ord. #2: *MQ-1 UAV - APA (A00005) - Base and OCO*	0.000	480.170	459.310	47.000	506.310	483.468	490.552	510.295	478.054	0	2,948.849
• Ord. #3: *Extended Range / Multi-Purpose - Weapons Capability Modifications - OPA (B10307)*	15.079	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	15.079
• Ord. #4: *MQ-1 UAV - APA (A00005)*	0.000	14.795	14.729	0.000	14.729	0.000	0.000	0.000	0.000	0	29.524
• Ord. #5: *Extended Range / Multi-Purpose - Weaponization - RDTE (D20)*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	3.766

D. Acquisition Strategy

The ERMP Operational Requirement Document (ORD) was approved by the Joint Requirement Oversight Council (JROC) 6 Apr 05, Milestone B occurred 20 Apr 05, and the System Development and Demonstration contract was awarded 8 Aug 05, as a result of a competitive solicitation which included a vendor system capabilities demonstration. To meet the required capability, evolutionary acquisition has been employed to implement the incremental approach outlined in the ORD. The ERMP UAS is being matured during the System Development and Demonstration (SDD) phase, which includes the development and integration of key components such as the Tactical Common Data Link (TCDL), Link-16, and

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
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integration of Government Furnished Equipment, payloads, appropriate Common Aviation Ground Support Equipment and the One System GCS. PM JAMS is developing the P+ model of the HELLFIRE missile and participate in the integration and test activities for the entire ERMP system. PM JAMS is budgeting for the procurement of missiles for the fielded systems. PM Night Vision/Reconnaissance, Surveillance, and Target Acquisition (RSTA) under PEO Intelligence and Electronic Warfare Systems (IEWS) develops, manages, and competes in the POM and is responsible for meeting all ERMP costs associated for payloads, payload integration, and payload sustainment. The US Army's Acquisition Objective for ERMP is 35 systems. The Army procurement Objective for ERMP is 14 systems. Field Tests at the Electronic Proving Grounds in Ft Huachuca, AZ, and integration tests at the Central Technical Support Facility in Ft Hood, TX, are examples of the tests planned to reduce risk in the SDD phase. A favorable Milestone C decision will permit award of the Low Rate Initial Production (LRIP) contract and Production and Deployment phase. The LRIP will: a. Establish an effective and efficient production base for the system required to provide a solid foundation on which to build FRP systems. b. Permit an orderly increase in production rate to mitigate risk. c. Procure production representative equipment to support test & evaluation. d. Support Doctrine, Training, Leadership Development, Organization, Materiel, Personnel and Facilities (DTLOMPF) and Tactics, Techniques and Procedures (TTP) development. e. Provide an opportunity to incorporate lessons learned from the comprehensive test and evaluation program into the production baseline.

E. Performance Metrics

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

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305204A: *Tactical Unmanned Aerial Vehicles*	**PROJECT** D09: *EXTENDED RANGE UAV (MIP)*

Product Development ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Development Engineering & Prototype Manufacturing	C	General Atomics / ASI - San Diego CA	338.894	40.116		0.000		0.000		0.000	0	Continuing	60.826
Government Furnished Equipment	C	Various Location could not be determined.	4.625	0.000		0.000		0.000		0.000	0	4.625	0
Common System Integration	C	Nothing entered for Activity and Location. Location could not be determined.	3.663	0.000		0.000		0.000		0.000	0	3.663	0
Launcher Software Development	C	PM JAMS Redstone Arsenal, AL	1.000	0.000		0.000		0.000		0.000	0	1.000	0
Aviation Mission Planning Systems	C	Other Government Agency Location could not be determined.	1.615	0.000		0.000		0.000		0.000	0	1.615	0
Next Generation Ice Protection	C	AMRDEC Redstone Arsenal, AL	1.920	0.000		0.000		0.000		0.000	0	1.920	0
		Subtotal	351.717	40.116		0.000		0.000		0.000	0.000		60.826

Remarks

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305204A: *Tactical Unmanned Aerial Vehicles*	**PROJECT** D09: *EXTENDED RANGE UAV (MIP)*

Support ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Contractor Engineering Support	C/FFP	Various Contractors Location could not be determined.	9.084	5.256		0.000		0.000		0.000	0	Continuing	3.459
Government Engineering Support	C	AMRDEC and IMMC Redstone Arsenal, AL	15.487	7.884		0.000		0.000		0.000	0	Continuing	2.730
ERMP System Training and Training Equipment Development	C	Ft Huachuca Location could not be determined.	0.000	2.900		0.000		0.000		0.000	0	Continuing	0
		Subtotal	24.571	16.040		0.000		0.000		0.000	0.000		6.189

Remarks

Test and Evaluation ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
System Test and Evaluation	C	Various Government Agencies Location could not be determined.	5.850	13.373		0.000		0.000		0.000	0	Continuing	11.115
		Subtotal	5.850	13.373		0.000		0.000		0.000	0.000		11.115

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305204A: *Tactical Unmanned Aerial Vehicles*	**PROJECT** D09: *EXTENDED RANGE UAV (MIP)*

Test and Evaluation ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**

Remarks

Management Services ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Program Management Personnel	C	PM UAS Redstone Arsenal, AL	7.511	3.658		0.000		0.000		0.000	0	Continuing	1.716
		Subtotal	7.511	3.658		0.000		0.000		0.000	0.000		1.716

Remarks

	FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	73.187		123.156		0.000		0.000	Continuing	Continuing	Continuing

Remarks

Exhibit R-4, PB 2011 Army **RDT&E Schedule Profile**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305204A: *Tactical Unmanned Aerial Vehicles*	**PROJECT** D09: *EXTENDED RANGE UAV (MIP)*

	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Operational Assessment		#	#	#	#	#																						
Milestone C					#																							
Low Rate Initial Production Contract Award					#																							
Limited User Testing						#	#	#	#	#	#																	
First Unit Equipped										#	#																	
Initial Operational Test and Evaluation (IOT&E)											#	#																
Full Rate Initial Production Contract Award													#															
Initial Operating Capability													#															
FOT&E														#	#													

Exhibit R-4A, PB 2011 Army **RDT&E Schedule Details**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305204A: *Tactical Unmanned Aerial Vehicles*	**PROJECT** D09: *EXTENDED RANGE UAV (MIP)*

Schedule Details

	Start		**End**	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Operational Assessment	2	2009	2	2010
Milestone C	1	2010	1	2010
Low Rate Initial Production Contract Award	1	2010	1	2010
Limited User Testing	2	2010	3	2011
First Unit Equipped	2	2011	3	2011
Initial Operational Test and Evaluation (IOT&E)	3	2011	4	2011
Full Rate Initial Production Contract Award	1	2012	1	2012
Initial Operating Capability	1	2012	1	2012
FOT&E	2	2012	3	2012

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**											**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*				**R-1 ITEM NOMENCLATURE** PE 0305204A: *Tactical Unmanned Aerial Vehicles*				**PROJECT** D10: *SUAV (MIP)*			
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**Base FY 2011 Estimate**	**OCO FY 2011 Estimate**	**Total FY 2011 Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
D10: *SUAV (MIP)*	1.990	3.947	0.342	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RD&TE Articles											

A. Mission Description and Budget Item Justification

The Small Unmanned Aircraft System (SUAS) program provides the ground maneuver battalions and below with situational awareness and enhanced force protection. SUAS is a man portable unmanned aircraft system capable of handling a wide variety of Intelligence, Surveillance & Reconnaissance (ISR) tasks at Battalion and below. The SUAS aircraft has a wingspan of 4.5 feet and weighs 4.2 pounds. It is hand-launched, and provides aerial observation, day or night, at line-of-sight ranges up to 10 kilometers. The aircraft has an endurance rate of 90 minutes and can deliver color or infrared imagery in real time to the ground control and remote viewing stations. SUAS obtained Milestone C approval 6 Oct 05 and successfully completed IOT&E June 06. The program obtained Full Rate Production authority 5 Oct 06. A significant system upgrade completed in early FY 2010 incorporated a Digital Data Link (DDL) which improved operational capability by: incorporating encryption capability, enabling secure data links; increasing the number of channels, allowing for more air vehicles to be flown in a smaller area; improving the operational range through communications relay capability; and integration of advanced digital payloads. The first DDL systems were fielded in December 2009. FY 2011 efforts will focus on improved auto-land accuracy, software blocking integration, chemical payload integration, common controller, Radio Frequency Beacon Tracker, and ADS-B integration.Beginning in FY 2011, the funding for this project will shift to PE 0305232A RQ-11 Raven (MIP). However, due to an error in allocating the funds to new PE $342 thousand still remains in the Project for FY 2011.Shadow Flight in the National Airspace of $2 million should be reflected in TUAS Project 114.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	**FY 2010**	**Base FY 2011**	**OCO FY 2011**	**Total FY 2011**
Program #1	1.690	1.419	0.000	0.000	0.000
Product Improvement Studies and Development					
FY 2009 Accomplishments: FY 2009					
FY 2010 Plans: FY 2010					

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305204A: *Tactical Unmanned Aerial Vehicles*	**PROJECT** D10: *SUAV (MIP)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Base FY 2011 Plans: FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #2 Program Management Support *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	0.143	0.370	0.000	0.000	0.000
Program #3 Other Government Agencies (OGA) *FY 2009 Accomplishments:* FY 2009	0.157	0.158	0.000	0.000	0.000

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305204A: *Tactical Unmanned Aerial Vehicles*	**PROJECT** D10: *SUAV (MIP)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2010 Plans: FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #4 Shadow Flight in the National Airspace *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	0.000	2.000	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	1.990	3.947	0.000	0.000	0.000

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305204A: *Tactical Unmanned Aerial Vehicles*	**PROJECT** D10: *SUAV (MIP)*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• Ord. #1: *PE 0305232A RQ-11 Raven (MIP) (RDT&E,A)*	0.000	0.000	1.941	0.000	1.941	1.943	1.935	2.895	2.956	0	11.670
• Ord. #2: *SUAS Procurement/OPA (B00303)*	57.481	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	134.112
• Ord. #3: *SUAS Procurement/APA (A00010)*	0.000	79.450	20.152	17.430	37.582	18.720	16.391	24.080	25.454	0	201.677

D. Acquisition Strategy

N/A

E. Performance Metrics

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

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305204A: *Tactical Unmanned Aerial Vehicles*	**PROJECT** D10: *SUAV (MIP)*

Product Development ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Product Improvement Studies and Development	C/CPFF	AeroVironment Simi Valley, California	10.172	1.419		0.000		0.000		0.000	0	Continuing	0
Shadow Flight in the National Airspace	SS/CPFF	AAI Corporation MD / Other	0.000	2.000		0.000		0.000		0.000	0	Continuing	0
		Subtotal	10.172	3.419		0.000		0.000		0.000	0.000		0.000

Remarks

Support ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Other Government Agencies	C	Various Location could not be determined.	0.235	0.158		0.000		0.000		0.000	0	Continuing	0
		Subtotal	0.235	0.158		0.000		0.000		0.000	0.000		0.000

Remarks

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305204A: *Tactical Unmanned Aerial Vehicles*	**PROJECT** D10: *SUAV (MIP)*

Test and Evaluation ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Reliability Availability and Maintainability (RAM) Test	C	Nothing entered for Activity and Location. Location could not be determined.	0.027	0.000		0.000		0.000		0.000	0	.027	0
		Subtotal	0.027	0.000		0.000		0.000		0.000	0.000	0.027	0.000

Remarks

Management Services ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Program Management Personnel	C	PM UAS Redstone Arsenal, AL	0.162	0.370		0.000		0.000		0.000	0	Continuing	0
		Subtotal	0.162	0.370		0.000		0.000		0.000	0.000		0.000

Remarks

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305204A: *Tactical Unmanned Aerial Vehicles*	**PROJECT** D10: *SUAV (MIP)*

	FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	3.947		0.342		0.000		0.000	Continuing	Continuing	Continuing

Remarks

Exhibit R-2, PB 2011 Army **RDT&E Budget Item Justification**	**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305208A: *Distributed Common Ground/Surface Systems*

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	Base FY 2011 Estimate	OCO FY 2011 Estimate	Total FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	88.483	188.465	103.002	16.200	119.202	31.699	28.692	20.426	20.900	Continuing	Continuing
956: *Distributed Common Ground System (DCGS) (MIP)*	22.470	187.815	102.382	16.200	118.582	31.699	28.692	20.426	20.900	Continuing	Continuing
D06: *DCGS-A FUSION INTEGRATION (MIP)*	6.604	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
D07: *DCGS-A COMMON MODULES (MIP)*	47.872	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
D08: *DCGS-A SENSOR INTEGRATION (MIP)*	10.872	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

Distributed Common Ground System - Army (DCGS-A) is the Intelligence, Surveillance and Reconnaissance (ISR) system of systems for Joint, Interagency, Allied, Coalition, and National data analysis, information sharing and collaboration. DCGS-A is also the ISR component of the modular and future force Battle Command System (BCS) and the Army's primary system for ISR tasking of sensors, processing of data, exploitation of data, and dissemination of intelligence information about the threat, weather, and terrain at all echelons. It provides access to theater and national intelligence collection, analysis, early warning and targeting capabilities in support of commanders at all echelons. DCGS-A will vertically and horizontally synchronize ISR Task, Post, Process and Use (TPPU) efforts; and operate in a networked environment at multiple security levels. DCGS-A provides a single integrated ISR ground processing system composed of joint common components that are interoperable with sensors, other information sources, all Battlefield Operating Systems (BOS), and the Department of Defense (DoD) DCGS Family of Systems. DCGS-A software is tailored by echelon and scalable to the requirements of each mission, task, and purpose. DCGS-A enables the commander to achieve situational understanding by leveraging multiple sources of data, information and intelligence to synchronize the elements of Joint and Combined Arms combat power by providing continuous acquisition and synthesis of data and information from Joint, Interagency, Intergovernmental, and Multi-national (JIIM) sources that will permit the future Modular Force to maintain an updated and accurate understanding of the operational environment. DCGS-A will facilitate Seeing and Knowing on the battlefield- the fundamental precursor to the understanding that underpins the Army's Battle Command concept. DCGS-A will contribute to visualization and situational awareness, thereby enhancing tactical maneuver, maximizing combat power and enhancing the ability to operate in an unpredictable and changing environment throughout the operational spectrum. It will facilitate the rapid planning, execution and synchronization of all Warfighting Functions resulting in the current and Future Force ability to operate within the enemy's decision cycle. The core functions of DCGS-A are: receipt and processing of space, airborne, ground and maritime ISR sensor data; control of select Army and joint ISR sensor systems; intelligence synchronization; ISR planning; reconnaissance and surveillance (R&S) integration; fusion of sensor information, and direction and distribution of relevant red (threat), gray (non-aligned), and environmental (weather and terrain) information. DCGS-A replaces the ground processing capabilities of nine current force systems with a common, integrated capability

Exhibit R-2, PB 2011 Army **RDT&E Budget Item Justification**	**DATE:** February 2010
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that is fully interoperable with Network Centric Enterprise Services (NCES). DCGS-A will provide a net-centric, enterprised Intelligence, Surveillance, and Reconnaissance (ISR), weather, geospatial engineering, and space operations capability to Maneuver, Maneuver Support and Maneuver Sustainment Support organizations at all echelons from the Battalion to the Joint Task Force (JTF). DCGS-A Mobile will provide the capabilities necessary for Commanders to access information, task organic sensors, and synchronize non-organic sensor assets with their organic assets. These services (provided by the Network-Centric Enterprise Services (NCES)) will be shared by Joint Commanders across an enterprise using the DCGS Integration Backbone (DIB) to enhance interoperability of ISR information through the use of common enterprise standards and services. DCGS-A will enable theater and national intelligence organizations to provide dedicated "tactical overwatch" primarily from fixed locations through focused multi-discipline and all-source fusion applications and analysis. In all modes of operations, the Commander will receive timely and accurate targeting information, intelligence products and predictions on probable enemy courses of action. DCGS-A Projects D06 (Fusion Integration), D07 (Common Modules) and D08 (Sensor Integration) have been consolidated into a single DCGS-A Project (956) for ease of reporting purposes beginning in FY10. Project 956 provides the DCGS-A enterprise system level design, net-centric architecture and infrastructure, integration of the DCGS Integrated Backbone (DIB), single and Multi-Intelligence automated fusion capabilities, development of a common set of ISR analysis tools, and sensor integration to include sensor control, tasking and interoperability. Project D15 funds Training Aids, Devices, Simulators and Simulations (TADSS) for the Tactical Exploitation System (TES). DCGS-A includes hardware for Fixed and Mobile configurations and common software that is scalable and tailored by echelon and is interoperable with sensors, other Battlefield Operating Systems (BOS), and the DoD Distributed Common Ground/Surface System (DCG/SS) Family of Systems (FoS). Within the Brigade Combat Teams (BCTs), DCGS-A provides the Mobile ISR capability as well as an embedded software application for future battle command and other select platforms. At the Corps, Division and Echelons Above Corps (EAC), DCGS-A is composed of hardware and software in Mobile and Fixed site configurations. As a system of systems, DCGS-A will consolidate and replace the capabilities found in the following Current Force systems: Joint Intelligence Operations Capability-Iraq (JIOC-I), All Source Analysis System (ASAS), Counter Intelligence/Human Intelligence (CI/HUMINT) Single Source Workstation, Tactical Exploitation System (TES), Guardrail Common Sensor (GRCS) Intelligence Processing Facility (IPF), Prophet Control, Common Ground Station (CGS), Digital Topographic Support System (DTSS) and Integrated Meteorological System (IMETS), sensor control and processing of select Unmanned Aerial Vehicles (UAVs) and Enhanced Trackwolf processing capabilities. DCGS-A is a key component of Transformation and a top Army priority.

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B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	68.662	188.414	34.149	0.000	34.149
Current President's Budget	88.483	188.465	103.002	16.200	119.202
Total Adjustments	19.821	0.051	68.853	16.200	85.053
• Congressional General Reductions		-0.989			
• Congressional Directed Reductions					
• Congressional Rescissions		0.000			
• Congressional Adds		1.040			
• Congressional Directed Transfers					
• Reprogrammings	19.821	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Adjustments to Budget Years	0.000	0.000	68.853	0.000	68.853

Change Summary Explanation

Change Summary Explanation: Funding - FY 2009: Project D07 $9,821 BTR and $10,000 ATR for continued development of new capabilities for Mobile Basic. FY 2011 Project 956 $16,200 Anticipated FY 2011 Overseas Contingency Operations request. FY 2011: Project 956 $68,853 increase to support continued Distributed Common Ground System-Army development.

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COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**Base FY 2011 Estimate**	**OCO FY 2011 Estimate**	**Total FY 2011 Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
956: *Distributed Common Ground System (DCGS) (MIP)*	22.470	187.815	102.382	16.200	118.582	31.699	28.692	20.426	20.900	Continuing	Continuing
Quantity of RD&TE Articles											

A. Mission Description and Budget Item Justification

Distributed Common Ground System - Army (DCGS-A) is the Army's primary system for Intelligence, Surveillance and Reconnaissance (ISR) tasking of sensors, posting of data, processing information, using /exploiting intelligence information about the threat, weather, and terrain at all echelons, and disseminating data, information within a network-centric enterprise. DCGS-A will provide the capabilities necessary for Commanders to access information, task organic sensors, and synchronize non-organic sensor assets with their organic assets. DCGS-A continuously acquires and synthesizes data from Joint, Interagency, Intergovernmental, and Multi-national (JIIM) sources that permits the future Modular Force to maintain an updated and accurate understanding of the operational environment. DCGS-A will contribute to visualization and situational awareness, thereby enhancing tactical maneuver, maximizing combat power and enhancing the ability to operate in an unpredictable and changing environment throughout the operational spectrum. It will facilitate the rapid planning, execution, and synchronization of all warfighting functions resulting in the Current and Future Force's ability to operate within the enemy's decision cycle.DCGS-A is an integrated ISR ground processing system, operating in a secure, distributed, and collaborative environment, enabled by a network-centric enterprise, across multiple security levels and networks (JWICS, SIPRNET, NSANet, NIPRNET, and coalition). It provides distributed ISR planning, management, control and tasking, multi-intelligence fusion, and robust joint, allied, and coalition forces interoperability. It empowers commanders, decision makers, and analysts with ISR information and fused products at all echelons to support the execution of battle command, synchronization of fires and effects, rapid shifting of battle focus, situational understanding, and force protection, thereby enabling them to fight in ways that exceed the limitations of current doctrine. DCGS-A is the centerpiece of the Army ISR framework and the enabler for all intelligence operations at Joint Task Force (JTF) and below. It is the ISR component of the Army's Future Force Battle Command System (BCS) and will be fully interoperable with the Army Battle Command Systems (ABCS).DCGS-A Mobile Basic establishes the architecture to achieve DCGS-A requirements by providing an organic net-centric ISR capability in a mobile (vehicle mounted) configuration that will support deployed Army Forces with connectivity to tactical, Joint, and National ISR data, information, and intelligence. It consolidates and replaces the capabilities of nine current systems with a common, integrated capability, interoperable with Network Centric Services and Future Combat Systems. It provides the foundation from which the full DCGS-A requirements will be realized. This foundation includes the system design, hardware and software architecture, and infrastructure based on a Service Oriented Architecture providing Commanders access to ISR ground stations, and data exchange with Battle Command systems, thereby improving intelligence sharing and understanding. It will achieve joint, allied and coalition interoperability through implementation of the DCGS Integration Backbone (DIB). It will mature sensor fusion and all source production capabilities and will leverage Science and Technology (S&T) efforts as applicable to meet the requirements for battle management, situational awareness, intelligence preparation of the battlespace , battle damage assessments, course of action/predictive analysis, wargaming, target development, collection management, ISR synchronization, electronic warfare/countermeasures, force protection, indications and warnings, operational security, and battlefield visualization. It also addresses ISR sensor integration and interoperability with existing and new platforms and sensors including a common data link solution.FY2011 Core ($102,382) funds complete the design, development and test of the DCGS-A Mobile Basic configuration, including the DCGS-A Software

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Baseline (DSB). It includes: program management; system design; and software development, test, and integration; quality assurance, material procurement; fabrication; assembly; system integration and test; training development; logistics support; and modeling and simulation required to develop DCGS-A Mobile Basic. Earned Value Management, Risk Management, and Configurations Management, and program security are essential functions of system development. With the delivery of test articles to support operational testing and post test deployment to operational units are training materials, Technical Manuals, and any required post test fixes with Field Service support. It provides system documentation required to proceed to Low Rate Initial Production (LRIP) and Full Rate Production after the appropriate acquisition decisions.FY2011 OCO ($16,200) Provides $16.2M for the (1) extension of the DCGS-A SIPR Cloud architecture and infrastructure to include access, ingestion, processing, exploitation, dissemination, and integrated visualization of next generation data sets (i.e., FMV, High Resolution Imagery, DOMEX, Biometric, SIGINT, MASINT); (2) development of next generation tools for search, discovery, and advanced analytics, to include multi-Cloud discovery and federated query, content extraction, precision search for targeting, automated imagery registration, and context search across all data sets; (3) cloud-cloud data exchange; (4) PL3 or greater security; (5) virtual system and data management to include automated / dynamic provisioning and enhanced scalability, (6) extended development and test environment; and (7) participation in capability demonstrations (i.e., Empire Challenge). Capability will be leveraged from DoD and IC. Provides life cycle cost savings through commodity hardware, unified data architecture, shared resources (i.e., tools, processors) and enterprise accessThe DCGS-A program will allow Commanders to focus intelligence resources, achieve decisive impact and define deliberately acceptable risk supporting Brigade Combat Team and Division/Corps operations. The DCGS-A program will field capabilities following the Army Force Generation (ARFORGEN) model to ensure deploying units can maintain relevance against an adaptive threat in a rapidly changing operational environment that encompasses a wide range of Irregular Warfare (IW) and Major Combat Operations (MCO), with provisions for deployment of emerging analytics/tools and a promise of making the power of peta-scale information stores available to individual Commanders

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #1	5.640	123.431	102.382	0.000	102.382
Continue design and development of DCGS-A enterprise level net-centric architecture to include: Development & Integration of DCGS-A Software; Development and Assembly of Competitive Data Package; Limited User Test, Developmental Testing, Mobile Basic Data and Program Management support costs					
FY 2009 Accomplishments: FY 2009					
FY 2010 Plans: FY 2010					

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Base FY 2011 Plans: FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #2 OCO Global Unified Data Environment (Cloud) development - creates near real-time multi-intelligence analytics environment, extends access and reduces analytic response time. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	0.000	0.000	0.000	13.200	13.200
Program #3 Human Terrain Teams - Develop software for the MAP-HT system for capabilities above the baseline 1.0 release. *FY 2009 Accomplishments:* FY 2009	0.000	0.000	0.000	3.000	3.000

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2010 Plans: FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #4 Continue to evaluate, integrate and test new software applications and components for incorporation into the DCGS-A Software Baseline (DSB). *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	2.160	21.601	0.000	0.000	0.000
Program #5 Ongoing Army and Joint interoperability testing and evaluation to include Central Test Support Facility (CTSF) testing.	2.110	1.600	0.000	0.000	0.000

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2009 Accomplishments: FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #6 Continue to migrate sensor fusion processes and Current Force systems capabilities (multi-INT sources, geospatial and weather data) into DCGS-A Service Oriented Architecture (SOA) environment. Continue development and integration of SIGINT and All Source applications and the integration framework for DCGS-A Multi-Function Workstation (MFWS). (previously Project D06) *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base	1.360	2.558	0.000	0.000	0.000

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
OCO FY 2011 Plans: FY 2011 OCO					
Program #7 Standard Sharable Geospatial Foundation Development to support Unified Battle Command Shared Low Bandwidth Imagery *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	0.000	3.550	0.000	0.000	0.000
Program #8 Continue to develop and enhance two-way Battle Command to include Joint Command and Control (JC2) interoperability. (previously Project D07) *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010	0.000	5.665	0.000	0.000	0.000

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Base FY 2011 Plans: FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #9 Continue to isolate and integrate Current Force Multi-INT sensor (Human Intelligence, Imagery Intelligence, Signal Intelligence, Measurement and Signature Intelligence) modules into the DCGS-A network. Continued planning and analysis of Future Force Multi-INT sensor modules for incorporation into the DCGS-A network. (previously Project D08) *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	0.000	5.370	0.000	0.000	0.000
Program #10 Continue Asymmetric Threat Response and Analysis Project (ATRAP).	2.400	0.000	0.000	0.000	0.000

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2009 Accomplishments: FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #11 Continue Effects Based Approach to Operations. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	1.600	0.000	0.000	0.000	0.000
Program #12	2.000	1.040	0.000	0.000	0.000

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Continue Heuristic Internet Protocol Engine. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #13 Develop Constant Look Operational Support Environment (CLOSE). *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	1.600	0.000	0.000	0.000	0.000

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #14	0.800	0.000	0.000	0.000	0.000
Develop Blast Risk Analysis and Mitigation Application (BRAMA). *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #15	0.800	0.000	0.000	0.000	0.000
Develop Beyond Line of Sight (BLOS) Network for MASINT Sensors. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #16	2.000	0.000	0.000	0.000	0.000
Develop Silver Fox and MANTA. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #17	0.000	23.000	0.000	0.000	0.000
Modify Intelligence Integrated Architecture (I2A) to apply cloud computing technology to operational and tactical DCGS-A architecture. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base					

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
OCO FY 2011 Plans: FY 2011 OCO					
Accomplishments/Planned Programs Subtotals	22.470	187.815	102.382	16.200	118.582

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• Ord. #1: *PE 654321 All Source Analysis System (B19)(MIP)*	3.400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	3.400
• Ord. #2: *PE 0604321 CI/HUMINT Software Products (B41) (MIP)*	1.716	3.116	6.330	0.000	6.330	3.375	3.548	3.754	3.833	Continuing	Continuing
• Ord. #3: *K28801 ASAS Modules (MIP)*	86.861	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	86.861
• Ord. #4: *BK5275 CI HUMINT Automated Reporting and Collection (CHARCS)(MIP)*	30.021	38.703	7.416	52.277	59.693	10.421	10.042	10.395	10.679	Continuing	Continuing
• Ord. #5: *BZ7316 DCGS-A (MIP)*	197.348	252.184	137.424	197.092	334.516	146.124	242.888	403.150	420.026	Continuing	Continuing

D. Acquisition Strategy

The Distributed Common Ground System-Army (DCGS-A) program was created in response to the Department of Defense (DoD) Distributed Common Ground/Surface System (DCGS) Mission Area Initial Capabilities Document (MA ICD) dated 13 Aug 2004, which captured the overarching requirements for an Intelligence, Surveillance, and Reconnaissance (ISR) Family of Systems (FoS) that will contribute to Joint and combined Warfighter needs. That ICD was updated as the Distributed Common Ground/Surface System (DCG/SS) Enterprise ICD, and approved by the Joint Requirements Oversight Council (JROC) 27 Feb 2009. The Army requirements were refined in the DCGS-A Capabilities Development Document (CDD), and approved by the JROC 31 Oct 2005. The DCGS-A program is currently in the Engineering, Manufacturing and Development (EMD) phase as authorized by the PEO IEW&S ADM dated 6 April 2006. DCGS-A was designated as a pre-Major Automated Information System (Pre-MAIS) in OSD(NII) Memorandum, 26 December 2007. DCGS-A is following an evolutionary acquisition approach to develop and field system capabilities over time to satisfy the requirements of the DCGS-A Capability Development Document (CDD). Following this approach, the first increment, DCGS-A Mobile Basic was defined and a Capability Production Document (CPD) was created with full consideration

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of all of the preceding supporting documents and analysis. The CPD is currently in formal staffing, it is anticipated that the JROC approval will be in 4th Quarter FY 10. The DCGS-A System Engineering Plan (SEP) updated the current development effort and was approved by OSD DASD (C4ISR & IT Acquisition) on 3 December 2009. The DCGS-A Mobile Basic Acquisition Strategy was approved by the Army Acquisition Executive on 24 July 2009, revalidated as approved in December 2009 and as of January 2010 it was pending final OSD approval. It is anticipated the DCGS-A Mobile Basic program will be designated as an Acquisition Category (ACAT) IAM in 2nd Quarter FY10. The DCGS-A Mobile Basic program is currently preparing for a Limited User Test (LUT) in 3rd Quarter FY 11 that will serve as its Operational Evaluation to support an OSD MS C decision in 1st Quarter FY12. In summary, the program is on track for cost, schedule and performance.

E. Performance Metrics

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

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
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Product Development ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Design and development of DCGS-A architecture, software baseline and mobile hardware configuration.	C/CPAF	Northrop Grumman Location could not be determined.	0.000	145.505		74.699		0.000		74.699	Continuing	Continuing	0
SETA Support to Visualization/Data Sharing, Modeling & Simulation	C	Booz-Allen Eatontown, NJ	15.225	0.000		0.000		0.000		0.000	Continuing	Continuing	0
DCGS-A Product Selection and Integration	C	CERDEC/SEC Ft. Monmouth, NJ	17.270	0.000		0.000		0.000		0.000	Continuing	Continuing	0
SIL Software Integration	C	CERDEC/RDCOM Ft. Monmouth NJ	10.285	1.250		0.000		0.000		0.000	Continuing	Continuing	0
Metadata Catalog	C	MITRE Eatontown, NJ	6.014	4.135		6.595		0.000		6.595	Continuing	Continuing	0
Asymmetric Threat Response and Analysis Project	C	Battle Labs Location could not be determined.	2.500	0.000		0.000		0.000		0.000	0	Continuing	0
Effects Based Approach to Operations	C	Battle Labs Location could not be determined.	1.000	0.000		0.000		0.000		0.000	0	Continuing	0
DCGS-A ASAS Integration	C	Battle Labs Location could not be determined.	0.000	0.000		0.000		0.000		0.000	0	Continuing	0
Advanced Architecture Designs for NCW	C	Battle Labs Location could not be determined.	0.000	0.000		0.000		0.000		0.000	0	Continuing	0

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Product Development ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Heuristic Internet Protocol Engine	C	Battle Labs Location could not be determined.	0.000	1.040		0.000		0.000		0.000	0	Continuing	0
Blast Risk Analysis and Mitigation Application	C	Battle Labs Location could not be determined.	1.050	0.000		0.000		0.000		0.000	0	Continuing	0
Constant Look Operational Support Environment (CLOSE)	C	Battle Labs Location could not be determined.	0.000	0.000		0.000		0.000		0.000	0	Continuing	0
Beyond Line of Sight (BLOS) Network for MASINT Sensors	C	Battle Labs Location could not be determined.	0.000	0.000		0.000		0.000		0.000	0	Continuing	0
Silver Fox and MANTA	C	Battle Labs Location could not be determined.	0.000	0.000		0.000		0.000		0.000	0	Continuing	0
Global Unified Data Environment (Cloud) Development	C	CERDEC/SEC Ft Monmouth, NJ	0.000	23.000		0.000		13.200		13.200	0	Continuing	0
Human Terrain Teams - Develop software for the MAP-HT system for capabilities above the baseline 1.0	C	Nothing entered for Activity and Location. Location could not be determined.	0.000	0.000		0.000		3.000		3.000	0	Continuing	0
		Subtotal	53.344	174.930		81.294		16.200		97.494			0.000

Remarks

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305208A: *Distributed Common Ground/ Surface Systems*	**PROJECT** 956: *Distributed Common Ground System (DCGS) (MIP)*

Support ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Objective Doctrine/TTP Development	C	Ft. Huachuca AZ	6.923	0.000		0.000		0.000		0.000	Continuing	Continuing	0
Matrix Support	C	CECOM Fort Monmouth NJ	5.974	3.765		3.591		0.000		3.591	Continuing	Continuing	0
		Subtotal	12.897	3.765		3.591		0.000		3.591			0.000

Remarks

Test and Evaluation ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Joint Interoperability Test and Evaluation	C	CTSF Ft. Hood	3.263	0.250		0.000		0.000		0.000	0	Continuing	0
Development Test	C	Nothing entered for Activity and Location. Location could not be determined.	0.000	0.000		2.738		0.000		2.738	0	Continuing	0
Operational Test support for DCGS-A	C	ATEC Location could not be determined.	2.669	1.450		2.421		0.000		2.421	0	Continuing	0
LUT	C	ATEC	0.000	0.000		5.381		0.000		5.381	0	Continuing	0

Exhibit R-3, PB 2011 Army **RDT&E Project Cost Analysis**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305208A: *Distributed Common Ground/ Surface Systems*	**PROJECT** 956: *Distributed Common Ground System (DCGS) (MIP)*

Test and Evaluation ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
		Location could not be determined.											
		Subtotal	5.932	1.700		10.540		0.000		10.540	0.000		0.000

Remarks

Management Services ($ in Millions)

				FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Project Management	C	PM DCGS-A	7.075	7.420		6.957		0.000		6.957	Continuing	Continuing	0
		Subtotal	7.075	7.420		6.957		0.000		6.957			0.000

Remarks

	FY 2010		Base FY 2011		OCO FY 2011		Total FY 2011	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	187.815		102.382		16.200		118.582	Continuing	Continuing	Continuing

Remarks

Exhibit R-4, PB 2011 Army **RDT&E Schedule Profile**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305208A: *Distributed Common Ground/ Surface Systems*	**PROJECT** 956: *Distributed Common Ground System (DCGS) (MIP)*

	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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
Version 3.1 Fielding	#	#	#	#	#	#	#	#	#	#																		
Mobile Basic Army Interoperability Certification (AIC)									#																			
Mobile Basic LUT										#	#																	
Mobile Basic Milestone C												#																
Mobile Basic Initial Operational Capability (IOC)														#														
Mobile Basic Initial Operational Test & Eval (IOT&E)																			#									

Exhibit R-4A, PB 2011 Army **RDT&E Schedule Details**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305208A: *Distributed Common Ground/ Surface Systems*	**PROJECT** 956: *Distributed Common Ground System (DCGS) (MIP)*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Version 3.1 Fielding	1	2009	2	2011
Mobile Basic Army Interoperability Certification (AIC)	1	2011	1	2011
Mobile Basic LUT	2	2011	3	2011
Mobile Basic Milestone C	4	2011	4	2011
Mobile Basic Initial Operational Capability (IOC)	2	2012	2	2012
Mobile Basic Initial Operational Test & Eval (IOT&E)	3	2013	3	2013

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**											**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*				**R-1 ITEM NOMENCLATURE** PE 0305208A: *Distributed Common Ground/ Surface Systems*				**PROJECT** D06: *DCGS-A FUSION INTEGRATION (MIP)*			
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**Base FY 2011 Estimate**	**OCO FY 2011 Estimate**	**Total FY 2011 Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
D06: *DCGS-A FUSION INTEGRATION (MIP)*	6.604	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RD&TE Articles											

A. Mission Description and Budget Item Justification

Distributed Common Ground System - Army (DCGS-A) will serve as the primary ground system of systems for airborne and ground sensor platforms defined as Future Force systems. DCGS-A enables the commander to achieve situational understanding by leveraging multiple sources of data, information, and intelligence to synchronize the elements of Joint and Combined Arms combat power (maneuver, maneuver support and maneuver sustainment support). The core functions of DCGS-A are: collection and processing of space, airborne, ground and maritime Intelligence, Surveillance and Reconnaissance (ISR) sensor data; control of select Army and joint ISR sensor systems; intelligence synchronization; ISR planning, reconnaissance and surveillance (R&S) integration; fusion of sensor information, and direction and distribution/dissemination of sensor information. It draws information from a wide variety of automated and manual sources; on-board sensors, space platforms, unattended air and ground vehicles, existing and new ISR capabilities, and an assortment of databases to enable the land component commander to execute battle command, synchronize fires and effects, rapidly shift battle focus, achieve situational understanding, protect the force, and employ his forces more effectively. DCGS-A allows commanders at all levels to visualize and understand the threat and environment, predict threat intentions, execute targeting through targeting support, conduct ISR integration and support Information Operations. This project establishes DCGS-A sensor fusion and all source production capabilities, leveraging previously completed algorithm, on-going Science and Technology (S&T) developmental efforts to meet the requirements for battle management and situational awareness, intelligence preparation of the battlespace (battle damage assessments, course of action/predictive analysis, wargaming), target development (deliberate, time critical, high value/high payoff), collection/ISR management (requirement and mission), electronic warfare/countermeasures, force protection, indications and warnings, operational security, and battlefield visualization and presentation. The Sensor Fusion capability will address both traditional intelligence disciplines (signals intelligence, imagery intelligence, human intelligence, measurements and signatures intelligence) from organic, Theater, and National assets (systems and databases), and non-traditional sources (open source intelligence, fire support) to achieve a complete and universal understanding of the situation in support of the commander/warfighter, battle command databases, and the Common Operational Picture (COP). The sensor fusion capability will support all types of units across a broad spectrum of both traditional and non-traditional operations, and improve interoperability with Joint, Allied, and Coalition forces. FY09 funds the development and integration of traditional and non-traditional multi-intelligence sensor fusion products and technologies into the DCGS-A Fixed, Mobile and Embedded configurations to produce a fully automated fusion capability.Funding for this effort continues under Project 956 beginning in FY 2010.

B. Accomplishments/Planned Program ($ in Millions)

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305208A: *Distributed Common Ground/ Surface Systems*	**PROJECT** D06: *DCGS-A FUSION INTEGRATION (MIP)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #1	2.145	0.000	0.000	0.000	0.000
Continue normalization and integration of sensor fusion process and Multi-INT sources, geospatial and weather data. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #2	2.119	0.000	0.000	0.000	0.000
Continue to enhance controlled interface technology for improved product distribution at multiple security levels. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base					

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305208A: *Distributed Common Ground/ Surface Systems*	**PROJECT** D06: *DCGS-A FUSION INTEGRATION (MIP)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
OCO FY 2011 Plans: FY 2011 OCO					
Program #3 Continued analysis and prototyping for porting sensor fusion mission applications into the FCS environment. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	1.043	0.000	0.000	0.000	0.000
Program #4 Continue to migrate sensor fusion processes and Current Force systems capabilities into DCGS-A architecture/ Service Oriented Architecture (SOA) environment. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010	1.297	0.000	0.000	0.000	0.000

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305208A: *Distributed Common Ground/ Surface Systems*	**PROJECT** D06: *DCGS-A FUSION INTEGRATION (MIP)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Base FY 2011 Plans: FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Accomplishments/Planned Programs Subtotals	6.604	0.000	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• Ord. #1: *PE 654321 ASAS Evolutionary ACQ (B19) (TIARA)*	3.400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	3.400
• Ord. #2: *K28801 ASAS Modules*	86.861	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	86.861

D. Acquisition Strategy

Funding for this efffort continues under Project 956 beginning in FY 2010.

E. Performance Metrics

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

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**											**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*				**R-1 ITEM NOMENCLATURE** PE 0305208A: *Distributed Common Ground/ Surface Systems*				**PROJECT** D07: *DCGS-A COMMON MODULES (MIP)*			
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**Base FY 2011 Estimate**	**OCO FY 2011 Estimate**	**Total FY 2011 Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
D07: *DCGS-A COMMON MODULES (MIP)*	47.872	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RD&TE Articles											

A. Mission Description and Budget Item Justification

Distributed Common Ground System - Army (DCGS-A) will serve as the primary ground system of systems for airborne and ground sensor platforms defined as Objective Force systems. DCGS-A enables the commander to achieve situational understanding by leveraging multiple sources of data, information, and intelligence to synchronize the elements of Joint and Combined Arms combat power (maneuver, maneuver support and maneuver sustainment support). The core functions of DCGS-A are: collection and processing of space, airborne, ground and maritime Intelligence, Surveillance and Reconnaissance (ISR) sensor data; control of select Army and joint ISR sensor systems; intelligence synchronization; ISR planning, reconnaissance and surveillance (R&S) integration; fusion of sensor information, and direction and distribution/dissemination of sensor information. It draws information from a wide variety of automated and manual sources; on-board sensors, space platforms, unattended air and ground vehicles, existing and new ISR capabilities, and an assortment of databases to enable the land component commander to execute battle command, synchronize fires and effects, rapidly shift battle focus, achieve situational understanding, protect the force, and employ his forces more effectively. DCGS-A allows commanders at all levels to visualize and understand the threat and environment, predict threat intentions, execute targeting through targeting support, conduct ISR integration and support Information Operations.This project provides for the design, development, integration and test of the DCGS-A system of systems at all echelons, from embedded DCGS-A up to Fixed Site operations. The effort includes system engineering, software integration and development, test & evaluation, and use of Modeling and Simulation (M&S) to develop DCGS-A Mobile systems with common multi-function hardware and software combinations (i.e. user workstations) capable of performing all DCGS-A functions. Development will focus on common module hardware and software that is scaleable to allow commanders increased flexibility in the intelligence force package deployed such that it can be tailored to the echelon, location, and mission that DCGS-A will be required to support. Included in the development will be the stand-up of a Federated Systems Integration Lab (SIL) to assess and implement existing and new candidate software applications and components into the DCGS-A baseline design. A common set of ISR Analysis Tools to support collaboration, exploitation, fusion and collection management will be developed that operate within the construct of distributed, reach operations within the DCGS-A enterprise in order to maximize data access and minimize forward footprint. This will ultimately result in a DCGS-A design that reduces physical and logistics footprint, eases training burden, and decreases sustainability requirements.FY09 funds development of Technology Insertion modules providing DCGS-A capabilities into Current Force systems, common module multi-function hardware, Battle Command interoperability and integration and test of new software applications. Funding for this effort continues under Project 956 beginning in FY 2010.

B. Accomplishments/Planned Program ($ in Millions)

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305208A: *Distributed Common Ground/ Surface Systems*	**PROJECT** D07: *DCGS-A COMMON MODULES (MIP)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #1	3.140	0.000	0.000	0.000	0.000
Continuation of Embedded DCGS-A design/analysis and Future Combat System (FCS) support. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #2	3.350	0.000	0.000	0.000	0.000
Continue to evaluate, integrate and test existing and new software applications. Integrate Best Value components from DoD wide systems into DCGS-A baseline. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base					

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305208A: *Distributed Common Ground/ Surface Systems*	**PROJECT** D07: *DCGS-A COMMON MODULES (MIP)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
OCO FY 2011 Plans: FY 2011 OCO					
Program #3 Continue to develop and enhance two-way Battle Command to include Joint Command and Control (JC2) interoperability. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	2.475	0.000	0.000	0.000	0.000
Program #4 Continued Technology Insertion of Current Force capabilities into integrated DCGS-A baseline. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010	19.101	0.000	0.000	0.000	0.000

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305208A: *Distributed Common Ground/ Surface Systems*	**PROJECT** D07: *DCGS-A COMMON MODULES (MIP)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Base FY 2011 Plans: FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #5	19.806	0.000	0.000	0.000	0.000
Continued development of new capabilities for Mobile Basic *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Accomplishments/Planned Programs Subtotals	47.872	0.000	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• Ord. #1: *BZ7316 DCGS-A (MIP)*	197.348	252.184	137.424	197.092	334.516	146.124	242.888	403.150	420.026	Continuing	Continuing
	36.207	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	36.207

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305208A: *Distributed Common Ground/ Surface Systems*	**PROJECT** D07: *DCGS-A COMMON MODULES (MIP)*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• Ord. #2: *KA2550 Digital Topographic SPT SYS (DTSS)*											

D. Acquisition Strategy

Funding for this efffort continues under Project 956 beginning in FY 2010.

E. Performance Metrics

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

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**											**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*				**R-1 ITEM NOMENCLATURE** PE 0305208A: *Distributed Common Ground/ Surface Systems*				**PROJECT** D08: *DCGS-A SENSOR INTEGRATION (MIP)*			
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**Base FY 2011 Estimate**	**OCO FY 2011 Estimate**	**Total FY 2011 Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
D08: *DCGS-A SENSOR INTEGRATION (MIP)*	10.872	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RD&TE Articles											

A. Mission Description and Budget Item Justification

Distributed Common Ground System - Army (DCGS-A) will serve as the primary ground system of systems for airborne and ground sensor platforms defined as Future Force systems. DCGS-A enables the commander to achieve situational understanding by leveraging multiple sources of data, information, and intelligence to synchronize the elements of Joint and Combined Arms combat power (maneuver, maneuver support and maneuver sustainment support). The core functions of DCGS-A are: collection and processing of space, airborne, ground and maritime Intelligence, Surveillance and Reconnaissance (ISR) sensor data; control of select Army and joint ISR sensor systems; intelligence synchronization; ISR planning, reconnaissance and surveillance (R&S) integration; fusion of sensor information, and direction and distribution/dissemination of sensor information. It draws information from a wide variety of automated and manual sources; on-board sensors, space platforms, unattended air and ground vehicles, existing and new ISR capabilities, and an assortment of databases to enable the land component commander to execute battle command, synchronize fires and effects, rapidly shift battle focus, achieve situational understanding, protect the force, and employ his forces more effectively. DCGS-A allows commanders at all levels to visualize and understand the threat and environment, predict threat intentions, execute targeting through targeting support, conduct ISR integration and support Information Operations. This project addresses Intelligence, Surveillance and Reconnaissance (ISR) sensor integration and interoperability with existing and new platforms and sensors to include a common data link solution.FY09 funds integration of new and modified sensor data into DCGS-A Systems, Test and Training of the new capability.Funding for this effort continues under Project 956 beginning in FY 2010.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	**FY 2010**	**Base FY 2011**	**OCO FY 2011**	**Total FY 2011**
Program #1	2.344	0.000	0.000	0.000	0.000
Continue to isolate and integrate Current Force Multi-INT sensor (Human Intelligence, Imagery Intelligence, Signal Intelligence, Measurement and Signature Intelligence)data into the DCGS-A network. *FY 2009 Accomplishments:* FY 2009					

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305208A: *Distributed Common Ground/ Surface Systems*	**PROJECT** D08: *DCGS-A SENSOR INTEGRATION (MIP)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2010 Plans: FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #2 Continued planning and analysis of Future Force Multi-INT sensor modules for incorporation into the DCGS-A network. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	4.283	0.000	0.000	0.000	0.000
Program #3 Continue to refactor Current Force ISR capabilities in the DCGS-A infrastructure.	1.020	0.000	0.000	0.000	0.000

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305208A: *Distributed Common Ground/ Surface Systems*	**PROJECT** D08: *DCGS-A SENSOR INTEGRATION (MIP)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2009 Accomplishments: FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO					
Program #4 Continued development of training materials for V3 and Mobile systems. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *Base FY 2011 Plans:* FY 2011 Base *OCO FY 2011 Plans:* FY 2011 OCO	3.225	0.000	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	10.872	0.000	0.000	0.000	0.000

Exhibit R-2A, PB 2011 Army **RDT&E Project Justification**		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305208A: *Distributed Common Ground/ Surface Systems*	**PROJECT** D08: *DCGS-A SENSOR INTEGRATION (MIP)*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• Ord. #1: *BZ7316 DCGS-A (MIP)*	197.348	252.184	137.424	197.092	334.516	146.124	242.888	403.150	420.026	Continuing	Continuing

D. Acquisition Strategy

Funding for this efffort continues under Project 956 beginning in FY 2010.

E. Performance Metrics

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