Exhibit R-2, PB 2011 Army RDT&E Budget Item Justification

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

2040: Research, Development, Test & Evaluation, Army

BA 3: Advanced Technology Development (ATD)

R-1 ITEM NOMENCLATURE

PE 0603734A: Military Engineering Advanced 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
Total Program Element	34.935	45.394	27.393	0.000	27.393	35.016	29.208	25.359	22.494	0	247.192
T08: COMBAT ENG SYSTEMS	7.505	5.880	27.393	0.000	27.393	35.016	29.208	25.359	22.494	Continuing	Continuing
T13: Stationary Power & Energy Tech Demonstrations (CA)	16.187	24.871	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
T15: MILITARY ENGINEERING TECHNOLOGY DEMONSTRATION (CA)	11.243	14.643	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

The objective of this program element (PE) is to mature and demonstrate advanced military engineering and geospatial research and engineering technologies. Military engineering technologies demonstrated include adaptive protection technologies that provide the Warfighter with protective systems to combat highly adaptive and increasingly severe threats. Geospatial research and engineering technologies demonstrated include Battlespace Terrain Reasoning and Awareness (BTRA) and Joint-Geospatial Enterprise Services (J-GES) technologies. BTRA enables the Warfighter to understand the impact of the terrain and weather effects during planning and execution of military operations. The J-GES program matures and demonstrates technology that supports network centric delivery and update of geospatial data and services to all echelons for battle command planning and mission rehearsal. Technologies demonstrated within this PE are transitioned from PE 0602784A (Military Engineering 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 PE is performed by the US Army Engineer Research and Development Center (ERDC), Vicksburg, MS.

Exhibit R-2, PB 2011 Army RDT&E Budget Item Justification APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 3: Advanced Technology Development (ATD) DATE: February 2010 R-1 ITEM NOMENCLATURE PE 0603734A: Military Engineering Advanced Technology

B. Program Change Summary (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	35.855	5.911	6.999	0.000	6.999
Current President's Budget	34.935	45.394	27.393	0.000	27.393
Total Adjustments	-0.920	39.483	20.394	0.000	20.394
 Congressional General Reductions 		-0.237			
 Congressional Directed Reductions 					
 Congressional Rescissions 		0.000			
 Congressional Adds 		39.720			
 Congressional Directed Transfers 					
 Reprogrammings 	-0.006	0.000			
• SBIR/STTR Transfer	-0.914	0.000			
 Adjustments to Budget Years 	0.000	0.000	20.394	0.000	20.394

Change Summary Explanation

FY10 Congressionally directed increases.FY11 funding increase for Deployable Force Protection.

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 3: Advanced Technology Development (ATD)							PROJECT T08: COMBAT ENG 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
T08: COMBAT ENG SYSTEMS	7.505	5.880	27.393	0.000	27.393	35.016	29.208	25.359	22.494	Continuing	Continuing

A. Mission Description and Budget Item Justification

Exhibit R-2A, PB 2011 Army RDT&E Project Justification

The objective of this program element (PE) is to mature and demonstrate advanced military engineering and geospatial research and engineering technologies. Military engineering technologies demonstrated include adaptive protection technologies that provide the Warfighter with protective systems to combat highly adaptive and increasingly severe threats. Geospatial research and engineering technologies demonstrated include Battlespace Terrain Reasoning and Awareness (BTRA) and Collaborative Battlespace Reasoning and Awareness (COBRA), which was titled Joint-Geospatial Enterprise Services (J-GES) in FY09 and FY10, technologies. BTRA enables the Warfighter to understand the impact of the terrain and weather effects during planning and execution of military operations. The COBRA/ J-GES program matures and demonstrates technology that supports network centric delivery and update of geospatial data and services to all echelons for battle command planning and mission rehearsal. Future objectives include novel detection methods for persistent surveillance and applying Civil Military Operations (CMO) algorithms addressing interrelationship between human and physical terrain. Technologies demonstrated within this PE are transitioned from PE 0602784A (Military Engineering 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 PE is performed by the US Army Engineer Research and Development Center (ERDC), Vicksburg, MS. The work in deployable force protection is coordinated with US Army Research Development and Engineering Command, the Defense Advanced Research Projects Agency (DARPA), and the Services.

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

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #1	1.262	1.107	1.201	0.000	1.201
Collaborative Battlespace Reasoning and Awareness (COBRA): Was titled Joint-Geospatial Enterprise Services in FY09 and FY10 and is renamed to better reflect activites. In FY09, transitioned urban-focused geospatial research and technologies for demonstration and validation. In FY10, conduct evaluations to assess geospatial data and information requirements for users and evaluate trade-offs with regard to force structure, location and storage of geospatial data and information, available bandwidth, and computation resources across the network. In FY11, will develop Multi-platform, cross-community applications and services, collaboration services, decision support tools, and Commercial/Joint Mapping Tool Kit (C/JMTK) enhancements.					

APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 3: Advanced Technology Development (ATD) B. Accomplishments/Planned Program (\$ in Millions) R-1 ITEM NOMENCLATURE PE 0603734A: Military Engineering Advanced Technology Technology	nced FY 2009	PROJECT T08: COMB	AT ENG SYST	TEMS	
	FV 2009				
I	FV 2009				
	1 1 2007	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	6.243	4.743	0.000	0.000	0.000
Battlespace Terrain Reasoning and Awareness - Battle Command (BTRA-BC): In FY09, demonstrated and evaluated tools designed for urban data and urban routing structures within Joint-Geospatial Enterprise Services (J-GES). In FY10, demonstrate unified net-centric data strategies within common architecture and framework across Intelligence, Operations, and Geospatial communities.					
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: Febr	uary 2010			
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 3: Advanced Technology Development (ATD)	R-1 ITEM NOMENCLATURE PE 0603734A: Military Engineering Advanced Technology		PROJECT T08: COMBAT ENG SYSTEMS				
B. Accomplishments/Planned Program (\$ in Millions)	,	'					
•	FY 200	9 FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011		
OCO FY 2011 Plans: FY 2011 OCO							
Program #3	0.0	0.000	3.064	0.000	3.064		
Common Ground JCTD: In FY11, will create a doctrinally base precision indexing to the Joint Command Control and Commun geospatial products, creating commonality between command a <i>FY 2009 Accomplishments:</i> FY 2009	ications Information Exchange Data Model and						
FY 2010 Plans: FY 2010							
Base FY 2011 Plans: FY 2011 Base							
OCO FY 2011 Plans: FY 2011 OCO							
Program #4	0.0	0.000	2.628	0.000	2.628		
Defeat of Emerging Adaptive Threats: In FY11, will test, evaluincorporating multiple defeat mechanisms for the mitigation of							
FY 2009 Accomplishments: FY 2009							

Exhibit R-2A, PB 2011 Army RDT&E Project Justification				DATE: Febr	uary 2010	
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 3: Advanced Technology Development (ATD)	R-1 ITEM NOMENCLATURE PE 0603734A: Military Engineering Ad Technology	PE 0603734A: Military Engineering Advanced T08:			TEMS	
B. Accomplishments/Planned Program (\$ in Millions)	<u> </u>		1			
		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 #5 Deployable Force Protection Technology Integration Demonstration to integrate select technologies to test force protection as a system of capabilities and provide feedback to evolve the plan for integrated of software architectures in compliance with standards or recommends and test modular capability sets for initial select base types. Will deephase I of a red teaming capability to challenge effectiveness of exist in the asymmetric environment. Phase I will include a live simulating identified emerging technology by a blue team conducting a mission collect lessons learned and observations to improve design of technological technology. FY 2009 Accomplishments: FY 2009 Accomplishments: FY 2010 Plans: FY 2010 Plans: FY 2010	f systems for detect, assess, and defend overarching design. Will develop necessary such where none currently exist. Will propose velop concept of operations and stand up sting and future force protection technologies on of a scenario incorporating the use of an against an insurgent, or threat, team. Will ologies and increase robustness to enemy	0.000	0.000	20.500	0.000	20.500

Exhibit R-2A, PB 2011 Army RDT&E Project Justification	R-2A, PB 2011 Army RDT&E Project Justification				DATE: February 2010				
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 3: Advanced Technology Development (ATD)	R-1 ITEM NOMENCLATURE PE 0603734A: Military Engineering Adva Technology	nced	PROJECT T08: COMB						
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 #6		0.000	0.030	0.000	0.000	0.000			
Small Business Innovative Research/Small Business Technology Tr	ansfer Programs								
FY 2009 Accomplishments: FY 2009									
FY 2010 Plans: FY 2010									
Base FY 2011 Plans: FY 2011 Base									
OCO FY 2011 Plans:									

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

N/A

D. Acquisition Strategy

FY 2011 OCO

N/A

UNCLASSIFIED

Accomplishments/Planned Programs Subtotals

7.505

5.880

27.393

0.000

27.393

Exhibit R-2A, PB 2011 Army RDT&E Project Justification	DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	PROJECT
2040: Research, Development, Test & Evaluation, Army	PE 0603734A: Military Engineering Advanced	T08: COMBAT ENG SYSTEMS
BA 3: Advanced Technology Development (ATD)	Technology	
E. Performance Metrics	1 6 1' 4 EV 2010 A D 6 D 1 4	'C .' D 1 1 1 1 M 2010
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.

DATE: February 2010

APPROPRIATION/BUDGET ACTIV	VITY					PROJECT	PROJECT					
2040: Research, Development, Test & Evaluation, Army				PE 0603734A: Military Engineering Advanced				T13: Stationary Power & Energy Tech				
BA 3: Advanced Technology Developme	pment (ATD) Technology D			Demonstrations (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	
T13: Stationary Power & Energy Tech Demonstrations (CA)	16.187	24.871	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing	

A. Mission Description and Budget Item Justification

Exhibit R-2A, PB 2011 Army RDT&E Project Justification

Congressional special interest projects to mature and demonstrate advanced military engineering and geospatial research and engineering technologies.

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

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #1	1.595	0.000	0.000	0.000	0.000
Defense Applications of Carbonate Fuel Cells: In FY09, this Congressional Interest Item demonstrated a high-efficiency, electrochemical hydrogen separator (EHS) system for separating hydrogen from anode exhaust of high temperature fuel cells.					
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	2.392	2.387	0.000	0.000	0.000

DATE: February 2010

Exhibit R-2A, PB 2011 Army RDT&E Project Justification

APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 3: Advanced Technology Development (ATD)	R-1 ITEM NOMENCLATURE PE 0603734A: Military Engineering Advanced Technology		PROJECT T13: Stationary Power & Energy Te Demonstrations (CA)			
B. Accomplishments/Planned Program (\$ in Millions)				Base FY	осо	Total
	1	FY 2009	FY 2010	2011	FY 2011	FY 2011
Gas Engine Driven Air Conditioning Demonstration (GEDAC): In FY09, developed and demonstrated gas engine driven heat pump system for improand cooling applications.						
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		3.987	3.183	0.000	0.000	0.000
Advanced Tactical Fuels for the Military: In FY09, this Congressional Intended hydrogen and hydrocarbon fuel production for use at U.S. military installat or coal resources.						
FY 2009 Accomplishments: FY 2009						
FY 2010 Plans: FY 2010						

xhibit R-2A, PB 2011 Army RDT&E Project Justification			DATE: February 2010					
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 3: Advanced Technology Development (ATD)	R-1 ITEM NOMENCLATURE PE 0603734A: Military Engineering Ac Technology		OJECT B: Stationary Power & Energy Tech monstrations (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 #4		0.797	0.000	0.000	0.000	0.00		
Army Applications of Direct Carbon Fuel Cells: In FY09, this C power generator consisting of a thermocatalytic fuel processor an operating on JP8 fuel. FY 2009 Accomplishments: FY 2010 Plans: FY 2010								
Base FY 2011 Plans: FY 2011 Base								
OCO FY 2011 Plans: FY 2011 OCO								
Program #5		0.000	3.183	0.000	0.000	0.000		
Direct Methanol Fuel Cell Development. This is a Congressional	l Interest Item.							
FY 2009 Accomplishments: FY 2009								

Exhibit R-2A, PB 2011 Army RDT&E Project Justification					DATE: Febr	uary 2010	
APPROPRIATION/BUDGET ACTIVITY		-1 ITEM NOMENCLATURE		PROJECT	_		
2040: Research, Development, Test & Evaluation, Army		E 0603734A: Military Engineering Ad	lvanced	T13: Stationary Power & Energy Tech Demonstrations (CA)			
BA 3: Advanced Technology Development (ATD)		echnology		Demonstratio	ons (CA)		
B. Accomplishments/Planned Program (\$ in Millions)							
			EX7 2000	EN7 2010	Base FY	OCO	Total
			FY 2009	FY 2010	2011	FY 2011	FY 2011
FY 2010 Plans:							
FY 2010							
Base FY 2011 Plans:							
FY 2011 Base							
OCO FY 2011 Plans:							
FY 2011 OCO							
Program #6			1.595	0.000	0.000	0.000	0.000
Complete Molten Carbonate Fuel Cell Demonstrator-Parks Reser	rve Forces Tr	nining Area: In FY09, this					
Congressional Interest Item demonstrated a molten carbonate fuel							
Area, CA.		_					
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			2.232	1.990	0.000	0.000	0.000

Exhibit R-2A, PB 2011 Army RDT&E Project Justification				DATE: Febr	uary 2010	
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 3: Advanced Technology Development (ATD)	R-1 ITEM NOMENCLATURE PE 0603734A: Military Engineering Ad Technology	lvanced	PROJECT T13: Stational Demonstration	Energy Tech		
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Quiet, Low-Impact Alternative Energy Technology: In FY09, this Congress optimized an integrated system for ammonia and urea electrolysis for the papplications.						
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	0.796	0.000	0.000	0.000
Natural Gas Firetube Boiler Demonstration. This is a Congressional Intere	st Item.					
FY 2009 Accomplishments: FY 2009						
FY 2010 Plans: FY 2010						
Base FY 2011 Plans: FY 2011 Base						
						I

Exhibit R-2A, PB 2011 Army RDT&E Project Justification				DATE: Febr	uary 2010	
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 3: Advanced Technology Development (ATD)	R-1 ITEM NOMENCLATURE PE 0603734A: Military Engineering Ad Technology	dvanced	PROJECT T13: Stational Demonstration		Energy Tech	
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 #9		0.000	0.796	0.000	0.000	0.000
Demonstration of Thin Film Solar Modules as a Renewable Energy	y Source. 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 #10		0.000	1.592	0.000	0.000	0.000
Amorphous Si Flexible Photovoltaics for Grid Parity. This is a Co	ongressional Interest Item.					
FY 2009 Accomplishments: FY 2009						
FY 2010 Plans: FY 2010						

Exhibit R-2A, PB 2011 Army RDT&E Project Justification	t R-2A, PB 2011 Army RDT&E Project Justification			DATE: February 2010				
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATUR	EE .	PROJECT					
2040: Research, Development, Test & Evaluation, Army	PE 0603734A: Military Engine	ering Advanced	T13: Stationary Power & Energy Tech					
BA 3: Advanced Technology Development (ATD)	Technology		Demonstrati	ons (CA)				
B. Accomplishments/Planned Program (\$ in Millions)								
				Base FY	осо	Total		
		FY 2009	FY 2010	2011	FY 2011	FY 2011		
Base FY 2011 Plans: FY 2011 Base								
OCO FY 2011 Plans: FY 2011 OCO								
Program #11		0.000	1.990	0.000	0.000	0.000		
Hybrid Energy Systems Design and Testing. This is a Congressi	onal 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 #12		0.000	1.990	0.000	0.000	0.000		
Zinc Flow Electrical Energy Storage. This is a Congressional In	terest Item.							
FY 2009 Accomplishments:								
FY 2009								

Exhibit R-2A, PB 2011 Army RDT&E Project Justification		DATE: February 2010						
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE		PROJECT					
2040: Research, Development, Test & Evaluation, Army	PE 0603734A: Military Engineering Advance	ced	T13: Stationary Power & Energy Tech Demonstrations (CA)					
BA 3: Advanced Technology Development (ATD)	Technology		Demonstrati	ons (CA)				
B. Accomplishments/Planned Program (\$ in Millions)			I					
	F	Y 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 #13		0.000	2.069	0.000	0.000	0.000		
Integrated Alternative Power Systems. 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 #14		0.000	2.388	0.000	0.000	0.000		
Pacific Command Renewable Energy Security System. This is a Congr	essional Interest Item.							

Exhibit R-2A, PB 2011 Army RDT&E Project Justification				DATE: Febr	uary 2010	
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 3: Advanced Technology Development (ATD)	R-1 ITEM NOMENCLATURE PE 0603734A: Military Engineering A Technology	dvanced	PROJECT T13: Stational Demonstration	Energy Tech		
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 #15		1.595	2.507	0.000	0.000	0.000
Conversion of Municipal Solid Waste to Renewable Diesel Fuel. developed and demonstrated processes and equipment to convert (MSW) into 500 liters per hour of diesel fuel.						
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	R-1 ITEM NOMENCLATURE	PROJECT	
2040: Research, Development, Test & Evaluation, Army	PE 0603734A: Military Engineering Advanced	T13: Station	ary Power & Energy Tech
BA 3: Advanced Technology Development (ATD)	Technology	Demonstrati	ons (CA)

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

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #16	1.994	0.000	0.000	0.000	0.000
Biomass-to-Liquid Using Synthetic Enzymes. In FY09, this Congressional Interest Item developed a portable self-contained biomass to liquid fuel (BTL) system using synthetic enzymes and catalysts.					
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	16.187	24.871	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.

DATE: February 2010

0.000 | Continuing

Continuing

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APPROPRIATION/BUDGET ACTI	R-1 ITEM N	NOMENCLA	TURE		PROJECT		RY ENGINEERING TECHNOLOGY					
2040: Research, Development, Test & E	Evaluation, Ai	, , , , , , , , , , , , , , , , , , , ,				ILITARY ENGINEERING TECHNOLOGY						
BA 3: Advanced Technology Developm	ent (ATD)	, , , , , , , , , , , , , , , , , , , ,			DEMONSTRATION (CA)							
COCT (A LACHT)	EN/ 2000	EW 2010	Base	OCO	Total	EX. 2012	EX. 2012	EX. 2014	EW 2015	G 4 T		
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Estimate	FY 2011 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost	
										_r		

0.000

0.000

0.000

0.000

0.000

A. Mission Description and Budget Item Justification

T15: MILITARY ENGINEERING

(CA)

TECHNOLOGY DEMONSTRATION

Exhibit R-2A, PB 2011 Army RDT&E Project Justification

These are Congressional Interest Items for Military Engineering Technology Demonstrations.

11.243

14.643

0.000

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

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #1	0.797	1.193	0.000	0.000	0.000
Counter Rocket, Artillery, Mortar (C-RAM) Armor Development: In FY09, this Congressional Interest Item developed composite roofing members capable of withstanding rocket, artillery, and mortar blast/fragments with advanced cement technology and intelligent composite design. Developed modular composite structures capable of withstanding significant blast overpressures.					
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: Febr	uary 2010	
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 3: Advanced Technology Development (ATD)	R-1 ITEM NOMENCLATURE PE 0603734A: Military Engineering Ad Technology	lvanced	PROJECT T15: MILITA DEMONSTR		ERING TECH	INOLOGY
B. Accomplishments/Planned Program (\$ in Millions)	·					
		FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #2		2.392	0.000	0.000	0.000	0.000
Synthetic Auto Virtual Environment (SAVE): In FY09, this Condevelopment and demonstration of several systems for synthetic combat systems, and vehicle active safety systems. In FY09, devaccidence avoidance.	driver skills training, semi- autonomous ground					
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		2.472	3.820	0.000	0.000	0.000
Enhanced Holographic Imager: In FY09, this Congressional Inter Holographic Imaging System, improving the current technology land deployable.						
FY 2009 Accomplishments: FY 2009						
FY 2010 Plans: FY 2010						

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APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 3: Advanced Technology Development (ATD)	R-1 ITEM NOMENCLATURE PE 0603734A: Military Engineering Ad Technology	lvanced	PROJECT T15: MILITARY ENGINEERING TECHNOLOGY DEMONSTRATION (CA)			INOLOGY
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		0.997	1.592	0.000	0.000	0.00
Nanotechnology for Potable Water and Waste Treatment: In FY0 nanotechnology to develop low-cost, multifunctional materials to produce wastewater meeting EPA discharge standards. FY 2009 Accomplishments: FY 2010 Plans:						
FY 2010						
Base FY 2011 Plans: FY 2011 Base						
OCO FY 2011 Plans: FY 2011 OCO						
Program #5		2.990	0.000	0.000	0.000	0.00
Human Terrain Geographic Decision Support. In FY09, this Congincorporting the human terrain/cultural aspects into geospatial and						

Exhibit R-2A, PB 2011 Army RDT&E Project Justification		DATE: February 2010				
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 3: Advanced Technology Development (ATD)	R-1 ITEM NOMENCLATURE PE 0603734A: Military Engineering Advanced Technology		PROJECT T15: MILITARY ENGINEERING TECHN DEMONSTRATION (CA)			HNOLOGY
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		1.595	1.194	0.000	0.000	0.00
University Center for Disaster Preparedness and Emergency Resp supported center at Rutgers University.	onse. In FY09, this 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 #7		0.000	1.592	0.000	0.000	0.00

Exhibit R-2A, PB 2011 Army RDT&E Project Justification			DATE: February 2010					
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 3: Advanced Technology Development (ATD)	R-1 ITEM NOMENCLATURE PE 0603734A: Military Engineering Ac Technology	dvanced		ARY ENGINEERING TECHNOLOC RATION (CA)				
B. Accomplishments/Planned Program (\$ in Millions)								
		FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011		
Defense Support to Civil Authorities Automated Support System.	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 #8		0.000	2.069	0.000	0.000	0.00		
Optimization of the U.S. Army Topographic Data Management Er	nterprise. 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								

Exhibit R-2A, PB 2011 Army RDT&E Project Justification		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	PROJECT
2040: Research, Development, Test & Evaluation, Army	PE 0603734A: Military Engineering Advanced	T15: MILITARY ENGINEERING TECHNOLOGY
BA 3: Advanced Technology Development (ATD)	Technology	DEMONSTRATION (CA)

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

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #9	0.000	3.183	0.000	0.000	0.000
Enhancing the Commercial Joint Mapping Toolkit to Support Tactical Military Operations. 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					
Accomplishments/Planned Programs Subtotals	11.243	14.643	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.