

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2008

BUDGET ACTIVITY		PE NUMBER AND TITLE							
<b>4 - Advanced Component Development and Prototypes</b>		<b>0603747A - Soldier Support and Survivability</b>							
COST (In Thousands)	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	20865	5751	30716	5277	5367	4330	4434	Continuing	Continuing
610 FOOD ADV DEVELOPMENT	2683	4766	3889	4284	4374	4330	4434	Continuing	Continuing
669 CLOTHING AND EQUIPMENT	8								7954
C08 RAPID EQUIPPING FORCE	16641	985	26827	993	993				46439
C09 SOLDIER SUPPORT EQUIPMENT - AD	1533								1723

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

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February 2008

BUDGET ACTIVITY

PE NUMBER AND TITLE

**4 - Advanced Component Development and Prototypes**

**0603747A - Soldier Support and Survivability**

**B. Program Change Summary**

	FY 2007	FY 2008	FY 2009
Previous President's Budget (FY 2008/2009)	4330	4787	4912
Current BES/President's Budget (FY 2009)	20865	5751	30716
Total Adjustments	16535	964	25804
Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases	7625		
Reprogrammings	9016		
SBIR/STTR Transfer	-106		
Adjustments to Budget Years		964	25804

Change Summary Explanation: Funding - FY 2007: Received \$7.625 million in FY 07 Supplemental and \$9 million reprogrammed in support of the Rapid Equipping Force Program. FY 2009: Funding increase in support of the Rapid Equipment Fielding program.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

**February 2008**

<b>BUDGET ACTIVITY</b> <b>4 - Advanced Component Development and Prototypes</b>		<b>PE NUMBER AND TITLE</b> <b>0603747A - Soldier Support and Survivability</b>					<b>PROJECT</b> <b>610</b>			
COST (In Thousands)	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total Cost	
610 FOOD ADV DEVELOPMENT	2683	4766	3889	4284	4374	4330	4434	Continuing	Continuing	

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

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

<b><u>Accomplishments/Planned Program:</u></b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
FY08: Complete advanced development of an efficient Self-Powered Tray Ration Heater that produces its own electricity from the heat of combustion. A self-powered capability will improve overall operational flexibility and superior Reliability, Availability and Maintainability (RAM) characteristics as compared to battery/generator driven systems with added benefit of reduced weight, lower fuel consumption, and quiet operation while offering the same legacy performance characteristics including capacity, heat time, operational environment, size, weight, and cube. System will utilize standard commercial DC powered burner. Modify system prototype as required and verify capabilities of system to prepare Unitized Group Rations. Test and evaluate; and complete operational testing of system and refine as appropriate. Prepare joint service performance specification for transition to services for procurement.		402	
FY09: Review and validate Ice usage/consumption requirements for Battlefield Ice Supply System (BISS) with Combined Arms Support Command (CASCOM) and the Joint Service Community. Perform market research to evaluate existing Commercial Off the Shelf / Non-Developmental (COTS/NDI) bulk Ice Making and bagging Systems. Develop a Draft Performance Specification or a Commercial Item Description (CID). Prepare a Request for Proposal/Statement of Work (SOW) to award a subsequent developmental contract to design and fabricate BISS prototype(s)			88
FY08: Transition technology and prototype Self Powered Tray Ration (STRH) from Science and Technology (S&T) activity to PM FSS for possible inclusion into the Assault Kitchen. Perform independent Production Qualification Test (PQT) on prototype items and draft a Performance Specification. Transition to 6.5.		145	
FY08: Evaluate COTS Medical Feeding Cart to transport food to patients in field hospitals and transition to the Integrated Logistics Support Center. The Medical Feeding Cart will be a Common Table of Allowance (CTA) item and replace the current gurney in the Medical Field Kitchen Kit.		176	

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

**February 2008**

BUDGET ACTIVITY	PE NUMBER AND TITLE		PROJECT
<b>4 - Advanced Component Development and Prototypes</b>	<b>0603747A - Soldier Support and Survivability</b>		<b>610</b>
FY09: Transition Solar Refrigeration Technology to system development phase, prepare solicitation for prototype, and award contract.			353
FY07: Based on war fighter recommendations, obtained Commercial-Off-The-Shelf/Non-developmental Item (COTS/NDI) and completed development of Meals, Ready-To-Eat (MRE) components and packaging innovations (for 2010 Date of Pack (DOP)) to improve acceptability, expand variety and improve consumption. Down selected components via in-house short term, high temperature storage and technical panels, and completed development of prototype menus; completed draft procurement documents, secured test site and transitioned new items and packaging to 6.5 for 4Q07 field testing. FY08: Develop nanocomposite MRE packaging material (menu bag, primary ration component) to eliminate foil laminate, reduce weight and volume of packaging waste on the battlefield while maintaining barrier properties. Based on war fighter preferences incorporate COTS, NDI and developmental components (for 2011 DOP) into prototype MRE menus. Integrate packaging/food processing Science and Technology (S&T) transitions to improve operational and functional performance. Select field test site and complete draft procurements documents and transition to 6.5 for field testing (4Q08). FY09: Continue to identify suitable COTS/NDI candidate items and conduct in-house product development of food components for fielded individual operational rations (MRE 2012 DOP) to enhance acceptability, increase consumption and improve nutritional intake. Select field test site, complete draft procurement documents and transition to 6.5 for filed testing 4Q09. Conduct pilot scale in-house production to support engineering design, technology insertion, and producibility. Work with vendors and assemblers as needed to ensure feasibility and accommodate technology transition. Develop, integrate, and validate state-of-the-art science and technology, food processing and primary/secondary packaging innovations into individual ration platforms to increase operational effectiveness, functionality and improve logistics.	874	1059	965
FY07: Completed development of Bakery Enhancement Kit to augment Unitized Group Ration - Heat and Serve (UGR-H&S) with high quality, easy to prepare baked goods. Transitioned to 6.5 for field testing and completion of procurement documents.	186		
FY07: Completed development of directional tear packaging for individual ration components to provide significantly easier opening of ration components. Procured production lot (5000 units) of retort films/pouches with preformed, directional tear notches; conducted in-house evaluation of overall package performance, durability, and rough handling; transitioned to 6.5 ration field testing in 4Q07.	120		
FY07: Based on Marine Corps request, selected new components to expand First Strike Ration (FSR) menu availability and improve overall acceptability and consumption. Evaluated new components for product improvement of Long Range Patrol (LRP) and Meal, Cold Weather (MCW). Developed prototype menus for FSR/LRP/MCW and procured components. Developed prototype for Food Packet, Abandon Ship and conducted rough handling test. Supported development and production testing of new items and components from new suppliers/vendors. FY08: Complete FSR/MCW/LRP component down select (COTS/NDI, developmental items and Science and Technology (S&T) transitions), complete draft procurement documents and prototype menu development to improve quality, acceptability, eat on the move capability and consumption rate. Secure test site, coordinate field test questionnaires and protocols, and transition to 6.5 for field testing. Evaluate Food Packet, Abandon Ship with Navy, complete transition of documentation to Defense Supply Center, Philadelphia (DSCP). Initiate integration of modular enhancements to increase caloric availability and improve Warfighter cognitive and physical performance in environmental extremes developed to augment Assault/Special Purpose Rations. Compile draft technical data compiled and finalize acquisition strategy. Transition to 6.5 with assault rations or as stand alone modules.	337	269	
FY09: Analyze field test results of new components. Recommend components and menu profiles to Services. Optimize development of S&T components from Nutritionally Optimized FSR project. Design expanded FSR menus with developmental and non-developmental performance enhancing components. Evaluate range of developmental, non-developmental, and COTS components for modification and expansion of FSR menus based on war fighter feedback, R&D progress, and product development. Complete prototype development and assembly, conduct test planning; transition to 6.5 for field test. Draft procurement technical data for new items and transition to 6.5 for			298

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

**February 2008**

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT	
<b>4 - Advanced Component Development and Prototypes</b>	<b>0603747A - Soldier Support and Survivability</b>	<b>610</b>	
incorporation into assembly documents for FSR and MCW/LRP. Conduct production testing of new components.			
FY08: Initiate work on Modular Operational Ration Enhancements (MORE) program intended to design and provide specific tailored supplement packs to enhance war fighter performance and nutritional status in environmental/altitude extremes. Initial supplement is focused on high altitude use. Identify or develop, in conjunction with United States Army Research Institute of Environmental Medicine (USARIEM), candidate items that combat deleterious effects of altitude exposure including acute mountain sickness (AMS), hypoxia, malabsorption, dehydration, and gastrointestinal disorders. Conduct critical examination of products to decrease recovery time and improve performance. Conduct in-house evaluation studies with USARIEM of prototype products. Revise prototype product as needed and refine technical requirements. FY09: Conduct initial field evaluation/test of prototypes. Refine modular enhancement components and design configuration based on user feedback and scientific/operational test results. Establish baseline for essential nutrients to maintain the proper energy levels, nutritional balance, body weight, and mental and physical alertness within intended scenario. Select test site for FY10 final user evaluation. Transition products and draft technical data to 6.5 projects as stand alone modules or assault ration improvements.		243	216
FY07: Obtained Army approval of Unitized Group Ration-Express (UGR-E), a complete, self-contained non-powered group-serving meal for remote units. Based on Warfighter recommendations obtained Commercial-Off-The-Shelf/Non-Developmental Item (COTS/NDI) and/or completed in-house development of UGR-H&S (2010 Date of Pack (DOP)), UGR-A (2009 DOP) and UGR-E (2010 DOP) components to improve the acceptability of the family of UGRs. Downselected components via in-house technical panels and completed development of prototype UGR-H&S, A, and E menus. Completed draft procurement documents. Secured test site and transitioned to 6.5 for field testing during 4Q07. FY08: Complete UGR-H&S (2011 DOP), UGR-A (2010 DOP) and UGR-E (2011 DOP) component development to improve family of UGRs. Based on Warfighter recommendations, incorporate COTS, NDI, and developmental components into prototype menus. Complete draft procurement documents. Secure test site and transition to 6.5 for field testing. Integrate state of the art packaging and combat ration processing technologies for improved operational and functional performance. FY09: Improve family of UGRs (H&S (2012), A (2011), B and E(2012)) to increase overall Warfighter acceptability, and consumption. Based on Warfighter recommendations incorporate COTS, NDI, and developmental components into prototype menus. Select field test site and transition to 6.5 for field testing. Complete draft procurement documents. Integrate state of the art packaging and combat ration processing technologies for improved operational and functional performance.	988	1173	1015
FY09: Transitioning from 6.3, conduct advanced development of a low-cost, disposable self-heating package for dispensing hot water in the field. Optimize performance of package via material, fitment, and self-heating technology changes. Draft performance-based procurement documents and transition to 6.5 for field testing.			129
FY09: Update and improve the Medical Nutrition Supplement (MNS) to support the military requirement of meeting the unique nutritional needs of all hospitalized patients in a combat environment. Develop/test MNS prototypes consisting of essential food items (broth, gelatin, high protein / high calorie liquid supplements) and supplies for a patient diets, and unitized into a supplemental module.			98
FY08: Conduct producibility testing of MRE non-retort pouches fabricated from polymer nanocomposites. Complete package performance testing of non-retort nanocomposite pouches to include rough handling, permeability and storage stability. Incorporate novel state-of-the-art packaging materials into future combat ration packaging systems that offer low cost, enhanced performance capability, durability, reliability and barrier properties for product shelf life and survivability while achieving strategic military requirements (e.g., reduce weight and cube). Optimize multi-layer nanocomposite structures/films and novel polymer matrices to provide improvement in key properties of morphological, mechanical, barrier, and thermal stability critical to combat rations and increased packaging performance capability. Quantify cost advantage over current from package down-gauging and elimination of specific materials. Obtain Joint Services		298	

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Operational Forum (JSORF) approval and complete performance based requirements document and transition to Defense Supply Center Philadelphia (DSCP).			
FY09: Transition from 6.3 and optimize treated fiberboard based on characterization studies to reduce cost, weight, and improve environmental properties. Fabricate prototype shipping containers using coated alternative fiberboard materials. Evaluate prototype shipping containers for rough handling. Initiate producibility study and secure test site for FY10 user evaluation.			265
FY08: Integrate new technology/ automation concepts and new food service equipment to maintain high standards of food preparation while accommodating a reduction in Culinary Specialists by reducing labor/ preparation time of food items for future Navy CVN-78 ship platform. Identify specific self-serve equipment for galley applications to accommodate reduction in food service attendants. Incorporate/integrate scullery equipment to reduce sanitation labor/time. Recommend galley design based on reconfiguration of crew_s mess, wardroom, scullery, and serving lines to properly support automated self-service feeding equipment and transition to 6.5.		260	
FY07: Completed a provisions storage configuration study for the second Littoral Class Ship, USS Independence (LCS-2). Recommendations were provided to the Naval Supply System Command for chill/freeze and dry provision storage optimization to meet the ship's operational requirements. Recommended foodservice space consolidations and autonomous galley systems to the Navy in support of optimized crew sizes for various ship platforms. Designed prototype models utilizing modular concepts based on service feeding requirements, equipment configurations, manpower usage, production flow, and maintenance requirements to ensure future galley designs meet future Navy. FY08: Transition from 6.3, integrate technology advances in smart process control systems to provide automation and operational monitoring of Navy food service equipment. Demonstrate bi-directional communication network which provides real time equipment status monitoring that utilizes industry accepted North American Association of Food Equipment Manufacturers (NAFEM) protocols. Quantify functionality of future galley process control system as an enabler to accommodate shipboard labor reductions to minimize equipment maintenance requirements through automated internal diagnostics. Food service equipment prototypes will be developed and operational testing will be conducted to validate the concept for shipboard transition into the future Smart Galley. Transition to 6.5	178	404	
FY09: Review and validate shipboard refrigeration and ice consumption requirements with Navy. Perform market research and develop a Request for Proposal/Statement of Work (SOW). The SOW will detail requirements for the contractor to complete design of the system and develop a system prototype as required and verify capabilities of system to prove modular, dual refrigeration and ice making capabilities.			230
FY08: Complete upgrade to replace obsolete Communication Zone (COMMZ) kitchen with commercial food equipment to increase reliability, maintainability, and significantly enhance operational performance capability/ efficiency. Establish design system layout meeting established user requirements and install new COTS equipment. Simplify overall logistics footprint and reduce life cycle costs and training requirements by incorporating modular systems concept. Conduct test and evaluation; perform initial field testing to verify upgraded capabilities and transition to 6.5		204	
FY09: Develop foodservice equipment/systems that support the requirements for the Virginia Class Submarines, and support the legacy submarines platforms. Standardize and optimize the food service equipment, reducing manpower requirements, and supporting NAVSUP's Standard Core Menu for submarines.			232
Small Business Innovative Research/Small Business Technical Transfer Program (SBIR/STTR)		133	
<b>Total</b>		<b>2683</b>	<b>3889</b>

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<b><u>B. Other Program Funding Summary</u></b>		FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Compl	Total Cost
RDTE, 0604713.548, Military Subsistence System		2922	2485	2499	2139	2183	2159	2206	Continuing	Continuing
OPA 3, M65801, Refrigerated Containers		2986	16826	34270	32549	11393	5656	4483	Continuing	Continuing

Comment:

**C. Acquisition Strategy** Project development will transition to System Development & Demonstration and production.

# ARMY RDT&E COST ANALYSIS (R3)

February 2008

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT		
<b>4 - Advanced Component Development and Prototypes</b>			<b>0603747A - Soldier Support and Survivability</b>							<b>610</b>		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Joint Service Food/Combat Feeding Equipment	In-House	RDECOM, Natick, MA	24589	961	1-4Q	1892	1-4Q	1480	1-4Q	Cont.	Cont.	Cont.
Joint Service Food/Combat Feeding Equipment	Contracts	Various	12870	948	1-4Q	1912	1-4Q	1499	1-4Q	Cont.	Cont.	Cont.
Subtotal:			37459	1909		3804		2979		Cont.	Cont.	Cont.
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:												
III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Joint Service Food/Combat Feeding Equipment	MIPR	DTC, Maryland & AEC, Virginia	5563	406	1-4Q	602	1-4Q	538	1-4Q	Cont.	Cont.	Cont.
Subtotal:			5563	406		602		538		Cont.	Cont.	Cont.
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Combat Feeding Program Management	In-House	RDECOM, Natick, MA	2195	291	1-4Q	360	1-4Q	372	1-4Q	Cont.	Cont.	Cont.
SBIR/STTR Tax				77	1-4Q						77	

# ARMY RDT&E COST ANALYSIS (R3)

February 2008

BUDGET ACTIVITY	PE NUMBER AND TITLE						PROJECT		
<b>4 - Advanced Component Development and Prototypes</b>	<b>0603747A - Soldier Support and Survivability</b>						<b>610</b>		
Subtotal:	2195	368		360		372	Cont.	Cont.	Cont.
<b>Project Total Cost:</b>	<b>45217</b>	<b>2683</b>		<b>4766</b>		<b>3889</b>	<b>Cont.</b>	<b>Cont.</b>	<b>Cont.</b>

# Schedule Profile (R4 Exhibit)

February 2008

Event Name	FY 07				FY 08				FY 09				FY 10				FY 11				FY 12				FY 13							
	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				
	<b>BUDGET ACTIVITY</b> <b>4 - Advanced Component Development and Prototypes</b>	<b>PE NUMBER AND TITLE</b> <b>0603747A - Soldier Support and Survivability</b>																												<b>PROJECT</b> <b>610</b>		
Test and evaluate FSR and MCW/LRP, Test and evaluate UGR Enhancements  (1) Test Modular Food Service System aboard Navy ship  Transition mature items to System Development & Demonstration or procurement., Conduct studies on technologies to reduce food service labor on Navy Ships, Develop Modular Food Service equipment and transition to the Navy., Transition First Strike Ration (FSR) components to SDD.  (2) Complete UGR-E producibility demonstrations, field tests and transition to DSCP  (3) Test commercial storage/MAP gas system aboard submarines/ships  Transition advanced development of individual and group ration components to SDD, Compare Advanced Component Development of WEC systems for joint service kitchen  Update ADR300 perf-spec for AF BEAR program office, prepare scope for contract  (4) Award R&D contract to design and fabricate prototypes for the ADR P3I  Validate shipboard refrigeration and ice consumption requirements with Navy																																

# Schedule Profile (R4 Exhibit)

February 2008

Event Name	FY 07				FY 08				FY 09				FY 10				FY 11				FY 12				FY 13																										
	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																							
	<p>(5) Award R&amp;D contract to design and fabricate NavRP prototypes.</p> <p>Evaluate the SBIR automated scullery prototype onboard a Navy aircraft carrier, Quantify manning reductions for the scullery process based on testing results, Integrate control systems for diagnostics/prognostics of the automated scullery, Identify, evaluate, and consolidate service requirements for TriCon Kitchen</p> <p>(6) Award a contract to design and develop a prototype modular TriCon kitchen</p> <p>Review Marine Corp Field Feeding Doctrine identify capability of current systems, Test prototype Battlefield Ice Supply, Test prototype Solar Powered Refrigeration System, Test Vapor Compression Improvement prototype, Test prototype Battlefield Kitchen, Test Self Powered Tray Ration Heater, Transition Bakery Enhancement Kit/ Components to SDD, Test/ Evaluate Multi-Serving Instant Hot Water Package (HOT PAC), Transition HOT PAC procurement documents to DSCP, Test/ Evaluate the improved medical nutrition supplement (MNS), Transition MNS procurement documents to DSCP</p> <p>(7) Transition medical cart to procurement, (8) Transition self powered Tray Ration Heater to System Development Phase, (9) Transition Solar Power Refrigeration Technology to System Development phase</p>																																																		

## Schedule Detail (R4a Exhibit)

February 2008

BUDGET ACTIVITY <b>4 - Advanced Component Development and Prototypes</b>		PE NUMBER AND TITLE <b>0603747A - Soldier Support and Survivability</b>					PROJECT <b>610</b>	
<u>Schedule Detail</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	
Test and evaluate FSR and MCW/LRP	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	
Test and evaluate UGR Enhancements	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	
Test Modular Food Service System aboard Navy ship	1Q							
Transition mature items to System Development & Demonstration or procurement.	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	
Conduct studies on technologies to reduce food service labor on Navy Ships	2Q - 4Q							
Develop Modular Food Service equipment and transition to the Navy.	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 3Q				
Transition First Strike Ration (FSR) components to SDD.	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	
Complete UGR-E producibility demonstrations, field tests and transition to DSCP	1Q							
Test commercial storage/MAP gas system aboard submarines/ships	4Q							
Transition advanced development of individual and group ration components to SDD	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	
Compare Advanced Component Development of WEC systems for joint service kitchen		4Q	1Q - 4Q					
Update ADR300 perf-spec for AF BEAR program office, prepare scope for contract			1Q - 4Q					
Award R&D contract to design and fabricate prototypes for the ADR P3I				2Q				
Validate shipboard refrigeration and ice consumption requirements with Navy			1Q - 2Q					
Award R&D contract to design and fabricate NavRP prototypes.				3Q				

Evaluate the SBIR automated scullery prototype onboard a Navy aircraft carrier					2Q - 4Q		
Quantify manning reductions for the scullery process based on testing results						4Q	
Integrate control systems for diagnostics/prognostics of the automated scullery							2Q - 4Q
Identify, evaluate, and consolidate service requirements for TriCon Kitchen		2Q - 3Q					
Award a contract to design and develop a prototype modular TriCon kitchen			2Q				
Review Marine Corp Field Feeding Doctrine identify capability of current systems						2Q - 4Q	
Test prototype Battlefield Ice Supply			3Q - 4Q				
Test prototype Solar Powered Refrigeration System				3Q - 4Q			
Test Vapor Compression Improvement prototype					3Q - 4Q		
Test prototype Battlefield Kitchen					3Q - 4Q		
Test Self Powered Tray Ration Heater		2Q - 3Q					
Transition Bakery Enhancement Kit/ Components to SDD		1Q					
Test/ Evaluate Multi-Serving Instant Hot Water Package (HOT PAC)			1Q - 4Q				
Transition HOT PAC procurement documents to DSCP				4Q			
Test/ Evaluate the improved medical nutrition supplement (MNS)			1Q - 4Q	1Q - 4Q			
Transition MNS procurement documents to DSCP				4Q			
Transition medical cart to procurement		4Q					
Transition self powered Tray Ration Heater to System Development Phase		2Q					
Transition Solar Power Refrigeration Technology to System Development phase			1Q				

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COST (In Thousands)	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total Cost
C08 RAPID EQUIPPING FORCE	16641	985	26827	993	993				46439

**A. Mission Description and Budget Item Justification:** The US Army Rapid Equipping Force (REF) was established to provide urgently needed state-of-the-art technology to soldiers in the field to meet immediate warfighter needs under operational conditions in the current theaters. The REF Forward Teams in Iraq and Afghanistan work with Combatant Commanders and the soldiers to identify warfighter needs while REF Rear formulates solutions and rapidly delivers/fields new equipment to the deployed units. REF solutions are rapid responses to evolving, adaptable and changing threats, in any operational environment. REF Rear evaluates, utilizes or adapts currently available military or civilian items (COTS/GOTS) which typically have not been type classified for Army-wide use but are available and adaptable to the current Operational Combatant Commander's needs. For the REF, necessary materiel solutions can only be determined as "real time" threat modes are identified. Countermeasures to these evolving threats must be developed/purchased/modified, often within weeks, for the first cycle of spiral type responses. Specifically the REF is charged to: EQUIP operational commanders with off-the-shelf (government or commercial) solutions or near term developmental items that can be researched, developed and acquired quickly - ideally within 90 days. INSERT future force technology solutions that engaged and deploying forces require by developing, testing and evaluating key technologies and systems under operational conditions. ASSESS capabilities and advise Army stakeholders of findings that will enable forces to confront an adaptive enemy rapidly.

The REF works directly with operational commanders to find solutions to identified equipping requirements. These solutions may result in procurement of new or existing military/commercial materiel equipment, or accelerated development of a Future Force materiel solution for insertion into the current force now. The REF adaptive practices are at the forefront of Army modernization and serve as a catalyst and change agent for Army transformation. The REF accomplishes its mission by working in partnership with industry, academia, Army senior leaders, the Army Training and Doctrine Command (TRADOC), the Army acquisition community, and the Army Test and Evaluation Command (ATEC) to meet immediate warfighter needs.

The REF ensures safety testing of all equipment prior to release to the soldier. All equipment must pass Safety Confirmation and have a Capabilities and Limitations Report completed prior to being issued to operational units/soldiers.

Note that: (a) Equipment mix and configuration may change based on changes in operational environment and circumstances. (b) REF- Resource Management Capabilities Needs equipment and funding execution details will be provided in the Secretary of Army report to the Congressional Defense Committee in March and October of each year(per HAC Report #108-553, DoD APPNs Bill 2005, June 18, 2004, page 134.)

**NOTE:**

FY 2007 funding total includes \$7.625 million received in GWOT supplemental.

FY 2008 funding total does not include \$31.621 million previously requested for current FY 2008 GWOT requirements.

<b><u>Accomplishments/Planned Program:</u></b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Congressional add for Biodegradable Soil Penetrant Dust Palliative for Land Surfaces. The REF provided operational commanders with	16641		

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

**February 2008**

BUDGET ACTIVITY	PE NUMBER AND TITLE		PROJECT
<b>4 - Advanced Component Development and Prototypes</b>	<b>0603747A - Soldier Support and Survivability</b>		<b>C08</b>
<p>off-the-shelf (government or commercial) solutions or near-term developmental items that can be researched, developed and acquired quickly; ideally, within 90 days. During FY07 the REF provided solutions to engaged and deploying forces to detect, identify and defeat enemy equipment and actions designed to injure or kill and devices to help protect the warfighter. There is \$4M to be used on projects yet not determined.</p>			
<p>FY08: The REF was designed to bridge the gap between the lengthy acquisition process and warfighter equipping needs that should not be delayed. Specifically the Rapid Equipping Force is charged to: EQUIP operational commanders with off-the-shelf (government or commercial) solutions or near-term developmental items that can be researched, developed and acquired quickly - ideally, within 90 days. INSERT future force technology solutions that engaged and deploying forces require by developing, testing and evaluating key technologies and systems under operational conditions. ASSESS capabilities and advise Army stakeholders of findings that will enable forces to confront an adaptive enemy rapidly. The REF ensures safety testing of all equipment prior to release to the soldier. REF focuses on the development and testing of systems and mechanisms designed to detect, identify and defeat enemy equipment and actions designed to injure or kill and devices to help protect the warfighter.</p>		957	
<p>FY09: The REF was designed to bridge the gap between the lengthy acquisition process and warfighter equipping needs that should not be delayed. Specifically the Rapid Equipping Force is charged to: EQUIP operational commanders with off-the-shelf (government or commercial) solutions or near-term developmental items that can be researched, developed and acquired quickly - ideally, within 90 days. INSERT future force technology solutions that engaged and deploying forces require by developing, testing and evaluating key technologies and systems under operational conditions. ASSESS capabilities and advise Army stakeholders of findings that will enable forces to confront an adaptive enemy rapidly. The REF ensures safety testing of all equipment prior to release to the soldier. REF focuses on the development and testing of systems and mechanisms designed to detect, identify and defeat enemy equipment and actions designed to injure or kill and devices to help protect the warfighter. The REF continues to maintain our support to commanders to ensure that we provide a solution in the areas of Protecting the Force and Intelligence, Surveillance and Reconnaissance(ISR). Based on historical analysis (we started in our support to commanders located in Afghanistan and Iraq in FY05, then added Kuwait in FY06 and in FY 07 and by end of FY08 we will have increased our support to the NTC, Ft Polk (JRTC) and Germany (training areas)). The REF anticipates in FY09 that the level of support will not decrease but will increase based on historical increases to various different AORs. Due to the level of complexity of support required and multiple locations, program will require funding to continue support in bridging the gaps in the areas of Protecting the Force and Intelligence, Surveillance and Reconnaissance (ISR).</p>			26827
Small Business Innovative Research/Small Business Technology Transfer Program (SBIR/STTR)			28
<b>Total</b>		16641	985

<b><u>B. Other Program Funding Summary</u></b>	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Compl	Total Cost
Other Procurement, Army	90160	451851	20190	51067	58352			Continuing	Continuing
Operations and Maintenance, Army	116800	13049	12986	14164	11700	12000	12400	Continuing	Continuing

Comment: The REF process is designed to rapidly provide capabilities to solve immediate warfighter needs and supports efforts to mitigate asymmetric and traditional threats. A key element of this process is the provision for execution flexibility; strict adherence to obligation goals may hinder REF compliance with Senior Leadership guidance. The REF process ensures the flexibility to rapidly respond to an adaptive enemy who changes in months, not years. The REF focus is on finding effective capabilities to counter emerging

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2008

BUDGET ACTIVITY

**4 - Advanced Component Development and Prototypes**

PE NUMBER AND TITLE

**0603747A - Soldier Support and Survivability**

PROJECT

**C08**

threats as well as proactively anticipate the enemy's next step.

To date, the REF has equipped deployed units and the Combat Training Centers with different types of equipment resulting in saved lives and fewer injuries to the warfighter while increasing the combat effectiveness of both Soldiers and units.

**C. Acquisition Strategy** The REF provides urgently needed, state-of-the-art technology to soldiers in the field to meet immediate requirements. REF Rear evaluates, utilizes or adapts currently available military or civilian items (COTS/GOTS) which typically have not been type classified for Army-wide use but are available and adaptable to the current Operational Combatant Commander's needs. The REF solution is a rapid response to evolving, adaptable and changing asymmetric threats in any operational environment. The REF was designed to bridge the gap between the lengthy acquisition process and warfighter equipping needs that should not be delayed. Specifically the Rapid Equipping Force is charged to: EQUIP operational commanders with off-the-shelf (government or commercial) solutions or near-term developmental items that can be researched, developed and acquired quickly - ideally, within 90 days. INSERT future force technology solutions that engaged and deploying forces require by developing, testing and evaluating key technologies and systems under operational conditions. ASSESS capabilities and advise Army stakeholders of findings that will enable forces to confront an adaptive enemy rapidly.

# ARMY RDT&E COST ANALYSIS (R3)

February 2008

BUDGET ACTIVITY			PE NUMBER AND TITLE								PROJECT	
4 - Advanced Component Development and Prototypes			0603747A - Soldier Support and Survivability								C08	
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Blaze - Fire Resistant Fabric (Protect Force) R3 Line	MIPR	US Army RDECOM Acquisition Center (Natick), Natick, MA		240							240	
Atlas - Classified (Network Enhanced Battle Command	MIPR	Naval Warfare Center, Paxtuent River, MD		995							995	
CABO 360 Degree (Gunshot Detector) - Counter Sniper - Protect Force in Counter-Insurgency Line	MIPR	White Sands Missile Range, White Sands NM		650							650	
CABO: Anti Optics (Vehicle Weapon System) - Protect Force in Counter-Insurgency Operatio R3 Line	MIPR	US Army RDECOM, Picatinny Arsenal, NJ		263							263	
Crosshairs - Projects- Protect force in counterinsurgency Operations	MIPR			2000							2000	
Dragon Fly - Classified - Protect Network Enable Battle Command	MIPR	Precision Fires Rocket & Missile Systems _ PMO		150							150	
Jefferson (MIPs) R&D Molecularly Imprinted Polymers for Explosive Detection - Protect Force in Coun	MIPR	REDCOM, Aberdeen Proving Ground, MD		914							914	
Memphis - generator engine Engine Efficiency technology	MIPR	PM Mobile Electric Power, Fort Belvoir, VA		15							15	
Oxnard - Light weight ballistic face shields (Enhanced ISR Capabilities)	MIPR	US Army Aberdeen Test Center, Aberdeen Proving Ground, Aberdeen, MD		244							244	
Prince - Concept Vehicle Prototypes (Protect force in counter-insurgency Operations)	MIPR	REDCOM, Aberdeen Proving Ground, MD		500							500	
Quercetin - Fund study 5 testing of Quercetin (Logistics and Medical in COIN)	MIPR	US Army RDECOM Acquisition Center (Natick), Natick, MA		200							200	

# ARMY RDT&E COST ANALYSIS (R3)

February 2008

BUDGET ACTIVITY			PE NUMBER AND TITLE								PROJECT	
<b>4 - Advanced Component Development and Prototypes</b>			<b>0603747A - Soldier Support and Survivability</b>								<b>C08</b>	
Transportation Hybrid Electric Power Station (THEP) - Modification to Sky-built contract to purchase	MIPR	Marine Corps System Command, Quantico, VA; US Dept of Energy, Golden, CO and White Sands Missile Ran		458							458	
Wax Dog _ IED sniffing off-leash dogs (Enhanced ISR Capabilities)	MIPR	Defense Advanced Research Project Agency (DARPA), Arlington, VA		600							600	
BLAZE-2 - Protect Force	MIPR	US Army Aberdeen Test Center, Aberdeen Proving Ground, Aberdeen, MD		461		81					542	
OBELISK - Mast mounted camera with laser range finder and grid (Enhanced ISR Capabilities)	MIPR	US Army Aberdeen Test Center, Aberdeen Proving Ground, Aberdeen, MD		390		79					469	
Saigon01-Brackets and test system	MIPR	NVD		46							46	
Pepper - Protect Force	MIPR	US Army Aberdeen Test Center, Aberdeen Proving Ground, Aberdeen, MD		494							494	
Razorback - Integration (Protect Force)	MIPR	TARDEC		229							229	
ISO Balance	MIPR					205					205	
Various Projects - Protect The Force, Enhance ISR, Logistic and Med COIN	MIPR	Various Locations TBD				420		21427			21847	
Various Projects - TBD		Various Locations TBD		4000							4000	
Subtotal:				12849		785		21427			35061	
II. Support Costs	Contract Method &	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award	FY 2008 Cost	FY 2008 Award	FY 2009 Cost	FY 2009 Award	Cost To Complete	Total Cost	Target Value of

# ARMY RDT&E COST ANALYSIS (R3)

February 2008

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT		
<b>4 - Advanced Component Development and Prototypes</b>			<b>0603747A - Soldier Support and Survivability</b>							<b>C08</b>		
	Type				Date		Date		Date		Contract	
Stealth Reconnaissance/Assault Transport System (STRATS) -	Supply Purchase	NVSED		13							13	
Various Projects	MIPR	Various Locations						27			27	
Subtotal:				13				27			40	

III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
ATEC - Projects - Protect Force in Counterinsurgency Operations	MIPR	Various locations		3377							3377	
CABO - Kelvar Additional Protection _ Protect Force in Counter-Insurgency Operations	MIPR	US Army RDECOM Acquisition Center, Aberdeen Proving Ground, MD		114							114	
Cobra Feasibility Study - Protect Force in Counter-Insurgency Operations	MIPR	White Sands Missile Range, NM		25							25	
ELSORV _ Air Conditioning Testing (Protect Force in Counterinsurgency Operations	MIPR	US Army RDECOM Acquisition Center, Aberdeen Proving Ground, MD		38							38	
Hardwire _ Quantico (Classified) - Testing of Hardwire Armor Developmental testing	MIPR	US Army RDECOM Acquisition Center, Aberdeen Proving Ground, MD		54							54	
P-900: Advanced Armor development and testing -	MIPR	White Sands Missile Range, NM		106							106	
Sentry System Phase I - AWG Sentry (Projects - Enhanced ISR Capabilities)	MIPR	US Army RDECOM Acquisition Center, Aberdeen Proving Ground, MD		50							50	
Cobra - Vehicle Test (Protect Force)	MIPR	ARL		15							15	

# ARMY RDT&E COST ANALYSIS (R3)

February 2008

BUDGET ACTIVITY			PE NUMBER AND TITLE								PROJECT	
<b>4 - Advanced Component Development and Prototypes</b>			<b>0603747A - Soldier Support and Survivability</b>								<b>C08</b>	
ATEC - Projects - Protect Force in Counterinsurgency Operations	MIPR	US Army RDECOM Acquisition Center, Aberdeen Proving Ground, MD				200					200	
Various Projects (Protect Force in Counterinsurgency Operations, and Intell, Survel, and Recon	MIPR	Various Locations						5373			5373	
Subtotal:				3779		200		5373			9352	

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:												

<b>Project Total Cost:</b>		<b>16641</b>		<b>985</b>		<b>26827</b>		<b>44453</b>	
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