Exhibit R-2, PB 2010 Army RDT&E Budget Item Justification									DATE: May 2009	
APPROPRIATION/BUDGET ACTIVITY 2040 - Research, Development, Test & Evaluation, Army/BA 3 - Advanced Technology Development (ATD)					R-1 ITEM NOMENCLATURE PE 0603001A Warfighter Advanced Technology					
COST ($ in Millions)	**FY 2008 Actual**	**FY 2009 Estimate**	**FY 2010 Estimate**	**FY 2011 Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
Total Program Element	65.489	73.352	37.574						Continuing	Continuing
C07: JOINT SERVICE COMBAT FEEDING TECH DEMO	1.780	2.258	2.354						Continuing	Continuing
J50: FUTURE WARRIOR TECHNOLOGY INTEGRATION	35.256	36.333	30.056						Continuing	Continuing
J52: WARFIGHTER ADVANCED TECHNOLOGY INITIATIVES (CA)	23.134	29.702	.000						Continuing	Continuing
242: AIRDROP EQUIPMENT	4.029	3.788	3.811						Continuing	Continuing
543: AMMUNITION LOGISTICS	1.290	1.271	1.353						Continuing	Continuing

A. Mission Description and Budget Item Justification

This program element (PE) provides Soldiers with the most effective personal clothing, equipment, and rations at the least weight and sustainment burden. This PE supports the maturation and demonstration technologies associated with air delivery of personnel and cargo (project 242), improved weapon systems for munitions availability and survivability (project 543), combat rations and combat feeding equipment (project C07), combat clothing and personal equipment (including protective equipment such as personal armor, helmets, and eye wear) (project J50). Project J52 funds congressional special interest items. The projects in this PE adhere to Tri-Service Agreements on clothing, textiles, and food with oversight and coordination provided by the directors of Service laboratories through the Warrior Systems Technology Base Executive Steering Committee.

Work in this PE is related to, and fully coordinated with, PE 0602786A (Warfighter Technology), PE 0602105A (Materials Technology), PE 0602618A (Ballistics Technology), PE 0602624A (Weapons and Munitions Technology), PE 0602705A (Electronics and Electronic Devices), PE 0603004A (Weapons and Munitions Advanced Technology), PE 0603008A (Command, Control, Communications Advanced Technology), and PEs 0602623A and 0603607A (Joint Service Small Arms Program).

Exhibit R-2, PB 2010 Army RDT&E Budget Item Justification	DATE: May 2009
APPROPRIATION/BUDGET ACTIVITY 2040 - Research, Development, Test & Evaluation, Army/BA 3 - Advanced Technology Development (ATD)	**R-1 ITEM NOMENCLATURE** PE 0603001A Warfighter Advanced 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 is performed by the Natick Soldier Research, Development, and Engineering Center (NSRDEC), Natick, MA and the Armament Research, Development, and Engineering Center (ARDEC), Picatinny, NJ.

B. Program Change Summary ($ in Millions)

	FY 2008	FY 2009	FY 2010	FY 2011
Previous President's Budget	86.103	46.793	42.611	
Current BES/President's Budget	65.489	73.352	37.574	
Total Adjustments	-20.614	26.559	-5.037	
Congressional Program Reductions	.000	-3.241		
Congressional Rescissions	.000	.000		
Total Congressional Increases	.000	29.800		
Total Reprogrammings	-18.331	.000		
SBIR/STTR Transfer	-2.283	.000		

Change Summary Explanation

FY08 funding was decreased due to transfer of congressional interest items.
FY09 funding increase is due to congressional special interest items.
FY10 funding was decreased to support higher priority efforts.

Exhibit R-2a, PB 2010 Army RDT&E Project Justification								DATE: May 2009		
APPROPRIATION/BUDGET ACTIVITY 2040 - Research, Development, Test & Evaluation, Army/BA 3 - Advanced Technology Development (ATD)				R-1 ITEM NOMENCLATURE PE 0603001A Warfighter Advanced Technology					PROJECT NUMBER C07	
COST ($ in Millions)	**FY 2008 Actual**	**FY 2009 Estimate**	**FY 2010 Estimate**	**FY 2011 Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
C07: JOINT SERVICE COMBAT FEEDING TECH DEMO	1.780	2.258	2.354						Continuing	Continuing

A. Mission Description and Budget Item Justification

This project matures and demonstrates technologies for military combat feeding systems and combat rations to include processing, preservation, packaging, and equipment and energy technologies that reduce the logistics footprint. This project demonstrates combat feeding technology with reduced logistics (in component parts, weight, cube, fuel, and water) and labor requirements, while improving the quality of food service. The project, a Department of Defense (DoD) program for which the Army has Executive Agent responsibility, provides technology development for Joint Service Combat Feeding. The DoD Combat Feeding Research and Engineering Board provides oversight for this project.

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 and managed by the US Army Natick Soldier Research, Development and Engineering Center (NSRDEC), Natick, MA. This project has collaborative efforts with the US Army Research Institute for Environmental Medicine.

B. Accomplishments/Planned Program ($ in Millions)	**FY 2008**	**FY 2009**	**FY 2010**	**FY 2011**
Combat Feeding Equipment Technologies: This effort demonstrates technologies for military combat feeding systems to reduce logistics footprint of field feeding. In FY08, integrated and demonstrated a prototype beverage chiller with a standard commercial or military backpack hydration system and transitioned to PM-Clothing and Individual Equipment (CIE) and PM-Individual Combat Equipment (ICE); developed new joint service battlefield kitchen; demonstrated multi-serving self-heating hot water system enhancement to Unitized Group Ration Express (UGR-E); and completed prototype development and demonstration of solar-powered refrigerated container and transitioned to PM-Force Sustainment Systems (PM-FSS). In FY09, demonstrate joint service Battlefield Kitchen based on using state of the art power generation systems (FY08 novel co-generators from PE 0602786A/project H99) and transition to PM-FSS; complete final technology demonstration of Waste to Energy Converter and transition to PM-FSS. In FY10, will integrate and demonstrate an ethylene control system (prolongs freshness) in refrigerated containers to extend the shelf-life of fresh fruits and vegetables.	.640	.863	.900	

Exhibit R-2a, PB 2010 Army RDT&E Project Justification		DATE: May 2009
APPROPRIATION/BUDGET ACTIVITY 2040 - Research, Development, Test & Evaluation, Army/BA 3 - Advanced Technology Development (ATD)	R-1 ITEM NOMENCLATURE PE 0603001A Warfighter Advanced Technology	PROJECT NUMBER C07

B. Accomplishments/Planned Program ($ in Millions)	FY 2008	FY 2009	FY 2010	FY 2011
Ration Stabilization, Packaging, and Novel Nutrient Delivery Technologies: This effort demonstrates technologies for enhancing nutrient composition and consumption to maximize cognitive and physical performance. In FY08, downselected novel diagnostics for food pathogen array detection systems. This expanded diagnostic capability, while reducing weight and volume of deployable array system; conducted biodegradable coating trials for prototype compostable fiberboard containers - characterized for biodegradation, water resistance and insect repellency. In FY09, demonstrate effectiveness of providing phytonutrients (organic components of plants, that promote human health) via buccal delivery (mouth tissue) and incorporate into ration components to demonstrate human performance optimization in validated military performance tasks (e.g., victim rescue, 30m combat rushes); conduct final technology demonstration of novel food pathogen diagnostic technologies incorporated into array systems and transition to Veterinary Services Activity/Office of the Surgeon General (VSA/OTSG) for procurement; demonstrate Hybrid Optimal Processing (HOP) technique to reduce processing time and increase food quality and nutrient retention.	1.140	1.388	.000	
Ration Stabilization, Packaging, and Novel Nutrient Delivery Technologies (cont'd): This effort demonstrates technologies for enhancing nutrient composition and consumption to maximize cognitive and physical performance. In FY10, will demonstrate shelf stability of probiotic enhanced ration components and encapsulated oils for ration systems; will prepare field manual on validated assays/surveys for the analysis of food pathogens and biological agents and transition to the VSA/OTSG; will demonstrate the optimal use of analytical food pathogen detection diagnostics and the accompanying procedures for high throughput screening of foods.	.000	.000	1.454	
Small Business Innovative Research/Small Business Technology Transfer Programs	.000	.007	.000	
Total	1.780	2.258	2.354	

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-2a, PB 2010 Army RDT&E Project Justification								DATE: May 2009		
APPROPRIATION/BUDGET ACTIVITY 2040 - Research, Development, Test & Evaluation, Army/BA 3 - Advanced Technology Development (ATD)				R-1 ITEM NOMENCLATURE PE 0603001A Warfighter Advanced Technology					PROJECT NUMBER J50	
COST ($ in Millions)	**FY 2008 Actual**	**FY 2009 Estimate**	**FY 2010 Estimate**	**FY 2011 Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
J50: FUTURE WARRIOR TECHNOLOGY INTEGRATION	35.256	36.333	30.056						Continuing	Continuing

A. Mission Description and Budget Item Justification

This project matures, demonstrates and integrates high-payoff technologies to provide the Soldier with the most effective personal protective clothing, electronics subsystems, and duty position-specific mission equipment at the least weight, sustainment and cognitive burden. Efforts in this project focus on maturation and demonstration of technologies associated with combat clothing and personal equipment including protective equipment such as personal armor, helmets and eyewear; lightweight, ruggedized, durable components for situational awareness and network connectivity; load-bearing/load carrying augmentation systems; and power/power management components/systems for the individual Soldier.

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 and managed by the US Army Natick Soldier Research, Development and Engineering Center (NSRDEC), Natick, MA.

B. Accomplishments/Planned Program ($ in Millions)	FY 2008	FY 2009	FY 2010	FY 2011
Integrated Soldier Protection: This effort matures and demonstrates technologies to achieve improvements enabled by advanced integrated lightweight Soldier protective headgear and clothing. In FY08, initiated a systems engineering process, in collaboration with the Joint Science and Technology Office (JSTO) Chemical Ensemble project, to develop advanced concepts for integrated chemical, biological, toxic industrial materials (TIM) and network enabled personnel protective systems. A joint technology demonstration is planned in FY10. Developed initial concepts of anthropometrically-based conformal armor plates to enhance fit and armor area of coverage. Designed a robust and streamlined personal area network for future Soldier system concepts. In FY09, select the most promising integrated protection technology solutions designed in FY08, (i.e., networked physiological monitors, eye protection, improved armor) and continue to mature and demonstrate performance; conduct technical tests and structured and freeplay field demonstrations of both technology and systems to obtain relevant user feedback for design improvement, and to ensure technical and operationally-based system performance metrics are developed to support rapid transition of integrated technology solutions.	5.314	5.284	.000	
	5.314	4.850	.000	

Exhibit R-2a, PB 2010 Army RDT&E Project Justification		DATE: May 2009
APPROPRIATION/BUDGET ACTIVITY 2040 - Research, Development, Test & Evaluation, Army/BA 3 - Advanced Technology Development (ATD)	R-1 ITEM NOMENCLATURE PE 0603001A Warfighter Advanced Technology	PROJECT NUMBER J50

B. Accomplishments/Planned Program ($ in Millions)	FY 2008	FY 2009	FY 2010	FY 2011
Soldier Ballistic and Blast Protection: This effort matures and demonstrates technologies to achieve Warfighter survivability capability improvements enabled by test devices and protocols to protect against blast and ballistic threats. In FY08, designed and refined test equipment and experimental protocols to generate means of evaluating current and future protective systems against primary blast lung injury (PBLI). Conducted analysis of available blast and ballistic protective systems and component assessment tools, devices and protocols to devise standardized system level assessment protocols. Conducted blast testing to determine changes to devices, and began to develop associated specific standardized personnel blast test protocol. In FY09, finalize test equipment and protocol for PBLI protection system assessment, benchmark protection afforded by currently fielded items and transition equipment protocol; continue effort to develop system level assessment protocols and test devices to address other ballistic and blast-related injury mechanisms (fragments, burns, inhalation of toxic gas, etc.); begin to translate knowledge from FY08 blast testing of injury data, criteria, and blast event characterization efforts into materiel design solutions and evaluate effectiveness of protection systems.				
Soldier Mobility and Enhanced Load Carriage: This effort matures and demonstrates technologies to achieve capability improvements enabled by wearable load-bearing equipment that assist in Warfighter strength and mobility. In FY08, matured and refined components and subsystems transitioned from the Defense Advanced Research Projects Agency (DARPA) Exoskeleton program (full body system) and PE 0602786A/project H98; continued to develop concept for using Exoskeleton to aid Soldiers in loading and delivery operations. In FY09, develop human use protocols to assess effects of wearing Exoskeleton system; continue to mature component technology and integrate safety performance parameters into Soldier loading and delivery systems; conduct technical tests and field demonstrations with Combined Arms Support Command (CASCOM/Ft. Lee) for user feedback to ensure relevant system performance evaluations to enable transition of technology solutions to PEO Soldier.	3.527	3.689	.000	
Small Combat Unit C4 Interfaces: This effort matures and demonstrates technologies to provide more durable Soldier displays and subsystems that provide greater situational awareness with less cognitive stress. In FY08, assessed, selected, and matured ground Soldier components and/or subsystems that required refinement and further maturation to include flexible displays, small form-factor processors, Soldier Radio Waveform-based communicating devices, advanced communication headsets with hearing protection, motion-sensing gloves, integrated trackball/mouse and keypads; cabling and connectors to include micro and nano connectors to enhance Soldier-borne networking between head, body, and weapon systems; continued to mature the software translation tools for converting	6.230	7.997	.000	

Exhibit R-2a, PB 2010 Army RDT&E Project Justification		DATE: May 2009
APPROPRIATION/BUDGET ACTIVITY 2040 - Research, Development, Test & Evaluation, Army/BA 3 - Advanced Technology Development (ATD)	R-1 ITEM NOMENCLATURE PE 0603001A Warfighter Advanced Technology	PROJECT NUMBER J50

B. Accomplishments/Planned Program ($ in Millions)	FY 2008	FY 2009	FY 2010	FY 2011
Force XXI Battlefield Command Brigade and Below (FBCB2) software for use in Soldier networking equipment and demonstrated additional modular capabilities (snap connectors and rally point glove). In FY09, continue to exploit Soldier, squad, and platoon network technology maturation efforts (i.e., emerging wireless body receiver, power hub manager, etc); conduct technical tests/field demonstrations of Soldier-borne networking combined with user feedback to ensure system performance evaluations for transition of integrated technology solutions as well as assess cognitive loading effects.				
Small Business Innovative Research/Small Business Technology Transfer Programs	.000	.958	.000	
Small Unit Lethality Integration: This effort matures and demonstrates technologies for capability improvements in lighter weight, more energy efficient Soldier borne computing and communication equipment. In FY08, conducted lethality analyses of Small Combat Unit (SCU) operational concepts and enabling technologies and evaluated promising technologies individually and as integrated systems of systems in relative field environment. Using models and simulations, analyzed combat effectiveness of the capabilities of the SCU such as networked lethality, small-unit weapon systems. Assessed design parameters impacting SCU to include: system size, weight, power, and cost; and Soldier reaction time to direct and indirect fires. Integrated enhancements to small unit cooperative engagement for more accurate firing solutions. In FY09, continue to mature government-owned open system architectures for current and future networks; assess and evaluate latency across Soldier-vehicle networks to enable quicker call for fire and lethal effects and battlefield sensor awareness; conduct laboratory tests and field demonstrations of maturing network architectures, combined with user feedback, to ensure desired performance.	4.735	3.202	.000	
Soldier Power and Energy: This effort matures and demonstrates technologies to achieve capability improvements in lightweight high-energy and density Soldier power and power management components and subsystems. In FY08, integrated innovative Soldier power and energy solutions and matured system solutions for ground and mounted Soldiers and aviators to include: methanol-based Soldier hybrid fuel cell power source designed under PE 0602705A/ project H11, conformal rechargeable battery packs integrated into Soldier tactical gear, solid oxide fuel cells, thin-film rechargeable batteries, platoon-level battery recharging generator, and half-sized BA 5590 Li/CFx batteries (individual Soldier radio battery). In FY09, continue to mature methanol-based Soldier hybrid fuel cell power source, higher energy density conformal rechargeable battery (central integrated Soldier battery),and half-sized BA 5590 Li/CFx batteries; investigate rechargeable battery development based on packaging thin film rechargeable battery technology; integrate nano-technology based	4.855	4.861	.000	

Exhibit R-2a, PB 2010 Army RDT&E Project Justification		DATE: May 2009
APPROPRIATION/BUDGET ACTIVITY 2040 - Research, Development, Test & Evaluation, Army/BA 3 - Advanced Technology Development (ATD)	R-1 ITEM NOMENCLATURE PE 0603001A Warfighter Advanced Technology	PROJECT NUMBER J50

B. Accomplishments/Planned Program ($ in Millions)	FY 2008	FY 2009	FY 2010	FY 2011
electro-textiles with photovoltaic energy properties to augment primary system power sources; demonstrate platoon-level generator recharging batteries; conduct technical tests and demonstrations, combined with user feedback to ensure system performance evaluations that enable transition of integrated technology solutions to Army PMs.				
Small Unit Systems Integration and Demonstration: This effort matures and demonstrates technologies that support upgrades to fielded Soldier equipment. In FY08, expanded the Soldier Systems Integration Lab (SSIL) capabilities to include an open architecture lab environment, coupled with a data collection infrastructure; continued to identify means to improve Soldier/Small Combat Unit (SCU) physical, network, software, interoperability, and conducted human integration testing within system of systems platform without impacting the development and integration of concurrent future warrior technologies; completed technical performance evaluation assessment of integrated survivability, lethality, microclimate cooling, physiologic monitoring, and power and energy technologies within current and emerging small unit operational and technical architectures; and conducted virtual and live simulations to evaluate rapidly configured and reconfigured modular network architectures as well as command and control information systems. In FY09, develop and implement transportable assessment and demonstration Soldier subsystem modules to expedite component integration and technology maturation assessments conducted with Soldiers at operationally relevant field environments at FT Dix and FT Benning.	5.281	5.492	.000	
Integrated Soldier Protection (cont'd): This effort matures and demonstrates technologies to achieve improvements enabled by advanced integrated lightweight Soldier protective headgear and clothing. In FY10, will demonstrate Microclimate Cooling (MC) technologies from PE 0602786A/project H98; will conduct joint technical demonstration with JSTO-Chemical and Biological Defense (CBD) for advanced CB protection integrated with future Soldier systems technologies that provide little or no thermal burden to Soldier; will leverage emerging breadboard system from PE 0602786A/project H98 and incorporate advanced materials from PE 0602105A/project H84 to develop next generation Soldier-centric headgear concepts focused on enhanced protection against agile laser, ballistic, impact, and aural threats (battlefield noise), while enhancing integration of head-borne displays, sensors, and battle command applications.	.000	.000	3.463	
Soldier Mobility and Enhanced Load Carriage (cont'd): This effort matures and demonstrates technologies to achieve capability improvements enabled by wearable load-bearing equipment that assist in Warfighter strength and mobility. In FY10, will optimize and mature low power components to provide a lighter, more agile and efficient operation for a lightweight wearable individual load carrying and mobility aid (lower body system); will conduct mobility aid technical	.000	.000	3.841	

Exhibit R-2a, PB 2010 Army RDT&E Project Justification		DATE: May 2009
APPROPRIATION/BUDGET ACTIVITY 2040 - Research, Development, Test & Evaluation, Army/BA 3 - Advanced Technology Development (ATD)	R-1 ITEM NOMENCLATURE PE 0603001A Warfighter Advanced Technology	PROJECT NUMBER J50

B. Accomplishments/Planned Program ($ in Millions)	FY 2008	FY 2009	FY 2010	FY 2011
tests and field demonstrations with Director Combat Developments and Soldier Battle Lab, Ft. Benning for user feedback and to demonstrate performance; will develop operation and maintenance manuals to assist with rapid transition of technology solutions; and will conduct field investigations to optimize Soldier use of spatial information to enhance mobility (understand and remember user's movements during tasks for future exoskeleton replication purposes).				
Small Combat Unit C4 Interfaces (cont'd): This effort matures and demonstrates technologies to provide more durable Soldier displays and subsystems that provide greater situational awareness with less cognitive stress. In FY10, will examine interfacing and interference characteristics of targeted wireless protocols with emerging communication devices in relevant field environments; will design Soldier systems interface to enable robotic control and image dissemination across the squad.	.000	.000	6.418	
Soldier Power and Energy (cont'd): This effort matures and demonstrates technologies to achieve capability improvements in lightweight high-energy and density Soldier power and power management components and subsystems. In FY10, will conduct user assessments of multiple hybrid power systems (reformed methanol, direct methanol) in simulated combat settings for 24 and 72 hour missions; will demonstrate integration of micro electrical-mechanical systems based JP-8 burner with a Stirling engine which enables self-contained power capability. Effort is coordinated with PE 0602705/project H11, H94.	.000	.000	3.336	
Soldier Ballistic and Blast Protection (cont'd): This effort matures and demonstrates technologies to achieve capability improvements enabled by test devices and protocols to protect against blast and ballistic threats. In FY10, will mature system level assessment protocol and test devices test for transition to PM Soldier Equipment and industry; will leverage ballistic and blast protective materials from PE 0602786A/project H98 and PE 0602105A/ project H84 to demonstrate enhanced ballistic and blast protection system for thorax area. Will mature and demonstrate breadboard enhanced helmet for next generation armor system. This task collaborates with DoD Medical Research Program for Prevention, Mitigation and Treatment of Blast Injuries and leverages and integrates technologies developed in PEs 0602786A/project H98 & 0602787A/project 878.	.000	.000	4.611	
Small Unit Lethality Integration (cont'd): This effort matures and demonstrates technologies for capability improvements in lighter weight, more energy efficient Soldier-borne computing and communication equipment. In FY10, will miniaturize Soldier-borne gunfire detection system; investigate data filtering of information to improve network performance; will fuze air and ground sensor assets with Soldier borne network to detect and identify targets and	.000	.000	3.436	

Exhibit R-2a, PB 2010 Army RDT&E Project Justification		DATE: May 2009
APPROPRIATION/BUDGET ACTIVITY 2040 - Research, Development, Test & Evaluation, Army/BA 3 - Advanced Technology Development (ATD)	R-1 ITEM NOMENCLATURE PE 0603001A Warfighter Advanced Technology	PROJECT NUMBER J50

B. Accomplishments/Planned Program ($ in Millions)	FY 2008	FY 2009	FY 2010	FY 2011
pass information to target identification network; will investigate strategies to minimize time of digital call for fire and lethal effects. Effort is coordinated with PE 0603004/project 232.				
Small Unit Systems Integration and Demonstration (cont'd): This effort matures and demonstrates technologies that support upgrades to fielded Soldier equipment. In FY10, will continue to improve simultaneous constructive, virtual and live simulation toolset to provide enhanced assessment of the integration capability of maturing technologies such as Soldier borne hardware, software, network, lethality, survivability components and systems; will continue to develop and evaluate modular open architecture for dismounted Soldiers to facilitate integration across potential network sources and will assess maturity of Soldier-borne technologies including simulation tools in field relevant environment. Effort is coordinated with PE 0603004A/project 232.	.000	.000	4.951	
Total	35.256	36.333	30.056	

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-2a, PB 2010 Army RDT&E Project Justification								DATE: May 2009		
APPROPRIATION/BUDGET ACTIVITY 2040 - Research, Development, Test & Evaluation, Army/BA 3 - Advanced Technology Development (ATD)				R-1 ITEM NOMENCLATURE PE 0603001A Warfighter Advanced Technology					PROJECT NUMBER J52	
COST ($ in Millions)	**FY 2008 Actual**	**FY 2009 Estimate**	**FY 2010 Estimate**	**FY 2011 Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
J52: WARFIGHTER ADVANCED TECHNOLOGY INITIATIVES (CA)	23.134	29.702	.000						Continuing	Continuing

A. Mission Description and Budget Item Justification

Congressional Interest Item funding for Warfighter Advanced Technology development.

B. Accomplishments/Planned Program ($ in Millions)	FY 2008	FY 2009	FY 2010	FY 2011
Remote Environmental Monitoring and Diagnostics in the Perishables Supply Chain	4.351	.000	.000	
Ration Packaging Materials and Systems for Meals Ready-to-Eat	4.443	3.488	.000	
Multifunctional Protective Packaging Technology	2.898	.000	.000	
High-Pressure/Microwave MRE Processing	1.546	1.550	.000	
Deployment of Affordable Guided Airdrop System	1.546	.000	.000	
Extended Shelf Life Produce for Remotely Deployed Forces	.774	.000	.000	
Flame & Thermal Protection for Individual Soldier	1.546	3.100	.000	
High Pressure Airbeam Shelter Cost Reduction Technology Improvements	1.392	.000	.000	
ChemBio Integrated Material for Tent Structures	1.546	.000	.000	
Joint Precision Airdrop System (JPADS) Program for Payloads up to 30K lbs	3.092	.000	.000	
Technology and Human Systems Integration	.000	2.325	.000	
Multi-layer Coextrusion for High Performance Packaging	.000	2.325	.000	
Ballistic Precision Aerial Delivery System (BPADS)	.000	.969	.000	
Novel Flame Retardant Nylon Fabrics	.000	1.163	.000	

Exhibit R-2a, PB 2010 Army RDT&E Project Justification		DATE: May 2009
APPROPRIATION/BUDGET ACTIVITY 2040 - Research, Development, Test & Evaluation, Army/BA 3 - Advanced Technology Development (ATD)	R-1 ITEM NOMENCLATURE PE 0603001A Warfighter Advanced Technology	PROJECT NUMBER J52

B. Accomplishments/Planned Program ($ in Millions)	FY 2008	FY 2009	FY 2010	FY 2011
Chemical and Biological Threat Protection Coating	.000	2.325	.000	
Compact, Day and Night CMOS for Mini and Micro UAVs	.000	1.938	.000	
Improved Lightweight Integrated Communication and Hearing Protection Device	.000	.775	.000	
Aerial Firefighting - Precision Container Aerial Delivery System (PCADS)	.000	2.247	.000	
Compact MVCC Soldier Coding System	.000	1.550	.000	
Precision Guided Airdropped Equipment	.000	3.565	.000	
Laser Studied & Enhanced Reactive Materials :Self-Decontaminating Polymers for CBD	.000	1.550	.000	
SBIR/STTR	.000	.832	.000	
Total	23.134	29.702	.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-2a, PB 2010 Army RDT&E Project Justification								DATE: May 2009		
APPROPRIATION/BUDGET ACTIVITY 2040 - Research, Development, Test & Evaluation, Army/BA 3 - Advanced Technology Development (ATD)				R-1 ITEM NOMENCLATURE PE 0603001A Warfighter Advanced Technology					PROJECT NUMBER 242	
COST ($ in Millions)	**FY 2008 Actual**	**FY 2009 Estimate**	**FY 2010 Estimate**	**FY 2011 Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
242: AIRDROP EQUIPMENT	4.029	3.788	3.811						Continuing	Continuing

A. Mission Description and Budget Item Justification

This project matures and demonstrates equipment and innovative techniques for aerial delivery of cargo and personnel. Aerial delivery is a key capability for rapid force projection and global precision delivery and provides a long-range, autonomous airdrop capability with the option to deliver separate and distinctive payloads to multiple locations with improved accuracy; enhancing cargo, crew, and aircraft survivability.

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 is performed and managed by the Natick Soldier Research, Development, and Engineering Center (NSRDEC), Natick, MA.

B. Accomplishments/Planned Program ($ in Millions)	FY 2008	FY 2009	FY 2010	FY 2011
Medium Precision Airdrop: This effort demonstrates a 30,000 lbs. precision airdrop capability. In FY08, successfully demonstrated full-scale concept for guided, autonomous, precision medium (30,000 pound) airdrop payload for the Joint Precision Airdrop Delivery System (JPADS).	4.029	.000	.000	
Advanced Precision Airdrop Enhancements: This effort demonstrates enhancements required for dropping cargo loads to precise locations and increasing the precision of delivery using components and technical breakthroughs from PE 0602786A/project 283. In FY09, mature, demonstrate and optimize latest Guidance, Navigation & Control (GN&C) airdrop technologies in a precision airdrop concept designed for accurate resupply in complex, mountainous terrain with small, challenging drop zones; provide hardware and software GN&C component upgrades to demonstrate GN&C technology improvements in all weight classes of the Joint Precision Airdrop Delivery System (JPADS) family. In FY10, will mature and demonstrate emerging GN&C component technologies and spiral promising GNC components candidates for transition to PM Force Sustainment Systems (PM-FSS).	.000	3.701	3.811	
Small Business Innovative Research/Small Business Technology Transfer Programs	.000	.087	.000	
Total	4.029	3.788	3.811	

Exhibit R-2a, PB 2010 Army RDT&E Project Justification		DATE: May 2009
APPROPRIATION/BUDGET ACTIVITY 2040 - Research, Development, Test & Evaluation, Army/BA 3 - Advanced Technology Development (ATD)	R-1 ITEM NOMENCLATURE PE 0603001A Warfighter Advanced Technology	PROJECT NUMBER 242

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-2a, PB 2010 Army RDT&E Project Justification								DATE: May 2009		
APPROPRIATION/BUDGET ACTIVITY 2040 - Research, Development, Test & Evaluation, Army/BA 3 - Advanced Technology Development (ATD)				R-1 ITEM NOMENCLATURE PE 0603001A Warfighter Advanced Technology					PROJECT NUMBER 543	
COST ($ in Millions)	**FY 2008 Actual**	**FY 2009 Estimate**	**FY 2010 Estimate**	**FY 2011 Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
543: AMMUNITION LOGISTICS	1.290	1.271	1.353						Continuing	Continuing

A. Mission Description and Budget Item Justification

This project matures and demonstrates technologies for rapid munitions deployability, resupply, and unused ammunition returned from deployment for the Army's Future Force. It enhances force readiness and reduces the logistics footprint through improvements in Materials Handling Equipment (MHE), ammunition and missile packaging/palletization, and asset throughput/management.

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 and managed by the US Army Armament Research, Development, and Engineering Center (ARDEC), Picatinny Arsenal, NJ.

B. Accomplishments/Planned Program ($ in Millions)	FY 2008	FY 2009	FY 2010	FY 2011
Component of the Joint Modular Intermodal Distribution System (JMIDS) Joint Capability Technology Demonstration (JCTD): This effort demonstrates a lightweight modular platform compatible with restraint systems on military cargo planes, and airdrop and slung lift systems. In FY08, conducted residual evaluation of Joint Modular Intermodal Platform (JMIP) with field users as part of the JCTD.	.500	.000	.000	
Small Business Innovative Research/Small Business Technology Transfer Programs	.000	.028	.000	
Tactical Ammunition Accountability (TAA): This effort demonstrates advanced supply chain procedures coupled with state of the art remote surveillance devices at the weapon system/munition level to provide precise knowledge of ammunition, location and health status through out an Area Of Responsibility (AOR). In FY08, developed low cost environmental sensors, both automated and visual indicators, for munition health monitoring at the point of consumption: conducted industry search of available hand held devices suitable for remote inventory activities. In FY09, develop and validate software interface for tactical ammunition management systems and integrate with health monitoring sensors.	.790	1.243	1.353	

Exhibit R-2a, PB 2010 Army RDT&E Project Justification		DATE: May 2009
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B. Accomplishments/Planned Program ($ in Millions)	FY 2008	FY 2009	FY 2010	FY 2011
In FY10, will fabricate an automated expenditure reporting capability prototype mounted on surrogate weapon system; will demonstrate ammunition consumption transactions from weapons system to Army's property recording system.				
Total	1.290	1.271	1.353	

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.