Exhibit R-2, RDT&E Budget Item Justification					February 2005			
Appropriation/Budget Activity RDT&E.DW/BA3		R-1 Item Nomenclature: Combating Terrorism Technology Support (CTTS) - PE 0603122D8Z						
Cost ($ in millions)	FY2004	FY2005	FY2006	FY2007	FY2008	FY2009	FY2010	FY2011
Total PE Cost	94.720	97.661	55.301	66.624	79.391	82.754	85.327	89.140
Combating Terrorism Technology Support/P484	94.720	97.661	55.301	66.624	79.391	82.754	85.327	89.140

A. Mission Description and Budget Item Justification: This program develops technology and prototype equipment that address needs and requirements with direct operational application in the national effort to combat terrorism. Projects support antiterrorism, counter terrorism, intelligence, and terrorism consequence management activities to: conduct tactical operations; protect military forces, civilian personnel, installations, infrastructure elements and the general populace from terrorist attack; detect, neutralize, and mitigate the effects of conventional and unconventional devices; conduct surveillance and tracking of terrorists; conduct threat and incident assessments; and process and disseminate information. The program integrates Defense advanced development efforts with government-wide and international efforts to combat terrorism. The Assistant Secretary of Defense for Special Operations and Low-Intensity Conflict oversees and is responsible for execution of the CTTS program, which addresses defense, interagency, and international combating terrorism technology requirements.

B. Program Change Summary:

	FY2004	FY2005	FY2006	FY2007
Previous President's Budget	60.526	46.778	44.575	44.980
Current President's Budget	94.720	97.661	55.301	66.624
Total Adjustments				
Congressional program reductions				
Congressional rescissions				
Congressional increases	38.200	52.116	10.726	21.644
Reprogrammings				
SBIR/STTR Transfer	(2.128)			
Other program adjustments	(1.878)	(2.323)		

C. Other Program Funding Summary: NA

D. Performance Metrics:

Combating Terrorism Technology Support - PE 0603122D8Z	
D. Performance Metrics	
Long Term Strategies: Obtain adequate funding to support critical shortfalls; prioritize proposals that are deemed acceptable and allocate funding accordingly; establish outreach programs with the interagency to leverage institutional knowledge and expertise; utilize cooperative R&D agreements with the United Kingdom, Canada and Israel to leverage technology; and initiate full cooperative R&D programs with two new foreign partners.	
Performance Indicator and Rating:	
FY 2004 Target	• 70% of currently funded research projects completed on time and within budget • 5% increase in the number of research projects accepted • Negotiate MOAs with new foreign partners • Initiate threat/technology solutions workshop program
FY 2004 Rating	ON TARGET
FY 2005 Target	• 70% of currently funded research projects are completed on time and within budget • 5% increase in the number of research projects accepted • Initiate pilot cooperative R&D program with new foreign partners • Continue threat/technology solutions workshop program
FY 2006 Target	• 70% of currently funded research projects are completed on time and within budget • 5% increase in the number of research projects accepted • Expand pilot R&D programs with two new foreign partners to full cooperative programs • Continue threat/technology solutions workshop program
FY 2007 Target	• 70% of currently funded research projects are completed on time and within budget • 5% increase in the number of research projects accepted • Continue full R&D programs with existing and new foreign partners
Basis of FY 2004 to Date Performance Rating	Currently the number of funded research projects are on track to be completed per the target
Verification	The CTTS Program utilizes a database to track the status of the projects. Quarterly program reviews are conducted to assess project status. In addition an annual report is produced which assesses the status of current projects and the ability to accept new projects.
Validation	Completed research products increase the capabilities of the DoD to effectively detect, deter and defend against terrorist attacks; thus the Department's personnel and interests at home and abroad are safer from terrorism.

Exhibit R-2a, RDT&E Budget Item Justification					February 2005			
Appropriation/Budget Activity RDT&E.DW/BA3				Project Name and Number Combating Terrorism Technology Support - PE 0603122D8Z				
Cost ($ in millions)	FY2004	FY2005	FY2006	FY2007	FY2008	FY2009	FY2010	FY2011
Combating Terrorism Technology Support	94.720	97.661	55.301	66.624	79.391	82.754	85.327	89.140

A. Mission Description and Budget Item Justification: This program develops technology and prototype equipment that address needs and requirements with direct operational application in the national effort to combat terrorism. Projects are distributed among ten mission categories: Chemical, Biological, Radiological, and Nuclear Countermeasures; Explosives Detection; Improvised Device Defeat; Infrastructure Protection; Investigative Support and Forensics; Physical Security; Training Technology Development; Surveillance, Collection, and Operations Support; Tactical Operations Support; and VIP Protection. This program is a non-system, advanced technology development effort that demonstrates the utility or cost reduction potential of technology when applied to combating terrorism requirements. It includes technology development and proof-of-principle demonstrations in field applications and coordination to transition from development to operational use.

B. Accomplishments/Planned Program

CHEMICAL, BIOL OGICAL, RADIOLOGICAL, AND NUCLEAR COUNTERMEASURES

	FY 2004	FY 2005	FY 2006	FY 2007
Accomplishment/Effort/Subtotal Cost	15.452	8.148	3.500	3.997

FY 2004 Accomplishments: Developed and tested advanced personal protective equipment and clothing. Designed and tested advanced systems to collect and detect biological and chemical agents and toxic industrial chemicals. Identified biological markers to quantify an individual's exposure to ionizing radiation. Evaluated new tools to detect food-borne attacks. Tested and operationally evaluated the portable water treatment system for critical facilities. Tested a cold-plasma system for decontamination against EPA standards. Assessed ozone as a decontamination agent for the building disinfection byproducts database. Developed a software application to facilitate improving chemical and biological (CB) protection capabilities for buildings. Tested the chemical sensor for the networked decontamination monitoring system. Evaluated the biological agent preservation system.

Conducted testing and field demonstration of a fiber-optic-based Distributed Chemical Sensor system. Validated the Electrostatic Decontamination System against chemical and biological agents. Tested the high-volume aerogel-based sampler collection system for aerosolized BW agents. Initiated lessons-learned database from bioterrorism exercises for use by the first responder community.

FY 2005 Plans: Develop and field-test the tactical self-contained breathing apparatus (SCBA) for specialized response units and advanced protective clothing for incident response personnel. Test new designs for CB escape hoods and conduct live-agent testing of

the personal hydration CBR filtration system. Validate field methods for quantifying biological markers for personal exposure to ionizing radiation. Test a heat stress calculator for use by safety officers to manage worker heat-related health conditions. Deliver the final building disinfection byproducts database. Field-test the advanced high-volume air sampling systems for BW and CW agents. Develop and test the CW and BW water collection and detection system. Validate improved handheld BW immunoassays. Test initial prototypes of a small portable radio repeater system to maintain voice communication for military and first responders operating in underground environments. Evaluate protocols for a food security test kit for personnel protection at high-threat overseas government facilities.

Test the first building-scale installation of the fiber-optic-based Distributed Chemical Sensor system. Perform efficacy and toxicity testing of the Electrostatic Decontamination System to meet EPA requirements. Deploy initial lessons learned database from agricultural bioterrorism exercises and natural outbreak responses for use by the agricultural responder community.

FY 2006 Plans: Complete field testing of an advanced high-volume water sampling system for BW and CW agents. Field-test a small portable radio repeater system to maintain voice communication for first responders operating in underground environments. Operationally evaluate a food security test kit for personnel protection at high-threat overseas government facilities. Review initial designs for advanced personal protective equipment with improved heat stress management capabilities. Perform initial laboratory testing of a small personal toxic chemical and contact poison detector and dosimeter. Evaluate designs for toxic chemical release mitigation methods in an urban environment.

FY 2007 Plans: Conduct initial field and user tests on advanced personal protective equipment with improved heat stress management capabilities. Complete field tests for laboratory testing of a small personal toxic chemical and contact poison detector and dosimeter. Conduct modeling and initial user tests for toxic chemical release mitigation methods in an urban environment.

EXPLOSIVES DETECTION

	FY 2004	FY 2005	FY 2006	FY 2007
Accomplishment/Effort/Subtotal Cost	8.023	6.937	4.500	5.330

FY 2004 Accomplishments: Conducted laboratory testing of trace explosives detection portals used in conjunction with metal detectors to evaluate concept of combining multiple explosives and weapons detection technologies into one system. Completed false alarm reduction for an explosive detection system that combines nuclear quadrupole resonance (NQR) with computed tomography. Characterized degree of canine ability to generalize from domestic to foreign explosives. Built NQR laboratory test bed for screening of mid size vehicles. Measured NQR signature for unconcealed explosives in laboratory test bed.

FY 2005 Plans: Develop system for screening bottles for explosives and hazardous materials. Develop methods to improve canine handler selection and training. Evaluate methods to optimize canine performance. Determine feasibility of NQR for detection of large vehicle bombs. Conduct feasibility studies to assess emerging technologies for standoff explosives detection.

FY 2006 Plans: Demonstrate system for screening bottles for explosives and hazardous materials. Conduct comparative study of methods to optimize canine performance. Complete breadboard systems for standoff detection of explosives.

FY 2007 Plans: Test and evaluate breadboard systems for standoff detection. Implement canine optimization methods in operational pilot program.

IMPROVISED DEVICE DEFEAT

	FY 2004	FY 2005	FY 2006	FY 2007
Accomplishment/Effort/Subtotal Cost	7.300	6.481	4.500	5.330

FY 2004 Accomplishments: Completed lab testing of recoilless variable velocity disruption system. Completed commercial transfer of the Standoff Connectivity Control Unit. Conducted an operational assessment of Explosive ordinance disposal (EOD) remote controlled vehicles (RCV) to identify and quantify user requirements. Field tested the fragmentation-free, field-expedient explosive access tool. Field tested and commercially transitioned a ruggedized radio frequency remote firing device. Completed development and field testing of a PDA based First Responders Tool for real-time information access. Completed safety characterization and testing of an EOD backpack toolkit and the first phase characterization of precision and general disruption EOD tools. Finished testing a downsized high-energy access and disablement device.

FY 2005 Plans: Initiate development of the First Responder Automated Data Tool (FRAT) Real Time Information Sharing System for web-based information support to bomb squads and First Responders. Develop and field test lightweight recoilless disrupters for small RCV platforms. Complete characterization of a recoilless breech for the PAN disrupter. Develop a tactical timed firing device for EOD operations. Develop and field test a multiple improvised explosive device (IED) disruption system that will integrate with existing robotic platforms. Develop an X-Ray emissions mitigation system. Develop and field test a vehicle bomb improvised explosive device (VBIED) integrated diagnostic & neutralization system. Continue evaluation and characterization of precision and general disruption tools.

FY 2006 Plans: Complete development of a tactical timed firing device, multiple IED disruption system and a VBIED integrated diagnostic & neutralization system. Develop a VBIED single sided diagnostic system that is fully integrated onto a robotic platform. Complete evaluation and characterization of precision and general disruption tools.

FY 2007 Plans: Complete development of a single-sided diagnostic system for VBIEDs that is fully integrated onto a robotic platform, and enhanced VBIED disablement tools.

INFRASTRUCTURE PROTECTION

	FY 2004	FY 2005	FY 2006	FY 2007
Accomplishment/Effort/Subtotal Cost	1.731	2.279	1.700	1.999

FY 2004 Accomplishments: Developed a prototype encryption algorithm and hardware platform for supervisory control and data acquisition (SCADA) system protection. Delivered two components of the Network Isolation Tool for integration testing. Developed software tool to protect against the insider threat to information systems. Developed and deployed the Pipeline Net software tool.

FY 2005 Plans: Deploy and test a software tool to model computer virus propagation and implement better mitigation strategies. Expand the deployment of the Pipeline Net software tool.

FY 2006 Plans: Develop and field a prototype early warning system for critical drinking water infrastructure. Develop and deploy configuration-based network security technologies.

FY 2007 Plans: Research more secure communication platforms for air traffic controllers. Develop improved tools for cyber security. Research methods to improve the monitoring and control systems for electric power substations.

INVESTIGATIVE SUPPORT AND FORENSICS

	FY 2004	FY 2005	FY 2006	FY 2007
Accomplishment/Effort/Subtotal Cost	5.074	4.734	4.200	5.330

FY 2004 Accomplishments: Fielded advanced video tape enhancement and advanced audio tape enhancement software. Distributed forensic computer clandestine data capture devices. Developed questioned identification document software system with data link analysis. Designed computer counter-encryption modules. Evaluated and delivered advanced technology for audio voice identification. Proved concept of forensic link analysis of computers and their media through reach back signals. Continued advancement of forensic document examination methodology.

FY 2005 Plans: Complete and distribute forensic tools to recover and capture data from operating computers, cellular phones and personal digital assistants. Field counter-encryption tool based on distributed networking. Improve first responder-emergency software tools. Design virtual training simulators for forensic scientists. Complete and field forensic references in explosive residues, improvised explosive device components, commercial explosive, and pipe bombs. Validate and distribute advanced techniques for analysis of deoxyribonucleic acid (DNA) for physical traits and age of biological samples. Provide working versions of computer facial recognition tools. Publish criteria for forensic document examination methodology. Field advanced wireless video surveillance system. Distribute a validated language speaker recognition corpus. Field pocket fingerprint recovery kit, a firearms identification system and an improvised explosive device (IED) forensics software tool.

FY 2006 Plans: Provide report on stable isotope analysis of hair techniques to determine likely geolocation of suspected terrorists. Publish reports on standardized evaluation of latent print developers and statistical analysis of friction ridge matching criteria. Field a three dimensional crime scene modeling system. Develop systems and procedures for mass casualty identification. Coordinate and effect international forensic data exchange. Develop comprehensive steganalysis detection and decryption software.

FY 2007 Plans: Develop efficient gunshot residue testing for non-conventional ammunition. Field comprehensive steganalysis detection and decryption software. Advance evidence collection procedures and processing in chemical and biologically contaminated areas. Design and develop real time remote crime scene forensic support and examinations. Develop a streamlined encompassing forensic processing model for rapid examinations of IED post-blast evidence. Coordinate forensic processes with intelligence gathering systems. Design the next generation of speaker recognition system. Advance the state-of-the-art of computer forensics examinations.

PHYSICAL SECURITY

	FY 2004	FY 2005	FY 2006	FY 2007
Accomplishment/Effort/Subtotal Cost	16.245	21.671	11.800	13.991

FY 2004 Accomplishments: Developed a portable, automated tester for walk-through metal detectors to validate compliance with the National Institute of Standards and Technology test standard. Operationally tested an advanced entry-point vehicle/driver identification system. Developed and fielded an enhanced expeditionary version. Evaluated a commercial, automated, under-vehicle inspection system. Published inspection/screening guides for screening rail cars and personnel for explosives or other contraband at entry points. Developed and field tested a lightweight, portable boom and underwater swimmer detection system to protect ships in port. Conducted a proof-of-concept test for a perimeter intrusion detection system using airport ground surveillance radar. Developed a wireless tactical video surveillance system for perimeter intrusion detection. Evaluated commercial smart video systems for detection and assessment of possible vehicle bomb threats. Operationally tested a long-range, optical, intrusion detection, tracking, and assessment system. Evaluated badging technologies for credentialing government employees, contractors, and visitors entering government facilities. Tested on redesigned and/or retrofitted structural and non-structural building components for blast effects from enhanced explosive mixtures. Delivered a simulation and prediction blast injury code for secondary debris field injuries. Developed, tested, and deployed a light, low-cost retrofit polymer armor solution for tactical vehicles that can be applied in the field. Developed a database to archive blast test data and make it easily accessible to government and military planners and engineers. Improved structural design models and validated modeling simulations by performing blast tests on columns and other structural and non-structural components using conventional high explosives and enhanced novel explosives. Performed dynamic testing of commercial-off-the-shelf blast resistant retrofit products. Characterized and calibrated a blast simulator that mimics the effects of enhanced novel explosives and conventional explosives at varying standoff distances and blast strengths. Deployed two web based information library portals that provide historical and on-going reports and research and development information on human lethality in a blast environment as well as blast effects and mitigation.

Conducted blast performance tests on tactical protective equipment for soldiers and first responders.

FY 2005 Plans: Field test a portable, automated tester for walk-through metal detectors. Develop a remotely operated, concealed weapons detection capability using magnetic anomaly detection. Develop and lab test a faster, more accurate vehicle image recognition system at vehicle entry points. Develop and evaluate an enhanced mobile backscatter x-ray screening system for detecting explosives in vehicles and intermodal cargo containers. Conduct a pilot test of a credentialing system integrating a fingerprint biometric device with a smart card reader to enhance entry point security without hindering throughput. Develop a merchant vessel inspection guide to consolidate existing tactics, techniques, and procedures for Visit, Board, Search and Seizure teams and security personnel. Operationally evaluate a smart video intrusion detection system providing enhanced situational awareness for perimeter and area security. Demonstrate and transition a perimeter intrusion detection and tracking system using airport ground surveillance radar. Operationally test an improved, long-range, optical intrusion detection, tracking, and assessment system. Develop guidance for deployment of non-standard vehicle barriers in tactical and non-tactical applications. Begin development of an integrated security system architecture using existing or new radars, optical devices, and security sensors incorporating a rules-based alerting and secure, digitally authenticated communications. Continue to develop improved polymer materials for blast resistant protective coatings on tactical vehicles. Improve structural design models and validate modeling simulations by performing blast tests on columns and other structural and non-structural components using conventional high explosives and enhanced novel explosives. Promulgate performance criteria for structures in a blast environment. Investigate the use of fiber material to reinforce concrete bridge decks, columns and arches. Continue to research the efficiency of protective equipment in blast environments. Develop robust models of forward base fortifications and how they respond in a blast environment. Publish retro-fit techniques for suspension bridges, arch bridges, movable bridges and long span bridge. Construct a full size urban test facility to develop dynamic computational codes of results of enhanced novel explosives in an urban environment. Perform field testing on bridge structures and bridge components to verify vulnerability to explosive loads. Conduct vulnerability assessment of tunnels against the effects of conventional and enhanced novel explosives.

FY 2006 Plans: Conduct field tests and an operational evaluation of a remotely operated concealed weapons detection system using magnetic anomaly detection. Transition a portable, automated walk-through metal detector tester to commercial production. Develop an automatic remote identification system for vehicle drivers. Develop a paint which will show evidence of tampering when subjected to UV light. Develop a fingerprint-actuated padlock. Develop a portable ticket verifier with trace explosives detection, GPS positioning, and wireless alarm reporting. Develop an integrated suite of explosive detection tools to meet the high-throughput requirements of vehicle ferries. Field test an automatic under-vehicle inspection system. Publish a user manual for emplacing non-standard vehicle barriers in tactical and non-tactical applications. Continue development of an for an integrated security system architecture using existing and new radars, optical devices, and security sensors incorporating a rules-based alerting and secure digitally authenticated information processing. Begin development of a simulator for evaluating tactics, techniques, and procedures for operating a remotely operated weapons system. Develop a low-cost, wireless, self-organizing sensor system for protection in depth. Develop a swimmer interdiction system with a scalable response from notification through use of deadly force. Begin

development of a harbor/port air defense system which does not disrupt the local electromagnetic spectrum and devices. Identify, assess and evaluate relevant commercial-off-the-shelf blast mitigation and hardening technologies for tunnels, bridges and railways against conventional high explosives and novel enhanced explosives; certify results and convert the information into useful engineering guidance and code. Model and field test existing commercial-off-the-shelf retrofit and hardening technologies to increase tunnel blast resistance. Develop advanced high fidelity instrumentation for measuring the tactical performance of improvised explosives to include thermal, optical, and seismic signatures. Use blast simulator test data for walls, columns, and other structural elements of buildings to validate computer models. Provide enhanced engineering and design guidance for retrofits and new construction. Conduct field tests and computer simulation modeling to demonstrate and determine blast response to field fortifications from enhanced novel explosive detonation. Determine the existing blast threshold capability of substations and cell towers to determine vulnerability and identify levels of protection utilizing commercial-off-the-shelf technology. Validate the integrity of barriers, barricades, bollards, and integral structural blast reinforcement techniques against multiple threat scenarios. Develop biofidelic physical surrogates that accurately represent human physiological response to a blast environment to further advancements in protective equipment.

FY 2007 Plans: Evaluate next generation biometric identification technologies for inclusion in integrated access control systems. Evaluate next generation weapons, explosives, and other contraband screening systems for facilities, public venues, and intermodal cargo terminals. Field test an automatic remote identification system for vehicle drivers. Field test a paint which will show evidence of tampering when subjected UV light. Field test a fingerprint-actuated padlock. Continue development of a portable ticket verifier with trace explosives detection, GPS positioning, and wireless alarm reporting. Field test an integrated suite of explosive detection tools to meet the high throughput requirements of vehicle ferries. Demonstrate an integrated security system architecture using existing and new radars, optical devices, and sensors incorporating a rules-based alerting and secure digitally authenticated information processing. Operationally evaluate a simulator for evaluating tactics, techniques, and procedures for operating a remotely operated weapons system. Field test a low-cost, wireless, self-organizing sensor system for protection in depth. Evaluate a swimmer interdiction system with a scalable response from notification through use of deadly force. Continue development a harbor/port air defense system which does not disrupt the local electromagnetic spectrum and devices. Convert and promulgate data on structural blast reinforcement into meaningful engineering and code guidance to the military, industrial and civil engineering community. Develop and test personal protective gear that improves survivability against injuries from enhanced novel and novel explosive blasts.

SURVEILLANCE, COLLECTION, AND OPERATIONS SUPPORT

	FY 2004	FY 2005	FY 2006	FY 2007

Accomplishment/Effort/Subtotal Cost	10.757	8.176	7.800	9.327

FY 2004 Accomplishments: Developed capability of monitoring multimedia broadcast information through automated language translation, key-word search and topic alerting. Improve intelligence analyst automation tools for dealing with large volumes of data including video and audio and including speech technology aids. Integrated multi-sensor systems for improved collection and targeting. Improved facial recognition, speech identification, and other technology biometric to assist in identifying terrorists on a watch list. Developed operational facial recognition database being used by the law enforcement community.

FY 2005 Plans: Develop system to triage and prioritize of foreign language media that includes filtering and fusion of information important to senior decision makers. Develop autonomous, networked collection systems that include next generation imaging sensors. Enhance unattended ground sensors through fusion and integration of multiple sensors. Apply advances in joint tagging, tracking and locating technology to improve maritime tagging and tracking. Improve access to open source media by providing broader language domains. Increased capability for long-range audio surveillance. Develop various plug and play sensors to support various UAV platforms. Integrate facial recognition technology into surveillance systems by including the application of multi-spectral imaging. Transition facial recognition database to the military.

FY 2006 Plans: Integrate multiple tagging, tracking and location technologies as a cue for other sensors or action. Continue to develop maritime tagging and tracking capability. Develop geolocation aids that do not rely on GPS. Improve long-range audio surveillance and processing capabilities. Investigate biometric and other novel technology areas to improve tagging, tracking, locating. Continue UAV sensor development.

FY 2007 Plans: Improve access to open source media through new language processing technologies for multimedia information from degraded input sources. Develop biometric and novel technology areas to improve tagging, tracking, locating. Apply the gains in facial recognition technology to long-range video surveillance. Enhance UAV collection capabilities with multi-sensor integration into plug and play architecture.

TACTICAL OPERATIONS SUPPORT

	FY 2004	FY 2005	FY 2006	FY 2007
Accomplishment/Effort/Subtotal Cost	13.605	7.410	4.700	5.996

FY 2004 Accomplishments: Delivered fiber optic antenna extension system for satellite communications radios to provide remote positioning of the antenna from the transmitter using fiber optic connection. Delivered a wireless boat interior communications system for high-speed assault craft. Completed first independent assessment of commercial radiation detectors, using the new American National Standards Institute standard, and catalogued the validated performance. Completed tactical survey of potential terrorist targeted buildings (Commander Navy Region Southwest, the U. S. Naval Academy, and NASA Kennedy Space Center) to improve threat assessment, identification of vulnerabilities, and responder planning. (Congressional Add). Completed two simulated

large terrorist incident training scenarios to evaluate and exercise coordination of command and control and responder activity involving different federal, military, state and local agencies under the direction of the Asymmetric Warfare Center. Conducted detailed workshop to assess the state of the art for 3D through wall imaging technologies.

FY 2005 Plans: Deliver prototype close quarter battle carbine and a prototype dual sensor night imaging weapons sight. Deliver a line of sight version of the fiber optic antenna extension system. Develop first generation Augmented Reality Training System for tactical assault teams. Improve tactical operator safety of a reduced fragmentation initiation device during explosive breaching missions. Enhance safety and distraction effect of next generation diversionary device for tactical teams. Develop advanced high power in-line sniper scope for enhanced viewing in all lighting conditions. Complete tactical surveys for select critical installations (e.g. Strategic Petroleum Reserve, San Diego International Airport) and conduct additional terrorism event scenarios under Asymmetric Warfare Center direction. Develop a powered ascending device to lift a tactical team member to heights of 100 ft at variable speeds.

FY 2006 Plans: Deploy advanced augmented reality training system to selected tactical response teams. Deliver reduced fragmentation initiation device to select tactical teams to enhance breaching operations. Deliver next generation diversionary device to tactical response teams for operational assessment. Conduct initial testing of a high power in-line sniper scope. Deliver powered climbing device to lift fully equipped assaulter up climbing rope for operational assessment.

FY 2007 Plans: Conduct operational assessment of high power in-line sniper scope. Upgrade and deliver improved augmented reality system based on user feedback. Deliver final assaulter climbing device. Begin development of integrated aim point and day/night scope with improved tactical effectiveness and reduced weight to enhance tactical weapon effectiveness.

TRAINING TECHNOLOGY DEVELOPMENT

	FY 2004	FY 2005	FY 2006	FY 2007
Accomplishment/Effort/Subtotal Cost	3.439	13.321	2.200	2.665

FY 2004 Accomplishments: Developed Advanced Distributed Learning (ADL) software tools to provide intelligent tutoring for web-based courses and interoperability among commercial and custom-built learning/training management systems. Completed design and development of technology-enhanced training on small watercraft inspection, personnel screening, rail inspection, suicide bomber countermeasures, application of poly-urea coating for armor enhancement, and IED awareness. Conducted a proof of concept to adapt and enhance existing university programs to support training needs within the combating terrorism community. Fielded ADL training focused on the psychological aspects of terrorism and WMD events, and transitioned CBRN mobile laboratory technician training to the National Guard Bureau WMD Civil Support Team program.

FY 2005 Plans: Develop of the next generation ADL delivery architecture for DoD. Create ADL software tools to design integrated on-line training and virtual reality training. Design and deliver performance and knowledge based training assessments. Produce a chemical and radiological stimulant kit that is intrinsically safe. Conduct training requirements analyses in support of CBRNE installation response training under the Guardian Program. Develop ADL training in chemical and biological counterterrorism awareness; command, control, and communications; force protection; medical surveillance and recovery; and, consequence management equipment for the Guardian Program. Validate end-user requirements for distributed, web-based simulation technologies in support of regional and large scale terrorism training exercises.

FY 2006 Plans: Analyze intelligent, open communication architectures, environments, tools, and services for integration with DoD delivery architecture. Integrate ADL software design and assessment tools into the DoD ADL delivery architecture. Develop training aids and devices to complement recently fielded TSWG advanced technologies.

FY 2007 Plans: Create knowledge management architectures, tools, and services to integrate performance and mission support systems with DoD ADL delivery architecture. Continue design and development of ADL training in CBRNE counterterrorism awareness; command, control, and communications; force protection; medical surveillance and recovery; and, consequence management. Integrate interactive simulation technologies with training and mission performance support capabilities.

VIP PROTECTION

	FY 2004	FY 2005	FY 2006	FY 2007
Accomplishment/Effort/Subtotal Cost	4.732	10.683	4.826	5.997

FY 2004 Accomplishments: Validated advanced vehicle armor design for protection against tungsten carbide armor piercing bullets. Successfully tested of large aluminum oxynitride (AlON) transparent armor for multiple hit performance. Delivered advanced cooling vest for wear under body armor and other protective clothing. Completed analysis of ballistic blunt trauma effects on female body armor. Coordinated the development of standards for fully armored passenger vehicles that includes ballistic, blast, transparent armor and performance protocols.

FY 2005 Plans: Continue to coordinate an integrated fully armored passenger vehicle standard, based on ballistic, blast, and transparent armor protocols. Deliver testing and characterization assessment of Spinel transparent armor. Develop processes for producing full scale AlON windows in test vehicle. Begin operational evaluation of the full scale AION window performance in typical on and off road scenarios. Complete evaluation of selected environmental effects on body armor performance to improve NIJ body armor standards. Test, evaluate and deliver enhanced deployable shield system to allow rapidly erected VIP protection. Evaluate Instantaneous Personnel Protection Shield System (IPPS) for enhanced VIP protection. Begin development of highly reliable bullet detection system for integration into the IPPS. Evaluate integrated VIP vehicle tamper alerting system. Develop and evaluate laser detection system for windows to provide warning of laser activity. Assemble and integrate components of a rapidly deployable VIP security kit for use in temporary venues. Develop duress system for VIPs to alert protection details of threatening

situations. Conduct advanced evaluation of body armor performance in multi-hit scenarios and evaluate metrics for dynamic effects of ballistic blunt trauma. Deliver RCIED ECM Joint Testing Protocol to DOD for operational implementation.

FY 2006 Plans: Deliver the Instantaneous Personnel Protection Shield System and continue development of sensor system for automated activation. Deliver VIP vehicle tamper detection and alerting system. Deliver window laser detection system for early warning of laser targeting activity. Deliver deployable VIP security kit. Upgrade previously developed Projectile Data Base to include new threat ammunition and frangible ammunition. Deliver VIP Duress System. Provide upgraded body armor testing standards to address multi-hit scenarios. Develop methodology to assess deterioration of personnel body armor and to determine criteria for taking armor out of service.

FY 2007 Plans: Evaluate methods for rapid detection of a broad range of laser energy that may be directed at VIPs. Provide broadened standards for assessment of body armor over the life of the system. Coordinate the development of advanced lightweight ceramic transparent armor. Assess blast effects on armored passenger vehicles and develop of methods to mitigate damage and personnel injury. Develop a fragmentation and IED blast/fragmentation test protocol to determine effects on VIP and protective detail armored vehicle.

PROGRAM MANAGEMENT

	FY 2004	FY 2005	FY 2006	FY 2007
Accomplishment/Effort/Subtotal Cost	8.362	7.821	5.575	6.662

FY 2004 Accomplishments: Provided program management oversight and technical support for CTTS R&D projects. Augmented the CTTS program office with contract, financial and security management personnel. Managed an additional $70 million in funds from other agencies. Managed cooperative R&D programs with the United Kingdom, Canada and Israel. Initiated new cooperative R&D agreements with Australia and Singapore. Established interfaces to other government agencies for CTTS-related initiatives and to reinforce interagency and international participation in the identification and prioritization of CTTS mission area requirements. Solicited proposals, via Broad Agency Announcement, for new projects and tasks based on prioritized requirements. Directed the program, planning and execution of projects and associated contracts, including the daily management and reporting for more than 280 separate contracts and tasks. Developed and implemented improvements for the BAA Information Delivery System (BIDS) solicitation process including the establishment of collaborative source evaluation and selection tools. Developed and implemented process improvement initiatives for procurement request tracking and a Business Information System database.

FY 2005 Plans: Provide program management oversight and technical support for CTTS R&D projects including funds from other agencies and management of cooperative R&D programs with international partners. Establish goals, objectives, and plans that will reinforce interagency participation for the identification and prioritization of CTTS mission area requirements. Direct the program, planning and execution for projects and associated contracts using direct and indirect budget allocations. Review and revise existing process and execution plans for CTTS mission area management and internal and external reporting responsibilities.

FY 2006 Plans: Provide program management oversight and technical support for CTTS R&D projects including funds from other agencies and management of cooperative R&D programs with international partners. Establish goals, objectives, and immediate revisions to plans that will reinforce interagency participation for the identification and prioritization of CTTS mission area requirements. Direct the program, planning and execution for projects and associated contracts using direct and indirect budget allocations. Review and revise existing process and execution plans for CTTS mission area management and internal and external reporting responsibilities.

FY 2007 Plans: Provide program management oversight and technical support for CTTS R&D projects including funds from other agencies and management of international cooperative R&D programs. Establish goals, objectives, and immediate revisions to plans that will reinforce interagency participation for the identification and prioritization of CTTS mission area requirements. Direct the program, planning and execution for projects and associated contracts using direct and indirect budget allocations. Review and revise existing process and execution plans for CTTS mission area management and reporting responsibilities.