

Exhibit R-2a, RDT&E Project Justification							February 2003	
Appropriation/Budget Activity RDT&E.DW / BA3				Project Name and Number Combating Terrorism Technology Support 0603122D8Z				
Cost (\$ in millions)	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007	FY2008	FY2009
Combating Terrorism Technology Support	56.011	111.377	60.526	46.778	44.641	45.288	45.784	46.632
A. Mission Description and Budget Item Justification:								
<p>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, counterterrorism, 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.</p> <p>All projects are distributed among nine mission categories: Chemical, Biological, Radiological, and Nuclear Countermeasures; Explosives Detection; Improvised Device Defeat; Infrastructure Protection; Investigative Support and Forensics; Personnel Protection; Physical Security; Surveillance, Collection, and Operations Support; and Tactical Operations Support. 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.</p>								
B. Accomplishments/Planned Program								
CHEMICAL, BIOLOGICAL, RADIOLOGICAL, AND NUCLEAR COUNTERMEASURES								
	FY2002	FY2003	FY2004	FY2005				
Accomplishment/ Effort/Subtotal Cost	14.700	24.549	4.262	3.815				
<u>FY 2002 Accomplishments:</u>								
<p>Demonstrated an improved aerogel-based sample collection system for aerosolized biological (BW) agents and enhanced survival of bacterial and viral BW agent samples collected for forensic or intelligence purposes using the advanced polymer-based preservation system. Determined the viability and stability of four BW agents in food over a range of processing, storage and preparation conditions for use in a tool for food safety managers. Tested hand-held chemical agent detector and the water quality monitor with sample collection device. Conducted design review for electrostatic decontamination system and built the prototype system. Reviewed the application to assess the cost effectiveness of building renovations to improve chemical and biological (CB) protection; and completed the initial phase of the independent validation and accreditation of the urban dispersion model that is used as a CB Planning Tool. Completed evaluation of nanoparticle material and conducted screening of other advanced materials for improved building filters. Completed the design review and built prototype portable filtration system for small room protection. Developed and delivered toxic industrial chemical (TIC) mask filter incorporating a new sorbent material and standard laboratory protocols for six BW agents in foods.</p>								

FY 2003 Plans:

Develop real-time biological agent detector for five airborne BW agents and finalize standard testing protocols and evaluation criteria for building protection CB filters. Design and test portable water treatment system for overseas facilities; the field biological sample preparation system; and the heat stress calculator for use by safety officers to manage worker heat related health conditions. Develop building disinfection byproducts database. Assess use of x-rays to treat luggage for BW agents. Evaluate the ability of biopreservative material to increase storage life of BW samples across a range of conditions. Validate standard laboratory protocols for eight BW agents in food and the ability to identify suspected terrorists who have worn protective equipment and terrorists who have worked with plutonium or enriched uranium. Complete laboratory and field tests of the electrostatic decontamination system; evaluation of regenerable filters against TICs and chemical (CW) agents; the small room protection chemical, biological and radiological (CBR) filtration system; accreditation of urban dispersion model to be used as a CB Planning Tool; tool for food safety managers on the viability and stability of eight BW agents in food; and detailed software review to access the cost effectiveness of building renovations to improve CB protection. Deliver advanced low-cost self-indicating casualty radiation dosimeter.

FY 2004 Plans:

Develop field methods to quantify individual's exposure to ionizing radiation and advanced protective clothing for incident response. Develop a tactical self-contained breathing apparatus (SCBA) for use by specialized response teams requiring enhanced respiratory protection. Demonstrate the low-cost sorbent chemical decontamination system. Conduct laboratory and field tests of a maritime toxic chemical detector, a distributed chemical sensing system, tools to improve the detection of foodborne attacks and advanced BW detection devices. Complete design review of the statistical tool for sampling of contaminated facilities and the personal hydration CBR filtration system. Deliver interagency agricultural bioterrorism and food security distance learning courseware. Validate standard laboratory protocols for analyzing chemical protective filters for buildings. Field test improved BW sample preparation system; biological agent preservation system; foodborne BW agent detection system; and a real-time biological agent detector for aerosolized BW agents.

FY 2005 Plans:

Field-test a real-time TIC detector; tactical SCBA for specialized response units; low-cost sorbent chemical decontamination system; a distributed chemical sensing system and advanced protective clothing for incident response personnel. Validate methods quantifying personal exposure to ionizing radiation. Validate tools to improve the detection of foodborne attacks and advanced BW detection devices and the statistical tool for sampling of contaminated facilities. Conduct live agent testing of the personal hydration CBR filtration system. Test an advanced high volume air and water sampling system for BW and CW agents. Deliver real-time biological agent detection capability.

EXPLOSIVES DETECTION

	FY2002	FY2003	FY2004	FY2005
Accomplishment/ Effort/Subtotal Cost	3.304	6.958	3.901	3.522

FY 2002 Accomplishments:

Demonstrated the feasibility of employing associated particle imaging for use in detection of explosives. Demonstrated breadboard handheld detector for plastic explosives and triacetone triperoxide (TATP) in concert with a foreign partner. Determined the utility of trace portal explosive detection in a desert environment. Determined low-dose x-ray capability to screen for suicide attackers. Developed and evaluated explosive simulation kit for maintenance of explosive detection canine skills.

FY 2003 Plans:

Validate the capability of nuclear quadrupole resonance (NQR) portal to detect sheet explosives. Demonstrate capability to produce marking agents at lower cost. Characterize NQR enhancements for false alarm reduction in computed tomographic (CT) explosive detection systems. Research and evaluate technologies for detection of explosives in cargo. Research and evaluate new technologies for screening bottles for explosives and hazardous materials. Develop methods to improve canine handler selection and training. Characterize canine ability to generalize from domestic to foreign explosives.

FY 2004 Plans:

Integrate multiple explosives and weapons detection technologies into one portal. Demonstrate NQR computed tomographic (CT) explosive detection system with enhanced false alarm reduction capability. Demonstrate system for explosive detection in aircraft cargo containers. Demonstrate system for screening bottle for explosives and hazardous materials.

FY 2005 Plans:

Develop prototype explosives and weapons detection portal. Validate NQR computed tomographic (CT) explosive detection system with enhanced false alarm reduction capability. Develop prototype system for explosives detection in aircraft cargo containers. Validate system for screening bottles for explosives and hazardous materials.

IMPROVISED DEVICE DEFEAT

	FY2002	FY2003	FY2004	FY2005
Accomplishment/ Effort/Subtotal Cost	7.829	9.157	6.632	5.954

FY 2002 Accomplishments:

Tested and evaluated precision laser Improvised Explosive Device (IED) disruption device. Characterized and modeled foreign developed IED/LVB (Large Vehicle Bomb) countermeasure tools and enhanced domestic version. Completed initial military operational assessment and program establishment for the Next Generation Explosive Ordnance Disposal Remote Control Vehicle (NGEODRCV). Completed development of common system architecture for NGEODRCV program. Developed and fielded advanced robotic manipulation system for integration into current LVBCM RCV platform. Developed and fielded alternative control system for DoD EOD All-Purpose Remote Transport System (ARTS) vehicle. Tested and evaluated a single-sided imaging system to diagnose IEDs in confined spaces. Developed enhanced IED detection, diagnostic and render safe tools. Integrated a standoff connectivity and control unit with different sensors; and fused the collected data onto one display screen. Completed testing and evaluation of Remote Firing Device and initiated commercialization for bomb technician acquisition. Conducted operational assessment of non-intrusive detection systems. Characterized the explosive effects of improvised explosive mixtures and determined the best use of EOD tools and techniques to perform render safe procedures.

FY 2003 Plans:

Develop and test prototype of: an urban explosive magazine for storage of rapid response explosively driven render safe tools; an environmental portable monitoring system that links environmental conditions, vital signs of bomb squad/EOD personnel and protective apparel temperatures to a central monitoring hub; field-portable, enhanced render safe tools for IED/LVB countermeasures that provide directional remote disablement, recoil mitigation, greater precision and standoff, and are logistically more viable. Demonstrate an automated information system to access and extract threat assessment, render safe data and disposal procedures. Complete and field a portable one-sided x-ray system, and an IED disruptor. Develop target recognition algorithms for detection and identification of potential IED components. Complete development of Manipulator System for remotely operated vehicles. Continue development of NGEODRCV. Continue characterization of enhanced novel explosives.

FY 2004 Plans:

Complete testing for downsized high-energy access disablement device. Complete characterization of several precision disruption tools. Complete testing and characterization of low cost .357 cal Micro Disrupters. Complete development of a recoilless disruption system for remote controlled vehicles. Develop an easy to use web-based interface allowing secure, password-protected access to a comprehensive database of IED reports. Develop an integrated portable diagnostics system and electronic fusing disruption system. Field NGEODRCV advanced concept demonstrator for evaluation. Expand scope of enhanced novel explosives characterization to include effects, structural response and personnel injury probabilities.

FY 2005 Plans:

Deliver NGEODRCV advanced concept demonstrator. Field easy to use, web-based interface allowing secure, password-protected access to a comprehensive database of IED reports. Continue to broaden scope and characterization of enhanced novel explosives. Field a low cost .357 cal micro disrupter.

INFRASTRUCTURE PROTECTION

	FY2002	FY2003	FY2004	FY2005
Accomplishment/ Effort/Subtotal Cost	2.216	2.095	2.139	1.901

FY 2002 Accomplishments:

Developed a system administrator simulation trainer to allow for the remote training of system administrators in techniques and methods to both detect and protect networks against attack. Delivered a software tool to replicate hacker sites for training and evaluation in order to protect critical networks against cyber attacks. Delivered critical infrastructure databases for emergency responders and consequence management personnel. Delivered system to model the propagation of contaminants through a regions water pipelines for threat analysis and incident mitigation and recovery. Delivered an alert trend change detection tool for protection of computer networks against autonomous malicious agents.

FY 2003 Plans:

Develop tools to monitor propagation of malicious computer software code, as well as to monitor and defend external networks against large-scale attacks. Develop a software application automating the risk assessment methodology for dams. Complete encryption algorithm suite for supervisory control and data acquisition (SCADA) system protection and provide recommendations to industry. Develop a secure teleconferencing bridge to allow for the safe communications and passing of sensitive information. Continue vulnerability assessment of critical infrastructures to the effects of RFW.

FY 2004 Plans:

Commence all source threat analysis of energy infrastructure systems to non-lethal weapons and technologies. Continue to research and develop of methods to protect critical infrastructure systems against malicious attack. Continue to improve methods of protection, detection, mitigation, and recovery from attacks on infrastructure systems and networks. Continue to research and develop soft systems to provide vulnerability models and assessments for networks and infrastructure systems. Commence development of interdependency model between all critical infrastructures to include communication networks, electric power, water, natural gas, and petroleum.

FY 2005 Plans:

Finalize all source threat analysis of energy infrastructure systems to non-lethal weapons and technologies. Improve methods to protection, detection, mitigation, and recovery from attacks on infrastructure systems and networks. Finalize development of a soft system to provide vulnerability models and assessments for networks and infrastructure systems. Validate model identifying interdependency between all critical infrastructures to include communication networks, electric power, water, natural gas, and petroleum.

INVESTIGATIVE SUPPORT AND FORENSICS				
	FY2002	FY2003	FY2004	FY2005
Accomplishment/ Effort/Subtotal Cost	3.784	5.814	4.324	3.923
<p><u>FY 2002 Accomplishments:</u></p> <p>Established concept and initial techniques for DNA extraction and identification from latent fingerprints. Validated detonation and post blast forensic signatures of improvised explosives. Expanded range of hyperspectral imager workstation for faster handwriting analysis. Performed acceptance testing on covert IR beacons. Produced protocols to evaluate the effectiveness of latent print visualization. Concluded voice stress analysis testing. Published validation of questioned document analysis. Developed next generation of audio, visual, and computer forensic tools. Designed liquid-filled camera to improve depth of field visualization. Proved concept for shredded document reconstruction and sourcing documents to individual inkjet printers. Optimized evidence recovery methods for contaminated areas.</p> <p><u>FY 2003 Plans:</u></p> <p>Co-develop the national research agenda to prove scientific basis of forensic identification. Evaluate peroxide-based explosives for post-blast forensics. Distribute controls from residue background analysis to explosive examiners. Characterize and catalog improvised explosive device components for examiners. Collect data for pipe bomb investigative reference. Characterize radio frequency (RF) emanations of explosives. Isolate additional identification segments from DNA. Field hyperspectral document imager prototype, video teleconferencing tool for document examination, and automated handwriting examination system. Determine statistical "ground truth" for print matching criteria. Publish standardized latent print evaluation criteria, enhanced DNA and bio-hazard recovery and analysis protocols, as well as procedures for ink dating, float glass exams, handwriting comparison of different language character sets, and trace analysis of conventional/novel ammunition. Begin performance testing of computer forensic tools. Continue to develop next generation audio, visual, facial recognition, and computer forensic tools. Demonstrate link analysis of computer data through read back signals. Design passive RF tag.</p> <p><u>FY 2004 Plans:</u></p> <p>Populate data reference with stable isotope signatures of explosives, post-blast forensics of peroxide-based explosives, IED component imagery, and residue background controls. Isolate additional identification segments from DNA. Field next generation audio and visual enhancement tools; continue to develop forensic computer-aided facial recognition and advanced data recovery tools. Design telecommunications evidence retrieval and handling system. Develop system designs and components for encrypted incident management and interagency radio communications. Design validation tests for ensuring court admissibility of forensic document examinations. Establish prototype of eye movement based detection of prior knowledge. Produce automated multilingual speaker recognition software. Develop remote polygraphy and non-contact facial temperature detection of deception techniques.</p> <p><u>FY2005 Plans:</u></p> <p>Develop forensic facial recognition technology and advanced data recovery tools. Develop prototype telecommunications evidence retrieval and handling system. Finalize system design and components for encrypted incident management and interagency radio communications. Continue advancements in human physical characteristics from DNA. Expand and publish pipe bomb investigative reference. Field remote polygraphy and non-contact facial temperature detection of deception techniques.</p>				

PERSONNEL PROTECTION

	FY2002	FY2003	FY2004	FY2005
Accomplishment/ Effort/Subtotal Cost	1.899	4.131	3.558	3.304

FY 2002 Accomplishments:

Completed independent Government testing of advanced hybrid composite armor. Developed and tested final design for advanced portable shield system. Delivered comprehensive database of easily procured ammunition that includes information related to performance and threat data against typical armor systems. Completed the evaluation of and identified mechanism that results in improved lethality of projectiles when passing through sheet metal in fully armored passenger vehicles, and provided design features to address the problem. Completed comprehensive system requirement document for bullet countermeasure system designed to provide instantaneous personnel protection from ballistic threats, and identified critical enabling technologies required. Updated countermeasure design for advanced armor piercing projectiles to accommodate integration into typical armored passenger vehicles. Initiated counter-sniper programs that detect and classify lasers that might be used in anti-personnel applications and that locate the presence of potential sniper optical systems. Completed development of prototype transparent armor design tool that provides predictive performance of various transparent armor constructions. Field tested and demonstrated vehicle blast model in realistic environment to support comparison to model predictions. Conducted preliminary assessments of use of man-portable air defense systems (MANPADS) in unconventional applications. Began development of laser detection and warning, and sniper detection and locating systems. Completed the first phase of test and evaluation of multi-hit performance for typical body armor, including demonstration of a standard test fixture for multi-hit evaluations.

FY 2003 Plans:

Complete upgrade of portable shield design and deliver systems to users. Complete studies on aging and environmental effects on soft body armor and torso blunt injury protection of female body armor. Integrate data systems that will allow greater coordination of threat information associated with protection of critical VIP installations. Review and revise vehicle blast model based on results of field tests. Complete improvements and conduct field-testing of design upgrade for cooling system for use under body armor and other protective garments based on user evaluations. Evaluate performance of large size samples of ALON transparent armor against multiple hit threats as precursor for practical application in selected vehicles. Validate transparent armor design model in actual ballistic testing. Demonstrate laser detection and threat evaluation system and sniper detection prototype systems in controlled trials. Examine alternative technologies, including the use of spinel that has potential to provide reduced weight transparent armor for use in vehicles and building applications. Based on studies and measurements related to the unconventional use of MANPADS threat, initiate development of countermeasure systems. Initiate development of a personal duress system that identifies potential threats to VIPs or protectors. Begin development of portable system that can be used to provide stand off monitoring of personnel for concealed weapons. Begin installation of ALON transparent armor in vehicles to evaluate performance and durability in practical applications. Continue development of multi-hit test protocols for testing body armor. Begin development of the several elements of a comprehensive armored passenger vehicle standard, to include ballistic and blast protocols and transparent armor requirements. Start development and evaluation of enabling technologies for Instantaneous Personnel Protection System based on System Requirements Document. Begin development of large spinel transparent armor to compare performance to ALON.

FY 2004 Plans:

Complete demonstration of full-scale reduced weight transparent armor applications in a selected vehicle. Promulgate preliminary armored passenger vehicle standards to begin integration into a National Standard. Complete validation testing of transparent armor design model. Continue development and integration of enabling technologies for Instantaneous Personnel Protection System. Deliver personnel duress system for VIPs and their protection details. Implement countermeasures against unconventional use of MANPADS. Demonstrate practical application of laser detection and warning and sniper detection and locating concepts. Continue introduction of advanced technologies to upgrade systems that provide monitoring and warning support to VIP installations. Demonstrate preliminary concepts for standoff monitoring of personnel for concealed weapons. Begin analyses and characterization of frangible ammunition. Evaluate methods to provide collective protection in standard vehicles against chemical agents. Begin evaluation of advanced concepts for transparent armor using fused spheres. Conduct ballistic testing of large pieces of spinel. Start investigation of methods to provide protection for personnel in vehicles against chemical agent attack. Evaluate advanced methods for unobtrusively detecting tampering of VIP vehicles.

FY 2005 Plans:

Integrate armored passenger vehicle standards into National Standard. Finalize development of Instantaneous Personnel Protection System. Continue characterization of frangible ammunition and include effects on standard body and vehicle armor systems. Validate concepts for standoff monitoring of personnel for concealed weapons. Complete development of advanced sphere-based transparent armor for practical applications. Continue assessment and implementation of vehicle systems that will provide protection against chemical agents.

PHYSICAL SECURITY

	FY2002	FY2003	FY2004	FY2005
Accomplishment/ Effort/Subtotal Cost	9.419	24.105	8.723	8.189

FY 2002 Accomplishments:

Demonstrated the effectiveness of a military mobile, gamma ray imaging system for vehicle/cargo inspection at entry control points. Demonstrated the ability to retrofit a U.S. European Command facility for improved blast protection. Completed and fielded a man-portable, motion-activated electronic trip flare. Developed and published a small watercraft inspection guide for explosives detection. Completed and delivered high-volume flat mail and parcel scanners for detecting IEDs and radioactive threats. Established test bed for vehicle entry point screening at Ft. Campbell, KY. Demonstrated feasibility of a blast effects estimation model for vulnerability assessment. Tested and evaluated a vessel identification and positioning system for port security. Conducted a survey for planned retrofits for Headquarters, U.S. Naval Forces Europe. Installed and tested a bunker protection system. Field-tested quick reaction detection sensors for improved perimeter intrusion detection. Developing final construction standards for a new DOD antiterrorism/force protection security-engineering manual. Conducted developmental testing and evaluation to create a prototype ground surveillance radar for perimeter intrusion detection system. Assessed the effectiveness and suitability of commercial-off-the-shelf under vehicle inspection systems. Completed a cargo security assessment and demonstration for Operation Safe Commerce.

FY 2003 Plans:

Operationally evaluate an advanced entry point vehicle/driver identification system with Arabic license plate reader. Develop a rail car inspection guide for explosives detection. Demonstrate a prototype ground surveillance radar perimeter intrusion detection system. Develop an automatic under vehicle security inspection system. Conduct an operational evaluation of video detection and assessment systems for suspect vehicles. Deploy a vessel identification and positioning system for port security overseas for operational evaluation and initiate systems integrations with water and land side radar sources. Develop a lightweight, portable boom to protect ship defense zones. Field-test a perimeter early warning and intruder detection system using thermal imaging and Forward Looking Infrared (FLIR). Develop a backscatter radio frequency identification system for tracking high value assets. Develop a personnel-screening guide for entry point screening. Demonstrate a radio frequency identification tagging and tracking system for high value assets. Develop a perimeter security ground and aerial video monitoring system. Develop and demonstrate an ultra wide band access tagging system for entry point screening. Develop and demonstrate an internet-based pre-deployment training system to familiarize U.S. expeditionary forces with their deployment locations. Develop a self-sustaining system for testing intrusion detection systems. Develop an activated system for delaying and/or denying intruders access to sensitive government facilities. Develop a personnel-alerting system to provide security forces warning of impending terrorist attack. Develop an automated vehicle identification and recognition system. Assess and integrate Government utilized biometrics on smart cards into vehicle identification system to verify driver and personnel identity. Integrate and conduct field-testing of enhanced vehicle identification and screening systems.

FY 2004 Plans:

Complete development of bomb blast mitigation retrofits for Headquarters, U.S. Naval Forces Europe. Demonstrate a perimeter security ground and aerial video monitoring system. Continue development of a self-sustaining system for testing intrusion detection systems. Demonstrate an activated system for delaying and/or denying intruders access to sensitive government facilities. Operationally test and evaluate a tactical video surveillance system for perimeter intrusion detection. Field-test a personnel-alerting system to provide security forces warning of impending terrorist attack. Demonstrate a portable, walk-through automated metal detector tester. Demonstrate a vehicle image recognition module for entry point screening. Complete and field a backscatter radio frequency identification system for tracking high value assets. Demonstrate a lightweight, portable boom to protect ship defense zones. Develop a rapidly deployable intrusion detection system for protection of high value and sensitive assets supporting U.S. expeditionary force operations. Develop a rapidly deployable wire barrier system to establish temporary perimeters for U.S. expeditionary forces. Demonstrate an integrated EPS System for cargo shipments. Operational test and evaluate ultra wide band tagging systems and integrate into vehicle entry point screening architecture. Develop a portable invisible spectrum floodlight to provide enhanced illumination for perimeter detection video cameras and night vision devices. Develop an identify friend or foe system for integrated air base perimeter defense.

FY 2005 Plans:

Field a perimeter security ground and aerial video monitoring system. Test and evaluate a self-sustaining system for testing intrusion and detection systems. Develop a prototype system for delaying and/or denying intruders access to sensitive government facilities. Deliver tactical video surveillance system for perimeter intrusion detection. Deliver a personnel-alerting system to provide security forces warning of impending terrorist attack. Demonstrate a rapidly deployable intrusion detection system for protection of high value and sensitive assets supporting U.S expeditionary force operations. Deliver a rapidly deployable wire barrier system to establish temporary perimeters for U.S. expeditionary forces. Field a portable invisible spectrum flood light to provide enhanced illumination for perimeter detection video cameras and night vision devices. Demonstrate an identify friend or foe system for integrated air base perimeter defense.

SURVEILLANCE, COLLECTION, AND OPERATIONS SUPPORT

	FY2002	FY2003	FY2004	FY2005
Accomplishment/ Effort/Subtotal Cost	6.380	15.246	7.971	7.206

FY 2002 Accomplishments:

Conducted pilot program that demonstrated development progress of specialized security and surveillance equipment using facial recognition technology to identify terrorists (Boston's Logan International Airport portal system). Developed video exploitation toolkit that provides processing functions for video stabilization, video super resolution enhancement, heat and scintillation removal, and the construction of enhanced, panoramic still image mosaics from video streams, as well as multisensor fusion of real-time video.

FY 2003 Plans:

Continue to integrate facial recognition technology into surveillance systems to better identify terrorists. Continue to improve intelligence analyst automation tools for dealing with large volumes of data including video and audio and develop language/speech technology aids to include in the toolkit. Improve the capabilities for clandestine collection and enhancement of video and audio surveillance. Develop increased capability for tagging, tracking and locating. Conduct pilot programs across several CbT mission areas that integrate several previously developed systems using name recognition technology to aid searches involving unfamiliar and complex cultural naming patterns and include facial recognition and other biometrics to assist in identifying terrorists on a watchlist.

FY 2004 Plans:

Continue to integrate facial recognition technology into surveillance systems. Continue to improve intelligence analyst automation tools for dealing with large volumes of data including video and audio and including speech technology aids. Improve the capabilities for clandestine collection and enhancement of video and audio surveillance. Continue development of tagging, tracking and locating and unattended ground sensors, including the development of the necessary communication links and power sources. Continue to improve name recognition technology and include facial recognition and speech technology as well as other biometrics to assist in identifying terrorists on a watchlist.

FY 2005 Plans:

Continue to integrate facial recognition technology into surveillance systems. Continue to improve intelligence analyst automation tools for dealing with large volumes of data including video and audio and including speech technology aids. Improve the capabilities for clandestine collection and enhancement of video and audio surveillance. Continue development of tagging, tracking and locating and unattended ground sensors, including the development of the necessary communication links and power sources. Continue to improve name recognition technology and include facial recognition and speech technology as well as other biometrics to assist in identifying terrorists on a watchlist.

TACTICAL OPERATIONS SUPPORT

	FY2002	FY2003	FY2004	FY2005
Accomplishment/ Effort/Subtotal Cost	1.955	10.412	14.945	5.222

FY 2002 Accomplishments:

Proved manufacturing design features for low halo night vision tubes. Delivered prototype sensor fusion night vision system that fuses image intensified and infrared images into a single image. Delivered advanced Small Chemical Agent Detector that combines output of two sensors for improved accuracy and reduced false alarms. Completed and delivered operational evaluation of reduced size multi-amplifier system that supports multiple transmitters simultaneously. Installed prototype digital driver display and mission planning system for tactical vehicles. Demonstrated test bed for personnel navigation system that is independent of GPS input that will lead to support the Special Operations Force mission profile. Completed demonstration program to evaluate methods to support stand-off characterization of transparent materials. Initiated interim design of close quarter battle carbine that will support advanced design of improved lethality weapon. Started development of a weapon-mounted image fusion system.

FY 2003 Plans:

Deliver first sets of production image intensifier tubes for install into existing systems. Demonstrate, test and deliver rifle-mounted video and thermal image display system. Continue development of the design for a personal navigation system for use when GPS is unavailable and integrate systems that will support internal mapping of targeted installations. Complete and test prototype models of advanced close quarter battle carbine. Test and deliver a wireless, low probability of intercept/detect communications system for high-speed assault craft. Continue development and testing of reduced size and improved tactical communications systems for SOF applications. Examine advanced breaching techniques and systems that will support rapid breaching with reduced collateral damage. Assess methods and systems that will support imaging through various construction walls to support tactical decision-making. Begin development of a tactical system that measures cross-wind effect on projectile trajectory and provides aim point correction. Reduce the size and improve efficiencies of tactical communications systems. Begin development of small imaging camera system that can be thrown into objective areas to provide imaging of the tactical environment. Begin development of a fiber optic antenna extension that supports remote location of transmitter/receiver from antennas. Initiate project for advanced combat helmet for Special Operations Force applications that provides improved protection at lighter weight. Investigate, test, and integrate eye protective measures against hostile laser systems for high-powered binoculars and similar augmentation systems. Start development of observation system that will locate sniper position from muzzle flash. Develop advanced tactical adhesive for use in tactical applications such as breaching and installing tracking devices.

FY 2004 Plans:

Perform field trials on advanced breaching concepts that improve access time with reduced collateral damage. Complete fiber optic antenna system and begin evaluation of the system. Deliver advanced sensor fusion weapon sights. Continue development of small personal navigation system that will work in GPS-denied environments. Continue assessment and develop prototype systems that will support imaging through various construction walls in support of tactical decision-making. Conduct field evaluations and deliver prototype system that measures cross wind effect on projectile trajectory and provides aim point correction. Deliver advance lightweight combat helmet for SOF applications. Deliver reduced size and improved tactical communications systems for SOF applications.

FY 2005 Plans:

Standardize advanced breaching concepts that improve access time with reduced collateral damage. Deliver system that will support imaging through various construction walls in support of tactical decision-making.

PROGRAM MANAGEMENT				
	FY2002	FY2003	FY2004	FY2005
Accomplishment/ Effort/Subtotal Cost	4.525	8.910	4.071	3.742
<p><u>FY 2002 Accomplishments:</u> Staffed the Combating Terrorism Technology Support (CTTS) Office, Arlington, Virginia. Aligned existing staff and added program staff members to provide program management oversight and technical support for all CTTS R&D projects. Augmented the CTTS program office with contract and financial management personnel. Directed the program/project planning and execution for all projects including the daily management and reporting on more than 250 separate contracts and funded tasks. Developed and implemented improvements for the automated approach to the Broad Agency Announcement (BAA) 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. Continued the planning, development and implementation of process efficiency and re-engineering initiatives, encompassing a complete review of CTTS mission area management and reporting responsibilities internal to the organization and in support of external reporting requirements.</p> <p><u>FY 2003 Plans:</u> Provide program management oversight and technical support for all CTTS R&D projects including funds from other agencies and management of cooperative research and development programs with the United Kingdom, Canada and Israel. Act as the interface to other government agencies for CTTS related initiatives and on-going and new projects. Establish goals, objectives, and immediate revisions to plans that will reinforce interagency and international participation for the identification and prioritization of CTTS mission area requirements. Establish an effective working relationship with the new Homeland Security Department. Direct the program/project planning and execution for projects and associated contracts using direct and indirect budget allocations; includes management and closeout of existing contracts and solicitation, contracting and management of new initiatives. Enhance the CTTS automated approach to the BAA solicitation process. Review and revise existing process and execution plans for CTTS mission area management and internal and external reporting responsibilities.</p> <p><u>FY 2004 Plans:</u> Provide program management oversight and technical support for all CTTS R&D projects including funds from other agencies and management of cooperative research and development programs with the United Kingdom, Canada and Israel. Act as the interface to other government agencies for CTTS related initiatives and continuing and new projects. 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/project planning and execution for projects and associated contracts using direct and indirect budget allocations. Includes management and closeout of existing contracts and the solicitation for an increasing volume of new initiatives. Review and revise existing process and execution plans for CTTS mission area management and internal and external reporting responsibilities.</p> <p><u>FY 2005 Plans:</u> Provide program management oversight and technical support for all CTTS R&D projects including funds from other agencies and management of cooperative research and development programs with the United Kingdom, Canada and Israel. Act as the interface to other government agencies for CTTS related initiatives and continuing and new projects. 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/project planning and execution for projects and associated contracts using direct and indirect budget allocations. Includes management and closeout of existing contracts and the solicitation for an increasing volume of new initiatives. Review and revise existing process and execution plans for CTTS mission area management and internal and external reporting responsibilities.</p>				