Exhibit R-2, RDT&E Budget Item Justification	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Advanced Technology Development - BA 3	**R-1 ITEM NOMENCLATURE:** Proliferation Prevention and Defeat 0603160BR

Cost ($ in millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Total 0603160BR Cost	94.8	90.4	96.1	103.1	107.8	108.3	109.8	111.8
Project BB – Small Business Innovative Research*	0	0	.6	.7	.7	.7	.7	.7
Project BI - Detection Technology**	6.7	23.5	6.6	8.6	7.6	6.0	6.6	6.5
Project BJ – SOF Counterproliferation Support***	47.1	18.5	21.5	18.0	20.2	20.6	20.6	20.7
Project BK – Counterforce	41.0	48.4	67.4	75.8	79.3	81.0	81.9	83.9

*In year of execution, funding executed under PE 0605502BR "Small Business Innovative Research"
**FY 2004 funding resided under PE 0603711BR "Arms Control Technology"; Project retitled to "Detection Technology" in FY 2005 to better define the program
***FY 2004 funding resided under PE 0603160BR "Counterproliferation Support-Advanced Development"

A. Mission Description and Budget Item Justification:

The objective of this program element is to reduce opportunities for WMD proliferation and enhance capabilities for WMD defeat through advanced technology development. To accomplish this objective, Small Business Innovative Research and four project areas were developed: Arms Control Technology (retitled Detection Technology in FY 2005 to better define the program), Special Operation Forces (SOF) Counterproliferation (CP) Support, Counterforce, and Unconventional Nuclear Warfare Defense. This development supports technology requirements defined in the Joint Functional Concepts (ref CJCSI 3170.01) and the Quadrennial Defense Review (QDR) Transformational Goals.

Project BI develops technologies to monitor, detect, identify and locate strategic, conventional and improvised weapons, or their components, to support DoD requirements in the areas of international treaties and agreements, homeland security, combating terrorism and nonproliferation. Efforts under this project also support international peacekeeping and nonproliferation objectives. Current and emerging technologies are assessed to provide the basis for research and development investment decisions, to evaluate existing programs, and to provide the technical support required to make compliance judgments and assist U.S. Arms Control policy formulation and negotiating teams. Selected technologies are developed and demonstrated to support confidence building measures and nonproliferation initiatives that ensure capabilities to monitor comply with and implement treaties and agreements when required.

Specific products under project BI include equipment and procedures for data exchanges, on-site and aerial inspections and monitoring, and off-site analysis required to meet treaty specifications and implement confidence-building measures.

Project BJ provides RDT&E to support the Joint Functional Concept, Force Application, through development of SOF counterproliferation technologies. SOF technologies are focused on addressing counterproliferation of nuclear, biological, and chemical weapons and their means of delivery (NBC/M). The U.S. must be able to identify, characterize and defeat adversary's NBC/M research, production, storage, operations, support and command and control facilities while mitigating collateral hazards that would result from release and expulsion of NBC agents. The potential target set includes fixed, above

ground and underground, hardened and unhardened facilities, as well as transshipment and delivery systems. To accomplish this task, SOF requires improved detection and characterization of nuclear, biological, and chemical weapons and their means of delivery (NBC/M) threats.

Project BK provides RDT&E to support the Joint Functional Concept, Force Application and the QDR transformational Goal to Deny Enemy Sanctuary. The objective of this project is to develop, demonstrate and transition counterproliferation (CP) counterforce technologies to combatant commands and Services. Programs to develop, demonstrate and transition technologies are structured to exploit ongoing DoD agency, Service laboratory, and Department of Energy laboratory technology programs wherever possible, with emphasis on functional kill, hard kill and mitigating collateral effects. Potential targets include fixed, aboveground and underground, hardened and unhardened facilities, as well as related Command, Control, Communications and Intelligence (C3I) facilities, transshipment and delivery systems. The goal is rapid development and demonstration of enhanced counterforce mission capabilities that includes, but not limited to, advanced conventional and non-conventional (but non-nuclear) weapons, application of sensor technologies for weapons of mass destruction (WMD) combat assessment, and target-attack planning tools that optimize weapon and sensor employment.

Prototype or modified systems integrating these capabilities are evaluated in demonstrations--those demonstrating military utility can transition to a Service for acquisition, with a residual operational capability provided to combatant commanders when planned.

B. Program Change Summary:

($ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007
Previous President's Budget	**96.8**	**74.5**	**91.5**	**109.8**
Current President's Budget	**94.8**	**90.4**	**96.1**	**103.1**
Total Adjustments	**-2.0**	**15.9**	**4.6**	**-6.7**
Congressional program reduction				
Congressional reductions		**-1.4**		
Congressional increases		**17.7**		
Reprogrammings	**-.4**			
Other Program Adjustments			**4.6**	**-6.7**
SBIR/STTR Transfer	**-1.6**	**-.4**		

Change Summary Explanation:

- The decrease in the FY 2004 funding profile from the previous President's Budget to the current President's Budget is the result of a SBIR funding transfer and below-threshold reprogrammings. During the year of execution, SBIR funding (-$1.6 million) is consolidated into PE 0605502BR "Small Business Innovative Research" for execution. DTRA also completed a below-threshold reprogramming in support of Gamma Ray Detector Technology (+$1.0 million), reprogrammed funds to support Nevada Test Site Remediation (-$1.2 million) to DTRA PE 0602716BR "WMD Defeat Technology", and reprogrammed inflation savings to OSD in the amount of -$.2 million.
- The overall increase in FY 2005 from the previous President's Budget to the current President's Budget is attributed to Congressional Adds in the amount of $17.7 million. The FY 2005 DoD Appropriations Bill (P.L. 108-287) contained several undistributed congressional reductions that were proportionally applied to the entire DTRA RDT&E program. Reductions for this program amounted to -$1.4 million. Additionally, SBIR funding (-$.4 million) was consolidated into PE 0605502BR "Small Business Innovative Research" for execution.
- The increase of $4.6 million in FY 2006 from the previous President's Budget to the current President's Budget reflects program reprioritization. DTRA's priority development is strongly linked to the Combatant Commanders. Funding is used to support high priority combat support requirements in accordance with current planning, assumptions and associated requirements, correct infrastructure deficiencies and implement the business reform initiative. It also balances the program consistent with strategic priorities both within DTRA and the Department of Defense.
- The decrease of -$6.7 million in FY 2007 from the previous President's Budget to the current President's Budget reflects program reprioritization. DTRA's priority development is strongly linked to the Combatant Commanders. Funding is used to support high priority combat support requirements in accordance with current planning, assumptions and associated requirements, correct infrastructure deficiencies and implement the business reform initiative. It also balances the program consistent with strategic priorities both within DTRA and the Department of Defense.

- The resulting program provides for a flexible combat support structure; focused science and technology investments, to include such critical areas as WMD target defeat and nuclear weapons affects technologies; enhanced consequence management capabilities; force protection, infrastructure protection and dual-use homeland security initiatives; as well as the streamlining and transformation of the supporting business practices and workforce.

C. Other Program Funding Summary: see Exhibit R-2a

D. Acquisition Strategy: N/A

Exhibit R-2a, RDT&E Project Justification	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Advanced Technology Development - BA 3 0603160BR	**PROJECT NAME AND NUMBER:** Project BB-Small Business Innovative Research*

Cost ($ in millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project BB – Small Business Innovative Research*	0	0	0.6	0.7	0.7	0.7	0.7	0.7

*In year of execution, funding executed under PE 0605502BR "Small Business Innovative Research"

- This project:
  - Stimulates technological innovation in the private sector
  - Strengthens the role of small business in meeting DoD research and development needs
  - Fosters and encourages participation of minority and disadvantaged businesses in technological innovation
  - Increases the commercial application of DoD supported research and development results.
- These efforts are responsive to PL 106-554.

B. Accomplishments/Planned Program:

Cost ($ in millions)	FY 2004	FY 2005	FY 2006	FY 2007
Small Business Innovative Research (SBIR)	0	0	0.6	0.7

FY 2004 Accomplishments

- Supported the Small Business Administration (SBA) National Direction by actively seeking small business contractors to perform innovative research. In year of execution, funding executed under PE 0605502BR "Small Business Innovative Research"

FY 2005 Plans

- Support the Small Business Administration (SBA) National Direction by actively seeking small business contractors to perform innovative research. In year of execution, funding executed under PE 0605502BR "Small Business Innovative Research.

FY 2006 Plans

- Support the Small Business Administration (SBA) National Direction by actively seeking small business contractors to perform innovative research.

FY 2007 Plans

- Support the Small Business Administration (SBA) National Direction by actively seeking small business contractors to perform innovative research.

C. Other Program Funding Summary: N/A

D. Acquisition Strategy: N/A

E. Major Performers: N/A

Exhibit R-2a, RDT&E Project Justification	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Advanced Technology Development - BA 3 0603160BR	**PROJECT NAME AND NUMBER:** Project BI: Detection Technology

Cost ($ in millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project BI - Detection Technology*	6.7	23.5	6.6	8.6	7.6	6.0	6.6	6.5

*****FY 2004 funding resided under PE 0603711BR "Arms Control Technology"; Project re-titled to "Detection Technology" in FY 2005 to better define the program.

A. Mission Description and Budget Item Justification:

- This project provides an integrated and comprehensive approach to meet technology requirements associated with achieving national defense nonproliferation and arms control objectives. Major activities include:
  - Develop technologies to monitor, detect, identify and locate strategic, conventional and improvised weapons, or their components, to support DoD requirements in the areas of international treaties and agreements, homeland security, combating terrorism and nonproliferation.
  - Develop procedures and equipment that will enable the United States government to effectively exercise treaty inspection rights, monitor compliance, and accomplish reporting associated with current and projected treaty requirements in the most non-intrusive and cost-effective manner. Objectives include achieving more effective methods of measuring characteristic accountable item signatures under appropriate conditions and providing monitoring/inspection capabilities to reduce the overall cost and increase the flexibility of U.S. inspectors utilizing technologies based on physical principles such as nuclear radiation detection, acoustics, or chemical identification.
  - Develop technology to provide information collection, processing and dissemination capabilities for compliance assessments and to meet notification and reporting requirements associated with evolving treaties and agreements.
  - Develop technologies to synergistically support international peacekeeping efforts and other nonproliferation initiatives.
  - Perform technology assessments and provide technical input to support development of innovative agreements addressing arms control issues in new topical areas and/or specific geographical regions.
  - Provide improved detection systems to DoD to detect radiological or high explosive material under cooperative and non-cooperative conditions. Improvement in systems includes increased range of detection, lower costs, lower weight and better resolution and sensitivity to minimize false positives.
  - Develop enhanced operational systems supporting DoD requirements employing advances in solid state nuclear detectors, processing electronics, analysis software, and identification technology, and combination nuclear/biological/chemical sensor technology.

B. Accomplishments/Planned Program:

Cost ($ in millions)	FY 2004	FY 2005	FY 2006	FY 2007
Detection Technology	3.2	18.8	3.5	7.1

***** Re-titled from "Arms Control Technology" to "Detection Technology" in FY 2005 to better define the program

FY 2004 Accomplishments

- Continued cooperative development of technologies with the Russian Federation to enhance security and accountability of Russian nuclear weapons, completing a testbed for weapons security technologies in St. Petersburg.
- Continued development of portable high-resolution gamma ray detectors without the logistical burden of cryogenic cooling
- Continued development of highly efficient portable neutron detectors for the detection of radiological or nuclear weapons.
- Continued Open Skies sensor performance evaluations and accomplished RDT&E to support application of sensor equipment for Open Skies aircraft.
- Completed development of the Treaty Limited Equipment Area Search advanced catalog search tool (Initial Operational Capability (IOC) – 1st QTR FY04), and notifications (2nd QTR FY04) in a web environment.
- Developed Compliance Monitoring and Tracking System (CMTS) Adapted Conventional Armed Forces in Europe Treaty interface to Integrated Notification Application
- Provided a data management capability for Conventional Forces Europe (CFE) to support treaty entry into force planning assumptions.
- Continued state-of-the-art technologies development of next generation treaty support information management capabilities under the Arms Control Information and Notification (ACIN) Program.
- Continued development of enhanced web-based training and situational analysis tools.
- Completed development and delivery of the Inspection Planning Module.
- Continued Independent Verification and Validation (IV&V) tests of information processing systems.
- Continued program for developing systems using advances in solid state nuclear detectors, processing electronics, analysis software, identification technology, and combination nuclear/biological/chemical sensor technology.
- Continued development of individual dosimeter and nuclear radiation exposure monitoring equipment for use in operational environments.
- Initiated evaluation of a thermoelectrically cooled portable high resolution gamma-ray detector.
- Continued an industry-based development of high-resolution gamma-ray detectors without the logistical burden of cryogenic cooling.
- Initiated an academic program to investigate active interrogation and explosives detection.

FY 2005 Plans

- Continue Open Skies sensor performance evaluations and associated RDT&E to support application of sensor equipment for Open Skies aircraft.
- Transition Open Skies sensor performance and support program to operational directorate on completion of R&D effort.
- Continue cooperative testing of technologies with the Russian Federation to enhance security and accountability of Russian nuclear weapons.
- Continue development of portable high-resolution gamma ray detectors without the logistical burden of cryogenic cooling.
- Continue development of highly efficient portable neutron detectors for the detection of radiological or nuclear weapons.
- Continue program for developing systems exploiting advances in solid state nuclear detectors, processing electronics, analysis software, identification technology, and combination nuclear/biological/chemical sensor technology.
- Continue development of individual dosimeter and nuclear radiation exposure monitoring equipment for use in operational environments.
- Continue evaluation and development of a thermoelectrically cooled portable high resolution gamma-ray detector.
- Continue an industry-based development of high-resolution gamma-ray detectors without the logistical burden of cryogenic cooling.
- Continue an academic program to investigate active interrogation and explosives detection.
- Continue effort to enhance the growth of high-resolution scintillator crystals.

FY 2006 Plans

- Continue cooperative testing of technologies with the Russian Federation to enhance security and accountability of Russian nuclear weapons.
- Continue development of portable high-resolution gamma ray detectors without the logistical burden of cryogenic cooling.
- Continue development of highly efficient portable neutron detectors for the detection of radiological or nuclear weapons.
- Continue program for developing systems exploiting advances in solid state nuclear detectors, processing electronics, analysis software, identification technology, and combination nuclear/biological/chemical sensor technology.
- Continue development of individual dosimeter and nuclear radiation exposure monitoring equipment for use in operational environments.
- Complete effort to enhance the growth of high-resolution scintillator crystals.
- Initiate development of high intensity, highly directional neutron source for active interrogation.
- Initiate development of a microsphere neutron detector.
- Continue evaluation and development of a thermoelectrically cooled portable high resolution gamma-ray detector.
- Continue an industry-based development of high-resolution gamma-ray detectors without the logistical burden of cryogenic cooling.
- Continue an academic program to investigate active interrogation and explosives detection.

FY 2007 Plans

- Continue cooperative testing of technologies with the Russian Federation to enhance security and accountability of Russian nuclear weapons.
- Continue development of portable high-resolution gamma ray detectors without the logistical burden of cryogenic cooling.
- Continue development of highly efficient portable neutron detectors for the detection of radiological or nuclear weapons.
- Continue program for developing systems exploiting advances in solid state nuclear detectors, processing electronics, analysis software, identification technology, and combination nuclear/biological/chemical sensor technology.
- Continue development of individual dosimeter and nuclear radiation exposure monitoring equipment for use in operational environments.
- Continue development of high intensity, highly directional neutron source for active interrogation.
- Continue development of a microsphere neutron detector.
- Continue evaluation and development of a thermoelectrically cooled portable, high-resolution gamma-ray detector.
- Continue an industry-based development of high-resolution gamma-ray detectors without the logistical burden of cryogenic cooling.
- Continue an academic program to investigate active interrogation and explosives detection.

C. Other Program Funding Summary: N/A

D. Acquisition Strategy: N/A

E. Major Performers: N/A

Exhibit R-2a, RDT&E Project Justification	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Advanced Technology Development - BA 3 0603160BR	**PROJECT NAME AND NUMBER:** Project BI: Detection Technology

Cost ($ in millions)	FY 2004	FY 2005	FY 2006	FY 2007
Arms Control Information & Notification Program	3.5	4.7	3.1	1.5

FY 2004 Accomplishments

- Completed development of the Treaty Limited Equipment Area Search advanced catalog search tool (Initial Operational Capability (IOC) – 1st QTR FY 2004), and notifications (2nd QTR FY 2004) in a web environment.
- Developed Compliance Monitoring and Tracking System (CMTS) Adapted Conventional Armed Forces in Europe Treaty interface to Integrated Notification Application
- Provided a data management capability for Conventional Forces Europe (CFE) to support treaty entry into force planning assumptions.
- Continued state-of-the-art technologies development of next generation treaty support information management capabilities under the Arms Control Information and Notification (ACIN) Program.
- Continued development of enhanced web-based training and situational analysis tools.
- Completed development and delivery of the Inspection Planning Module.
- Continued Independent Verification and Validation (IV&V) tests of information processing systems.

FY 2005 Plans

- Continue state-of-the-art technologies development of next generation treaty support information management capabilities under the Arms Control Information and Notification (ACIN) Program.
- Continue development of situational analysis tools.
- Begin configuration control integration for international negotiations.
- Continue Independent Verification and Validation (IV&V) tests of information processing systems.
- Integrate and test Continuity of Operations capabilities for the Arms Control Enterprise System and Strategic Arms Reduction Treaty (START) Accounting and Reporting System

FY 2006 Plans

- Continue state-of-the-art technologies development of next generation treaty support information management capabilities under the Arms Control Information and Notification (ACIN) Program.
- Sustain Compliance Monitoring and Tracking System (CMTS) with testing and transition to the Arms Control Enterprise System (ACES)
- Continue configuration control integration for international negotiations.
- Integrate with the Weapons of Mass Effects (WME) BattleLab systems to enhance arms control capabilities.
- Initiate development of tools for modified and new arms control treaties including Small Arms/Light Weapons (SA/LW).

- Continue Independent Verification and Validation (IV&V) tests of information processing systems.

FY 2007 Plans

- Complete state-of-the-art technologies development of next generation treaty support information management capabilities under the Arms Control Information and Notification (ACIN) Program.
- Complete deployment of the Arms Control Enterprise System (ACES), remove Compliance Monitoring and Tracking System (CMTS) from live operation
- Continue configuration control integration for international negotiations
- Maintain integration activities with the Weapons of Mass Effect (WME) BattleLab systems to enhance arms control capabilities**.**
- Continue development of tools for modified and new arms control treaties including Small Arms/Light Weapons (SA/LW).
- Continue Independent Verification and Validation (IV&V) tests of information processing systems.

C. Other Program Funding Summary: N/A

D. Acquisition Strategy: N/A

E. Major Performers: N/A

Exhibit R-2a, RDT&E Project Justification	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Advanced Technology Development - BA 3 0603160BR	**PROJECT NAME AND NUMBER:** Project BJ - SOF Counterproliferation Support

Cost ($ in millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project BJ – SOF Counterproliferation Support	47.1	18.5	21.5	18.0	20.2	20.6	20.6	20.7

A. Mission Description and Budget Item Justification:

- This project supports the Joint Functional Concept of Force Application by developing and demonstrating technologies that enable Special Operations Forces (SOF) to detect, disable, neutralize and render safe Weapons of Mass Destruction (WMD) and their associated facilities. WMD and their associated facilities are proliferating among potential U.S. adversaries. This mission within Force Applications has been identified as a critical national priority and assigned to SOF since 1995. The goal of this project is to provide management oversight and technical assistance for SOF-unique technologies, and develops enhanced SOF applications that expand the technology base to mitigate near and mid-term program deficiencies.
- The following programs are currently planned: SOF Counterproliferation (CP) Research and Development (R&D), Manportable Agent Defeat, and the Sensor/Detector Development and Testing Program. These three programs are described in the following paragraphs:
  - The SOF CP R&D Program demonstrates through combat validations SOF-unique devices that enable SOF to detect, disable and neutralize WMD and their associated facilities. This project directly supports SOF contributions to the nation's effort to counter the spread of WMD. Efforts in this project include: the defeat of hard and deeply buried targets (HDBT), explosive ordnance disposal (EOD) and maritime efforts to prevent the spread of WMD technology. Details of this program have been classified per Chairman, Joint Chief of Staff Manual (CJCSM) 5225-01 dated 23 Oct 1996.
  - Manportable program develops a full spectrum of complimentary Combating Terrorism (CT) and Counterproliferation (CP) capabilities that will provide the Department of Defense, Combatant Commanders (COCOM) and Other Government Agencies (OGA) the ability to rapidly detect and destroy WMD in various backgrounds, concentrations and forms. This program will also develop an analysis of the current knowledge base for detection and decontamination of Chemical, Biological, Radiological and Nuclear (CBRN) materials. DTRA will provide, upon request, direct program support to develop enhanced capabilities for USSOCOM applications that expand this technology base and mitigate mid-term deficiencies. Details of this program have been classified per Chairman, Joint Chief of Staff Manual (CJCSM) 5225-01 dated 23 Oct 1996.
  - The Sensor/Detector Development and Testing Program have two distinct objectives: develop portable, high resolution and highly efficient room temperature radiation detectors; and develop an integrated sensor network to improve the tactical operating picture for SOF. To accomplish these objectives the program is broken up into two separate activities, the Guardian Portable Radiation Search Program and the Sensor Network Integrated Technology Demonstration. These two activities are described in the following paragraphs:
  - The Guardian Portable Radiation Search Program develops portable, high resolution, and highly efficient room temperature radiation detectors. The goal of this program is to improve detection and characterization of nuclear threats via increased sensitivity, selectivity, and specificity of radiation measurements conducted in a field environment.
  - The Sensor Network Integrated Technology Demonstration project demonstrates the capability of mature/maturing technologies networked together to increase the effectiveness and efficiency of SOF to clandestinely conduct Intelligence, Surveillance and Reconnaissance (ISR) in denied littoral and other areas to support Combating Terrorism/Counterproliferation missions and Theater Contingency Plan (CONPLANs)/

Operational Plans (OPLANs). This effort leverages legacy DTRA programs to guide development of an integrated sensor network to improve the tactical operating picture for Special Operations Forces (SOF).

B. Accomplishments/Planned Program:

Cost ($ in millions)	FY 2004	FY 2005	FY 2006	FY 2007
SOF Counterproliferation Support	18.7	18.5	21.5	18.0

FY 2004 Accomplishments

- Specific details are classified.

FY 2005 Plans

- Specific details are classified.

FY 2006 Plans

- Specific details are classified.

FY 2007 Plans

- Specific details are classified.

Cost ($ in millions)	FY 2004	FY 2005	FY 2006	FY 2007
Manportable	4.4	0	0	0

FY 2004 Accomplishments

- Delivered final chemical agent defeat gap analysis.
- Delivered 1000 sample preparation cartridges LiNK in support of the Advanced Concept Technology Demonstration (Advanced Concept and Technology Demonstration(s) (ACTD)) on May 2004.
- Initiated a gap analysis of the current knowledge base for biological agent defeat.
- Delivered prototypes for the Affinity Magnet cartridge May 2004.
- Delivered bacteriophage cocktails to Dugway Proving Ground (DPG) for performance evaluation at the laboratory scale. Test Ongoing.
- Delivered a cell capable of generating 2000 ppm of Chief Information Officer in solution for a new agent defeat capability. Prototype tested successfully by Battelle. Developed cell has been incorporated into a new format to meet agent defeat requirements.

Cost ($ in millions)	FY 2004	FY 2005	FY 2006	FY 2007
The Sensor/Detector Development and Testing Program	24.0	0	0	0

FY 2004 Accomplishments

- The following are the FY 2004 accomplishments for the Guardian Portable Radiation Search Program
  - Advanced technologies for verification and compliance monitoring.
  - Developed man-portable instruments with minimal battery power needs.
  - Developed vehicle-mobile instruments with long-range gamma and neutron detection capabilities.
  - Developed and tested integrated prototypes.
- The following are the FY 2004 accomplishments for the Sensor Network Integrated Technology Demonstration.
  - Identified the applicable systems/technology that exist or are in development that relate to current requirements.
  - Developed the technology to integrate the individual systems. Demonstrated a fully integrated network.

C. Other Program Funding Summary: N/A

D. Acquisition Strategy: N/A

E. Major Performers:

Cost ($ in millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project BK – Counterforce	41.0	48.4	67.4	75.8	79.3	81.0	81.9	83.9

A. Mission Description and Budget Item Justification:

- Project BK supports the Joint Functional Concept, Force Application, and the Quadrennial Defense Review transformational Goal to Deny Enemy Sanctuary by developing and demonstrating technologies to strengthen joint and combined warfighting capabilities useful in the Global War on Terrorism (GWOT). The objective is to develop technologies, demonstrate prototype systems in an operationally realistic environment, support operators in defining innovative concepts of operation, and provide combatant commanders with enhanced capabilities that respond to potential adversaries' capability to develop and/or employ chemical, biological, radiological, and nuclear, (CBRNE) weapons of mass destruction (WMD). The U.S. requires the capability to attack and neutralize CBRNE research, production, storage, operations and support, and command and control facilities while mitigating collateral effects from expulsion and release of CBRNE agents. Potential targets include mobile and fixed, above ground and underground, hardened and unhardened facilities, as well as related Command, Control, Communications and Intelligence (C3I) facilities, and transshipment and delivery systems. The goal is rapid development and demonstration of enhanced counterforce mission capabilities that include, but are not limited to, advanced conventional and non-conventional (non-nuclear) weapons, application of stand-off technologies for weapons of mass destruction (WMD) combat assessment, integration of global strike technologies, and target-attack planning tools that optimize weapon and sensor employment.
- This project emphasizes technology demonstrations to include Advanced Technology Demonstrations (ATD) and Advanced Concept Technology Demonstrations (Advanced Concept and Technology Demonstration(s) (ACTD). The project is divided into four mission areas, WMD Counterforce Applications, CBRNE Counterproliferation Support, Global Strike Integration Technologies, and Hard Target Defeat. Grouped with these mission areas, the following are current programs in the Counterforce Project: the Second Counterproliferation (CP2) Counterforce Advanced Concept and Technology Demonstration(s) (ACTD) Extended User Evaluation; Agent Defeat, Deny and Disrupt (AD3); WMD Combat Assessment to include the Biological Combat Assessment System (BCAS) ATD; WMD Time-Sensitive Target Defeat; Counterforce Taggant Technology; WMD Planning Capability; CBRNE Venture for FY04 and beyond; Biological Advanced Concept and Technology Demonstration(s) (ACTD); Chemical ATD; Command, Control, Communications and Intelligence (C3I) Defeat Demonstration; Tunnel Target Defeat Advanced Concept and Technology Demonstration(s) (ACTD); Thermobaric Advanced Concept and Technology Demonstration(s) (ACTD); and Intelligent Munition for the Precision Attack on Critical Targets (IMPACT) demonstration. Additional funds for this Project, added as a result of the Secretary of Defense Strategic Review in FY 2002, are being used to demonstrate technologies identified in the Hard and Deeply Buried Target Defeat (HDBTD) Science & Technology Master Plan. Major projects are described in the following paragraphs:
  - WMD Counterforce Applications:

- The Agent Defeat, Deny, Disrupt (AD3) program is a DTRA-led effort that includes efforts by the U.S. Air Force, the U.S. Navy and several national laboratories. The objectives are to develop, demonstrate and transition an enhanced capability to either defeat, deny access to WMD material, systems, and processes or disrupt the adversary's capability to employ those materials or systems, while minimizing the collateral effects of employing this enhanced capability. Collateral effects test data will be obtained to enhance future weapons design and target planning tools. The program started in FY 2002 as the Prompt Agent Defeat (PAD) program and has been expanded to its current scope which develops next generation Agent Defeat, Deny, Disrupt (AD3) payloads, integrates them, with full validation through a comprehensive DT&E program, into current and future weapon systems with minimal impact on operational Tactics, Techniques and Procedures (TTPs), and then verifies weapon combat effectiveness through OT&E prior to transitioning to the warfighter. This program responds to the 1994 U.S. Air Force Mission Need Statement for Agent Defeat Weapons and emergent Component Command (COCOM) and Service Initial Capabilities Documents (ICDs). This program includes development, demonstration, and enhancement of weapons specifically designed for Agent Defeat, Deny, and/or Disrupt missions, including Direct Attack, Standoff, Air and Ground delivered Agent Defeat Weapons and includes specific capability to interface with ISR assets for improved post attack assessment capability. Agent Defeat, Deny, Disrupt (AD3) depends on the technology base PE 0602716BR, Project BD for weapons phenomenology and advanced sub- and full-scale weapon effects and collateral release diagnostics. The Agent Defeat, Deny, Disrupt (AD3) program also serves as the Executive Secretary to the NCB/DDR&E Agent Defeat Initiative which functions as the principle OSD integrator of Agent Defeat, Deny, and Disrupt mission technology development, testing, and transition efforts.
- The WMD Combat Assessment program has evolved from Counterproliferation 1 (CP1) and Counterproliferation 2 (CP2) Advanced Concept and Technology Demonstration(s) (ACTD) sensor product areas to provide WMD combat assessment capabilities. Product areas efforts will provide improved warfighting capabilities against the spectrum of WMD-related facilities. These efforts will continue to leverage existing programs to (1) evaluate near-term technologies; (2) define concepts of operation and system architecture for chemical, biological, and radiological combat assessment; (3) produce data fusion and mission planning modules to meet user requirements on existing platforms; and (4) integrate chemical, biological, and radiological combat assessment capabilities onto delivery systems, such as unmanned air vehicle (UAV) and expendable mini-UAV platforms. This effort will further demonstrate the ability to confirm, identify, and assess the release of chemical/biological/radiological agents in support of attacks on CBRNE facilities and assist in predicting transport patterns by updating pre-strike predictions of the potentially hazardous plume with real-time data. The combat assessment product area will not develop its own CBR sensors, but will leverage and/or modify ongoing CBR sensor efforts within the chemical and biological defense community to minimize program risk for applying this technology to counterforce missions. In CP2, a Chemical Combat Assessment System (CCAS) was developed and demonstrated. Final demonstrations were in FY 2003 with transition of residual activities during FY 2004 and FY 2005. The Biological Combat Assessment System (BCAS) leverages the development work completed and demonstrated for the Chemical Combat Assessment System and will demonstrate a biological assessment capability that supports CP counterforce missions. BCAS activities began in FY 2004 with the development of a Capabilities Requirements Document. The BCAS ATD will include two spiral demonstrations. Spiral 1 (2Q FY 2007) is intended to demonstrate cloud with biological sample collection. Spiral 2 (4Q FY 2008) is intended to demonstrate with point biological sample collection and identification. U.S. Pacific Command (USPACOM) is the Advanced Technology Demonstration (ATD) operational sponsor. BCAS supports Pacific Command’s (U.S.) PACOM’s , Biological Weapons Countermeasures Program (BWCP).

- The WMD Time-Sensitive Target Defeat and Counterforce Taggant Technology programs examine weapons effects of attacks on time-sensitive targets (TST) and develop the technology to enhance WMD combat assessment through weapon-borne taggants. Test data collected during simulated TST attack testing will be used to develop models for WMD planning tools and develop tactics for attacks on TST that reduce the potential for collateral effects. The Counterforce Taggant Technology program will conduct sub-scale and full-scale tests of promising taggants technologies to help in the location and tracking of biological agent simulants in explosive plumes and aid in battle damage assessment and characterization of WMD-related targets.
- The Counterproliferation 2 (CP2) Advanced Concept and Technology Demonstration(s) Advanced Concept and Technology Demonstration(s) (ACTD) was successfully completed in FY 2004, demonstrating advanced, system-of-systems capabilities for WMD counterforce such as penetrating cruise missiles for the Air Force and Navy, a Unmanned Air Vehicle UAV-based chemical combat assessment system, end-to-end concepts of operation for counterforce operations, and improved planning tools. Based on favorable Military Utility Assessment results, select technologies have been fielded or transitioned to follow-on, extended user evaluation

- CBRNE Counterproliferation (CP) Support:
  - CBRNE Venture develops specialized technologies and equipment prototypes to detect, disable and render safe and recover critical components from WMD devices in non-permissive and time-sensitive environments. This effort began in FY 2003.
  - The Biological Advanced Concept Technology Demonstration (ACTD) was transferred from Project BJ in FY 2003 to demonstrate enhanced capabilities for the customer. Biological Advanced Concept and Technology Demonstration(s) (ACTD) integrates existing and developing technologies to produce Special Operations Forces (SOF) -focused capabilities for counterproliferation operations against biological warfare production, storage, and weaponization facilities. The objective is to provide to the Geographic Combatant Commander capabilities, adaptable to other areas of responsibilities (AORs), for counterproliferation activities in response to a country's BW program. The Advanced Concept and Technology Demonstration(s) (ACTD) acts as a forcing function across DoD to develop Joint Doctrine for counterproliferation of biological warfare infrastructure not vulnerable to attack by conventional means. Scheduled for June 2003, the final demonstration was delayed one year due to real-world operational requirements. Details of this program are classified per Chairman, Chairman, Joint Chief of Staff Manual (CJCSM) 5225-01, dated 23 Oct 1996.
  - The Chemical Advanced Technology Demonstration (ATD) integrates existing and developing technologies to produce unique capabilities for counterproliferation operations against chemical warfare production, storage, and weaponization facilities. The objective is to provide capabilities to the Geographic Combatant Commands capabilities for counterproliferation activities in response to a country's Chemical Weapons (CW) program. These capabilities will be adaptable to other Areas of Responsibility (AORs). The ATD acts as a forcing function across DoD to develop Joint Doctrine for counterproliferation of chemical warfare infrastructure not vulnerable to attack by conventional means. Details of this program are classified per Chairman, Joint Chief of Staff Manual (CJCSM) 5225-01, dated 23 Oct 1996.
- Hard Target Defeat (HTD):
- The HTD program objective is to develop and demonstrate end-to-end capabilities for the functional defeat of hard targets, particularly tunnels, and assess developing weapon and sensor concepts against such targets. The program does not develop new sensors, but does assess the

effectiveness of existing or emerging technologies being developed by others on the tunnel testbeds developed. The HTD program develops technologies under PE 0602716BR, Project BF, and transitions them to this program for demonstration. The demonstrations require test planning and execution support from PE 0602716BR, Project BE. HTD customers include USPACOM, U.S. Strategic Command (USSTRATCOM), U.S. Special Operations Command (USSOCOM), and the Air Force's Air Combat Command.

- The Hard Target Defeat (HTD) demonstrations develop new weapons, delivery concepts, and planning capabilities to defeat Hard and Deeply Buried Targets. The following demonstrations are part of the current plan:
    - The Command, Control, Communications and Intelligence (C3I) Defeat Demonstration explores and demonstrates a range of novel concepts for defeat of underground Command, Control, Communications and Intelligence (C3I) facilities. The currently planned HTD Command, Control, Communications and Intelligence (C3I) Demonstration ended in FY 2004. The Tunnel Target Defeat Advanced Concept and Technology Demonstration(s) (ACTD) will develop a planning tool that will improve the warfighter's confidence in selecting the smallest nuclear yield necessary to destroy underground facilities while minimizing collateral damage. The focus of the demonstration is to reduce the uncertainties in target characterization and weapon effect/target response. Target characterization uncertainties include those related to determining the target function, layout, operational status, and the geological and geotechnical features. Weapons effects/tunnel response uncertainties are associated with predicting ground shock and tunnel response in layered and jointed media.
    - The Thermobaric Advanced Concept and Technology Demonstration(s) (ACTD) will leverage existing technologies to weaponize, demonstrate, and deliver an improved weapon system for the functional defeat of tunnel targets. The program will take an overall systems approach to integrate improvements in flight guidance software for the EGBU-15, a newly developed 2000 lb. class Bomb Live Unit (BLU)-121/B hardened steel warhead case, and 950 lbs of enhanced blast explosive for improved weapon effects in a tunnel environment. Prototypes will be tested under operational conditions to verify their performance and residual assets will be provided to the customer as an interim capability to defeat tunnel targets. The Thermobaric Advanced Concept and Technology Demonstration(s) (ACTD) will conduct three operational demonstrations in FY 2005 against an operationally representative underground facility complex.
    - The Intelligent Munition for the Precision Attack on Critical Targets (IMPACT) Proof of Concept Demonstration will develop a system, using existing technology, which can be fielded quickly, is affordable and that can defeat ground combat vehicles that take sanctuary in tunnel complexes. The vehicles include multiple rocket launch systems (MRLS) and theater ballistic missile systems (TBM) that attack while outside the tunnel. These vehicles reduce their vulnerability by retreating into tunnels once launch operations have concluded. This Proof of Concept Demonstration will demonstrate a means to provide a quick response to kill theses target while they are most vulnerable during launch operations.
- Global Strike Integration Technologies:
    - The objective of the Global Strike program is to integrate capabilities to characterize, plan, execute and assess limited duration rapid response strikes, against any target, anywhere on the globe, with a variety of weapons, on short notice. The Global Strike program at DTRA will integrate ongoing efforts between USSTRATCOM, multiple DTRA projects and the Intelligence Community to reduce the time required to plan, execute and assess the results of a Global Strike mission. One of these efforts is the development, integration and eventual transition of a weapon-borne sensor system to be used by the Warfighter to conduct Global Strike combat assessment. The Global Strike program elements are planning and coordination, integration and test and demonstration of Global Strike concepts. The

Global Strike project at DTRA is an outgrowth of existing efforts currently funded under project BK. Plans for FY 2005 are accounted for under WMD Counterforce Applications. Starting in FY 2006, plans for Global Strike will be accounted for under its own heading.

B. Accomplishments/Planned Program:

Cost ($ in millions)	FY 2004	FY 2005	FY 2006	FY 2007
WMD Counterforce Applications	17.0	25.7	36.8	48.5

FY 2004 Accomplishments

- Completed formal military utility assessment (MUA) of Chemical Combat Assessment System (CCAS).
- Completed technology feasibility assessment for a Biological Combat Assessment System (BCAS).
- Assisted USPACOM in drafting the Capabilities Requirements Document for BCAS.
- Provided residual support to CP2 Advanced Concept and Technology Demonstration(s) (ACTD) products**.**
- Produced Synthetic Exercise Environment (SEE) database and cartographic products for SHAPE Able Ally FY 2004 exercise.
- Implemented SEE Atlantis digital terrain mapping enhancements for European Command (U.S.).
- Conducted small-scale optimization tests for Agent Defeat fills.
- Initiated Agent Defeat, Denial & Disrupt projects.
- Conducted Agent Defeat Initiative (ADI) Senior Steering Committee meeting, received guidance and initiated Roadmap for ADI.
- Completed initial laboratory phase of non-energetic agent defeat program.
- Began standardized bioassay program to support agent defeat development.
- Continued agent defeat weapons effect modeling.
- Researched weapon integration concepts for taggant use in Bomb Live Unit (BLU)-116 and Bomb Live Unit (BLU)-119.
- Conducted sub-scale testing of nanodot and doped rare earth element taggant technologies.
- Completed design of mobile medium range ballistic missile transporter-erector launcher (TEL) target for US Navy cruise missile testing.
- Initiated aimpoint optimization analysis for cruise missile attack on moving ballistic missile TEL.
- Initiated follow-on demonstration project for mini-UAV based battle damage assessment capability.
- Conducted Bio-Plume Phase One (plume characterization testing) tests for BCAS.
- Updated Integrated Munitions Effects Assessment (IMEA)/Hazard Prediction and Assessment Capability (HPAC)/Integrated Weapons of Mass Destruction Toolset (IWMDT) to include new collateral effects and modeling information for new weapon systems.

FY 2005 Plans

- Conduct Bio-Plume Phase Two tests for BCAS.
- Deliver results from Bio-Plume Phase Two Testing
- Continue Extended User Evaluation Support for CP2 products/spin-off to other customers.

- Conduct Bio-collector Chamber Testing for Biological Combat Assessment System (BCAS).
- Continue taggant technology development and testing.
- Complete fabrication and delivery of mobile medium range ballistic missile transporter-erector launcher (TEL) (Time Sensitive Target) for Navy testing
- Complete aimpoint optimization analysis for cruise missile attack on moving ballistic missile TEL and provide to Navy.
- Conduct Time Sensitive Target collateral effects testing.
- Conduct initial demonstration of mini-UAV based battle damage assessment capability.
- Support CP2/CCAS residuals and training programs.
- Conduct full-scale static testing of Agent Defeat weapon in a tunnel environment.
- Develop weaponized Agent Defeat technology.
- Initiate science and technology workshop with National Science Foundation and Service Research Offices for Agent Defeat technology development.
- Initiate chemical weapon Agent Defeat technology research.
- Continue development of innovative Agent Defeat payloads.
- Deliver ADI Roadmap to Senior Steering Committee and implement their recommendations.
- Deliver Energetic Kill Capabilities Study.
- Deliver Non-Energetic Kill Trade/Cost Study.
- Conduct demonstration of Agent Defeat payload in a scaled Bomb Live Unit (BLU)-109 against simulated hardened biological facility.
- Update IMEA/HPAC/IWMDT to include new collateral effects and modeling information based on weapons, tactics, and advanced technology development efforts.
- Initiate planning for FY07 WMD Counterforce (system-of-systems) Advanced Concept and Technology Demonstration(s) (ACTD)/ATD program.
- Begin Weapon-Borne Sensor feasibility study.
- Commence trade studies of Global Strike capabilities.
- Design biennial Global Strike experiment.

FY 2006 Plans

- Prepare for Spiral 1 Demonstration for Biological Combat Assessment System (BCAS) ATD program.
- Conducted Bio-Plume Phase Three tests for BCAS.
- Develop UAV modification/integration interfaces for Biological Combat Assessment System (BCAS) ATD program.
- Conduct integration activities for Bio-collector, UAV, and Launch/Recovery platform for Biological Combat Assessment System (BCAS) ATD program.
- Develop integrated WMD Combat Assessment Architecture

- Continue development of innovative AD technologies and their weaponization.
- Conduct full-scale Agent Defeat bio/chem tests against bio storage facility.
- Conduct full-scale tests with AD alternate-fill weapon against hardened, cut-and-cover simulated bio storage facility.
- Continue taggant technology development and testing.
- Initiate planning for follow on taggant technology based Advanced Concept and Technology Demonstration(s) (ACTD)/ATD.
- Continue full-scale Time Sensitive Target testing to determine lethality and collateral effects of US/Allied strike weapons versus candidate WMD Threats.
- Update Integrated Munitions Effects (IMEA)/Hazard Prediction and Assessment Capability (HPAC)/Integrated Weapons of Mass Destruction Toolset (IWMDT) to include new collateral effects and modeling information based on weapons, tactics, and advanced technology development efforts.
- Continue planning for FY 2007 WMD Counterforce (System-of-Systems) Advanced Concept and Technology Demonstration(s) (ACTD)/TD program

FY 2007 Plans

- Begin Integration of BCAS bio-sensor/identification system.
- Conduct and complete BCAS Spiral 1 operational testing.
- Conduct planning activities for Spiral 2 portion of Biological Combat Assessment System (BCAS) ATD program.
- Demonstrate chemical/biological agent defeat technologies to counter WMD threats.
- Conduct full scale testing of candidate, standoff Agent Defeat warhead(s) against wet and dry bio agent targets, compare against HE baseline.
- Select Agent Defeat, Deny, Disrupt (AD3) fill for standoff weapon.
- Conduct Agent Defeat, Deny, Disrupt (AD3) small scale testing.
- Initiate Agent Deny payload evaluations.
- Initiate design and development of WMD counterforce test-bed improvements.
- Conduct full-scale taggant technology testing to determine military utility.
- Continue planning for follow-on taggant technology-based Advanced Concept and Technology Demonstration(s) (ACTD)/ATD.
- Initiate development of advanced, counter WMD payload for high velocity weapon application.
- Improve measurement, diagnostic and live fire test bed capabilities for WMD counterforce related systems.
- Update IMEA/HPAC/IWMDT to include new collateral effects and modeling information for new weapon systems.
- Begin WMD Counterforce (system of systems) Advanced Concept and Technology Demonstration(s) (ACTD)/ATD program.

Cost ($ in millions)	FY 2004	FY 2005	FY 2006	FY 2007
SOF/CBRNE Counterproliferation Support	11.8	14.4	8.8	9.5

FY 2004 Accomplishments

- The following are the FY 2004 accomplishments for the Biological Advanced Concept Technology Demonstration (ACTD)
    - Executed Advanced Concept and Technology Demonstration(s) (ACTD) in June 2004.
    - Executed smooth transition of Advanced Concept and Technology Demonstration(s) (ACTD) residuals that demonstrated military utility in the exercise.
    - Further Advanced Concept and Technology Demonstration(s) (ACTD) details are classified.
- The following are the FY 2004 accomplishments for the Chemical Advanced Technology Demonstration (ATD)
    - Executed Chemical ATD kick-off meeting.
    - Initiated construction of final demonstration test fixtures.
    - Conducted scientific and operational reviews for 72 proposals.
    - Down-selected approved technologies for inclusion in the ATD.
    - Conducted operational assessment of selected candidate technologies by user/customers.
- The following are the FY 2004 accomplishments for chemical, biological, radiological, nuclear high explosive (CBRNE) Venture.
    - Identified and selected specific technology areas that will be pursued in Phase I CBRNE Venture.
    - Conducted scientific and operational reviews for 80 white papers under CBRNE Venture.
    - Performed Market Survey and Analysis of Alternatives (AoA) for CBRNE Venture.
    - Conducted operational assessment of selected candidate technologies by CBRNE Venture user/customers.
    - Conducted joint community integrated microclimatization system conference.
    - Published solicitations for four CBRNE Venture technology areas of interest.
    - Specific details are classified.

FY 2005 Plans

- The following are the FY 2005 plans for the Biological Advanced Concept and Technology Demonstration(s) (ACTD)
    - Continue transition of Advanced Concept and Technology Demonstration(s) (ACTD) residuals.
- The following are the FY 2005 plans for the Chemical ATD
    - Down-select technologies for inclusion in Chemical ATD.
    - Develop selected technologies performing early user test and evaluations.
    - Continue construction of test fixtures for the ATD final demonstration.
- The following are the FY 2005 plans for CBRNE Venture
    - Conduct scientific and operational reviews for proposals received against solicitations.
    - Conduct specific kick-off meetings for technologies funded under each technical area.

- Iteratively develop selected technologies.
- Conduct individual technology testing as required.
- Conduct Integrated Project Reviews (IPR) for each technology.
- Conduct second technology review AoA for Phase II development.
- Specific details are classified.

FY 2006 Plans

- The following are the FY 2006 plans for the Biological Advanced Concept and Technology Demonstration(s) (ACTD)
  - Project Complete.
- The following are the FY 2006 plans for the Chemical ATD
  - Deliver selected technologies.
  - Complete construction of test fixtures for final demonstration.
  - Conduct Chemical ATD final demonstration in March 2006.
  - Execute smooth transition of ATD residuals that demonstrate military utility in the demonstration.
  - Specific details are classified.
- The following are the FY 2006 plans for CBRNE Venture
  - Continue spiral development of selected CBRNE Venture technologies.
  - Conduct market research for new set of user requirements.
  - Specific details are classified.

FY 2007 Plans

- The following are the FY 2007 plans for the Chemical ATD
  - Continue transition of ATD residuals.
  - Specific details are classified.

The following are the FY 2007 plans for CBRNE Venture

- Continue spiral development of selected CBRNE Venture technologies.
- Conduct scientific and operational reviews for proposals received against new solicitations.
- Award Phase II contracts.
- Iteratively develop selected technologies.
- Conduct individual technology testing as required.
- Conduct Integrated Project Reviews (IPR) for each technology.
- Specific details are classified.

The following are the FY 2007 Plans for the Global War on Terrorism (GWOT) ATD

- Kick off Meeting
- Technical reviews of proposals

Cost ($ in millions)	FY 2004	FY 2005	FY 2006	FY 2007
Hard Target Defeat	12.2	8.3	18.5	14.5

FY 2004 Accomplishments

- Conducted and analyzed Command, Control, Communications and Intelligence (C3I) defeat demonstration.
- Developed Thermobaric (TB) explosive models to support mission planning/analysis tools and conducted sub-scale testing of explosive candidates.
- Completed construction of full-scale underground facility target complex.
- Completed Thermobaric warhead (Bomb Live Unit (BLU)-121/B) design and fuze integration.
- Completed full-scale weapons effects testing of the Thermobaric weapon to demonstrate improved performance as compared to inventory weapons.
- Develop weapon modules for mission planning/analysis tools for the Thermobaric (TB) Advanced Concept and Technology Demonstration(s) (ACTD).
- Verified tunnel response and ground shock high fidelity codes against known solutions to support Tunnel Target Defeat (Technical Training Device (Simulation System) (TTD)) Advanced Concept and Technology Demonstration(s) (ACTD).
- Delivered initial fast running ground shock prediction planning tool to USSTRATCOM.
- Conduct a planning exercise to determine the Essential Elements of Information (EEIs) needed for the Technical Training Device (Simulation System) (TTD) Advanced Concept and Technology Demonstration(s) (ACTD).
- Completed two laboratory scale Jointed Limestone Tests (JOLT) instrumented experiments to measure shock propagation.
- Completed intermediate scaled ground shock test to measure ground shock from an explosive charge
- Verified tunnel response and ground shock high fidelity codes against known solutions to support Tunnel Target Defeat Advanced Concept and Technology Demonstration(s) (ACTD).

FY 2005 Plans

- Conduct weapon qualification tests (i.e. sled track, insensitive munitions and captive-carry tests) for the Thermobaric Advanced Concept and Technology Demonstration(s) (ACTD).
- Produce test assets and conduct TB Advanced Concept and Technology Demonstration(s) (ACTD) Operational Demonstrations.
- Conduct a planning exercise with USFK/USPACOM staff for the TB Advanced Concept and Technology Demonstration(s) (ACTD) Operational Demonstrations
- Complete final concept of operations (CONOPs) for TB Advanced Concept and Technology Demonstration(s) (ACTD) weapon system in conjunction with USFK/PACOM staff

- Conduct manufacturing study to reduce cost / improve production efficiency for Bomb Live Unit (BLU)-121/B warhead (developed under Thermobaric Advanced Concept and Technology Demonstration(s) (ACTD)
- Conduct a Military Utility Assessment of the TB Advanced Concept and Technology Demonstration(s) (ACTD).
- Begin an alternative target study for the Bomb Live Unit (BLU)-121/B warhead evaluating the utility of the warhead for other target types.
- Prepare a transition support plan to provide for the transition of the weapon into an acquisition program for the services.
- Deliver residual TB Advanced Concept and Technology Demonstration(s) (ACTD) assets to the customer.
- Complete Tunnel Target Defeat Advanced Concept and Technology Demonstration(s) (ACTD) experiments used to support development of a ground shock simulator.
- Additional funds (to level FY05 funding profile) for major testing efforts to support Technical Training Device (Simulation System) (Technical Training Device (Simulation System) (TTD)) Advanced Concept and Technology Demonstration(s) (ACTD) and TB Advanced Concept and Technology Demonstration(s) (ACTD) are contained in PE 0602716BR.
- Design ground shock simulator to support Tunnel Defeat Advanced Concept and Technology Demonstration(s) (ACTD).
- Deliver Integrated Munitions Effects Assessment (IMEA) version 6.0 to warfighters
- Complete and analyze Command, Control, Communications and Intelligence (C3I) facility defeat demonstration
- Develop the Intelligent Munitions for Precision Attack of Critical Targets (IMPACT) Proof of Concept Demonstration operational concept.
- Conduct initial testing of Metal Augmented Charge (MAC) filled AGM-114N Hellfire warhead.
- Complete performance and insensitive munition (IM) testing (to include bullet impact testing) of MAC-filled (AGM-114N) warhead. IM testing shall include bullet impact testing.
- Complete Tunnel Target Defeat Advanced Concept and Technology Demonstration(s) (ACTD) high explosive, low yield, nuclear weapon simulation planning and design.
- Complete intermediate scaled test to measure ground shock and tunnel damage at Mitchell Quarry.
- Complete report on geostatistically-based site characterization and 3-D Rock Property Modeling for intermediate scale testing.
- Complete a preliminary 3-D rock strati-graphic and rock property model and develop site characterization plan for full-scale tunnel ground shock defeat demonstration.
- Document and evaluate computer code predictions of Jointed Limestone Tests (JOLT) and intermediate scale test results.
- Conduct test to measure ground shock and tunnel damage on intermediate scale tunnel tests.

FY 2006 Plans

- Provide sustaining support and training for Thermobaric (TB) Advanced Concept and Technology Demonstration(s) (ACTD) residual weapons.
- Complete the alternative target study for the Thermobaric weapon.
- Analyze the suitability of alternative guidance kits for use with the Bomb Live Unit (BLU)-121/B warhead

- Conduct the Tunnel Target Defeat Advanced Concept and Technology Demonstration(s) (ACTD) Full-Scale tunnel defeat demonstration using high explosives to simulate a low yield nuclear weapon ground shock environment at Department of Energy's Nevada Test Site.
- Deliver validated analysis and planning tools to conduct the end-to-end use of nuclear planning tools to characterize and "weaponeer" the full-scale Tunnel Target Defeat Advanced Concept and Technology Demonstration(s) (ACTD) event.
- Provide Military Utility Assessment on the overall performance of the Advanced Concept and Technology Demonstration(s) (ACTD) and transition the updated planning capabilities to USSTRATCOM.
- Prepare final program documentation and reports for Tunnel Target Defeat Advanced Concept and Technology Demonstration(s) (ACTD) program
- Begin transition of improved tunnel ground shock defeat planning tools to USSTRATCOM

FY 2007 Plans

- Provide sustaining support and training for TB Advanced Concept and Technology Demonstration(s) (ACTD) residual weapons.
- Conduct GBU-27 demonstration with Bomb Live Unit (BLU)-121/B warhead.
- Provide transition support of improved nuclear planning tools to USSTRATCOM
- Complete IMPACT Advanced Technology Demonstration
- Start Hard and Deeply Buried Target Weapons Effects Sensor/Transmitter (HBDT WEST) Advanced Concept and Technology Demonstration(s) (ACTD)

C. Other Program Funding Summary: N/A

D. Acquisition Strategy: N/A

F. Major Performer:

Cost ($ in millions)	FY 2004	FY 2005	FY 2006	FY 2007
Global Strike Integration Technologies	0	0	3.3	3.3

FY 2004 Accomplishments

FY 2005 Plans

FY 2005 plans are captured under WMD Counterforce Applications

FY 2006 Plans

- Develop draft Battle Damage Assessment Concept of Operations (CONOPS).
- Develop test plans and architectures to support a prototype weapon sensor to allow post-strike assessment of High Value Targets (HVTs).
- Complete weapon-borne sensor feasibility studies and trade-off analyses.
- Continue to refine Global Strike requirements.
- Continue to prepare for and conduct a biennial Global Strike experiment.

FY 2007 Plans

- Finalize Battle Damage Assessment Concept of Operations (CONOPS).
- Integrate sensor output requirements.
- Design FY 2008 Global Strike biennial experiment.

C. Other Program Funding Summary: N/A

D. Acquisition Strategy: N/A

E. Major Performer: