OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2008

APPROPRIATION/ BUDGET ACTIVITY	PE NUMBER AND TITLE
RDTE, Defense Wide BA 05	**0604051D8Z - Defense Acquisition Challenge Program (DACP)**

COST ($ in Millions)		FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
P051	Defense Acquisition Challenge Program (DACP)	28.665	28.718	30.363	30.882	31.002	31.416	31.859

A. Mission Description and Budget Item Justification: Authorized by Title 10, Section 2395b, the Defense Acquisition Challenge (DAC) Program provides increased opportunities to insert innovative and cost-saving technologies into acquisition programs of the Department of Defense. DAC funds the test and evaluation of technologies and products with potential to improve performance, affordability, manufacturability, or operational capability of current acquisition programs at the component, subcomponent, or system level.

Since the program inception in 2002, OSD has initiated 68 projects; 14 projects have been completed to date, 11 met Service or Agency testing requirements; 4 projects were terminated due to inability to satisfy testing or Program of Record priorities. To date, 14 projects have yielded technology currently in use by our warfighters in Iraq, Afghanistan, or at U.S. training facilities.

Thee Defense Acquisition Challenge (DAC) program increases opportunities for domestic vendors to enter DoD acquisition process. Although business size is not an evaluation criterion, it is noteworthy that to date approximately 70 percent of the DAC projects awarded are with technology providers at the small or mid-sized enterprise level. DAC has the additional DoD/National Security benefit of expanding the industrial base for defense acquisition.

Final selection of FY 2008 DAC new start projects was determined in September 2007. 14 FY 2008 DAC new start projects are funded.

B. Program Change Summary	FY 2007	FY 2008	FY 2009
Previous President's Budget (FY 2008)	29.332	28.970	30.210
Current BES/President's Budget (FY 2009)	28.665	28.718	30.363
Total Adjustments	-0.667	-0.252	0.153
Congressional Program Reductions			
Congressional Rescissions		-0.252	
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer	-0.533		
Other	-0.134		0.153

The change in the FY 2008 funding amount from last years President's Budget to this year is as a result of the implementation of mandated Congressional adjustments in FFRDC

and Section 8024, 8097 and 8104 rescissions.

C. Other Program Funding Summary Not applicable for this item.

D. Acquisition Strategy The Acquisition Strategy for DAC is as outlined in Title 10. DAC is to provide opportunities for the increased introduction of innovative and cost-saving technology in acquisition programs of the Department of Defense. DAC funding is used to fund testing of commercial and non-developmental items that could result in improvements in performance, affordability, manufacturability, or operational capability of an existing acquisition program. It is expected that should testing be successful, procurement using the respective current program funding would be used for acquisition.

E. Performance Metrics: Not Applicable.

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B. Accomplishments/Planned Program:

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
AN/BSN-2 Digital Depth Detector (Navy)	0.371		

Outcome: The AN/BSN-2 Digital Depth Detector (DDD) was developed to be a form, fit, and functional replacement for the current antiquated (1950's technology) depth detector installed on SSN/SSBN submarine platforms. The DDD is a state-of-the-art microprocessor-based system that utilizes readily available Commercial Off-the-Shelf (COTS) components. The DDD is more reliable and maintainable, reducing system life cycle costs by 87 percent and provides additional functional/operational capabilities necessary to support the objectives of the Navy's Submarine Modernization Program.

FY 2007 Output: The contract for design and test of the engineering development model (EDM) was awarded to WR Systems, Ltd. Fabricated and tested Secondary Display board prototype. Fabricated and tested DDD power supply to support MIL-STD-1399. Fabricated and tested Synchro Breakout board prototype. Additional support to ISEA in providing NAVSEA response on schedule, status.

FY 2007 Planned Output: Develop test plan and installations and operational test. Develop final test report and close out report.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Clinical Development of Topical Paromomycin for the Treatment of Cutaneous Leishmaniasis (Army)	1.025		

Outcome: This project will develop and obtain FDA approval for a new, safe, effective and easily applied topical drug to treat Cuntaneous Leishmaniasis (CL), a parasitic disease spread by sand-fliesthat has become a serious medical threat to our forces deployed in support of OIF/OEF. Approximately 2,500 US soldiers were diagnosed with CL, a disease endemic to Iraq, Afghanistan and other areas in the Middle East. Infected soldiers with severe disease are evacuated to one of two US locations where they must reside duing the extent of their treatments. Currently, the average cost per patient receiving Penostam" are approximately $0.017 million for hospitalization and treatment with roughly 60 lost duty days per incident. "Topical Paramomycin" will be positioned as the new first-line theapeutic drug at deployed combat hospitals to treat this disease. Efficiency: (1) Provide a safe & effective treatment for Sodiers with CL; (2) Minimize the administrative burdens to medical personnel associated with administration of the IV drug Pentostam; (3) Minimize or eliminate regulatory costs associated with the continued use of Penostam, an investigational drug; and (4) Mitigate psychological impacts from the potentially disfiguring disease. The first safe and effective topical treatment for CL in the US; Cost avoidance of $17.000 million per 1000 soldiers treated; and greatly minimized number of lost duty days or duty hours from a safe and simple treatment regimen (topical versus intravenous) for this disease.

FY 2007 Output: Executed the Phase II Study in Tunisia for evaluating scar improvement of subjects that were treated with Topical Paromomycin. Completed a second Phase II study in Tunisia in March evaluating the dosing schedule and bandage options. Established a Scientific Review committee for review of the Phase III study. Obtained FDA concurrence for placebo formulation that will be used during the Phase III study. Prepared and submitted a request to the FDA to Topical Paromomycin "Orphan Drug" status in the US. Amended the old international cooperative agreement with the Institue Pasteur, Paris, France and the Institute Pasteur of Tunis, to support developement and execution of the Phase III study in Tunisia. Conducted a site pre-initiation visit in Tunis in preparation for the Phase III study.

FY 2008 Planned Output: FY 2007 dollars will continue to provide the following FY 2008 planned actions: Finalize preparations and initiate the Phase III study scheduled to begin between September and November 2007. Begin compilation of the New Drug Application (NDA) for filing to the US FDA for regulatory approval. Finalize clinical study reports for the two completed Phase II studies.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
CoBRA Intelligence and Information Systems Enhancements (SOCOM)	0.058		

Outcome: This project will provide Special Operations Forces with a more robust communications capability that reduces dependence on commercial satellites for secure satellite transmissions and provides military users with increased mission flexibility using existing Compact Broadband Remote Antenna (CoBRA) equipment sets to complete their missions. The primary outputs and efficiencies to be demonstrated in this project will be: enhanced tri-band satellite antenna design that has been optimized for FCC compliance for Ku-band, X-band and Ka-band; higher data rates (20Mbs), capability to access wideband Gapfiller, Xtar and future US and NATO high power military satellites; enhanced pod integrated platform for mounting X, Ku- and Ka-band trans and IF converters for remote control. The RDT&E and manufacturing cost avoidance is $10.000 million. Savings in procurement costs is expected to be $2.500 million and Operational Life Cycle savings are $1.000 million.

FY 2007 Output: Received test articles and perform Phase one technical testing.

FY 2008 Planned Output: FY 2007 funds will continue to provide the following FY 2008 planned actions: Complete Phase II operational test and evaluation; finalize Milestone C production and

fielding milestone decision documentation based on test and evaluation outcome; complete project closeout report.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Combat Rubber Raiding Craft (CRRC) Product Improvement Plan (PIP) (Navy)	0.828		

Outcome: This project will provide the USMC with a Combat Rubber Raiding Craft(CRRC) that features a self inflation system and an inflatable, rigid floor that reduces system weight by 17 percent and set up by 87 percent with a single Warfighter resulting in significant improvements for operational capability and force protection. Lessons learned from the GWOT and new submarine capabilities for subsurface insertions of Marine reconnaissance forces have driven the requirement to improve the deployment and transportability of the CRRC. The USMC will test the F-470 Evolution 7 manufactured by Zodiac of North America to maximize the Marine Recon Mission Profile. One-year project under sponsorship of the OSD Comparative Testing Office and Marine Corps Systems Command, with completion of testing and qualification in CY 2007, transition to USMC Marine Air-Ground Task Force units during CY 2008. The primary outputs and efficiencies to be demonstrated in the DAC Test are: (1) carry 2080 lbs. (fully combat loaded) and transom must support the Small Craft Propulsion System; (2) must not fold or "taco" in the surf zone when encountering waves; (3) must perform in a variety of temperature requirements for cold and heat; (4) must be able to fully inflate to proper pressure with one scuba tank cooled to 3200 psi.; (5) avoid RDT&E costs of $6.000 million and provide an ROI of 14:1.

FY 2007 Output: Initial funds received at the end of the 1Q FY 2007. Test article contract awarded and test planning completed. Test Planning conducted at NSWC, Carderock. Test Article contracted with Zodiac. Delivery of test articles. Operational Testing initiated at Naval Surface Warfare Center (NSWC) Carderock, MD. Field/User Evaluation initiated with 3rd Recon Battalion.

FY 2008 Planned Outputs: FY 2007 funds will continue to provide the following planned FY 2008 actions: Completion of Operational Testing and Field/User Evaluation. A Milestone C Decision is anticipated during 2Q FY 2008. The Technical Test Report and Project Close-out Report are anticipated during the 3Q FY 2008.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Communications and Networking for a Deployable Internet (CANDI) (Air Force)	0.128		

Outcome: To demonstrate modified software of the existing Interim Capability for Airborne Networking (ICAN) program that has been retooled in order to make compliant with the Software Communications Architecture (SCA) standards. This technology provides enhanced warfighter capabilities and addresses an urgent operational need to enhance existing worldwide command and control communications. Rewriting the ICAN system software to be SCA compliant provides an evolutionary migration path to future network-centric capabilities, improving Joint Tactical Radio System (JTRS), and streamlining integration with existing legacy capabilities. The lead service is Air Force. The primary outputs and efficiencies to be demonstrated are: (1) compatibility between existing platform networking capabilities and emerging future systems; (2) provision of additional networking capabilities and lessons learned for JTRS, resulting in cost savings, and; (3) improved network centric operational capabilities for existing and emerging weapons systems and warfighters.

FY 2007 Output: Completed development of SCA compliant ICAN implementation. Tested and evaluated system in completed CANDI software development lab. Finalized documentation. Continued to investigate and develop additional transition opportunities, including potential integration into compliant commercial radio hardware. The CANDI project is scheduled for completion by 2008. The transition manager is JTRS Joint Program Office.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009

Covert Eyes 3-D Video Camera (SOCOM)	0.070		

Outcome: This project will test and evaluate a multi-purpose, high-resolution, 3-D flash laser system that enables Special Operations Forces (SOF) to acquire and view targets through vegetation, window blinds, smoke, and tinted windows during daylight or total darkness. This system serves as both a camera and camcorder. The camera will provide SOF increased force protection, enhanced building inspection and surveillance capabilities, as well as improved warfighter spotting, tracking and reconnaissance capabilities. The primary outputs and efficiencies to be demonstrated are: standoff ranges of up to 250 meters; capability to rotate/pan/zoom and examine a subject from any viewing angle; real-time detection and identification during daylight and in total darkness. The RDT&E cost avoidance is $10.000 million. Additionally, savings in procurement, operations and support life cycle cost saving are expected to be $2.750 million.

FY 2007 Output: Completed Phase II system definition; conducted Phase II technical testing and phase three operational testing /user assessment.

FY 2008 Planned Outputs: FY 2007 funds will continue to provide the following FY 2008 planned actions: Finalize Milestone C production and fielding decision documentation based on test and evaluation outcome; complete project closeout report.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Crew Served and Heavy Weapons Aiming Laser (CSHWAL) (SOCOM)	0.400		

Outcome: The Crew Served and Heavy Weapons Aiming Laser (CSHWAL) is envisioned as a small lightweight, highly effective laser pointing and aiming system to facilitate both day and night time operations for crew served and heavy weapons platforms. This green laser pointer will provide the Special Operator with a multiplicity of function making the CSHWAL the most cost-effective weapon aiming system available to the warfighter today. The primary outputs and efficiencies to be demonstrated are effective operation out to 2200 meters; eight times more visibility than red lasers in daylight; infrared laser pointer and wide illuminator for night use; compact, lightweight system design. The products to be tested will be based on commercial-off-the-shelf and non-developmental items that will require only minor modification prior to fielding for combat. The CSHWAL will increase the Special Operations Forces survivability and lethality, by enhancing weapon performance and target acquisition. The total RDT&E, manufacturing, and operations and maintenance cost avoidance savings is approximately $15.960 million.

FY 2007 Output: Completed project test planning; awarded a procurement contract for test articles and obtained hardware; conducted technical testing and operator/user assessment test.

FY 2008 Planned Outputs: FY 2007 funds will continue to provide the following FY 2008 planned actions: Finalize Milestone C procurement & fielding decision documentation based on test and evaluation; submit project closeout report.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Digital Head Up Display for F/A-18 Aircraft (Navy)	1.044		

Outcome: The current Heads Up Display (HUD) in the F/A-18 is a critical flight instrument that is one of the most unreliable components in the aircraft. When HUD is inoperative, the aircraft is Not Mission Capable (NMC)until HUD is repaired. A reliance on obsolete Cathode Ray Tube (CRT) and other analog technologies makes HUD a logistics nightmare to troubleshoot from the flight line to depot level repair facilities. CRTs and the other analog components of the system suffer from a diminishing vendor base driving higher repair costs at all levels. Rockwell Collins is supplying an all Digital HUD (DHUD) to commercial airlines, business/regional jets and military transports--one that does not rely on CRTs, high-voltage electronics, or high-power analog circuitry. The DHUD will replace the CRT with a Liquid Crystal on Silicon (LCoS) projection engine backlit by a solid state high-intensity lamp system. High power components will be removed from the HUD, enhancing reliability of the system. The lead service is Navy.

FY 2007 Planned Output: Rockwell Collins will focus on fabrication of flyable prototype Digital HUD hardware. Flight Worthiness testing of the prototype hardware will begin during this period. (Flight Worthiness testing is a subset of full qualification testing to verify that the units are safe for flight).

FY 2008 Planned Output: FY 2007 funds will continue to provide the following FY 2008 and FY 2009 planned actions: Flight Worthiness testing will be completed. Full qualification testing will be performed to verify units are capable of withstanding and performing in the operational environment. Flight demonstration of prototype hardware will be performed. In FY 2009 Full aircraft integration and developmental testing will begin.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Extended Databus-Graceful Degradation (Air Force)	1.780		

Outcome: To save the Air Force approximately $1.600 million per generic aircraft and avoid extended non-availability of combat and combat support aircraft by eliminating the need to install new cabling to accommodate required higher throughput rates within an aircrafts local area network (LAN). The lead service is Air Force. The Primary outputs and efficiencies to be demonstrated are: 1) increased throughput rates, in excess of 200 Mb/sec, over existing cable and; 2) provide a capability to more responsively support network-centric operations and warfare.

FY 2007 Output: Conducted testing of 1553 performance compliance and B-2 systems integration lab to validate that the technology is capable of supporting B-2 avionics requirements. This testing resulted in verification of basic functionality on all B-2 bus lengths with analysis of signal characteristics, validation of acceptable system performance and verification of system compliance with established 1553 protocols.

FY 2008 Planned Output: FY 2007 funds will continue to provide the following FY 2008 planned actions: Qualification testing and demonstration of the capability to maintain suitable and predictable LAN operation during imposed system overload conditions. Continue qualification testing and evaluation while characterizing the LAN operation under a full spectrum of degraded conditions that could be expected by the inherent demands of net-centric operational warfare activities, battle damage or adverse environmental conditions such as electromagnetic interference or jammers. Capabiity is expected to transition through block upgrades to aircraft through 2018. Transition Manager is Air Force Research Lab.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Improved IR Missile Self Protection System for F-15 Aircraft (Air Force)	0.441		

Outcome: To significantly enhance the F-15 self-protection capability against IR missile threats. The existing operational and fielded AN/ALE-58 self-protection countermeasure dispenser (CMD) system is not integrated into the aircraft systems. With the enhancements provided, pilots will be able to protect themselves and their aircraft during threat engagements through increased situational awareness, enhanced self-protection and reduced pilot workload. These benefits will result in greater mission effectiveness. Project improvements to the current AN/ALE-58 dispenser and LAU-128 missile launch rail will provide the 1553 interface needed to enable the path to full integration into the aircraft Operational Flight Program (OFP). Integration provides the path to full situational awareness of the operating state of the ALE-58 system, which is not available in the current configuration. The lead service is Air Force.
The Primary outputs and efficiencies to be demonstrated are 1) integration of a new flare into the self protection suite on the F-15, 2) upgraded cockpit display showing IR Self Protection systems integrated into the glass cockpit, and 3) provision of improved situational awareness to the pilot as to the status of the IR self protection systems.

FY 2007 Output: Completed the upgrade of the dispenser test unit, developed test software, performed verification test and evaluation at the Boeing St. Louis laboratory; implemented design changes coming out of testing and obtained final design hardware.

FY 2008 Planned Output: FY 2007 funds will continue to provide for FY 2008 planned actions: De-modify the dispenser test unit. Write the close-out report. Capability is projected to transition to

warfighting capability by 2011. Transition Manager is F-15 Program Office.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Lithium Ion Battery System for the MK8 MOD1 SEAL Delivery Vehicle (SOCOM)	1.800		

Outcome: This project will test Lithium Ion (Li Ion) energy storage system upgrade for the SEAL Delivery Vehicle (SDV) from the current system that is based on Siver Zinc (Ag Zn) battery cells originally designed for SDV use in the 1970s. The Ag Zn system is insufficient to provide adequate power to meet the increased demand garnered by several SDV enhancements incorporated over the past ten years (increased navigational accuracy, situational awareness, and communications). Ag Zn is being utilized beyond designed capability; Li Ion will exceed requirements with a charge in-place capability in the limited space available. The primary outputs and efficiencies to be demonstrated in the Defense Acquisition Challeng program is increased covert range mission duration and safety; 17 times longer service life than existing silver zinc technology; lower overall life cycle costs. The Li Ion battery system will realize an RDT&E cost avoidance savings of approximately $8.000 million and anticipates a procurement cost avoidance savings of approximately $1.000 million. The operations and support lifecycle cost avoidance savings is estimated to be $18.200 million.

FY 2007 Output: Analyzed vendor test data and completed project test planning; completed procurement contract for test articles and resolved contract protest; began SDV design changes and battery charger modification to mechanical, electrical and software systems.

FY 2008 Planned Output: FY 2007 funds will continue to provide the following FY 2008 planned actions: Take possession of test articles; conduct initial technical testing and begin operator/user assessment test; finalize Milestone C procurement & fielding decision documentation based on test and evaluation; submit project closeout report; if applicable, accomplish "first unit equipped" fielding.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
M1A1 Improved Loaders Weapon Station (ILWS) (Navy)	1.154		

Outcome: A successful project will provide the USMC with an ILWS for the M1A1 that will decrease the loader's exposed profile by 50 percent, while providing a more stable firing platform for up to 25 percent increased downrange firing accuracy, and enables rapid change in the direction of fire. Situational reports from OIF have identified that loaders are significantly prone to enemy fire due to their high seated position in the loader's weapon station in the M1A1. In order to increase the survivability and lethality of the M1A1 Main Battle Tank, the USMC will test non-developmental items from Recon Optical Inc. of Barrington, IL and EFW of Fort Worth, Texas. Intent is to transition to USMC Tank Battalions during CY 2008. The primary outputs and efficiencies to be demonstrated in the DAC Test are: (1) facilitate rapid change in direction of fire; (2) increased firing accuracy over current system (10 percent threshold / 25 percent objective); (3) decrease crew exposure (50 percent threshold / 100 percent objective); (4) ring operation does not interference with loader's hatch; (5) avoid RDT&E costs of $1.100 million and provide a ROI of 4.6:1.

FY 2007 Output: Initial funds received at the end of the 1Q FY 2007. Test Article Contract was awarded at the beginning of the 3Q FY 2007. Test Article fabrication is in process. Test planning was completed 4Q FY 2007.

FY 2008 Planned Output: FY 2007 funds will continue to provide the following FY 2008 planned actions: Test Article delivery is anticipated during the 1Q FY 2008. Integration Testing will be completed during the 1Q FY 2008. at ATC, Aberdeen, MD. The User Evaluation will be conducted at ATC and completed during the 2Q FY 2008. Performance Testing will be conducted at ATC and completed during the 3Q FY 2008. A Milestone C Decision is anticipated at the end of the 3Q FY 2008. The Technical Test Report and Project Close-out Report are anticipated during the 4Q FY 2008.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Modular Land Warrior Fuel Cell Power System (Army)	1.300		

Outcome: This project will enable the U.S. Army's Land Warrior (LW) and future ground soldier systems to meet current and future requirements for power, mission duration, and weight. Miniaturized Direct Methanol Fuel Cell (DMFC) technology will dramatically reduce the number of batteries that must be organically transported by the future force unit of action soldier and/or the requirement for battery recharging capabilities. The DMFC will efficiently convert small quantities of an inexpensive and safe fuel into large quantities of electrical energy needed by soldiers. Four ounces of fuel is equivalent to one Li Ion battery (35 oz). Efficiency: This nine to one weight advantage quickly translates into a lighter load for the soldier while also providing a robust power system for long missions where resupply may not be feasible. RDT&E cost avoidance is estimated to be $45.000 million. O&S cost savings is estimated at $193.000 million.

FY 2007 Output: Convened beta system critical design review. Built and delivered Alpha one Beta systems for technical test verification of interface with Land Warrior and Future Force Warrior Systems, checked battery charging algorithms, environmental requirements and obtain user feedback. Conducted the final design review. Built and delivered M-25 test and evaluation systems.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Nickel Nanostrand Coatings for Improved Lighting Strike Protection (Air Force)	0.754		

Outcome: To demonstrate a high probability of reduction in cost of aerial refueling booms manufactured as a component of the boom redesign to a composite structure program. The materials supplied under this effort will enable a cost saving in the boom manufacture by providing a previously unavailable lightning strike protection and electromagnetic interference (EMI) protection mechanism of the article. In addition the boom will allow for refueling in an all weather environment, greatly increasing the mission capable rate of the aircraft. The lead service is Air Force. The program will also demonstrate the reduction in cost, weight, and performance improvement in Electromagnetic Hardening for composite enclosures as replacements for Aluminum enclosures. The primary outputs and efficiencies to be demonstrated are (1) significant RDT&E cost avoidance ($4.000-10.000 million), manufacturing savings ($10.000-$25.000 million), procurement savings ($35.000 million); (2) improved all weather mission refueling capability and protection of aircraft from the direct and indirect EMI effect of lightning; and (3) improved electromagnetic hardening of DoD assets.

FY 2007 Output: Manufactured second generation improved refueling boom design on ¼ scale article was demonstrated by proxy. The demonstration of the manufacturability of the composite refueling boom led to a rapid insertion of the technology for a nearly identically manufactured component for the Non-Line-of-Sight Cannon (NLOS-C) (Army) platform. The program successfully manufactured 250 improved design strongback articles. The parts met delivery acceptance in April 2007 and additional parts will be manufactured beginning FY 2008 as a direct result of the Defense Acquisition Challege Program. The result is expected to be improved service life and reduced manufacturing labor. The full scale refueling boom demo and demonstration has been delayed by one (1) FY due to Boeing internal funding reductions. Initial ground based test and evaluation of patch kit materials has been completed and commercial nanostrand repair kits availability is anticipated by Sept 2007. Commercialized nanostrand resin film in 15 inch widths is projected for September 2007 for both EMI hardening and lightning strike protection. Output from this program has been integrated into the revision of the "High Power Microwave Hardening Design Guide for Systems".

FY 2008 Planned Output: FY 2007 funds will continue to provide the following FY 2008 planned actions: The Nickel Nanostrand project was scheduled for completion in September 2007, however it has been extended by additional funding from Air Force. The additional funding totaling FY 2007: $0.900 million, FY 2008: $0.575 million, FY 2009: $0.750 million comes as a direct result of the successes demonstrated in the Defense Acquisition Challenge Program (DACP). No additional DACP funding has been requested for this effort. FY 2008 delivery articles include a flight spec hardened flight surface actuator enclosure which will be ground tested in FY08. The transition manager is Air Force Research Lab, Materials Directorate.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Non-Gasoline Burning Outboard Engine (NBOE) (Navy)	1.074		

Outcome: A successful project will provide the USMC with a NBOE that will increase safety by reducing the need for gasoline and allow continued use of the Combat Rubber Reconnaissance Craft (CRRC), maintaining the USMC's primary amphibious capability for Over-The-Horizon reconnaissance operations. To meet the objective requirement to replace the current Small Craft Propulsion System with a NBOE, the USMC will test the 55 horsepower, Evinrude Vindicator, manufactured by Bombardier Recreational Products of Waukegan, IL, for compliance with DoD policy for fuel standardization to kerosene-based and diesel fuels. Completion of testing and qualification should occur in CY 2008 with transition to USMC reconnaissance forces during CY 2009. The primary outputs and efficiencies to be demonstrated in the DAC Test are: (1) must function on JP5, JP8, and Diesel in addition to gasoline; (2) must function with a pump jet, no propeller; (3) must meet requirements for a 50 percent plunging surf with a wave height of eight ft. and a period of eight seconds; (4) must have a range of 50 nautical miles (5) must reach a top speed of 15 knots with a combat loaded CRRC; (6) avoid RDT&E costs of $3.000 million and provide an ROI of 19:1.

FY 2007 Output: Phase I Test Planning completed and Phase I Test Articles received during 1Q FY 2007. Phase I Performance Testing initiated during 2Q FY 2007. Completion of Phase I Performance Testing and Phase II Contract Award during the 3Q FY 2007. Phase II Test Articles delivered during the 4Q FY 2007. Signature/Destructive Testing will initiated during 4Q FY 2007 at Naval Surface Warfare Center (NSWC) Carderock, MD.

FY 2008 Planned Output: FY 2007 funds will continue to provide the following FY 2008 planned actions: Signature/Destructive Testing will complete during the 1Q FY 2008. Fleet User Evaluation is scheduled for the 1-2Q FY 2008; including, Low Temp Evaluation in Kodiak, Alaska, High Surf Evaluation with the Expeditionary Warfare Training Group-Pacific in San Diego, and a High Temp Evaluation in Key West, Florida. A Milestone C Decision is anticipated at the beginning of the 3Q FY 2008. The Technical Test Report and Project Close-out Report will be submitted during the 4Q FY 2008.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Portable Oxygen Concentrator for Patient Treatment and Transport. (Army)	0.267		

Outcome: This project will test devices that concentrate oxygen from the air to provide oxygen to hospital patients during treatment and transport. Oxygen from these concentrators will also be used to make oxygen for use in anesthesia machines during surgery. This device will greatly reduce the need to refill oxygen cylinders, and thus reduced the logistics burden and danger associated with this task. These devices will be used instead of high pressure oxygen cylinders. Efficiency: A field hospital will use 15 large oxygen cylinders a day at a typical cost of $0.060 million per cylinder refill in the U.S. costing $0.328 million a year not counting transportation costs, using portable oxygen concentrators it could be accomplished for a one time cost of $0.045 million, with no transportation or other infrastructure costs. Additionally there would never be a shortage of oxygen due to transportation interruptions. The total savings per year will be in excess of $5.000 million.

FY 2007 Output: Obtained advanced prototype units, submitted to FDA for approval, procured test articles.

FY 2008 Planned Output: FDA approval, user testing, transition to production

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Qualification of Conformal Fabrics (Air Force)	0.120		

Outcome: To qualify a conformal fabric material that will allow the integration of non-corrosive, highly durable composite structures into a greater cross section of airborne platforms. Probable 10-20 percent reduction in weight when aluminum structures on aircraft are replaced by composites; airframe weight reduction results in increased operational range, fuel savings, and increased armament loads. The lead service is Air Force. The fiber in this conformal fabric is discontinuous, allowing it to stretch into complex shapes before or during molding. The fabric conforms to complex shapes, thereby reducing fabrication costs of composite structures; the fabric becomes the reinforcement for composite structures used in advanced aircraft. The Primary output and efficiency to be demonstrated is fabrication of complex shapes to Boeing specification and award of the Boeing Standard Material Specification.

FY 2007 Output: The demonstration component design was completed and the part fabricated. At the request of Boeing adjustments to the demonstration plan were made to accommodate more stringent test criteria.

FY 2008 Planned Output: FY 2007 funds will continue to provide the following FY 2008 planned actions: Complete testing and publish test results and test report. Transition manager is Air Force Research Lab.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Risk Reduction for Specific Emitter Identification (SEI) Insertion into AN/ALQ-211 System (SOCOM)	0.754		

Outcome: Digital Specific Emitter Identification (SEI) insertion into the Special Operations Active Rotary Wing Survivability System architecture will accurately ascertain previously irresolvable ambiguous emitter identifications. This project will first be tested and validated as an integral part of the AN/ALQ-211 multi-spectral threat awareness console aboard the MH-47, MH-60 and eventually the CV-22. It will then be validated as a cost savings initiative to integrate the SEI concurrently with the development of the digital receiver upgrade scheduled for FY 2007-2008, and fully three years ahead of planned spiral development integration of the same technology with the AN/ALQ-211. The primary outputs and efficiencies to be demonstrated include: improved Geo-location of threats; correct correlation of preloaded database threats against actual collected threats 95 percent of the time; subsequent accurate update of threat database 100 percent of the time. Production cost savings of approximately $38.500 million could be realized by developing an SEI capability during the development of the digital receiver. Additionally $5.000 million RDT&E costs, $23.200 million savings in procurement and $19.500 million Operations and Support Life Cycle savings should be realized.

FY 2007 Output: Completed Phase II Implementation Test and Evaluation planning; received test articles; completed Phase II implementation, testing, and evaluation, to include an architecture study and integration of SEI receiver test fixture with Suite of Integrated Radio Frequency Countermeasures system to validate improved performance.

FY 2008 Planned Output: FY 2007 funds will continue to provide the following FY 2008 planned actions: Obtain SEI production and fielding decision; submit project closeout report.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Rucksack Portable Receive Suite (Navy)	0.328		

Outcome: This project will evaluate the Portable Receive Communications Suite, a lightweight, ruggedized Global Broadcast Service (GBS) developed by Windmill International of Nashua, New Hampshire. The Windmill communications suite will enable the warfighter to set up and receive GBS satellite broadcast anywhere, allowing reception of a full array of on-the-spot actionable intelligence (classified and unclassified) information including live Predator video, full resolution satellite imagery, and up-to-date sensitive information rebroadcast products.

FY 2007 Output: Test plan developed and finalized. Contract awarded and started delivery of test articles.

FY 2008 Planned Output: FY 2007 funds will continue to provide the following FY 2008 planned actions: Deliver second lot of four (4) test articles. Finalize test articles evaluation report, review

and deliver to the Global Broadcasts Service-Joint Program Office (GBS-JPO). Provide closeout report.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Super-Capacitor Power Source for Gun Launched Munitions (Army)	0.295		

Outcome: To eliminate the need to "double set" the projectile at cold temperature due to slow battery rise time, eliminate the need to discard or fire the Excalibur projectile within fifteen days after the projectile has been initialized with GPS data and allow the Excalibur to be field-initialized an indefinite number of times versus a maximum of twenty-times over a fifteen-day operating life period associated with the current battery. The lead service is Army. Efficiency: (1) high G artillery gun launch survivability; (2) 20 year storage life capability, (3) Data Hold Battery part replacement at approximately one third the unit cost, (4) Excalibur projectile integration, (5) Enhanced Portable Inductive Artillery Fuze Setter (EPIAFS) interoperation, (6) unlimited re-charging and projectile re-initialization cycles and (7) increased factory handling safety since supercapacitor power source approach eliminates a pyrotechnic battery primer. RDT&E Cost Savings: $1.400 million. O&S Cost Savings: $1.100 million. Procurement Cost Savings: $5.400 million. Fielding Reduction: 30 Fewer Rounds @ $0.036 million ea. Procurement Potential: $2.100 million. Return on investment (ROI) is 14 ($0.8500 million / $0.600 million).

FY 2007 Output: Conducted component level, high G, rail gun survivability tests at hot and cold temperature extremes. Developed an artillery gun launch survivable packaging concept for the power source. Conducted EPIAFS electrical power transfer characterization testing over temperature. Conducted trade studies leading to a selected electrical design approach. Conduct power source subassembly high G survivability rail gun testing and electrical performance validation testing. Modify Excalibur Guidance and Navigation Unit (GNU) subsystem design to incorporate the new power source and conduct GNU / EPIAFS interoperability testing. Spiral Output - technical and electrical design features have already been incorporated into the Excalibur projectile for future insertion of the supercapacitor power source. Also, demonstration of interoperability between modified GNU containing supercapacitor power source and EPIAFS.

FY 2008 Planned Output: FY 2007 funds will continue to provide the following FY 2008 planned actions. Manufacture two special GNUs that incorporate the new power source for electrical performance verification testing. Conduct a final operational demonstration of high G survivability by testing special GNUs in the rail gun and by live gun qualification testing of Excalibur projectiles containing the new power sources. Begin transition by identifying the needed Excalibur Technical Data Package (TDP) and production test equipment changes required for insertion of supercapacitor power source into the production build in the FY 2009 or FY 2010 timeframe. Transition manager is PM Excalibur.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Titanium Encapsulated Silicon Carbide Skirt Armor (TESA) with Multi-Hit Capability (Navy)	0.375		

Outcome: A successful project will enable integration of multi-hit capable, composite skirt armor on the Expeditionary Fighting Vehicle (EFV). To meet the EFV skirt armor requirement for protection from 14.5mm armor piercing rounds at 300 meters and 155/152mm fragments at 15 meters, the USMC will test TESA manufactured by BAE Advanced Ceramics (formerly Cercom, Inc.) of Vista, CA. The EFV currently utilizes composite skirt armor to protect the lower half of the vehicle, including the track system, propulsion components and operators inside, but has experienced environmental durability issues and lacks multi-hit capability. Projected completion of testing and qualification will be in CY 2008. The primary outputs and efficiencies to be demonstrated in the DAC Test are: (1) provide a five percent vehicle weight reduction; (2) increase skirt armor durability a minimum of one and half times; (3) incorporate multi-hit armor protection; (4) provide a minimum cost savings of $56.000 million for EFV production and maintenance, and avoid RDT&E costs of $2.5000 million with and ROI of 108:1.

FY 2007 Output: Test Planning was initiated and will be completed during the 3Q FY 2007. Fabrication of test articles is in process and delivery, 3Q FY 2007. Lab testing of assemblies is in process and will be completed. Completed lab testing at BAE in Vista, CA to ensure a consistent thickness and encapsulation. Completion of Test Planning and delivery of Test Articles anticipated for end of 3Q FY 2007. Validation Testing initiated for EFV fit and integration.

FY 2008 Planned Output: FY 2007 funds will continue to provide the following FY 2008 planned actions: Validation Testing will be completed in the 1Q FY 2008. Safety/Environmental (S/E) Testing will be conducted from the 1-3Q FY 2008. at the Aberdeen Test Center for rapid aging, durability, flammability, and on vehicle testing. During the S/E Tests, the Army Research Lab at Ft. Belvoir, VA will conduct the Field/User Evaluation, including a Live-Fire Testing, with representatives from DRPM AAA and General Dynamics. A Milestone C Decision is scheduled beginning of the 4Q FY 2008. The Technical Test Report and Project Close-out Report will be submitted at the end of the 4Q FY 2008.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Trailer Mounted Power Generator & Environmental Control Unit (TMG/ECU) (Navy)	1.146		

Outcome: A successful project will provide the USMC with an integrated TMG/ECU that can be deployed to provide power and environmental management for expeditionary command and control systems to allow sustained operations in any environment. The Marine Corps will test the Generator Environmental Control System Trailer (GET) produced by General Dynamics C4 Systems of Scottsdale, AZ, to meet the urgent requirement for an off-road, HMMWV towable, trailer system that is capable of producing 20-40 kW of electric power and 100,000 BTU of cooling or heating for the Marine Expeditionary Forces (MEF). Projected completion of testing and qualification will be CY 2007 with transition to USMC Marine Expeditionary Forces during CY 2007. The primary outputs and efficiencies to be demonstrated are: (1) integrate increased power generation and cooling/heating capability for sustained functionality of Command Operation Centers; (2) capability to move on-road and off-road with the speed of the MEF; (3) towable by HMMWV to minimize logistics footprint; (3) RDT&E cost avoidance of $4.000 million, Procurement Cost savings of $16.000 million, and provide an ROI of 16:1.

FY 2007 Output: Phase II Test Articles were received during the 1Q FY 2007. Verification Testing was completed in the 3Q FY 2007. Field User Evaluation was completed by the 4Q FY 2007. The full Milestone C Decision occurred 4Q FY 2007. Achieved full rate production decision procuring 12 units for $1.020 million. The Technical Test Report and Project Close-out Report are anticipated NLT 2Q FY 2008.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Washable Read/Read-Write 2.45GHz RFID Tags with Highly Flexible Antenna (Army)	0.058		

Outcome: This project is testing Radio Frequency Identification (RFID) tags that can be read swiftly from various distances and attached to various materials. These labels are suitable for applications where exposure to temperature and weather extremes is possible. The Air-Tune Tag has a memory lifespan of 10 years and can be rewritten 100,000 times. Contract was awarded on 4 Oct 2006. The contractor completed Work Package I which provided the program plan and the design strategy. The test strategy was also presented as part of the Work Package I effort. Work Package II is approximately 75 percent complete. The contractor has provided most of the equipment that requires testing (tags, scanners, and antennas). Work on Work Package III that leads to a Preliminary Design Review (PDR) is ongoing. The PDR was 18 June 2007. Efficiency: If the US Government were to develop this technology (tags, readers, antennas) from scratch the cost would be over $22.000 million. The cost to provide a military technology that assigns, tracks, and monitors equipment in the field (including tags and hardware) using an off-the shelf solution that is ruggedized for the military environment is estimated at $0.300 million, hence a savings of over $21.000 million. The use of the tags will provide additional tangible and intangible benefits that result from its operation such as increases of efficiency of inventory control, enabling positive tracking of controlled items, supports identity controls and provides better inventory reporting.

FY 2007 Output: After a successful PDR, the contractor is required to finalize the design in a Critical Design Review (CDR), finalize the software development, and test and evaluate the tags for military environment use on various type of military equipment. Technical tests will include Radio Frequency emissions interference testing to determine potential effect on identified military and commercial systems; characterization and confirm read/read-write function; best use recommendations for adhering RFID tags to military equipment and recommendations for operator programmed data content. Field trials or operational tests include ease of operation, training needs, readability distance scenarios and user acceptability. A full test plan and detailed pass / fail criteria for individual tests will be provided to the program office before test start.

FY 2008 Planned Output: FY 2007 funds will continue to provide the following FY 2008 planned actions: Continue testing and acceptability of tags with other users. Complete contract reporting.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Obstacle Avoidance SONAR for SOF Underwater Recon Vehicle (SOCOM)		0.718	

Outcome: The proposed technology challenge will qualify an Obstacle Avoidance Sonar (OAS) in the unmanned Semi Autonomous Hydrographic Reconnaissance Vehicle that is used by Naval Special Warfare for clandestine collection of sonar images and other very shallow water intelligence. The proposed OAS, a pre-planned product improvement, will allow the vehicle to "see" objects in its path and avoid them as required. The OAS is capable of viewing horizontal and vertical planes, processing the information, and providing course, altitude, and speed correction to the vehicle's guidance system to avoid obstacles. The RDT&E and manufacturing cost avoidance is $0.500 million and operation and support cost avoidance is: $1.000 million.

FY2008 Planned Output: Contract for test articles; complete Phases I Performance Technical Testing qualifying critical capability to allow mission completion while providing for operations below water surface and prevent collisions and loss or repair of equipment; begin Phase II operational testing.

FY2009 Planned Output: Complete Phase II operational testing; complete test reports; obtain Milestone C production decision; submit project closeout report and exercise production options as applicable.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Ruck-Sack Portable UAV Geo-Spatial Video Exploitation System for Falcon View (SOCOM)		0.753	

Outcome: This project is a qualification test of software capable of linking geo-spatially referenced (GPS referenced) video reconnaissance to the FalconView Mapping System: the principal Special Operations Forces mission planning system, used for threat analysis, route selection, assault and maneuver preparation. This will enhance situational awareness of the battlefield and provide a tactical advantage to commanders and their troops. The RDT&E cost avoidance is $5.500 million and procurement cost avoidance is: $0.427 million. Operations and Support cost avoidance is expected to be $2.500 million.

FY08 Planned Output: Negotiate a procurement contract for test articles, obtain safety release, and conduct initial technical testing.

FY09 Planned Output: FY 2008 funds will continue to provide the following FY 2009 planned actions: Conduct operational test / user evaluation; complete test reports; obtain procurement decision; prepare project closeout report and exercise production options as applicable.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Small Arms Lubrication Assessment (CTO)		1.125	

Outcome: This project will test new lubricous coating properties of small arms lubrications for military small arms up to 7.62mm machineguns. Due to the Global War on Terrorism as well as the various operational environments it is imperative that a primary weapon lubricant be made available to maintain the functional operation of small arms in high operational tempo. Such lubrications have been developed for the small arms industry and in use with other government agencies. Currently some lubricants have been preliminary testing by several Services in live fire tests conducted in

lab environment with artificial uniformed grain sand like medium; our goal is to test in a life like environment utilizing natural materials (sand/dust/dirt) during the testing process. Weapon testing will include stringent performance requirements in hot (wet / dry) and cold (wet / dry) temperatures ranging from minus 10° to 140° Fahrenheit. The test will include increased operations in more severe sand, dust, mud and humidity environments with emphasis on the sand and dust environment. If successful this test would lead to a single lubricant which would replace numerous types of commercial and military issued lubricants currently being used by the warfighters at their own expense. Services need a reliable weapon lubricant for multiple operational environments. Benefit will be an advanced lubricant that would reduced malfunctions induced in harsh environment under sustained firing conditions for extended periods of time and would increased survivability and lethality of war fighter and weapon.

FY 2008 Planned Output: Develop and issue Market Survey. Develop Contract Requirements for procuring first article test lubricants and other additional test items. Procure Test Ammunitions to conduct live fire testing. Develop Test Plan.

FY 2009 Planned Output: FY 2008 funds will continue to provide the following FY 2009 planned actions: Conduct Technical Testing and Field User Evaluation. Prepare MIL STD certification. Complete Tech Testing. Receive Technical Test Report and Close-out Report.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Vaccine and Reagent Refrigeration System (VARRS) (Navy)		1.278	

Outcome: Will provide the USMC a ruggedized Vaccine and Reagent Refrigeration System (VARRS), manufactured by AcuTemp of Dayton, Ohio, to replace deficient Health Service Support systems currently in the field. A two-year project under sponsorship of the OSD Comparative Testing Office and Marine Corps Systems Command, Program Manager of the Chemical Biological Radiological Nuclear-Medical (CBRN-M). Projected completion of all testing events is FY 2009. The primary outputs and efficiencies are: (1) a fully ruggedized VARRS for storing and transporting life saving vaccines and reagents; (2) a 2000 percent increase in reliability over currently used commercial refrigeration systems; (3) the direct contribution to the survivability of patients; and (4) RDT&E, Manufacturing, Procurement, and Operations & Support Life-Cycle Cost Avoidances of $10.250 million, $3.600 million, $3.900 million and, $5.784 million respectively. A ROI of at least 4:1 is expected.

FY 2008 Planned Output: Vendor Test Data, initiate Contract Prep and Award and Test Planning during 1Q FY 2008. Contract Award during 2Q FY 2008. Receive Test Articles during 4Q FY 2008. Being Lab testing by end of 4Q FY 2008.

FY 2009 Planned Output: Complete Lab Testing and commence Technical Testing and Field User Evaluation (FUE) during 1Q FY 2009. Complete Tech Testing and FUE during 2Q FY 2008. Receive Technical Test Report mid 2Q FY 2008. Milestone C Decision and Close-out Report by end of 2Q FY 2009.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
10kW Tactical Vehicle Inverter System (Army)	1.038	0.858	

Outcome: This effort is to test several 10 kW inverter systems developed by commercial industry. The inverters will be purchased and evaluated to determine if they meet the military's electrical and environmental requirements currently addressed with either a vehicle mounted Auxiliary Power Unit (APU) or Trailor Mounted Generator Sets (3 - 10 kW). One key benefit in replacing the APU or Trailer Mounted Generator Sets is reduction of weight to light tactical vehicles by 455 to 500 lbs. Efficiency: Procurement Savings: $1.041 million, Life Cycle O&S Savings: $10.695 million, ROI: 4.28 percent.

FY 2007 Output: Two contracts have been awarded to purchase and deliver three (3) 10 kW TVIS. The companies that received the contracts were DRS Pivotal Power and ITT Power Solutions.

The third company dropped out leaving us the opportunity to purchase additional inverter systems from each company for Government Testing.

FY 2008 Planned Output: Upon delivery of the inverter systems from DRS Pivotal Power and ITT Power Solutions, an Electrical Test will be performed at Fort Belvoir, VA and an Electrical Test Report will be written. After the Government Electrical Tests, the inverter systems will be given to Aberdeen Test Center (ATC) for Environmental, EMI and Road Tests.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Angel Fire - Situational Awareness of Large-Area Urban Operations (Air Force)	1.700	1.518	

Outcome: To provide a high-resolution spot-beam capability; a night, infrared, wide-area surveillance capability; and a comprehensive plan to transition Angel Fire (AF) to a full acquisition program. AF is a tactical situational awareness system that provides real-time, high resolution, city-sized images of infrastructure, vehicles and people to hundreds of users. This expansive coverage enhances tactical support, forensic analysis, and predictive analysis that in turn directly support urban combat, base defense, border security, improvised explosive device detection and other anti insurgency/counter terrorist efforts. Following a successful demonstration of the basic AF capability at the Marine Corps Air/Ground Combat Center in May/June 2006, USMC specifically requested the three further refinements that would "customize" AF for deployment/employment in OIF. The lead service is Air Force. The primary outputs and efficiencies are: (1) spot beam performance that will provide a multi-beam high-resolution capability to augment the wide-area lower resolution AF imagery, (2) provision of a night-time infrared capability similar in military utility to the day, optical capability; and (3) provision of a transition plan and associated documentation that will allow rapid transition of the AF capability to a fully developed acquisition program.

FY 2007 Output: Contracts awarded; high resolution spot beam cameras procured; software integration activities initiated and continued; aircraft integration initiated; flight evaluations completed.

FY 2008 Planned Output: Procure infrared cameras; conduct software integration activities; conduct aircraft integration; conduct flight evaluation operations and transition planning. The transition manager is Air Force Research Lab.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Application of Low Plasticity Burnishings to F-100 Engine Airfoils (Air Force)	0.812	0.518	

Outcome: To demonstrate a metal stressing process on aircraft engine airfoils that will reduce Foreign Object Damage (FOD) to those components and thus reduce the substantial maintenance burden incurred due to unscheduled engine removals caused by foreign object damage. This can be accomplished, in a cost effective manner, by using the low plasticity burnishing (LPB) process to induce FOD mitigating deep compressive stresses in vulnerable engine blades. The estimated cost avoidance for the remaining service life of the selected engine system (F100-220 engine) is conservatively estimated at $144.000 million. The lead service is Air Force. The primary outputs and efficiencies are: (1) the LPB-imparted stresses are sufficient to meet increased FOD tolerance requirements and do not impair performance or life of the blade, (2) no distortion of blade geometry and no cracking or other damage to blade, and (3) cost of the LPB process to be $0.002 per blade, with a threshold of $0.002

FY 2007 Output: Contract awarded; test planning and engineering completed; validation and verification of LBP process completed; delivery of prototype turnkey solution to Oklahoma City Air Logistics Center (OC-ALC).

FY 2008 Planned Output: Continue refinement and delivery of solution; inaugurate on-floor capability at Air Logistics Center. The Low Plasticity Burnishing project is scheduled for completion July 2008. The transition manager is jointly the Air Force Research Lab, Materials Directorate and the OC-ALC.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
C2 Resource Management: Master Caution Panel (MCP) (Air Force)	1.160	0.418	

Outcome: To demonstrate technology that allows network/system administration personnel to monitor the internal network of a C2 enterprise, such as an Air Operations Center (AOC), providing status of machine availability, connectivity, software processes, and host health. Master Caution Panel (MCP) "bridges the gap" between the warfighter environment and the system administrators and engineers maintaining the IT resources used to plan and conduct AOC missions. The lead service is Air Force. The Primary output and efficiency to be demonstrated is an improved situational awareness during real world operations.

FY 2007 Output: Produced a web-based training package that will guide a user through the configuration of MCP in a new environment (i.e., AOC). A test plan to test the training package as well as the existing MCP software in an AOC environment was also produced. To support demonstration of MCP at an operational site and to prepare for transition to the AOC SPO a system security authorization agreement (SSAA) was developed. This document is required in order to certify that MCP is safe to operate in a network.

FY 2008 Planned Actions: Evaluation reports based on the tests. Updates to the training package will also be accomplished depending on the results of the demonstration. A final package of deliverables (training package, test plan, test reports, and SSAA) as needed at the end of the effort. The C2MCP Project is scheduled to conclude in FY 2008. Integration of the capability will be conducted through block upgrades to Air Operation Centers through FY 2010. Transition Manager is Air Force Research Lab.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Cost Effective Light Aircraft Missile Protection (CELAMP) (Air Force)	1.160	2.618	

Outcome: To demonstrate an integration of the Quiet Eyes turret with AAQ-24(V) with Directed Infrared Countermeasures (DIRCM) components that will provide infrared (IR) threat protection for sub-sonic platforms such as the A-10 and helicopters. The AAQ-24(V) Large Aircraft Infrared Countermeasures (LAIRCM) system is not optimized to provide protection for small aircraft such as helicopters and fighters because of its cost, form, fit and weight. Raytheon has developed a light-weight, low-cost Infrared Countermeasure (IRCM) assembly (Quiet Eyes) that leverages guidance components from the combat-proven AIM-9X IR missile to provide highly responsive, all-aspect IR protection. The lead service is Air Force. The Primary outputs and efficiencies to be demonstrated are: (1) the ability of the Quiet Eyes turret to handle the higher power laser associated with the AAQ-24; (2) demonstrate that the Raytheon Quiet Eyes turret can successfully be integrated with the Northrop Grumman processor, resulting in a readily available lightweight IRCM jammer for Army and Navy helicopters while meeting the requirement for the next generation IRCM jammer for the Air Force.

FY 2007 Output: Finalized contractual agreement between Air Force, Raytheon and Northrop Grumman, with the latter being designated as Prime Contractor, and initiated integration efforts.

FY 2008 Planned Output: Test CELAMP turret in lab and live fire environments with a production-ready turret.
The final CELAMP project is scheduled to be completed September 2009. Capability will transition to Army and Navy helicopters starting in 2011 and cargo aircraft for the Air Force in 2012. Transition manager is Air Force Aeronautical Systems Center.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Fiber Optic Gyro Rate Sensors for Combat Vehicles (Army)	1.044	1.118	

Outcome: This project will provide the Army with a family of rate sensors based on fiber optic technology for use in current vehicles. Rate Sensors are the sending elements of the stabilization and

fire control subsystems and hence are an integral part of the lethality of these vehicles. Traditional rate sensors are based on the use of mechanical gyros and moving parts which are subject to wear in the extreme harsh environments. Fiber optic gyros use deflection of light waves to determine rate of motion change, which provides a much more reliable and accurate sensor. This project takes advantage of this more reliable device in a form, fit and function replacement for combat vehicle platforms. The Army is the lead service, with Marine Corps support for integration to the LAV platform. Improvements: longer life, better performance, less stringent handling requirements, and lower cost. More reliable 5-6 times MTBF (No moving Parts). O&S Cost Avoidance: $6.270 million (five years) / $41.750 million (life). Procurement Cost Avoidance: $2.270 million (five years) / $15.000 (life). RDTE Cost Avoidance: $1.300 million. Fielding Reduction: three plus years. Procurement Potential: 1400 units per year, 700 units first five years. Lifetime Potential is 33,400 rate sensors/ $167.000 million.

FY 2007 Output: Conducted requirements Review for Bradley, M1, and LAV platforms; Design verification testing; Qualification plans and procedures for LAV and M1 vehicles; Test readiness review; and subassembly testing at White Sands Missile Range.

FY 2008 Planned Output: Conduct IPT meetings; Gun fire testing at government site; ECP/ERR development and release; Automated test equipment development and testing; M1 vehicle testing.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Improved Durability F100/F414 Exhaust Nozzle Divergent Seals (Air Force)	0.262	0.368	

Outcome: To demonstrate and document the flight characteristics of Ceramic Matrix Composite (CMC) Turbine Engine Exhaust Nozzle Divergent Seals. This documentation will occur through a Field Service Evaluation (FSE) flight program. The goal is to qualify the CMC divergent seals as preferred spares for the F100 engine family, as well as the F414 engine used in the US Navy F-18 aircraft. The lead service is Air Force. The primary outputs and efficiencies to be demonstrated are: (1) realization of significant acquisition cost savings annually for component replacement and; (2) a significant decrease in maintenance downtime of critical combat aircraft.

FY 2007 Output: Eight Ceramic Matrix Composite (CMC) F100 exhaust nozzle divergent seals have been flying in an FSE at McEntire Joint National Guard Base (JNGB) since 17 Aug 2005 on two F-16 fighter aircraft. Twenty additional CMC seals were purchased and shipped to Mountain Home AFB. Seals are currently flying on four F-15 aircraft. Two seals were removed for measuring Key Performance Parameters (KPP). All KPP were easily passed and allowed for a detailed full life cycle cost analysis to be completed to document the value of using F100 CMC divergent seals. Meeting held at Tinker AFB 18 July 2007 to review results from Field Service Evauluation (FSE) and KPP, and to discuss follow-on procurement of CMC seals. Project expanded to include evaluation of the CMC seals on the F414 engine that powers the Navy F/A-18E/F fighter. Six (6) F414 exhaust nozzles were ground engine tested to ~50 percent full life. The seals were in "Like New" condition after the engine test. Contract signed with F414 engine manufacturer to analyze CMC seals and to conduct additional ground testing of CMC seals on a F414 engine. A total of 24 additional F414 seals have been purchased to support continued ground testing and an FSE.

FY 2008 Planned Output: Continue F100 FSE flight test of CMC Divergent Seals at McEntire JNGB and Mountain Home AFB. Complete an Engineering Change Proposal to officially document F100 CMC divergent seals as fully flight certified. Submit report on F100 field service evaluation. For the F414, a two times life ground test will be conducted to determine durability improvements and to generate required data to allow the program to proceed to a FSE. Start FSE on an F/A-18E/F fighter.

FY 2009 Planned Output: FY 2008 funds will continue to provide the following FY 2009 planned action: Continue FSE of CMC seals on F/S-18E/F. Evaluate CMC seals from FSE and submit final report. The CMC Divergent Seal project is schedule for completion in March 2009. The transition managers are the F100-100/200/229 Augmentor Program Manager and Naval Air Systems Command.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Improved Performance Environmental Control System (Army)	1.054	0.886	

Outcome: This project will lower the risk of potential loss of life of wounded soldiers being transported from the point of injury to the causality collection point by providing the HH-60M Medical Evacuation (MEDEVAC) Helicopter with a fully missile capable Environmental Control System (ECS). It will provide the Army with a more robust and efficient heating and cooling environment within the HH-60M for the wounded soldiers. The ECS will be more efficient, affordable and reliable and weigh 49 lbs. less than the current ECS. Outputs: The primary output of this program will be a fully qualified ECS for the HH-60M MEDEVAC aircraft. This includes: (1) qualification to the performance specification for the ECS, (2) qualification against the electromagnetic susceptibility requirements for the Army, (3) qualification against the environmental requirements of the Army, and (4) a full Interim Safety and Airworthiness Qualification statement for the ECS. Efficiency: Weight savings - 49 lbs., $31.000 million in life cycle O&S costs savings, resolve obsolescence issues and increase cooling capacity.

FY 2007 Output: Conducted IPT Meetings. Requisitioned test article. Received qualification by similarity documentation from vendor for evaluation by the Aviation Engineering Directorate (AED) to determine if sufficient testing by other services has been performed to satisfy the test requirements without having to perform those tests. Conduct Critical Design Review. Prepare and finalize test plans. Received AED approval of Environmental and Electromagnetic Interference Test plans.

FY 2008 Planned Output: Receive test article for evaluation. Complete Environmental and Electromagnetic Interference testing at Redstone Technical Test Center. Complete test reports and submit for approval and Airworthiness Qualification. Initiate and complete Phase two (Flight) testing at Aviation Technical Test Center. Incorporate ECS into HH-60M baseline.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Improvements to Suite of Integrated Radio Frequency Countermeasures Systems (SOCOM)	0.406	0.868	

Outcome: Technology advances have made gallium arsenide (GaAs) high frequency Radio Frequency (RF) Amplifier chips commercially available, which would reduce bare component costs as well reduce test and tuning time for Microwave Component Assemblies (MCA's) within the AN/ALQ-211 Suite of Integrated Radio Countermeasures (SIRFC) system, thereby preventing obsolescence of RF micro-chip assemblies and reducing the threat of diminishing material sources of supply. Primary outputs and efficiencies to be demonstrated in the this DAC project include: (1) validation that commercially available GaAs RF chip component insertions to replace the current MCA's provide easier tuning during manufacturing and depot repair operations; (2) demonstration of the capacity to detect and jam the most modern RF threats to Special Operations Aviation (SOA); and (3) reduction in unit/operations and sustainment cost and no necessity for skilled labor. Significant cost savings could be realized for upcoming manufacturing, assembly and sustainment of the ALQ-211 SIRFC on MH-47, MH-60, CV-22 and other Joint aircraft applications totaling approximately $17.900 million.

FY 2007 Output: Analyzed vendor test data and completed project test planning; conducted analysis and integration studies; completed procurement contract for test articles and vendor services and took possession of test articles; began Phase I concept demonstration.

FY 2008 Planned Output: Complete Phase I concept demonstration; and begin Phase II integration, vendor demonstration and validation testing;.

FY 2009 Planned Output: FY 2008 funds will continue to provide the following FY 2009 planned actions: Complete Phase II integration, vendor demonstration, and validation testing; finalize procurement & fielding decision documentation based on test and evaluation; submit project closeout report.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Low Cost Land Warrior Cable Connector System (Army)	0.695	0.615	

Outcome: Current Land Warrior connectors are machined out of stainless steel. Many failures are being experienced in the field. The purpose of this project is to look for alternative

cable/connectors that are more reliable and cost effective without degrading current performance. Developed contract requirements and awarded the contract to develop the alternative cable/connectors solution. The contract kickoff meeting is scheduled for 20 June 2007. Efficiency: This project will reduce manufacturing time and cost for connectors down to $0.015 million/shell and cut manufacturing and connector lead time significantly. Current Land Warrior connectors are made with connector shells that are machined out of stainless steel that requires more than 15 minutes of machining time, costing approximately $0.025 million/shell. Each Land Warrior ensemble needs ten cables, twenty cable connector shells plus twenty receptacle body connector shells, (40 shells total) costing approximately $0.001 million per ensemble. The cost per ensemble could be reduced to $0.600 million as a result of this project. Savings of $0.400 million per ensemble are expected.

FY 2007 Output: Developed a program plan, test plan, and researched the various failure modes from Land Warrior damaged cables provided by the Government. Initiated tests to ensure that Land Warrior performance is maintained.

FY 2008 Planned Output: Further evaluate additional cable failures and determine feasible alternatives to test. Upon successful completion of the test, the Government will receive prototypes and technical information to further produce cost effective and reliable cables/connectors.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Modular Advanced Composite Armor Kits for SUVs (SOCOM)	1.338	1.465	

Outcome: The project will test lightweight, advanced composite armor for SUVs and Special Operation Non-Standard Civilian Vehicles that can be easily installed and repaired in the field by non-technical personnel without the need for special tools or equipment. This technology will provide immediate force protection and increased survivability for Special Operation Forces prosecuting the Global War on Terrorism. The primary output and efficiency to be demonstrated in this DAC is modular fit and design armor kits that provide National Institute of Justice Level IV/NATO-STANAG Level 3 protection from small arms and antipersonnel fragmentation mines. RDT&E, manufacturing and production cost avoidance savings anticipated as a result of this project are approximately $68.000 million.

FY07 Output: Completed project plan of action and milestones; solicited and received product sample coupons from interested vendors; conducted Phase I initial technical evaluation and live fire testing; carried out a down selection of vendor materiel solutions for further testing; completed procurement/test article contracts with selected vendors.

FY08 Planned Output: Complete evaluation of vendor data and finalize test planning; conduct analysis and vehicle integration studies; obtain contracted test articles; carry out Phase II technical, environmental and live fire testing; conduct Phase III form fit function, safety and operational testing and evaluation; finalize Milestone C procurement and fielding decision package based on test and evaluation; submit project closeout report.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
RF Synthetic Instrument Signal Processing Engine Enhancement (RF-SISPEE) (Air Force)	1.280	0.738	

Outcome: To expedite repair of critical aircraft avionics and electronic attack jamming pods, measurably contributing to aircrew and aircraft survivability and weapons platform availability. This single synthetic instrument leverages the power of the latest technologies in Digital Signal Processing (DSP) techniques and simplified VXI-based hardware to measure electrical signals more accurately than the many special purpose measurement instruments it replaces. The reduction in hardware resulting from the replacement of traditional measurement instruments with a single DSP-based system will increase the reliability of the test equipment and reduce the maintenance and calibration downtime of test equipment. The lead service is Air Force. The primary outputs and

efficiencies to be demonstrated are timely and accurate diagnoses of electronic attack pod failures, thus contributing to aircrew and aircraft survival.

FY 2007 Output: Completed evaluation of signal processor engines and evaluation of signal processing software and firmware.

FY 2008 Planned Output: Demonstrate the portability of existing DSP software to Signal Processing Engine. Transition Manager is Ogden Air Logistics Center.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Unmanned Surface Vehicle (USV) Mine Neutralization (Navy)	1.146	0.518	

Outcome: An effective, efficient, low risk method for providing mine neutralization initially from a Manned Surface and ultimately from a Unmanned Surface Vehicle (USV). This fleet Mine Neutralization System is a Military-off-the-Shelf (MOTS) mature and reliable system for the relocation, identification and disposal of sea mines and other ordnance found at sea.

FY 2007 Output: Preliminary Design review of Vehicle launcher, portable console, and neutralizer modifications. Completed critical design review of launcher, approved launcher design, and authorized fabrication of initial unit. Received final verification from BAE systems regarding Archerfish integration issues, and have determined that Archerfish integration with the console will be feasible. Government is currently contracting for GFE components to facilitate Archerfish integration.

FY 2008 Planned Output: Complete Test and Final close out Report.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Armored Biological Integrated Detection System (BIDS) (Army)		1.218	1.800

Outcome: To provide armor protection to the currently fielded Biological Integrated Detection System (BIDS) in order to maintain its operational mission of conducting biological surveillance and providing a basis for medical personnel to determine effective countermeasures. In February 2007, Army G8 decided to upgrade the BIDS platform from a M31E2 to M1083A1R LTAS Medium Tactical Vehicle. The primary outputs and efficiencies to be demonstrated are as follows: (1) warfighter protection thereby reducing crew vulnerability to IEDs and small arms, (2) restored BIDS mission in high threat areas outside forward operating base, and (3) supports Army G8 supplemental $10.000 million production M1083A1R LTAS. The program is Army lead. RDT&E Cost Savings is estimated at 10.000 million. Fielding Reduction: 2 years. Procurement Potential: 35 per chemical company at $52.500 million. Other Benefits: survivability in high threat areas.

FY 2008 Output: Identified and ordered platform with Program Manager funds. Completed initial design for integration. Met with Army Test and Evaluation Command (ATEC) and completed the test outline.

FY 2008 Planned Output: Acquisition and engineering design of incorporating the S788 BIDS shelter from the M31E2 to the M1083A1R LTAS. Integration testing along with limited user tests will be conducted.

FY 2009 Planned Output: Performance verification tests of the integrated S788 shelter on the M1083A1R LTAS platform will be conducted to ensure BIDS performance does not change, and the unit will be safe to operate. Transition manager is Joint Program Manager Biological Defense. Fielding is expected 4Q FY 2009.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Assessment of Lightweight Weapon Mount (Navy)		2.638	2.420

Outcome: This project seeks to test new stabilization technologies for mounting weapons. Such mounts have been developed for the Motion Picture industry that stabilizes heavy cameras on turbulent moving platforms. This technology has received preliminary testing by Navy SEALs in live fire tests with a .50 caliber, M2 Browning was mounted on a HMMWV and held rounds in a tight grouping during off road testing. The overall comment from the SEALs was that this technology should be fielded to Iraq as soon as possible.

FY 2008 Planned Output: develop and issue Market Survey. Develop Contract Requirements for procuring first article test unit and other additional test items. Procure Test Ammunitions. Develop Test Plan.

FY 2009 Planned Output: Conduct Technical Testing and Field User Evaluation. Prepare Weapons System Explosive Safety Review Board (WSESRB) review and certification. Modify test unit to meet requirements. Complete Technical Testing. Receive Technical Test Report and Close-out Report.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Collaborative Video Dissemination Service (Air Force)		0.990	0.800

Outcome: To demonstrate and document a cost-effective, wide-area video exploitation and dissemination capability that improves the analytical value of unmanned aerial systems (UAS) video. Video backhaul systems provides a powerful, but manpower intensive, situational awareness capability to end users at supporting commands. The system as currently configured, however, does not provide the end user with the ability to record, analyze, fuse or otherwise manipulate the video streams, making the ingestion of the UAS intelligence extremely cumbersome. The Collaborative Video Dissemination Service (CVDS) will provide these capabilities. The lead Service is Air Force. The primary outputs and efficiencies to be demonstrated are (1) transmission of NGA compliant and properly formatted UAS telemetry information along with the UAS video that is backhauled for dissemination to deployed units and analysis centers, (2) a significant reduction in the manpower required to view and exploit the video by leveraging and sharing analyst notations from any of the exploitation sites, and (3) optimization of satellite bandwidth by opportunistically injecting staged content (video, imagery, intel) into the forward broadcast.

FY 2008 Planned Output: Complete critical design review, hardware/software procurement, prototype integration and configuration, and test plan development. Initiate and complete test execution and validation and initiate prototype demonstration.

FY 2009 Planned Output: Complete prototype demonstration. Conduct post demonstration review. If review favorable, begin transition planning for field service evaluation and deployment. Complete close-out report. The transition manager is the Defense Information Systems Agency.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Conversion of the Existing F-15 C/D Analog HUD to a Digital HUD (Air Force)		0.918	1.940

Outcome: To demonstrate and document the flight characteristics and increased operational utility and reliability of a digital Head-up Display (HUD) over the analog display currently employed in the F-15 C/D aircraft. The goal is to qualify the item as a preferred spare for the F-15. The lead Service is Air Force. The primary outputs and efficiencies are: (1) realization of significant net acquisition cost savings for item replacement and (2) a significant decrease in downtime due to HUD maintenance resulting from the replacement of the analog HUD with the more easily maintained digital HUD.

FY 2008 Planned Output: Complete and award contract. Leverage findings from F-18 Hornet digital HUD demonstration and qualification to facilitate the completion of software and hardware component integration and installation of the unit into aircraft. Prepare for qualification activities in FY 2009.

FY 2009 Planned Output: Provide two upgraded units to be used for flight demonstration and verification. Prepare for flight worthiness qualification. Finalize flight worthiness test final report. The F-15 digital HUD project is scheduled for completion in June 2009. The transition managers are the F-15 C/D system program office, Wright Patterson AFB, OH, and the F-15 HUD item manager, Warner Robins Air Logistics Center, Warner Robins AFB, GA.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Enhanced Smart Triple Ejector Rack (Air Force)		2.118	1.000

Outcome: To demonstrate and document the flight characteristics and increased operational capability of a modified Triple Ejector Rack -9A (TER-9A). This modification will incorporate the MIL-STD-1760 Common Aircraft and Weapons Electrical Interface into the TER 9A, currently employed on the F-16 aircraft. This modification will increase F-16 smart weapons carriage from two Joint Direct Attack Munitions (JDAM) to six. The goal is to qualify the modified TER-9A for employment on Active and ANG F-16 aircraft. The lead service is Air Force. The primary outputs and efficiencies to be demonstrated are; (1) a modification of the TER-9A to a smart weapons capability while keeping its conventional capability; (2) a resulting reduced logistics footprint in the form of less maintenance man hours to re-configure aircraft for mission changes and (3) increased aircraft availability as more bombs per aircraft can ultimately reduce aircraft required for the mission.

FY 2008 Planned Output: Complete contract modification and statement of work. Acquire US Government-furnished test articles and mod kits. Initiate test and evaluation of item.

FY 2009 Planned Output: Continue test and evaluation. Complete close-out report. Initiate low-rate initial production, initial fielding, and begin field service evaluation followed by full-rate production. The transition managers are the 646 Aeronautical Support Squadron (ASC) and ACC/A4WA.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
F/A-18 Countermeasures Pylon Longer Duration IR/RF Expendables (Navy)		1.200	1.060

Outcome: This program evaluates and qualifies an Aircraft Countermeasure Dispensing System (ACDS) in an F/A-18 wing pylon configuration using the Raytheon Comet system currently employed on the A-10 aircraft in a different configuration. The current A-10 configuration is not acceptable for employment on the F/A-18 aircraft. The F/A-18 configuration will mount a fairing to the side of the pylon keeping the ejection station free for weapons carriage. The ACDS will provide increased survivability and time on target. ACDS will also add preemptive capability, preventing seeker lock-on by adding five times the amount of countermeasures that is currently available.

FY 2008 Planned Output: Complete hardware design, M&S and install hardware on the aircraft wing pylon. Minimal flight testing will be accomplished.

FY 2009 Planned Output: Complete qualification testing and source selection.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Joint Warfighter Biological Agent Sensor (Army)		0.702	1.200

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2008

APPROPRIATION/ BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
RDTE, Defense Wide BA 05	**0604051D8Z - Defense Acquisition Challenge Program (DACP)**	**P051**

Outcome: Competitive test and evaluation of automated Commercial off the Shelf (COTS) Biological Agent identification sensor for performance and cost advantages to support the warfighter in high threat areas. The best value sensor will upgrade the currently fielded Joint Biological Point Detection System (JBPDS) and Joint Portal Shield (JPS) assay based Identifiers to reduce biological warfare agent exposure by identifying Bacteria, Viruses, and Toxins with one-three orders of magnitude increase in sensitivity within 15 minutes or less for the fielded sensors. The primary outputs and efficiencies to be demonstrated are as follows: (1) improved identification sensitivity performance in order to eliminate need for sensitivity waivers; (2) decreased operational and sustainment cost especially in the area of consumables, and (3) supports hardware commonality to include both JBPDS and JPS systems. The program is joint service with Army as the lead. RDT&E Cost Savings: $14.000 million based on cost analogy from the original JBPDS from EMD 1996 to when it entered Low Rate Initial Production (LRIP) in 2001. O&S Cost Savings: $4.000-$6.000 million estimated, based on reduction of cost of consumables. Procurement Cost Savings: $0.000-$40.000 million per system. Fielding Reduction: two years. Procurement Potential: ~580 systems or $24.000 million. Other Benefits: Joint Service and supports four Biological Detection Programs.

FY 2008 Output: Completed comprehensive evaluation and selected seven potential Biological Identifiers for follow-on lab tests in June 2007. Completed chamber testing using biological agents at Dugway Proving Ground on all candidates, Sep-Oct 2007. Currently finishing evaluation and will down select to best candidates by February 2008.

FY 2008 Planned Output: A technology readiness evaluation (TRE) was conducted in FY 2007 of potential COTS systems. Results of this TRE are expected in early 2Q FY 2008. Best value system(s) will be procured to undergo extensive validation to include live biological agent testing and interferent testing.

FY 2009 Planned Output: System will be integrated as the identifier into the JPS and JBPDS systems. Integration will include product verification testing such as hardware MIL STD 810 type testing. The integrated system will undergo biological simulant testing to verify integration and did not affect performance. Once safety and integration testing is completed, operational and maintenance procedures and documentations will be adjusted for warfighter usage. Transition manager is Joint Program Manager Biological Defense.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Mobile IP Interface to TDL (Navy)		0.908	0.700

Outcome: To demonstrate dynamic integration of Tactical Data Links (TDLs) via the US Fleet's tactical IP backbone, which is provided by the Automated Digital Network System (ADNS). The lead service is the Navy. ADNS is managed by SPAWAR PMW 160. Two-year project sponsored by OSD with completion date of end of FY 2009. The primary outputs and efficiencies to be demonstrated are the (1) capability for TDL platforms to automatically maintain communications with other TDL platforms when one platform migrates to a different TDL net; (2) a COTS-based system and network design for this purpose that is compatible with ADNS; (3) increased access for IP users to COMMS with TDL users (4) reduced communications down time as TDL platforms change nets; (5) reduced management burden for TDL nets used in tactical operations.

FY 2008 Planned Output: Define interface to TDL/IP gateway, such as the Joint Range Extension device (JRE). Identify appropriate configurations of user application, DNS and Mobile IP software for use in testing and demonstration. Demo of dynamic TDL/IP integration functionality in lab.

FY 2009 Planned Output: Joint field trial testing between ADNS and JRE, targeting Trident Warrior exercise. Begin transition of system to the ADNS, the transition manager is SPAWAR PMW 160/ADNS Program Office. Finalize configuration and conops documentation. Spiral output is a system based on COTS hardware, Cisco Routers, DNS servers, Mobile IP software that is integrated with the ADNS system.

FY 2010 Planned Output: Complete transition to ADNS and integration into the ADNS configuration. Estimated completion date is Dec 2010. Prepare DAC close-out report.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Omni-Directional Antenna for M156 MI-RAMS (Army)		0.918	0.750

Outcome: Dramatically reduce time on target (mission survivability) and increase mission effectiveness through higher operational reliability in challenging target environments (underwater, urban, littoral, night operations, constrained target sets). Army Combat Engineers and Special Operations Forces may place demolition charges and their M156 Magneto-Inductive Remote Activation Munitions System (MI-RAMS) initiator in any attitude (up, down, sideways) instead of vertically only. The primary outputs and efficiencies to be demonstrated are as follows: (1) 3-Axis Antenna (All Orientation) Antenna for Army/SOF M156 and XM40 MI-RAMS; (2) Technical Data Package suitable for Full Rate Production and (3) Test data to allow a Type Classification Standard decision. The lead service is Army. RDTE Cost Avoidance: $10.000 million; O&S Cost Avoidance: $5.000 million; Manufacturing Cost Avoidance: $5.000 million; Procurement Cost Avoidance: $5.600 million; Fielding Reduction: 3 Years; Procurement Potential: 3,500 units / $7.000 million.

FY 2008 Output: Draft Statement of Work. Draft Test Plan.

FY 2008 Planned Output: Test plan submission, January 15, 2008. Contract Award 2Q FY 2008. Test Item Delivery, 4Q FY 2008. Production Qualification Testing (Start) 1Q FY 2009.

FY 2009 Planned Output: Production Qualification Testing 1Q FY 2009. User Testing, 1Q FY 2009. Type Classification Standard (Milestone C) 2Q FY 2009.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Sinuous Sprial Antenna for the AN/ALQ-211 EW System (SOCOM)		0.728	0.720

Outcome: This project will be a qualification test and evaluation of a new detection antenna for the ALQ-211 Suite of Integrated Radio Frequency Countermeasures (SIRFC) currently being fielded on the Special Operations MH-47G and CV-22 aircraft. SIRFC identifies the location of radio frequency guided threats on the electronic warfare battlefield and the sinuous spiral antenna would significantly enhance the detection of poorly and ambiguously detected threats. The new antenna provides polarization sensitivity allowing SIRFC to better correlate the received signal with its order of battle database, which leads to quicker identification and jamming. Improved sensitivity provided by the sinuous spiral antenna ensures threat detection in all aircraft attitudes; conversely, allows Special Operation aircraft to jam enemy radars in all aircraft attitudes, improves threat geo-location and enhances situational awareness. The RDT&E cost avoidance is $10.000 million and procurement cost avoidance is: $3.000 million.

FY2008 Planned Output: Complete contract for test services; receive test articles; and conduct Phase I - Concept Demonstration.

FY2009 Planned Output: Complete Phase II, Implement, Test & Validation, complete test reports; obtain a Milestone C procurement decision; submit closeout report and initiate production options as applicable.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
FY 2009 Plans			17.973

FY 2009 Plan: The DAC program will continue to fund testing activities on 10 projects executing $11.240 million in FY 2009 funding. Remaining funding will be used to initiate new start DAC projects selected from the FY 2009 DAC proposal process. The FY 2009 final proposal selection process is scheduled for the fourth quarter FY 2008.

C. Other Program Funding Summary Not applicable for this item.

D. Acquisition Strategy The Acquisition Strategy for DAC is as outlined in Title 10. DAC is to provide opportunities for the increased introduction of innovative and cost-saving technology in acquisition programs of the Department of Defense. DAC funding is used to fund testing of commercial and non-developmental items that could result in improvements in performance, affordability, manufacturability, or
operational capability of an existing acquisition program. It is expected that should testing be successful, procurement using the respective current program funding would be used for acquisition.

E. Major Performers Not applicable for this item.

OSD RDT&E COST ANALYSIS (R3)

February 2008

BUDGET ACTIVITY
5 - System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0604051D8Z - Defense Acquisition Challenge Program (DACP)

PROJECT
P051

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
VARIOUS	VARIOUS	VARIOUS										
Subtotal:												

II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Various Projects	TBD	TBD			1-4Q		1-4Q					
Subtotal:												

III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Various Projects	Various			28665	1-4Q	28718	1-4Q	30363	1-4Q		87746	
Subtotal:				28665		28718		30363			87746	

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Various Projects	Various	TBD			1-4Q		1-4Q					
Subtotal:												

Project Total Cost:				**28665**		**28718**		**30363**			**87746**	

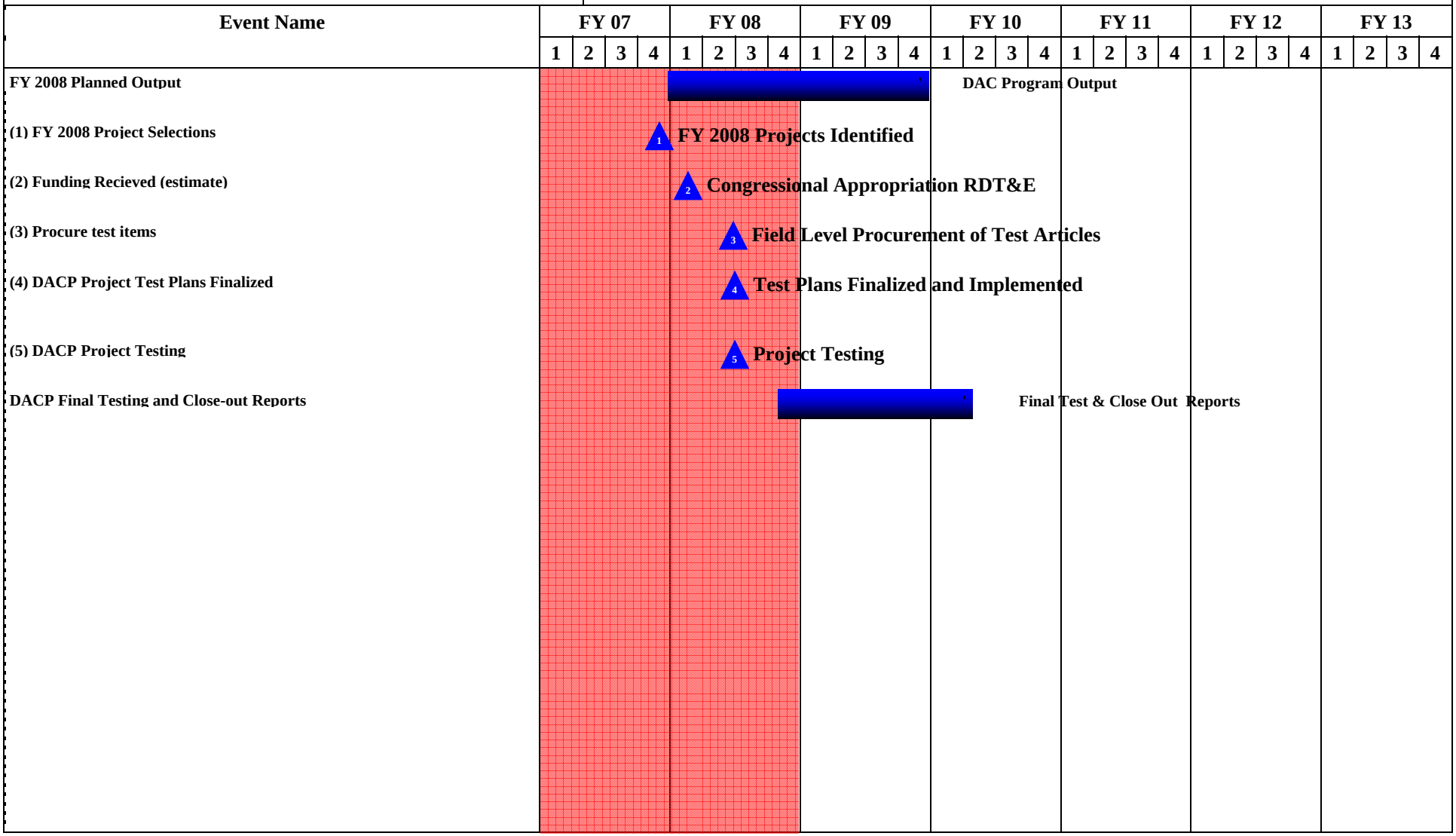
Schedule Profile (R4 Exhibit)

February 2008

BUDGET ACTIVITY
5 - System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0604051D8Z - Defense Acquisition Challenge Program (DACP)

PROJECT
P051



Schedule Detail (R4a Exhibit)

February 2008

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
5 - System Development and Demonstration (SDD)	**0604051D8Z - Defense Acquisition Challenge Program (DACP)**	**P051**

Schedule Detail	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
FY 2008 Planned Output		1Q - 4Q	1Q - 4Q				
FY 2008 Project Selections	4Q						
Funding Recieved (estimate)		1Q					
Procure test items		2Q - 4Q	1Q - 2Q				
DACP Project Test Plans Finalized		3Q - 4Q					
DACP Project Testing		3Q - 4Q	1Q - 4Q	1Q			
DACP Final Testing and Close-out Reports		4Q	1Q - 4Q	1Q - 2Q			

Final selection of FY 2008 DAC new start projects was determined in September 2007. 13 FY 2008 DAC new start projects were funded. Presidential approval of the Congressional appropriation was not accomplished until November 2007. Field level contracts will be rapidly obligated through March 2008. Test plan implementation and product testing will be in full execution through July 2009. Final tests and close-out reports will continue through January 2010. The FY 2009 program will follow the same sequence of events but approximately one year later.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2008

APPROPRIATION/ BUDGET ACTIVITY	PE NUMBER AND TITLE
RDTE, Defense Wide BA 05	**0604161D8Z - Nuclear & Conventional Phys Sec Equip**

COST ($ in Millions)	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
P163 Nuclear & Conventional Phys Sec Equip	11.735	3.252	4.355	4.515	4.524	4.612	4.735

A. Mission Description and Budget Item Justification: The purpose of this program is the system development and validation of conventional and nuclear physical security equipment (PSE) systems for all DoD components. This program supports the protection of tactical, fixed, and nuclear weapons systems, DoD personnel and DoD facilities. The funds are used to provide PSE RDT&E for continuing and evolving individual Service and joint PSE requirements that provide capability in the areas of force protection and tactical security equipment; robotic security systems integration; waterside security systems; explosive detection equipment; locks, safes and vaults; commercial-off-the-shelf (COTS) testing; and nuclear weapons security. A number of RDT&E efforts arising from PE 603161D8Z will transition to this PE for system demonstration and validation. The PSE program is organized so that representatives from the Army, Navy, Air Force, and Defense Threat Reduction Agency (DTRA) monitor, direct and prioritize potential and existing PSE programs through the auspices of the Physical Security Equipment Action Group (PSEAG) and the Security Policy Verification Committee (SPVC). With few exceptions, each Service sponsors RDT&E efforts for technologies and programs that have multi-service application. This program element supports: 1) the Army's PSE RDT&E efforts in the areas of Interior and Exterior Detection, Security Lighting, Security Barriers and Security Display Units; 2) the Air Force's PSE RDT&E effort in the areas of Exterior Detection/Surveillance, Entry Control, Delay/Denial, Tactical Systems and Airborne Intrusion; 3) the Navy's PSE RDT&E efforts in the areas of Waterside Security, Explosive Detection, and improved technology for Locks, Safes and Vaults; and 4) DTRA's PSE RDT&E efforts that enhance the security of Navy and Air Force nuclear assets. The program element also supports all four Services' identification and redesign of developmental, non-developmental, and commercial-off-the-shelf equipment to meet physical security requirements. Activities within this program will seek to reduce risk associated with integrating, fielding, and supporting the equipment once it becomes a part of the overall security system.

B. Program Change Summary	FY 2007	FY 2008	FY 2009
Previous President's Budget (FY 2008)	12.008	3.281	4.332
Current BES/President's Budget (FY 2009)	11.735	3.252	4.355
Total Adjustments	-0.273	-0.029	0.023
Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			
Other	-0.273	-0.029	0.023

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2008

APPROPRIATION/ BUDGET ACTIVITY	PE NUMBER AND TITLE
RDTE, Defense Wide BA 05	**0604161D8Z - Nuclear & Conventional Phys Sec Equip**

C. Other Program Funding Summary Not applicable for this item.

D. Acquisition Strategy Not applicable for this item.

E. Performance Metrics:

FY	Strategic Goals Supported	Existing Baseline	Planned Performance Improvement / Requirement Goal	Actual Performance Improvement	Planned Performance Metric / Methods of Measurement	Actual Performance Metric / Methods of Measurement
08						

Comment: The program performance metrics are established/approved through the DoD Physical Security Equipment Action Group (PSEAG) and the Security Policy Verification Committee (SPVC). The cost, schedule and technical progress of each project is reviewed at quarterly PSEAG and SPVC meetings. Performance variances are addressed and corrective action is implemented as necessary.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2008

APPROPRIATION/ BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
RDTE, Defense Wide BA 05	**0604161D8Z - Nuclear & Conventional Phys Sec Equip**	**P163**

COST ($ in Millions)		FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
P163	Nuclear & Conventional Phys Sec Equip	11.735	3.252	4.355	4.515	4.524	4.612	4.735

A. Mission Description and Budget Item Justification: The purpose of this program is the system development and validation of conventional and nuclear physical security equipment (PSE) systems for all DoD components. This program supports the protection of tactical, fixed, and nuclear weapons systems, DoD personnel and DoD facilities. The funds are used to provide PSE RDT&E for continuing and evolving individual Service and joint PSE requirements that provide capability in the areas of force protection and tactical security equipment; robotic security systems integration; waterside security systems; explosive detection equipment; locks, safes and vaults; commercial-off-the-shelf (COTS) testing; and nuclear weapons security. A number of RDT&E efforts arising from PE 603161D8Z will transition to this PE for system demonstration and validation. The PSE program is organized so that representatives from the Army, Navy, Air Force, and Defense Threat Reduction Agency (DTRA) monitor, direct and prioritize potential and existing PSE programs through the auspices of the Physical Security Equipment Action Group (PSEAG) and the Security Policy Verification Committee (SPVC). With few exceptions, each Service sponsors RDT&E efforts for technologies and programs that have multi-service application. This program element supports: 1) the Army's PSE RDT&E efforts in the areas of Interior and Exterior Detection, Security Lighting, Security Barriers and Security Display Units; 2) the Air Force's PSE RDT&E effort in the areas of Exterior Detection/Surveillance, Entry Control, Delay/Denial, Tactical Systems and Airborne Intrusion; 3) the Navy's PSE RDT&E efforts in the areas of Waterside Security, Explosive Detection, and improved technology for Locks, Safes and Vaults; and 4) DTRA's PSE RDT&E efforts that enhance the security of Navy and Air Force nuclear assets. The program element also supports all four Services' identification and redesign of developmental, non-developmental, and commercial-off-the-shelf equipment to meet physical security requirements. Activities within this program will seek to reduce risk associated with integrating, fielding, and supporting the equipment once it becomes a part of the overall security system.

B. Accomplishments/Planned Program:

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Robotic Security Systems Integration	7.530	1.000	2.025

FY 2007 Accomplishments:
- Conducted Pre-planned Program Improvements (P3I) for Mobile Detection Assessment and Response System (MDARS) for greater sensing distance.
- Increased MDARS speed and response feed to support Remote Detection Challenge and Response (REDCAR).
- Executed a congressional add to develop the Transportable Under Vehicle Inspection System.
- Continued to integrate unmanned systems to meet physical security requirements.
- Continued to manage, develop, evaluate, and test Detection/Assessment/Delay/Denial products.
- Continued to manage sensor and assessment product developments and tests.
- Continued to prepare operational systems improvement plans; develop technology roadmaps, and update system architecture.
- Continued to test, develop, and integrate equipment to improve security and access to facilities.

FY 2008 Plans:

- Refurbish the MDARS patrol unit vehicle.
- Continue Mobile Detection Assessment and Response System (MDARS) modernization effort of Detection-On-The-Move, intrusion detection, and less than lethal capabilities.
- Continue to integrate unmanned systems to meet physical security requirements.
- Continue to manage, develop, evaluate, and test Detection/Assessment/Delay/Denial products.
- Continue to manage sensor and assessment product developments and tests.
- Continue to prepare operational systems improvement plans; develop technology roadmaps, and update system architecture.
- Continue to test, develop, and integrate equipment to improve security and access to facilities.

FY 2009 Plans:
- Continue to integrate unmanned systems to meet physical security requirements.
- Continue to manage, develop, evaluate, and test Detection/Assessment/Delay/Denial products.
- Continue to manage sensor and assessment product developments and tests.
- Continue to prepare operational systems improvement plans; develop technology roadmaps, and update system architecture.
- Continue to test, develop, and integrate equipment to improve security and access to facilities.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Force Protection/Tactical Security Equipment	4.205	2.252	2.330

FY 2007 Accomplishments:
- Continued the spiral development/modernization of the Battlefield Anti-Intrusion System (BAIS).
- Developed BAIS two-way communications capability by developing and testing a Handheld Monitor/Transceiver.
- Continued to manage, develop, evaluate, and test Detection/Assessment/Delay/Denial products.
- Continued to manage sensor and assessment product developments and tests.
- Continued to prepare operational systems improvement plans; develop technology roadmaps, and update system architecture.
- Continued to test, develop, and integrate equipment to improve security and access to facilities.

FY 2008 Plans:
- Continue the spiral development/modernization of the Battlefield Anti-Intrusion System (BAIS).
- Develop BAIS remote sensor activation/deactivation capability.
- Continue to manage, develop, evaluate, and test Detection/Assessment/Delay/Denial products.
- Continue to manage sensor and assessment product developments and tests.
- Continue to prepare operational systems improvement plans; develop technology roadmaps, and update system architecture.
- Continue to test, develop, and integrate equipment to improve security and access to facilities.

FY 2009 Plans:
- Continue the spiral development/modernization of the Battlefield Anti-Intrusion System (BAIS).
- Develop BAIS sensor-to-sensor communications capability.
- Begin Production Qualification Testing (PQT2)of the BAIS.
- Continue to manage, develop, evaluate, and test Detection/Assessment/Delay/Denial products.
- Continue to manage sensor and assessment product developments and tests.

- Continue to prepare operational systems improvement plans; develop technology roadmaps, and update system architecture.
- Continue to test, develop, and integrate equipment to improve security and access to facilities.

C. Other Program Funding Summary Not applicable for this item.

D. Acquisition Strategy Not applicable for this item.

E. Major Performers Not applicable for this item.

OSD RDT&E COST ANALYSIS (R3)

February 2008

BUDGET ACTIVITY
5 - System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0604161D8Z - Nuclear & Conventional Phys Sec Equip

PROJECT
P163

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
MDARS	MIPR	PM-FPS (USA), Ft. Belvoir, VA		4330		1000	1-2Q	2000		Cont.	Cont.	
BAIS	MIPR	PM-FPS (USA), Ft. Belvoir, VA		3970						Cont.	Cont.	
TUVIS (Congressional Add)	MIPR	AFRL (USAF), Tyndall, AFB, FL		2500							2500	
Subtotal:				10800		1000		2000		Cont.	Cont.	

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

III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
BAIS	MIPR	PM-FPS (USA), Ft. Belvoir, VA				2052	1-2Q	1955	1-2Q		4007	
Subtotal:						2052		1955			4007	

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
MDARS	MIPR	PM-FPS (USA), Ft.		320		100	1-2Q		1-4Q		420	

OSD RDT&E COST ANALYSIS (R3)

February 2008

BUDGET ACTIVITY
5 - System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0604161D8Z - Nuclear & Conventional Phys Sec Equip

PROJECT
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		Belvoir, VA										
BAIS	MIPR	PM-FPS (USA), Ft. Belvoir, VA		365		100	1-2Q	200	1-2Q		665	
TUVIS (Congressional Add)	MIPR	AFRL (USAF), Tyndall, AFB, FL		250							250	
MDARS	MIPR	PM-FPS (USA), Ft. Belvoir, VA						200			200	
Subtotal:				935		200		400			1535	
Project Total Cost:				**11735**		**3252**		**4355**		**Cont.**	**Cont.**	

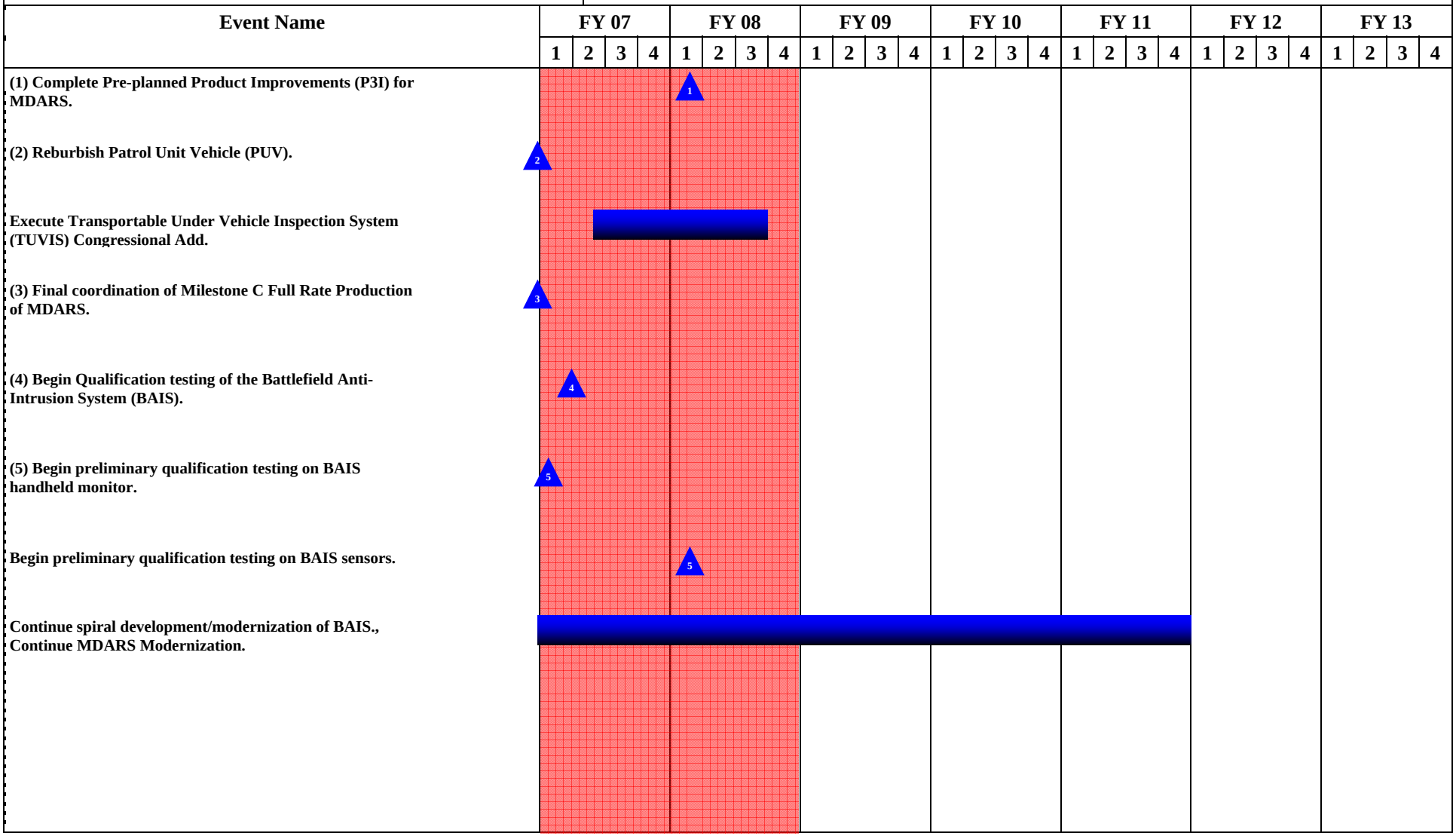
Schedule Profile (R4 Exhibit)

February 2008

BUDGET ACTIVITY
5 - System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0604161D8Z - Nuclear & Conventional Phys Sec Equip

PROJECT
P163



Schedule Detail (R4a Exhibit)

February 2008

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
5 - System Development and Demonstration (SDD)	**0604161D8Z - Nuclear & Conventional Phys Sec Equip**	**P163**

Schedule Detail	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Complete Pre-planned Product Improvements (P3I) for MDARS.		1Q - 4Q					
Reburbish Patrol Unit Vehicle (PUV).	1Q - 2Q						
Execute Transportable Under Vehicle Inspection System (TUVIS) Congressional Add.	2Q - 4Q	1Q - 4Q					
Final coordination of Milestone C Full Rate Production of MDARS.	1Q - 2Q						
Begin Qualification testing of the Battlefield Anti-Intrusion System (BAIS).	2Q - 3Q						
Begin preliminary qualification testing on BAIS handheld monitor.	1Q - 4Q	1Q					
Begin preliminary qualification testing on BAIS sensors.		1Q - 4Q	1Q				
Continue spiral development/modernization of BAIS.	1Q - 4Q	1Q - 4Q					
Continue MDARS Modernization.		1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q	

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2008

APPROPRIATION/ BUDGET ACTIVITY	PE NUMBER AND TITLE
RDTE, Defense Wide BA 05	**0604165D8Z - Prompt Global Strike Program**

COST ($ in Millions)	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
P165 Prompt Global Strike Project		99.364	117.572	170.000	111.997	81.000	82.300

A. Mission Description and Budget Item Justification: This Conventional Prompt Global Strike (CPGS) program element provides resources for technical studies, developments and tests; project support; combatant requirements application; and systems design analyses necessary to establish and execute an integrated CPGS program. This new Defense-Wide program element, managed by the Office of the Secretary of Defense (OSD/AT&L/PSA/Strategic Warfare), consolidates and reduces funding for CPGS efforts as originally requested in PB08 for Navy (Conventional Trident Modification) and Air Force (Common Aero Vehicle (CAV)) programs. Funds in this CPGS program element will be applied to propulsion and guidance systems, mission planning, re-entry vehicle design and experiments, modeling and simulation efforts, command and control, and launch system infrastructure. Additionally, funding may be applied towards efforts such as strategic policy compliance, intermediate range missile concepts, advanced non-nuclear warheads, and other mission enabling capabilities.

B. Program Change Summary	FY 2007	FY 2008	FY 2009
Previous President's Budget (FY 2008)			
Current BES/President's Budget (FY 2009)		99.364	117.572
Total Adjustments		99.364	117.572
Congressional Program Reductions			
Congressional Recissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer		2.782	
Adjustments to Budget Years		0.191	

C. Other Program Funding Summary Not applicable for this item.

D. Acquisition Strategy Not applicable for this item.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2008

APPROPRIATION/ BUDGET ACTIVITY	PE NUMBER AND TITLE
RDTE, Defense Wide BA 05	**0604165D8Z - Prompt Global Strike Program**

E. Performance Metrics:

FY	Strategic Goals Supported	Existing Baseline	Planned Performance Improvement / Requirement Goal	Actual Performance Improvement	Planned Performance Metric / Methods of Measurement	Actual Performance Metric / Methods of Measurement
09	Development of new CPGS technologies (DARPA-AF)		Numbers of benchmarks attained			
09	Development of new CPGS technologies (AF-CSM)		Number of benchmarks attained			
09	Development of new CPGS technologies (Navy)		Number of benchmarks attained			

Comment: Performance metrics for the CPGS program element will be measured against four benchmarks: 1) the ability to develop and implement a balanced and integrated technology program, and/or; 2) the ability to align the material solutions that result from the on-going Prompt Global Strike (PGS) Analysis of Alternatives with technology priorities, and/or; 3) the ability to develop and implement experiments that address top technical risks, and/or; 4) the ability to develop technological solutions which offer a potential for cross-service and cross-concept use.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2008

APPROPRIATION/ BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
RDTE, Defense Wide BA 05	**0604165D8Z - Prompt Global Strike Program**	**P165**

COST ($ in Millions)	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
P165 Prompt Global Strike Project		99.364	117.572	170.000	111.997	81.000	82.300

A. Mission Description and Budget Item Justification: This Conventional Prompt Global Strike (CPGS) program element provides resources for technical studies, developments and tests; project support; combatant requirements applications, and; systems design analyses necessary to establish and execute an integrated CPGS program. This new Defense-Wide program element, managed by the Office of the Secretary of Defense (OSD/AT&L/PSA/Strategic Warfare), consolidates and reduces funding for CPGS efforts as originally requested in PB08 for both Navy (Conventional Trident Modification) and Air Force (Common Aero Vehicle (CAV)) programs. Funds in this CPGS program element will be applied to propulsion and guidance systems, mission planning, re-entry vehicle design and experiments, modeling and simulation efforts, command and control, and launch system infrastructure. Additionally, funding may be applied towards efforts such as strategic policy compliance, intermediate range missile concepts, advanced non-nuclear warheads, and other mission enabling capabilities.

B. Accomplishments/Planned Program:

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
DARPA-Air Force FALCON/Hypersonic Test Vehicle (HTV-2) Demonstration		22.652	11.000

This sub-project describes the Defense Advanced Research Projects Agency (DARPA) effort (in conjunction with the Air Force) to develop technologies and assess capabilities that could potentially enable transformational changes in the arena of global, time critical strike. The goal of this experiment is to: assess vehicle technologies, and; to exercise the ability to use a high-payload capacity system which may demonstrate responsive global reach against high value targets. Specific efforts include:
-Continue systems engineering/development and assembly, integration and test (AI&T) of two HTV-2 demonstration vehicles
-Continue flight test planning and support
-Integrate HTV-2 vehicles with Minotaur IV Lite Launch Vehicles and conduct two broad ocean area (BOA) impact flight test demonstrations
-Perform analysis of the military utility of vehicle performance with respect to thermal protection materials, aerodynamics and control surfaces, as well as navigation, guidance and control (NG&C)

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Air Force Conventional Strike Missile (CSM) Technology Development		9.639	36.572

This sub-project supports Air Force Conventional Strike Missile (CSM) technology development, and will assess the feasibility of producing an affordable solution to fill the CPGS capability gap. It will mature technologies that could lead to a system capable of global reach from Continental United States (CONUS) with the following characteristics: effects on targets in a very short-period of time from execution order; non-ballistic flight over the majority of the flight path; positive control from launch to impact; adequate cross-range/manueverability to avoid overflight issues; controlled stage drop over BOA, and; provides for in-flight target updates. The technologies developed will have cross-service and cross-concept applicability and will be developed through close coordination among DoD components. CSM elements include:
-expendable launch vehicle

-payload delivery vehicle
-payload munitions
In FY08, activities include initial J-series weapons modifications to test feasibility against representative targets, initial payload delivery vehicle technology development, policy compliance, and operational requirements validation.
In FY09, CSM technology activities will: complete the study of strategic policy compliance to include CPGS basing alternatives and measures to avoid misinterpretation of intent; complete initial design concept for the CSM Payload Delivery Vehicle to include thermal protection materials, guidance systems, mission planning, and command and control; complete qualification of a Minotaur launch vehicle for a CPGS mission analysis of launch system infrastructure requirements utilizing other ballistic missile propulsion programs, and; mature/demonstrate technologies associated with the high-speed dispense of conventional munitions (to include the complete qualification of selected off-the-shelf munitions for CSM flight environments by the testing of selected munitions against selected targets).

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Navy CPGS Technology Refinement and Demonstration		59.280	65.000

This sub-project supports Navy CPGS technology development and will assess the feasibility of producing an affordable solution (i.e., ballistic missiles from an underwater environment) to fill the CPGS capability gap. It will assess CPGS technologies that could lead to a weapon system with the stealth, availability, accuracy and rapid response of today's ballistic missiles. The technologies developed will have cross-service and cross-concept applicability and will be developed through close coordination among DoD components. In FY09, a CPGS Flight Experiment (FE1) using a Life Extension Test Bed (LETB-2) re-entry body (RB) will be conducted using a currently planned TRIDENT II (D5) missile flight to demonstrate communication and telemetry link overhead for future experiments. In preparation for the FY09 FE1, FY08 activities will involve: test completion and delivery of flight software; assembly and integration of components into LETB-2; fabrication and delivery of heatshield, nosetips and flaps, and; assembly and delivery of power distribution unit and telemetry systems. In addition, two other CPGS technology efforts will be pursued/developed in FY09 to support a future (FY11 timeframe) Flight Experiment (FE2) utilizing a Sandia STARS A3 launch vehicle: the Medium Lift Re-Entry Body (MLRB), and; Warhead and Fuze (WF). For MLRB, deliverables in FY09 include: completion of detailed design, and; an 80% completion of RB software modules. For WF, deliverables include completion of the following items: Kinetic Energy Projectile (KEP) warhead static test; KEP and penetrator lethality modeling; full-scale penetrator gun test; KEP/aeroshell interaction test; KEP warhead arena test, and; KEP warhead sled test number one.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
OSD CPGS Studies		7.793	5.000

This sub-project supports emergent CPGS study efforts as directed by OSD/AT&L/PSA/Strategic Warfare. In addition, it also supports application of the Prompt Global Strike Analysis of Alternatives results, requirements development, CPGS basing alternatives, and measures to avoid misinterpretation on launch. Finally, it supports administrative activities associated with the execution of this PE.

C. Other Program Funding Summary	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
DARPA FALCON (PE 63285E)		50.000	50.000				

Comment: With this associated program element (PE 63285E), and under a Memorandum of Agreement with the Air Force and Office of the Secretary of Defense (OSD), DARPA will develop technologies which demonstrate capabilities that will enable transformational changes in the arena of CPGS. Developing and transitioning technologies with cross-service and cross-concept applicability is a major objective of the Force Application from CONUS (FALCON) program. As part of the FALCON, DARPA is

executing the final phase (Phase III) of the Hypersonic Test Vehicle (HTV-2) effort under which two HTV-2 vehicles will be fabricated, assembled, integrated with Minotaur IV Light launch vehicles and launched from Vandenberg Air Force Base in CY09. After launch, the HTV-2 vehicle will separate from the launch vehicle and fly a hypersonic glide trajectory to a broad-ocean area (BOA) impact near the Reagan Test Site at Kwajalein Atoll in the Pacific, thus demonstrating long-duration thermal protection system and advanced aerodynamic control features.

D. Acquisition Strategy This program element provides resources for technical studies, developments, and tests; project support; combatant requirements application; and systems design analyses necessary to establish and execute an integrated Prompt Global Strike (PGS) program. These efforts will produce: a five-year DoD plan for requirements, development and procurement; a DoD-wide coordinated assessment of kinetic non-nuclear system and operations concepts in a manner that supports planning, budgeting, and execution of further system concept development and procurement by the Services; resources for technical and operations projects and research, development and test and evaluation in such areas as PGS risk mitigation, strategic policy compliance, mission planning, reentry system thermal protection, advanced propulsion, advanced payload delivery and dispensing mechanisms, weapon system command and control, advanced non-nuclear warheads, modeling and simulation, launch system infrastructure, and other enabling capabilities that address emerging mission requirements.

E. Major Performers Not applicable for this item.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2008

APPROPRIATION/ BUDGET ACTIVITY	PE NUMBER AND TITLE
RDTE, Defense Wide BA 05	**0604709D8Z - Joint Robotics EMD**

COST ($ in Millions)		FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
P609	Joint Ground Robotics Enterprise (JGRE) SDD	9.721	6.851	5.725	5.212	4.245	3.242	3.111

A. Mission Description and Budget Item Justification: (U) This Program Element (PE) was established in response to Congressional guidance to consolidate DoD robotic programs on unmanned ground systems and related robotic technologies in order to increase focus of the Services' robotic programs on operational requirements. Technologies in the PE support the continued development of technologies in Budget Activity 4 (PE 0603709D8Z) in order to continue to make technology transitions and transformations to close the warfighter requirement capability gap. The program ensures coordination between the Services and places emphasis on interoperability and commonality among unmanned ground systems. This PE continues the effort to overcome technology barriers in the thrust areas of unmanned ground system technologies to include Autonomous & Tactical Behaviors, Manipulation Technologies, Collaborative Operations, Interoperability, Man-portable Unmanned Ground System Technologies, and Technology Transition/Transformation. The vision of this support is for the Joint Ground Robotics Enterprise (JGRE) to support the development and fielding of a family of affordable and effective mobile ground robotic systems; develop and transition technologies necessary to meet evolving user requirements, and serve as a catalyst for insertion of robotic systems and technologies into the force structure. The PE supports the need to integrate technologies into representative models or prototype systems in a high fidelity and realistic operating environment and expedite technology transition from the laboratory to operational use. Emphasis is on proving component and subsystem maturity prior to integration in major and complex systems and may involve risk reduction initiatives. Within this PE, funded projects will continue the delivery of responses to advanced technology needs directed at enhancing the warfighters' capabilities identified during concept development, operational assessments and field feedback of current unmanned systems.

All actions under this PE are within BA 5 and are identified with one project number.

B. Program Change Summary	FY 2007	FY 2008	FY 2009
Previous President's Budget (FY 2008)	9.947	2.911	
Current BES/President's Budget (FY 2009)	9.721	6.851	5.725
Total Adjustments	-0.226	3.940	5.725
Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			
Other	-0.226	3.940	5.725

C. Other Program Funding Summary	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013

PE0603711D8Z (BA3) Joint Robotics Program/Autonomous Systems	7.700	11.256	8.477	9.414	10.580	11.782	14.120
PE 0603709D8Z (BA4) Joint Ground Robotics Enterprise (JGRE) ACD&P	22.978	11.860	11.867	12.119	12.389	12.711	13.041

Comment:

D. Acquisition Strategy The Joint Ground Robotics Enterprise (JGRE) utilizes several contracting and management strategies to achieve its objectives. JGR has established relationships with the several agencies to include the National Center for Defense Robotics (NCDR) and the Army s Rapid Equipping Force (REF) to support the rapid acquisition and evaluation of promising unmanned system technologies.

Funding is provided to Service lab partners and other developers to promote common technology solutions across platforms and Services.

Beginning in FY08, JGRE will encourage the establishment of a robotics consortium to broaden the research and development of robotics technologies.

E. Performance Metrics:

FY	Strategic Goals Supported	Existing Baseline	Planned Performance Improvement / Requirement Goal	Actual Performance Improvement	Planned Performance Metric / Methods of Measurement	Actual Performance Metric / Methods of Measurement
08						

Comment: Metrics for the Joint Ground Robotics Enterprise (JGRE) funded Research, Development, Test & Evaluation (RDT&E) are articulated in individual project plans used to form the basis of funding justification and program assessment. These decisions are supported by the JGRE Technology Advisory Board (TAB). The TAB provides technology to capability matrix assessments to inform funding decisions, provide inputs to unmanned system (UMS) roadmaps and ensure technology transitions. In all document sets, project descriptions include task schedules with associated milestones, against which progress toward end goals can be measured. At the level of the performer, efforts are tracked using project technical and management milestones that have been appropriately defined and agreed upon in the project plans. At the enterprise level, the JGRE management structure and process tracks deliverables and examines the transition of technologies and ideas from the performer to DoD programs. The JGRE management structure and process includes a mid-year in progress review (IPR), annual funding justification and prioritization, technology assessments, a senior Military Council and a Senior Steering Group (SSG) overview. These DoD participant reviews include cost, schedule, and technical progress assessment against the project milestones. Metric evaluations for the funded actions include, where appropriate, controlled trials, demonstrations, quasi-experimental evaluations, and direct/indirect analysis.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2008

APPROPRIATION/ BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
RDTE, Defense Wide BA 05	**0604709D8Z - Joint Robotics EMD**	**P609**

COST ($ in Millions)		FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
P609	Joint Ground Robotics Enterprise (JGRE) SDD	9.721	6.851	5.725	5.212	4.245	3.242	3.111

A. Mission Description and Budget Item Justification: (U) This Program Element (PE) was established in response to Congressional guidance to consolidate DoD robotic programs on unmanned ground systems and related robotic technologies in order to increase focus of the Services' robotic programs on operational requirements. Technologies in the PE support the continued development of technologies in Budget Activity 4 (PE 0603709D8Z) in order to continue to make technology transitions and transformations to close the warfighter requirement capability gap. The program ensures coordination between the Services and places emphasis on interoperability and commonality among unmanned ground systems. This PE continues the effort to overcome technology barriers in the thrust areas of unmanned ground system technologies to include Autonomous & Tactical Behaviors, Manipulation Technologies, Collaborative Operations, Interoperability, Man-portable Unmanned Ground System Technologies, and Technology Transition/Transformation. The vision of this support is for the Joint Ground Robotics Enterprise (JGRE) to support the development and fielding of a family of affordable and effective mobile ground robotic systems; develop and transition technologies necessary to meet evolving user requirements, and serve as a catalyst for insertion of robotic systems and technologies into the force structure. The PE supports the need to integrate technologies into representative models or prototype systems in a high fidelity and realistic operating environment and expedite technology transition from the laboratory to operational use. Emphasis is on proving component and subsystem maturity prior to integration in major and complex systems and may involve risk reduction initiatives. Within this PE, funded projects will continue the delivery of responses to advanced technology needs directed at enhancing the warfighters' capabilities identified during concept development, operational assessments and field feedback of current unmanned systems.

All actions under this PE are within BA 5 and are identified with one project number.

B. Accomplishments/Planned Program:

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
(U) Autonomous & Tactical Behaviors	1.677	1.687	0.923

FY2007 Accomplishments:

* Continued development of MDARS-Expeditionary as the Unmanned Ground Vehicle (UGV) for the Family of Rapid Response Equipment (FIRRE) - provide a semi-autonomous, high speed, cross-country, detection, persistent surveillance and response capability for forward deployed forces.
* Established a structured procedure for the assessment of existing modeling and simulation (M&S) tool sets supporting robotics development and fielding
* Initiated tasks to automate functions necessary for activating robotic response to sensor stimuli: increase sensor data fusion for system automation and platform autonomy and reduce operator reaction requirements.
* Initiated effort to develop a Detection on the Move - capability for employment of ground robots in the defensive battle space: increase system autonomy and effectiveness and enhance the system situational awareness (SA).
* Demonstrated UGV technology maturity for teleoperation, semi-autonomous operation and full autonomous operations for logistics support allowing unmanned on- and off-road reconnaissance, unmanned medical evacuations, or unmanned perimeter patrolling operations.
* Continued development of advanced mission planning and programming via Robotics for Agile Combat Support.
* Continued development and implementation of JAUS compliance - Integrate JAUS into Simulation Systems for experimentation/validation.

* Continued development of autonomous unmanned ground robotic vehicles via the 2007 Intelligent Ground Vehicle Competition (IGVC).
* Developed UAV autonomous positioning algorithms for optimizing extended communications between the operator, UAV, and multiple UGVs
* Battlefield Extraction Assist Robot (BEAR) - completed titanium steel upper torso and upper limbs to included hydraulics and JAUS compliant control algorithms for Operational Prototype: tracked laboratory prototype 4 completed.
* Demonstrated Convoy Active Safety Technologies (CAST)

FY 2008, 2009 and 2010 Plans: Support the development of vehicle onboard intelligence and tactical behaviors to allow the fielding of advanced autonomous unmanned systems. Baseline user identified mission scenarios to develop operational behaviors enabling unmanned operations within the conduct of mission tasks. Increase the warfighter's capability by transferring and developing technologies that will have an immediate impact on the autonomy and functional capabilities of current and future robotic systems. Enable transitioning of technologies appropriate for small robots from the technology transfer program to fielded systems. Plans include:

* Support development of specifications for a standardized modeling and simulation (M&S) tool suite to support DoD robotics programs.
* Human Presence and Detection
* Covert Tracking Robots/Sensors
* Tactical Behaviors for EOD Robots - Cooperative Robotics
* Battlefield Extraction - Assist Robot (BEAR)
* Autonomous Robotics Countermine Experiment 2 (ARC2)
* Convoy Active Safety Technologies (CAST)
* Decon II - Joint Forward Area Automated Decontamination (JDAAD)

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
(U) Manipulation Technologies	1.624	0.664	0.721

FY2007 Accomplishments:
* Initiated robotic program to integrate a manipulator and commercially available tools to automate the five stages of vehicular decontamination, a manpower intensive, dirty and dangerous mission for military units.
* Continued development of manipulation and navigation maturity via the 2007 IGVC.
* Continued development the Joint Architecture Unmanned System (JAUS) manipulator capability beyond core capabilities to advanced manipulation control support via Robotics for Agile Combat Support.
* Continued support for concept exploration and demo, and ongoing technical and operational assessment for systems deployed.
* Supported limited objective experiments, feasibility demonstrations, and concept exploration projects.
* Continued robotic payload development.
* Battlefield Extraction Assist Robot (BEAR) - Completed initial design and modeling of independently articulated lower tracked/wheeled limb combinations
* Completed MTRS Hand Tool design, drawing package, testing, and produced two production representative model kits.

FY 2008, 2009 and 2010 Plans: Incorporate existing technologies into systems representative to those in use, demonstrate ease of robotic manipulation, support the development of mobile manipulation, expedite the transition and integration of corresponding robotic technologies to enhance the current fielded systems with more functionalities, autonomy and state-of-the-art behavior with interface methods from the RTD&E environment. Plans include:

* Warfighter Experimentation/Exercises
* Mobile Robot Knowledge Base (MRKB)
* MTRS Continuous Improvement Program

* Autonomous Robotic Countermine System Capability (ARCS2)

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
(U) Collaborative Operations	1.511	0.852	0.665

FY2007 Accomplishments:

* Initiated program to extend the JAUS world model message specification to incorporate true three dimensional information to enable UAV and UGV JAUS compliant collaborative capabilities.
* Initiated research to extend the dynamic discovery of JAUS to support UAV and UGV collaborations. This functionality will support a mission planner module in the performance of centralized automated mission decomposition and tasks allocations.
* Continued development and implementation of JAUS as a set of standardized messages suitable for controlling all types of unmanned systems, and becoming an Aerospace Standard of the Society of Automotive Engineers (SAE) via the 2007 IGVC.
* Continued development of JAUS-based technologies for collaborative missions using semi-autonomous unmanned assets.
* Integrated JAUS into Simulation Systems for experimentation/validation.
* Demonstrated and validated support for all unmanned system types.
* Demonstrated Convoy Active Safety Technologies (CAST)
* Initiated CAST-FMTV Robotic System computing architecture upgrades
* Battlefield Extraction Assist Robot (BEAR) - Completed General Mechanical Interface (GFI) to enable BEAR to attach itself to TAGS-CX UGV for transportation to battle and for battery recharging.

FY 2008, 2009 and 2010 Plans: Integrate communication, mission planning, interface technologies, and advanced intelligence capabilities to support collaborative operations between manned and unmanned systems. Develop and assess several strategies to enhance tele-operation of current UGVs and collaborative UAV teams. Collaborative and tactical behaviors include system convoying, teamed obstacle avoidance, area perception and relative position information sharing. Plans include:

* Expeditionary Mobile Detections and Response System (MDARS)
* Maritime and Perimeter Security Systems
* Warfighter Experimentation/Exercises
* Mobile Robot Knowledge Base (MRKB)
* Convoy Active Safety Technologies (CAST)

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
(U) Interoperability	1.676	1.057	0.810

FY2007 Accomplishments:

* Established a structured procedure for the assessment of existing modeling and simulation (M&S) tool sets supporting robotics development and fielding
* Furthered the integration of future sensors and weapons.
* Continued research and experimentation of unmanned vehicles, sensors, simulation, training, demonstration, and information distribution.
* Initiated a joint exercise effort to aid in producing ground robotic lessons learned and draft tactics, techniques and procedures for the operation of multiple robotic platforms.

* As part of the joint exercise effort, began to leverage funded AMRDEC project to develop autonomous collaborative behaviors between teamed unmanned ground robots in movement to observe, challenge and engage intruders into protected zones.
* Continued JAUS compliance within projects such as Family of Rapid Response Equipment (FIRRE).
* Supported refinement of and transition of documentation for Joint Architecture for Unmanned Systems (JAUS) to a Society of Automotive Engineers (SAE) standard.
* Initiated joint program to integrate the NASA developed Robonaut dual manipulator modeling, simulation and control software, Actin, onto the Battlefield Extraction Assist Robot (BEAR).
* Initiated program to integrate BEAR robot with UGV TAGS-CX to demonstrate marsupial transport and collaborative operations.
* BEAR - completed integration of Anthrotronix Isometric Controller Grip (IGC) (M4 rifle) and Instrumented Glove (iGlove) Tactile glove robot controller.
* BEAR - completed design and initial lab prototype of tri-band ultra wide band (UWB) chip to enable connection to a secure mesh network for tactical wireless communications.
* BEAR - Initiated design and development of stand-off casualty assessment and remote triage sensors.

FY 2008, 2009 and 2010 Plans: Promote and guide technology development to meet joint requirements and promote ground as well as air unmanned systems interoperability. Support the bridging of currently incompatible robots and controllers from various manufacturers, using different communications channels and hardware. Optimize best features of prior/ongoing research efforts into a maturing, standardized system that can be easily ported to robotic platforms used DoD-wide. Plans include:

* Conduct a comprehensive assessment of modeling and simulation (M&S) tool sets supporting robotics development and fielding.
* Support development of specifications for a standardized modeling and simulation (M&S) tool suite to support DoD robotics programs.
* Advanced Control Schemes for EOD Robotics
* Tactic, Techniques and Procedures (TTP) and Lessons Learned - Identification, documentation, and distribution of information regarding best practices for employment of ground robotic systems.
* Large UGV (LUGV) Standard Robotic System
* Warfighter Experimentation/Exercises
* Mobile Robot Knowledge Base (MRKB)

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
(U) Man-Portable Unmanned Ground System Technologies	1.668	1.351	1.261

FY2007 Accomplishments:

* Continued the Analysis of Alternatives (AoA) for a Next Generation EOD Robotic System (NGEODRS) acquisition program - operational effectiveness, suitability, and life-cycle cost of alternatives.
* Continued development of the Man Transportable Robotic System (MTRS) as a acquisition program of record (ACAT IV-M).
* Supported testing on distributed communications system targeted for a Man-Portable Robotic System (MPRS).
* Continued development and implementation of JAUS compliance.
* Supported development, fielding and life cycle development of systems deployed for IED defeat missions.
* Provided support to multiple joint acquisition programs, technology development and assessment programs, and COTS spiral fielding and assessment programs to support current military operations.
* Continued concept exploration and demo and continuing technical and operational assessment for systems deployed and in spiral.

FY 2008, 2009 and 2010 Plans: Increase the warfighter's capability by transferring and developing technologies that will have an immediate impact on the functional capabilities of man-portable robotic systems. Enable transitioning of technologies appropriate for small robots from the technology transfer program to fielded systems. Specific technologies include obstacle detection/obstacle avoidance (ODOA) and collaborative behaviors for small vehicles. Plans include:

* Robotic EOD Technologies
* Advanced Control Schemes for EOD Robotics
* Robotic for Airbase Operations and Support
* Warfighter Experimentation/Exercises
* Mobile Robot Knowledge Base (MRKB)

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
(U) Technology Transition/Transformation	1.565	1.240	1.345

FY2007 Accomplishments:

* Facilitated development and maintenance of the Robotic Systems Pool (RSP).
* Provided robotic platforms and technical support to leverage several research and development projects across DoD and supportive of unmanned system developments, including: EOD robot range extension; Automatically Deployed Communication Relay (ADCR); RedOwl sniper detection; JAUS software integration; PackBot health-monitoring and ultracell fuel-cell for small unmanned ground vehicles.
* Provided robotic systems and technical support to the Joint Training and Evaluation Center, Camp Guernsey Robotic Outreach Program
* Provided robotic platforms to support Warfighter Experimentation and Concept Development including: RDECOM-TARDEC Dismounted Controller Experimentation and Product Manager, Force Protection Systems (PM-FPS) Family of Integrated Rapid Response Equipment (FIRRE) demonstration.
* Initiated development of the Ground Robotics Web Portal for technology transfer.
* Continued upgrades/improvements that focus on the capabilities of disruption, disposal, and render-safe procedures and nuclear, chemical, and biological agent detection.
* Supported the conduct of research to determine the feasibility of implementing robotics in military logistic systems and to explore potential applications for exploiting agile robotic technologies in military logistics.
* Supported continued development and implementation of JAUS compliance.
* Continued technology development and transition efforts within industry and academia for sensors, artificial intelligence, processors, and human/computer interaction, and defining a strategy for early research and development.
* Provided support to multiple joint acquisition programs, technology development and assessment programs, and COTS spiral fielding and assessment programs to support current military operations.
* Continued Current Operations Repair Analysis (CORA) for deployed systems.
* Continued to support fielding and support of RCSS COTS systems to War on Terrorism forces.

FY 2008, 2009 and 2010 Plans: Facilitate integration of and ensure the ultimate transfer or transformation of technologies to ongoing programs. Exploit the best features of past and on-going efforts while supporting the development of technologies that have low risk to transition. Technologies of interest include: Interface Technologies (Human Robot Interaction), Autonomous Operations (Information Fusion, Perception, and Navigation), Autonomous Technologies (Positioning), and Platform Technologies. Plans include:

* Conduct a comprehensive assessment of modeling and simulation (M&S) tool sets supporting robotics development and fielding.
* Mobile Robot Knowledge Base (MRKB)
* COCOM Ground Robotics Initiatives

* Battlefield Extraction _ Assist Robot (BEAR): Development and Testing of the BEAR operational prototype, demonstrate progress towards BEAR operational prototype, Milestone B decision, transition to Program of Record (POR).
* Autonomous Robotic Countermine System Capability (ARCS2)
* Man Transportable Robotic System (MTRS)
* Convoy Active Safety Technologies (CAST)
* Warfighter Experimentation/Exercises

C. Other Program Funding Summary	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
PE 0603711D8Z (BA3) Joint Robotics/Autonomous Systems	7.700	11.256	8.477	9.414	10.580	11.782	14.120
PE 0603709D8Z (BA4) Joint Ground Robotics Enterprise (JGRE) ACD&P	22.978	11.860	11.867	12.119	12.389	12.711	13.041

Comment:

D. Acquisition Strategy The Joint Ground Robotics Enterprise (JGRE) utilizes several contracting and management strategies to achieve its objectives. JGR has established relationships with the several agencies to include the National Center for Defense Robotics (NCDR) and the Army's Rapid Equipping Force (REF) to support the rapid acquisition and evaluation of promising unmanned system technologies.

Funding is provided to Service lab partners and other developers to promote common technology solutions across platforms and Services.

Beginning in FY08, JGRE will encourage the establishment of a robotics consortium to broaden the research and development of robotics technologies.

E. Major Performers

Category	Name	Location	Type of Work and Description	Award Date
Labs/Centers				
	Air Force Research Laboratory (AFRL)	Tyndall AFB, FL	Program Management, Systems Engineering.	
	AMRDEC	Redstone Arsenal, AL	Program Management, Systems Engineering. U.S. Army Aviation and Missile Research, Engineering, and Development Center (AMRDEC).	
	TARDEC	Detroit, MI	Program Management, Systems Engineering. U.S. Army Tank Automotive Research, Development and Engineering Center (TARDEC)	

Contractors				
	National Center for Defense Robotics (NCDR)	Pittsburg, PA	Program Management.	
Other				
	Program Manager Force Protection Systems (PM FPS)	Fort Belvoir, VA	Program Management, Systems Engineering.	
	Naval Explosive Ordnance Disposal Technology Div	Indian Head, MD	OSD Executive Agent for joint service EOD R&D. Program Management. Naval Explosive Ordnance Disposal Technology Division (NAVEODTECH).	
	Robotic Systems Joint Project Office (RS JPO)	Redstone Arsenal, AL	Joint Office Program Management.	
	SPAWAR	San Diego, CA	Program Management, Systems Engineering. Space and Naval Warfare [SPAWAR] Systems Center, San Diego (SSC San Diego).	

OSD RDT&E COST ANALYSIS (R3)

February 2008

BUDGET ACTIVITY
5 - System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0604709D8Z - Joint Robotics EMD

PROJECT
P609

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Air Force				3019	1-4Q						3019	
Navy				1390	1-4Q						1390	
Army				1464	1-4Q	3940					5404	
Subtotal:				5873		3940					9813	

II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Joint Group Robotics Enterprise Support				1728		2911	1-4Q	5725	1-4Q		10364	
Subtotal:				1728		2911		5725			10364	

III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:												

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Joint Group Robotics Enterprise Support				2120	1-4Q						2120	
Subtotal:				2120							2120	

OSD RDT&E COST ANALYSIS (R3)

February 2008

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
5 - System Development and Demonstration (SDD)	**0604709D8Z - Joint Robotics EMD**	**P609**

Project Total Cost:		**9721**		**6851**		**5725**			**22297**	

Schedule Profile (R4 Exhibit)

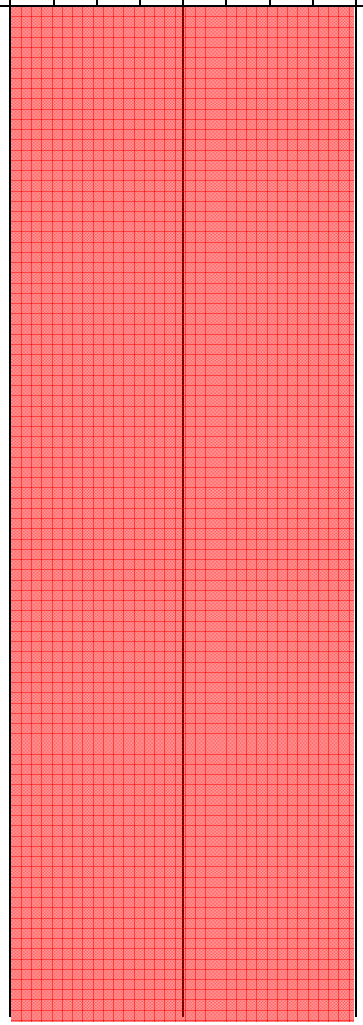
February 2008

BUDGET ACTIVITY
5 - System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0604709D8Z - Joint Robotics EMD

PROJECT
P609

Event Name	FY 07				FY 08				FY 09				FY 10				FY 11				FY 12				FY 13			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4



Schedule Detail (R4a Exhibit)

February 2008

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
5 - System Development and Demonstration (SDD)	**0604709D8Z - Joint Robotics EMD**	**P609**

Schedule Detail	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
MTRS PSVM T&E							
Human Presence and Detection		2Q - 4Q	1Q - 4Q	1Q - 4Q			
MTRS PRM T&E							
Battlefield Extraction - Assist Robot (BEAR)		1Q - 4Q	1Q - 4Q				
Battlefield Extraction - Assist Robot Proof of Concept Feasibility Demonstration			3Q				
Autonomous Robotic Countermine (ARCS2)		1Q - 4Q	1Q - 4Q				
Autonomous Robotics Countermine Experiment		3Q					
Covert Tracking Robots/Sensors		1Q - 4Q	1Q - 4Q	1Q - 4Q			
Tactical Behaviors for EOD Robots		1Q - 4Q	1Q - 4Q				
MTRS AAP PROD DEC							
RONS CIP							
Next Gen EOD RCV							
EOD Cooperative Robotics	1Q - 4Q	1Q - 4Q	1Q - 4Q				
Convoy Active Safety Tech. (CAST)		2Q - 4Q	1Q - 4Q				
Joint Forward Area Automated Decontamination (JDAAD)		2Q - 4Q	1Q - 4Q				
Joint Collaborative Technology Experiment		1Q - 4Q	1Q - 4Q				
Integration of Access and Forced Entry Tools on Small UGVs		2Q - 4Q	1Q - 2Q				

Exhibit R-2, RDT&E Budget Item Justification						Date: February 2008	
Appropriation/Budget Activity RDT&E DW/BA 05			R-1 Item Nomenclature: Common Joint Tactical Information/0604771D8Z				
Cost ($ in millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total PE Cost	7.946	16.384	20.600	20.757	21.078	21.414	21.741
Link-16 Tactical Data Link (TDL) Transformation/P771	7.946	16.384	20.600	20.757	21.078	21.414	21.741

A. Mission Description and Budget Item Justification:

The P771 program was developed to transform Joint Tactical Data Links (TDLs) (primarily the J Series of Link 16, Link 22, and the Variable Message Format) to comply with the Department's Net-Centric Operations Warfare (NCOW) vision. The program encapsulates the Department's needs for joint and combined network-enabled capabilities for TDLs and is being expanded to assess and transform other data link communications, such as the Common Data Link (CDL) and Weapons Data Link (WDL), to the NCOW standards, as deemed appropriate. The implementation of these network capabilities into the data link environments will enhance the decision cycle between sensor-to-shooter; providing an information-superior, shared environment that will enhance combat power by increasing speed of command, higher tempo of operations, greater lethality, increased survivability, and self synchronization. This transformation must balance the needs of the warfighter communities with the standards of NCOW. For example, the future stealth platforms have Low Observable (LO) data links in development, thus there is a need to address Joint LO data link capabilities in the NCOW migration strategy.

The funds provided by this budget request were used in 2007 to ensure the timely implementation of the NCOW by incorporating these network-enabling capabilities into the Joint Tactical Data Enterprise Services (TDES) Migration Plan (JTMP). This update of the JTMP to include network-enabling capabilities was also staffed and approved by the Joint Requirements Oversight Council (JROC), Allied/Coalition partners and the NATO C3 Board as critical to transformation of the data links. Starting this funding period, the JTMP will be used as a baseline to support the Office of the Secretary of Defense (OSD) in further analyzing the validated warfighter capability needs for the primary TDL and CDL communications across the full set of mission areas in order to identify possible solutions to meet those needs across the range of Doctrine, Organization, Training, Material, Leadership, Personnel and Facilities (DOTMLPF) and assess the synchronization planning and capability delivery management activities to support the Joint NCOW and Joint Net-Centric Operations (JNO) objectives. This will include assessing the integrated joint airborne architecture, conducting risk assessments of NCOW programs, assessing NCOW program dependencies, and ensuring adherence to the GIG enterprise wide technical baseline. The JNO will work with the Services in this near-term analysis and with our Allied/Coalition partners in future analysis to validate the acquisitions and fielding plans needed to obtain the Department's NCOW objectives. In addition, the current assessment will incorporate the CDL family of tactical Intelligence, Surveillance, and Reconnaissance (ISR) communications systems, including the systems in used with Unmanned Aerial Vehicles (UAVs) and the Integrated Broadcast Service (IBS), with subsequent year's funding being used to expand the JTMP to include the results of this CDL analysis. A final area to be added will focus on the development of network-enabled weapons.

The program will continue to fund the development of spectrum management and oversight for the TDES systems, and to fund for the coordination of these development efforts with the Services and other US and International spectrum management agencies, including the Federal Aviation Agency (FAA) and National Telecommunications and Information Administration (NTIA), to obtain Link 16 spectrum certification. In

Exhibit R-2, RDT&E Budget Item Justification	Date: February 2008
Appropriation/Budget Authority RDT&E DW/BA 05	R-1 Item Nomenclature Common Joint Tactical Information/0604771D8Z

addition, funding will continue to be used to support the Defense Information System's Agency's (DISA) and Services' interoperable improvement efforts and processes in the development of common NCOW standards and protocols. This effort includes initiating the Joint Interoperability Enhancement Process (IEP) that allows operators, engineers, and program managers to verify capabilities and identify issues in a design with Joint /Allied units prior to system fielding, or with fielded systems to identify required systems changes for systems upgrade planning. DISA will lead the effort to transform the current standards and interoperability management tools to a common set of Joint network-enabled standards to ensure adherence to the GIG enterprise wide technical baseline and for implementation of future TDES capabilities. These joint standards, protocols, and processes will be used for implementation and testing to ensure the TDES capabilities are synchronized with the development and integration timelines of other planned network-enabled Global Information Grid (GIG) initiatives. The threats to the networking waveforms and the Joint NCOW migration will also be looked at in cooperation with the Intelligence agencies.

The associated P773 program previously supported the RDT&E of MIDS-LVT. The last year of funding, FY 2005, supported the close out of the MIDS-LVT development as DoD began the migration to the Joint Tactical Radio System (JTRS). Both the P773 and P771 were and are funded under BA-5, System Development and Demonstration, because the programs encompass engineering, manufacturing development, and demonstration of new end-items prior to production approval decision.

FY 2007 Accomplishments ($7.946 million):

- Finalized update of the 2006 JTMP for publication in early 2008
  - Updated TDL migration plan
  - Updated to include integration and synchronization of NCOW and JNO capabilities
  - Updated TDL gateways and the JINTACCS process
  - Initiated analysis to evaluate expanded data link communities and their possible migration to NCOW and incorporation into the JTMP
    - Initiated analysis on the warfighter capabilities of the Common Data Link (CDL) and Integrated Broadcast System (IBS) environments to guide the net-centric migration of Joint Intelligence, Surveillance, and Reconnaissance (ISR) and Joint Intelligence Broadcast assets
    - Initiated work to incorporate Low Observable (LO) data links to address stealth platform requirements
- Implemented the Interoperability Enhancement Process (IEP) with DISA to:
  - Populate and maintain a database of Joint TDES implementations and interoperability assessments
  - Identify NCOW program dependencies and integration points
  - Ensure adherence to the GIG enterprise-wide technical baseline
- Established policy, provided oversight, and developed net-centric architectures which will address the wireless and mobility aspects of IP
- Initiated the building of a NCOW integrated architecture; developed an initial airborne architecture
- Assessed cross-program engineering, integration, and testing for NCOW / JNO programs and capabilities
- Conducted initial risk assessments and Independent Program Assessments for NCOW and JNO programs and capabilities

Exhibit R-2, RDT&E Budget Item Justification	Date: February 2008
Appropriation/Budget Authority RDT&E DW/BA 05	R-1 Item Nomenclature Common Joint Tactical Information/0604771D8Z

- Assisted PEO C4I&S in executing the:
  - Agreements and conditions identified in the Department of Transportation (DoT) and DoD for sharing the 960 to 1215 Mhz band
  - Link 16 Spectrum Support Certification

Technical assistance for the JTIDS/MIDS Multinational Working Group and other international forums related to ensuring spectrum access

FY 2008 Planned ($16.384 million):

- Publish update of the 2006 Joint Tactical Data Enterprise Services (TDES) Migration Plan (JTMP)
- Continue analysis to evaluate expanded data link communities and their possible migration to NCOW and incorporation into the JTMP
  - Initiate analysis on the warfighter capabilities of the Common Data Link (CDL) and Integrated Broadcast Service (IBS) environments to guide the net-centric migration of Joint Intelligence, Surveillance, and Reconnaissance (ISR) and Joint Intelligence Broadcast assets
  - Initiate work to incorporate Low Observable (LO) data links to address stealth platform requirements for Low Probability of Intercept (LPI) and Low Probability of Exploitation (LPE) digital communications
- Continue implementation and maintenance of the Interoperability Enhancement Process (IEP) with DISA to:
  - Populate and maintain a database of Joint TDES implementations and interoperability assessments
  - Identify NCOW program dependencies and integration points
  - Ensure adherence to the GIG enterprise-wide technical baseline
- Continue to assist PEO C4I&S in executing the:
  - Agreements and conditions identified in the Department of Transportation (DoT) and DoD for sharing the 960 to 1215 Mhz band
  - Link 16 Spectrum Support Certification
  - Technical assistance for the JTIDS/MIDS Multinational Working Group and other international forums related to ensuring spectrum access
- Finalize the airborne architecture portion of the NCOW integrated architecture
- Initiate the integration of Allied participants in the JTMP starting with the United Kingdom (UK)
- OSD/NII and the JNO will continue to provide technical oversight, planning, and coordination of Joint TDL interoperability and transformation initiatives
  - Act as Joint TDL subject matter experts and participate with GIG End-to-End Systems Engineering and related teams
  - Continue development of approved standards, protocols, and processes for implementation and testing across programs from end-to-end
  - Continue to assess cross-program engineering, integration, and test for NCOW / JNO programs and capabilities
  - Continue risk assessments and Independent Program Assessments for NCOW and JNO programs
  - Provide insight into operationally driven, technical functionalities needed to meet tactical data exchange requirements within a critical and/or warfighting environment.

Exhibit R-2, RDT&E Budget Item Justification	Date: February 2008
Appropriation/Budget Authority RDT&E DW/BA 05	R-1 Item Nomenclature Common Joint Tactical Information/0604771D8Z

- Conduct analytic evaluations to define and plan implementation of key technologies to include tactical information integration and configuration management
- Establish policy, provide oversight, and develop net-centric architectures which will address the wireless and mobility aspects of IP
- Develop policy-based network management preferred system concept and methodology for enterprise situational awareness.
- Evaluate need for a common interface and visualization approach for Programs of Record that are currently developed autonomously
- Develop an ad hoc mobile net-centric tactical wireless architecture for 2020 that interfaces with the GIG
- Develop JNO integrated architecture and Capability Delivery Plan
- Support incorporation of data links into the Functional Solution Analyses (FSA) and FSA Integration efforts
- Develop Strategic Plan and Portfolio Guidance for APOM 09 and POM10

- Ensure the Single Integrated Air Picture (SIAP), the airborne portion of the Joint Theater Air and Missile Defense (JTAMD) Family of Systems, progresses from being net-ready to being net-centric, in compliance with the NCOW and as part of the 2008 JNO focus on airborne networking
- Provide oversight to ensure the stages of development across the Integrated Air and Missile Defense roadmap encompass the tenets of NCOW and incorporate or interoperate with net-centric data links
- Provide oversight for the integration of relevant architectures under development by IAMD stakeholders

Ensure the accuracy and completeness of the operations concept which will serve as an integrating structure for future IAMD operational

- employment, capability development, and force integration efforts across air, cruise, and ballistic missile defense for theaters, regions, and the homeland.
- Participate in a group effort to consider the transport path/program milestones and way ahead the Department should consider providing the sensor net defined for the 2020+ time period. Radio requirements would be defined and compared to potential Joint Tactical Radio System (JTRS) data link capabilities, determining if and when JTRS will be able to provide the needed capability. Additionally, the group will address the information path requirements necessary to perform the Air and Missile Defense mission.

- Assess and provide oversight of Global Positioning System (GPS) planning activities to address transforming the data link programs of record to comply with the Department's Net-Centric Operations Warfare (NCOW) vision, to include:
  - Integration, as appropriate, into the National Five-year Plan
  - Supervising studies and analyses
  - Updating and publishing the Federal Radionavigation Plan and the GPS Security Policy, as required
  - Providing GPS performance standards, spectrum defense and international strategy briefing and presentation support

Exhibit R-2, RDT&E Budget Item Justification	Date: February 2008
Appropriation/Budget Authority RDT&E DW/BA 05	R-1 Item Nomenclature Common Joint Tactical Information/0604771D8Z

FY 2009 Planned ($20.600 million):

- Integrate Allied participants in the JTMP with United Kingdom (UK) for the 2010 publication
- Expand the integration of Allied participants in the JTMP with Australia

Expand the Joint Interoperability Enhancement Process (IEP) with DISA maintaining a database of Joint TDES implementations and interoperability assessments and integrating all TDES data links beyond the initial demonstration effort

- Lead Joint team with OSD, JCS, DISA, Services, and Agencies for TDES migration to include integration and synchronization of NCOW and JNO capabilities
- Lead TDES teams to address transformation of the tactical gateways and the JINTACCS process
- Act as the Joint subject matter experts for Joint, Allied, and Coalition Tactical Near-Term Interoperability and Net-Centric Transformation Initiatives
- Provide technical oversight, planning, and coordination of Joint TDL interoperability and transformation initiatives
- Act as Joint TDL subject matter experts and participate with GIG End-to-End Systems Engineering and related teams
- Identify transformational solutions for dissemination of tactical data within the GIG Enterprise
- Provide insight into operationally driven, technical functionalities needed to meet tactical data exchange requirements within a critical and/or warfighting environment
- Conduct analytic evaluations to define and plan implementation of key technologies to include tactical information integration and configuration management
- Demonstrate TDES being accessible to other web servers/systems via XML translation for Advanced Waveforms initiatives
- Continue development of approved standards, protocols, and processes for implementation and testing across programs from end-to-end
- Establish policy, provide oversight, and develop net-centric architectures which will address the wireless and mobility aspects of IP
- Develop policy-based network management preferred system concept and methodology for enterprise situational awareness. Current Programs of record are developed autonomously and need a common interface and visualization approach.
- Develop an ad hoc mobile net-centric tactical wireless architecture for 2020 that interfaces with the GIG
- Update the Joint NCOW / JNO integrated architecture
- Assess cross-program engineering, integration, and test for NCOW and JNO programs and capabilities
- Conduct risk assessments and Independent Program Assessments for NCOW and JNO programs and capabilities
- Identify NCOW and JNO programs and capabilities dependencies and integration points and their ensure adherence to the GIG enterprise-wide technical baseline.

Exhibit R-2, RDT&E Budget Item Justification	Date: February 2008
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B. Program Change Summary:

	FY 2007	FY 2008	FY 2009
Previous Presidents Budget	8.130	16.527	20.495
Current Presidents Budget	7.946	16.384	20.600
Total Adjustments	-0.184	-0.143	0.105
Congressional program reductions			
Congressional rescissions			
Congressional increases			
Reprogrammings			
SIBR/STTR Transfer			
Program Adjustment	-0.184	-0.143	0.105

Program Change Explanation:
FY 2007: Rounding Adjustment at the Department level -$0.184 million.
FY 2008: FFRDC -$0.038 million, Contractor efficiencies -$0.027 million, Economic assumptions -$0.078 million.
FY 2009: Program adjustments of $0.105 million due to inflation.

C. Other Program Funding Summary: N/A

D. Acquisition Strategy: In executing JTDL tasking, existing cost-plus contracts will be utilized.

E. Performance Metrics:

Enterprise-Wide Alignment: Accelerate DoD information age transformation to increase the effectiveness and efficiency of the warfighting, intelligence and business missions.
Measures:
- Timely development and issuance of policy and guidance
- Instantiation of enterprise-wide system engineering for the Global Information Grid across DoD

Portfolio Management: Provide for the timely and effective delivery of key Net-Centric capabilities through portfolio management Measures:
- Key milestones completed for major net-centric acquisitions
- Number of major systems through net-centric event-driven reviews in support of the JCIDS, acquisition and PPBE processes

Exhibit R-3, RDT&E Project Cost Analysis			Date: February 2008
Appropriation/Budget Activity RDT&E DW/BA 05	Program Element: 0604771D8Z		Project Name and Number: Link-16 Tactical Data Link (TDL) Transformation - P771

Cost Categories ($ in millions)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Product Development												
Spectrum Support	Various	Various	13.357	0.900	Various	1.618	Various	2.029	Various	Continuing	Continuing	Continuing
Data Link Migration Engineering Support	Various	Various	14.227								14.227	
Net-Centric Engineering	Various	Various	3.770	1.703	Various	3.061	Various	3.839	Various	Continuing	Continuing	Continuing
GIG Engineering Support	Various	Various	9.530	3.162	Various	5.686	Various	7.130	Various	Continuing	Continuing	Continuing
Enhancements	Various	Various	0.918									
JICO Toolset (JSS) Development	Various	Various	0.529									
Joint Initiatives	Various	Various	3.099	0.220	Various	2.021	Various	2.533	Various	Continuing	Continuing	Continuing
Joint TDES Migration and Technology Insertion Plan	Various	Various	6.812	1.090	Various	1.827	Various	2.334	Various	Continuing	Continuing	Continuing
Joint and International Engineering	Various	Various	4.726	0.366	Various	1.272	Various	1.595	Various	Continuing	Continuing	Continuing
Joint Interoperability Enhancement Process	Various	Various	0.477	0.505	Various	0.909	Various	1.140	Various	Continuing	Continuing	Continuing
Weapons Networks	Various	Various	1.403									
Web Enabled Cockpit	Various	Various	1.280									
Subtotal Product Development			**60.128**	**7.946**		**16.384**		**20.600**				
Total Cost			**60.128**	**7.946**		**16.384**		**20.600**				

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2008

APPROPRIATION/ BUDGET ACTIVITY	PE NUMBER AND TITLE
RDTE, Defense Wide BA 05	**0605140D8Z - Trusted Foundry**

COST ($ in Millions)	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
P014 Trusted Foundry	41.317	43.227	42.360	41.953	41.587	42.141	42.735

A. Mission Description and Budget Item Justification: The Trusted Foundry Program is a combined Department of Defense-National Security Agency (DoD-NSA) project to develop and manufacture Application Specific integrated Circuits (ASICs) for critical DoD systems in a secure industrial environment. The Trusted Foundry process assures ASIC integrity from development and design through final delivery from NSA designated ASIC production facilities. ASD (NII) designates critical DoD systems to participate in the Trusted Foundry program. Identified Program Offices coordinate with NSA Trusted Foundry Program Office to design and deliver ASICs meeting DoD system specifications. The ASICs are provided to DoD programs as Government Furnished Equipment (GFE).The DoD and NSA require state-of-the-art design and manufacturing processes to produce custom integrated circuits designed specifically for military purposes. DoD and NSA have determined that integrated circuits in critical/essential systems need to be procured from trusted sources in order to avoid counterfeit, tampered, sabotaged or suborned parts. Worldwide competition from state-subsidized manufacturing facilities (foundries) is making fabless semiconductor companies the norm in the U.S. Sophisticated off-shore design and software factories with engineering labor rates vastly less than engineering rates in the U.S. have resulted in outsourcing of many parts of the design of integrated circuits. These trends threaten the integrity and worldwide leadership of the U.S. semiconductor industry by eliminating many domestic on-shore suppliers and reducing access to trusted fabrication sources for advanced technology. These trends are alarming to those uneasy about maintaining U.S. national competitiveness, but are of acute concern to the defense and intelligence community. Secure communications and cryptographic applications depend heavily upon high performance semiconductors where a generation of improvement can translate into a significant force multiplier and capability advantage. Important defense technology investments and demonstrations carry size, weight, power, and performance goals that can only be met through the use of the most sophisticated semiconductors.

This program will provide NSA with the trusted state-of-the-art microelectronics manufacturing necessary to meet the performance and delivery needs of their customers while at the same time providing the Services with a cadre of trusted suppliers that will meet the needs of their mission critical/essential systems for trusted integrated circuit parts. NSA, in their role of Trusted Access Program Office has looked to commercial sources to satisfy their requirements. Access to trusted suppliers is imperative to ongoing and future DoD/NSA systems, and most centrally, Trusted Foundry access is absolutely necessary to meet secure communication and cryptographic needs.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2008

APPROPRIATION/ BUDGET ACTIVITY	PE NUMBER AND TITLE
RDTE, Defense Wide BA 05	**0605140D8Z - Trusted Foundry**

B. Program Change Summary	FY 2007	FY 2008	FY 2009
Previous President's Budget (FY 2008)	42.279	43.604	42.146
Current BES/President's Budget (FY 2009)	41.317	43.227	42.360
Total Adjustments	-0.962	-0.377	0.214
Congressional Program Reductions		-0.377	
Congressional Rescissions			
Congressional Increases			
Reprogrammings	-0.150		
SBIR/STTR Transfer	-1.018		
Other	0.206		0.214

C. Other Program Funding Summary Not applicable for this item.

D. Acquisition Strategy NSA has negotiated a "take or pay" contract with IBM with 10 one year options going through FY 2013. IBM will provide custom integrated circuit parts in production and prototype quantities to meet DoD/NSA leading edge integrated circuit needs. Additional suppliers of behind the leading edge production processes will be developed and accredited by DMEA and NSA as Trusted Suppliers to provide program managers the flexibility to acquire trusted parts appropriate to the minimum risk and vulnerability of their particular system needs. Process Intellectual Property will be obtained from trusted suppliers to assure the availability of parts over the long term.

E. Performance Metrics:

FY	Strategic Goals Supported	Existing Baseline	Planned Performance Improvement / Requirement Goal	Actual Performance Improvement	Planned Performance Metric / Methods of Measurement	Actual Performance Metric / Methods of Measurement
08						

Comment: All delivered parts will meet IBM standard commercial requirements. Any damaged or misprocessed parts will be replaced free of charge.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2008

APPROPRIATION/ BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
RDTE, Defense Wide BA 05	**0605140D8Z - Trusted Foundry**	**P014**

COST ($ in Millions)	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
P014 Trusted Foundry	41.317	43.227	42.360	41.953	41.587	42.141	42.735

A. Mission Description and Budget Item Justification: The Department of Defense (DoD) and National Security Agency (NSA) require state-of-the-art design and manufacturing processes to produce custom integrated circuits designed specifically for military purposes. DoD and NSA have determined that integrated circuits in critical/essential systems need to be procured from trusted sources in order to avoid counterfeit, tampered, sabotaged or suborned parts. Worldwide competition from state-subsidized manufacturing facilities (foundries) is making fabless semiconductor companies the norm in the U.S. Sophisticated off-shore design and software factories with engineering labor rates vastly less than engineering rates in the U.S. have resulted in outsourcing of many parts of the design of integrated circuits. These trends threaten the integrity and worldwide leadership of the U.S. semiconductor industry by eliminating many domestic on-shore suppliers and reducing access to trusted fabrication sources for advanced technology. These trends are alarming to those uneasy about maintaining U.S. competitiveness, but are of acute concern to the defense and intelligence community. Secure communications and cryptographic applications depend heavily upon high performance semiconductors where a generation of improvement can translate into a significant force multiplier and capability advantage. Important defense technology investments and demonstrations carry size, weight, power, and performance goals that can only be met through the use of the most sophisticated semiconductors.

This program will provide NSA with the trusted state-of-the-art microelectronics manufacturing necessary to meet the performance and delivery needs of their customers while at the same time providing the Services with a cadre of trusted suppliers that will meet the needs of their mission critical/essential systems for trusted integrated circuit parts. NSA, in their role of Trusted Access Program Office has looked to commercial sources to satisfy their requirements. Access to trusted suppliers is imperative to ongoing and future DoD/NSA systems, and most centrally, Trusted Foundry access is absolutely necessary to meet secure communication and cryptographic needs.

B. Accomplishments/Planned Program:

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Trusted Foundry FY2006 Accomplishments & FY2007 Plans	41.317		

FY2006 Accomplishments: New product developments provided over 150 different integrated circuits for the Army, Navy, Air Force, and DARPA to satisfy new and on-going programs. Over 10,000 wafers of production parts have been produced as follow-ons to prototype developments sponsored the previous year(s). Dedicated secure communications equipment was purchased to enhance security. Maintenance support for the facility infrastructure equipment in Vermont and New York was performed. OSD, NSA, DMEA & DSS began to assess supplier assurance processes leading to the accreditation of additional trusted suppliers.

FY2007 Plans: Provides additional integrated circuits for the U.S. Army, U.S. Navy, U.S. Air Force, and DARPA to satisfy new and on-going programs. Costs are projected to be higher due to increased number of parts estimated and cost increases necessary to procure advanced technology parts. Additional effort will be required to increase the number of trusted suppliers and to begin the acquisition of process IP and device codes to assure the long term availability of trusted parts. ASIC design support software, hardware and Intellectual Property will be obtained. Up to four ASIC designs will be supported at 65 to 90 nanometer minimum feature size. New product developments will occur, as well as production parts for some of the prototype developments sponsored the previous year(s). Maintenance support for the facility infrastructure equipment is also included.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Trusted Foundry FY2008 and FY2009 Plans		43.227	42.360

FY 2008/2009 Plans: Additional integrated circuits will be provided for the U.S. Army, U.S. Navy, U.S. Air Force, and DARPA to satisfy new and on-going programs. Costs are projected to be higher due to increased number of parts estimated and cost increases necessary to procure advanced technology parts. Additional effort will be required to increase the number of trusted suppliers and to continue the acquisition of process IP and device codes to assure the long term availability of trusted parts. ASIC design support software, hardware and Intellectual Property will be obtained to support eight ASIC designs at 65 to 90 nanometer minimum feature size. New product developments will occur, as well as production parts for some of the prototype developments sponsored the previous year(s). Special processing equipment for low volume manufacture will be developed. Maintenance support for the facility infrastructure equipment is also included. Facility modifications necessary to clear the IBM fabrication facility in East Fishkill, New York will be initiated.

C. Other Program Funding Summary Not applicable for this item.

D. Acquisition Strategy NSA has negotiated a "take or pay" contract with IBM with 10 one year options going through FY 2013. IBM will provide custom integrated circuit parts in production and prototype quantities to meet DoD/NSA leading edge integrated circuit needs. Additional suppliers of "behind the leading edge" production processes will be developed and accredited by DMEA and NSA as Trusted Suppliers to provide program managers the flexibility to acquire trusted parts appropriate to the minimum risk and vulnerability of their particular system needs. Process Intellectual Property will be obtained from trusted suppliers to assure the availability of parts over the long term. Special equipment will be developed to support the flexible manufacture of using these archived processes for extremely small quantities of parts over the lifetime of the systems in the field.

E. Major Performers Not applicable for this item.

OSD RDT&E COST ANALYSIS (R3)

February 2008

BUDGET ACTIVITY
5 - System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0605140D8Z - Trusted Foundry

PROJECT
P014

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

II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Integrated Circuits (Hardware)	MIPR	NSA	80932	24333	1-4Q	26024	1-4Q	25398	1-4Q	Cont.	Cont.	Cont.
IP (Software)	MIPR	NSA	32168	10000	1-4Q	10000	1-4Q	10000	1-4Q	Cont.	Cont.	Cont.
Security Upgrades	MIPR	NSA	16510	5714	1-4Q	5893	1-4Q	5696	1-4Q	Cont.	33813	Cont.
Certify Trusted Suppliers	MIPR	NSA		1270	1-4Q	1310	1-4Q	1266	1-4Q	Cont.	3846	Cont.
Subtotal:			129610	41317		43227		42360		Cont.	Cont.	Cont.

III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:												

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

OSD RDT&E COST ANALYSIS (R3)								February 2008		
BUDGET ACTIVITY **5 - System Development and Demonstration (SDD)**	PE NUMBER AND TITLE **0605140D8Z - Trusted Foundry**							PROJECT **P014**		
Project Total Cost:	**129610**	**41317**		**43227**		**42360**		**Cont.**	**Cont.**	**Cont.**

Schedule Profile (R4 Exhibit)

February 2008

BUDGET ACTIVITY
5 - System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0605140D8Z - Trusted Foundry

Event Name	FY 07				FY 08				FY 09				FY 10				FY 11				FY 12				FY 13			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Schedule Detail (R4a Exhibit)

February 2008

BUDGET ACTIVITY
5 - System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0605140D8Z - Trusted Foundry

Schedule Detail	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Aggregate Volume Purchases	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q			
Visualization Software	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q			
Certify Trusted Suppliers	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 3Q			

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2008

APPROPRIATION/ BUDGET ACTIVITY	PE NUMBER AND TITLE
RDTE, Defense Wide BA 05	**0605648D8Z - Defense Acquisition Executive (DAE)**

COST ($ in Millions)	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
Joint Automated Deep Operations Coordination System (JADOCS)	5.844	5.788	5.883	5.850	5.810	5.888	5.970

A. Mission Description and Budget Item Justification: The War On Terrorism challenges the Department of Defense (DoD) to devote resources not only to countering the asymmetric threats posed by adversaries, but to also exploit the advantages of technology superiority in new, transformational ways with agility. At the same time, it has become clear that a new balance must be struck between direct support for joint Combatant Commanders (CoComs) fighting on the front line of the War On Terrorism and longer term planned Service investment strategies.

The DoD initiated the Defense Acquisition Executive (DAE) Pilot program in FY 2006 to assist in the continued development and eventual sustainment of a few selected Advanced Concept/Joint Capability Technology Demonstrations (AC/JCTDs) in support of the 2006 Quadrennial Defense Review (QDR) which calls for increasing options for agile and adaptive acquisition process to support the Joint warfighter. The DAE pilot uses Defense Wide Program Elements (PEs) in BA-5 for System Development and Demonstration, Procurement for initial acquisition of equipment, and a limited amount of Operations and Maintenance (O&M) funding at Joint Forces Command (JFCOM). The DAE Pilot program creates an acquisition path for "joint unique" projects with critical CoCom capabilities that do not have a traditional Service or Agency program of record. These projects are developed to the point of operational maturity and would be considered passed Milestone B in the acquisition process. The DAE program will provide an avenue of transformational capabilities from Joint Capability Technology Demonstrations (JCTDs) that may not be covered by Service programs to continue a logical progression of program phases and development in order to be suitable for full production and deployment to the warfighter. Via the DAE program very mature capabilities can accelerate in the acquisition just prior to Milestone C and be sustained until traditional funding methods can be put in place. The program provides agility and the ability to accelerate critical needs.

This pilot program will also demonstrate spiral acquisition concepts with a goal of getting priority joint and transformational capabilities deployed to the warfighter more quickly. The DAE Pilot program will support selected joint capability technologies that are being integrated into programs that have passed Milestone B and are conducting engineering and manufacturing development to meet validated joint needs. The aim is to fully integrate these more mature capabilities into either an existing system or a new system being deployed. The result should be a successful Milestone C decision. With strong support from CoComs, ACTDs have enhanced joint capabilities providing an "on ramp" to conventional acquisition processes for joint needs in a system that emphasizes Service-sponsored core military capabilities. JCTDs will concentrate that effort with continued emphasis on transitioning demonstration-proven capabilities into Programs of Record (PoR) for sustainment of residuals and rapid acquisition and fielding of production models. The DAE Pilot Program will pioneer a transformational new model for Department of Defense acquisition by using funding in BA5 and Procurement to provide a path for those capabilities that are operational/mature in nature that they must be put on a "fast track" to acquisition. The DAE Pilot Program supports the Joint Capabilities Interoperability Development System (JCIDS) by addressing the needs of CoComs directly and accelerate to the CPD phase. The Defense Wide funding for this program in BA3, BA4, BA5 and Procurement allows the Deputy Under Secretary of Defense for Advanced Systems and Concepts (DUSD(AS&C)) on behalf of the DAE (USD (AT&L)) to support the spectrum of technology development through initial acquisition providing the Combatant Commanders, Services, Agencies, and operators with a new model for tailoring acquisition solutions to meet warfighter needs.

Under the new JCTD program, only the ACTD/JCTDs that demonstrate the highest military utility and near operational maturity will be considered for the transition funding in

the DAE BA5 PE. Many JCTDs will transition smoothly into a well identified program of record and not require funding from these two PEs which are the transition arm of the JCTD model.

In FY 2006, the Joint Automated Deep Operations Coordination System (JADOCS) was selected as the first DAE Pilot program. JADOCS is currently in use by the CoComs and has proven effective in both Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF). It integrates approximately 20 Service and Defense Agency C4ISR systems, making each of the 20 systems more powerful and valuable for the warfighter by creating a truly interoperable and joint Common Operating Picture (COP) for time sensitive targeting and warfighter operations. During the first year, Army utilized the DAE pilot program funding, to sustain/maintain existing COCOM JADOCS capability [infrastructure, software, and technical field support]; develop new functionality based upon emerging critical OIF/OEF requirements; and began the three year process of transitioning JADOCS functionality into Joint Net Enabled Command Capability (NECC) the replacement for the CoComs Global Command Control System in FY10.

B. Program Change Summary	FY 2007	FY 2008	FY 2009
Previous President's Budget (FY 2008)	5.980	5.838	5.853
Current BES/President's Budget (FY 2009)	5.844	5.788	5.883
Total Adjustments	-0.136	-0.050	0.030
Congressional Program Reductions			
Congressional Rescissions	-0.011	-0.050	
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer	-0.125		
Other			0.030

In FY08 there were no congressional increases or decreases to the Defense Acquisition Executive (DAE) program element. In FY08 the Congressional rescissions and other taxes totaled $50.

In FY09 there as a reduction to be reprogrammed within DoD for adjustments to economic assumptions in inflation and fuel.

C. Other Program Funding Summary	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
JCTD Procurement (OSD Major Equipment: PE 0902198D8Z)	1.972	1.961	1.967	1.986	1.974	2.000	2.028

Comment: The new JCTD Program provides a "cradle to grave" path for transformational joint capabilities. The model contains a BA3 development arm as well as the JCTD

Transition (BA4) PE and Defense Acquisition Executive Pilot (BA5). Under the new JCTD process, only the JCTDs that demonstrate the highest military utility will be considered for the transition funding in the JCTD BA4 Transition PE. Promising JCTDs may receive transition funding during the transition period to the JCTD program.

The DoD also initiated the Defense Acquisition Executive (DAE) Pilot program in FY 2006 to assist in the continued development and eventual sustainment of a few selected Advanced Concept/Joint Capability Technology Demonstrations (AC/JCTDs). The DAE Pilot program creates an acquisition path for "joint unique" programs that do not have a traditional Service or Agency program of record. For sustainment of the selected, critical projects the DAE Pilot uses Defense Wide Program Elements (PEs) in BA-5 for System Development and Demonstration, Procurement for initial acquisition of equipment, and a limited amount of Operations and Maintenance (O&M) funding at Joint Forces Command (JFCOM). The DAE Pilot program will support selected "operational like" joint capability technologies that are being integrated into programs that have passed Milestone B and are conducting engineering and manufacturing development to meet validated joint needs. The aim is to fully integrate these more mature capabilities into either an existing system or a new system being deployed. The result should be a successful Milestone C decision. With strong support from CoComs, ACTDs have enhanced joint capabilities providing an "on ramp" to conventional acquisition processes for joint needs in a system that emphasizes Service-sponsored core military capabilities.

D. Acquisition Strategy The DAE Pilot will review and select the most promising "joint unique" JCTDs that do not neatly fit under a Service area of responsibility and provide resources to enable the smooth transition of a critical capability to the warfighter. The DAE will provide an avenue for joint and transformational capabilities that are not easily resourced by any one Service, but the capability functions across more than one service. The DAE pilot program aims to continue a logical progression of program phases and development in order to be suitable for full production and deployment to the warfighter. The DAE Pilot is part of the new JCTD model established in the FY 2006 President's Budget.

Only the JCTDs that demonstrate the highest military utility will be considered for the transition funding in the JCTD BA4 Transition PE and the DAE BA5 PE. JCTD Transition BA4 will fund capabilities less mature than BA5 maturity and attempt to insert capability just prior to Milestone B. DAE BA 5 funding will insert development just prior to Milestone C. Many JCTDs will transition smoothly into a well identified program of record and not require funding from these two PEs which comprise the transition arm of the JCTD model.

Fitting the JCTD model strategy, the Joint Automated Deep Operations Coordination System (JADOCS) ACTD was selected as the first DAE Pilot project in FY 2006. JADOCS is under the purview of the Joint Precision Strike Demonstration (JPSD) program office and is providing new, enhanced automation support to command centers and component headquarters for horizontal and vertical interoperability of approximately twenty (20) C4ISR systems in the areas of Strike Planning, Situational Awareness, Joint and Combined Interoperability, and Force Transition in War. Currently, this joint capability has not been absorbed into a program of record prior to FY-08. To the joint warfighter, JADOCS has become a critical "go to war" planning and engagement execution tool. It continues to be used in OEF and OIF. The JADOCS prototype system is operationally deployed in four CoCom theaters. It is integrated with each Military Service and several Defense Agencies, with a wide range of real-world applications, from the tactical to the strategic level. JADOCS has not been supported by the Services as a program of record; however, it has evolved into a joint warfighting system deployed to over 900 locations and employed by over 5,000 joint operators worldwide. While still a prototype, it is presently embedded in the C2 architecture at USCENTCOM, USPACOM, USFK, and USEUCOM.

E. Performance Metrics:

FY	Strategic Goals Supported	Existing Baseline	Planned Performance Improvement / Requirement Goal	Actual Performance Improvement	Planned Performance Metric / Methods of Measurement	Actual Performance Metric / Methods of Measurement
08	Project Selection Focus					
08	Spiral Technologies					
08	Final Demonstration Completed					
08	Shared Funding and Visibility					
08	Independent MUA Assessment					
08	Transition of technology					

Comment: The majority of funding from the DAE Program Element is forwarded to the Services/Defense Agencies that execute the individual JCTD projects. DUSD(AS&C) maintains and provides overall programmatic oversight for the JCTD program, to include the individual JCTD projects. The JCTD performance metrics center on how fast relevant joint and/or transformational technologies can be demonstrated and provided to the joint warfighter. The DAE BA5 funding, unlike the JCTD BA3 developmental funding, is specifically targeted at increasing the speed and rate of transition for critical CoCom/Coalition capabilities. The DAE Pilot targets very mature "operational like" joint capabilities that are in high demand, yet not traditionally funded. The JCTD model has developed a set of metrics, two of which are centered around spiraling products and transitioning capability. The JCTD Transition funds are specifically targeted to towards these two in particular. These metrics are driven by the overall business process which includes six parts: (1) selection focus; (2) ability to spin-off spiral technologies; (3) time necessary to complete a final demonstration; (4) adequately resourced projects with appropriate oversight; (5) capability to complete an independent assessment of the technology; and (6) the number of successful capabilities that are actually transitioned to the warfighter. The table below defines the metrics of the new JCTD business process model.

1) Project Selection Focus: Capability Based: Greater CoCom influence looking at nearer term joint/coalition needs.

2) Spiral Technologies: 25% of JCTDs will provide an operationally relevant product demonstration within 24 months of ID signature.

3) Final Demonstration Completed: 75% of JCTD projects complete final demonstration within three years of ID signature.

4) Shared Funding and Viability of resources: OSD provides significantly more funding than the former ACTD program, greater than 30% in some cases a majority of projected funding, especially in the first two years.

5) Complete independent assessment.

6) Number of capabilities transitioned to the warfighter.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2008

APPROPRIATION/ BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
RDTE, Defense Wide BA 05	**0605648D8Z - Defense Acquisition Executive (DAE)**	**P650**

COST ($ in Millions)		FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
P650	Defense Acquisition Executive (DAE)	5.844	5.788	5.883	5.850	5.810	5.888	5.970

A. Mission Description and Budget Item Justification: The War On Terrorism challenges the Department of Defense (DoD) to devote resources not only to countering the asymmetric threats posed by adversaries but to also exploit the advantages of technology superiority in new, transformational ways. At the same time, it has become clear that a new balance must be struck between direct support for joint Combatant Commanders (CoComs) fighting on the front line of the War On Terrorism and longer term planned Service investment strategies.

The DoD initiated the Defense Acquisition Executive (DAE) Pilot program in FY 2006 to assist in the continued development and eventual sustainment of a few selected Advanced Concept/Joint Capability Technology Demonstrations (AC/JCTDs) in support of the 2006 Quadrennial Defense Review (QDR) which calls for increasing options for agile and adaptive acquisition process to support the Joint warfighter. The DAE pilot uses Defense Wide Program Elements (PEs) in BA-5 for System Development and Demonstration, Procurement for initial acquisition of equipment, and a limited amount of Operations and Maintenance (O&M) funding at Joint Forces Command (JFCOM). The DAE Pilot program creates an acquisition path for "joint unique" programs that do not have a traditional Service or Agency program of record. Only the JCTDs that demonstrate the highest military utility and "operational like" maturity will be considered for the transition funding in the DAE BA5 PE. Many JCTDs will transition smoothly into a well identified program of record and not require funding from the DAE Pilot which is one of two components to the transition arm of the JCTD model. The DAE Pilot program will support selected joint capability technologies that are being integrated into programs that have passed Milestone B and are conducting engineering and manufacturing development to meet validated joint needs. The aim is to fully integrate these more mature capabilities into either an existing system or a new system being deployed. The result should be a successful Milestone C decision. The program will provide an avenue of transformational capabilities from Advanced Concept Technology Demonstrations (ACTDs) and Joint Capability Technology Demonstrations (JCTDs) that may not be covered by Service programs to continue a logical progression of program phases and development in order to be suitable for full production and deployment to the warfighter.

This pilot program will also demonstrate spiral acquisition concepts with a goal of getting priority joint and transformational capabilities deployed to the warfighter more quickly. Specifically, this PE will support selected joint capability technologies that are being integrated into programs that have passed Milestone B and are conducting engineering and manufacturing development to meet validated joint needs. The aim is to fully integrate these more mature capabilities into either an existing system or a new system being deployed. The result should be a successful Milestone C decision. With strong support from CoComs, ACTDs have enhanced joint capabilities providing an "on ramp" to conventional acquisition processes for joint needs in a system that emphasizes Service-sponsored core military capabilities. JCTDs will concentrate that effort with continued emphasis on transitioning demonstration-proven capabilities into Programs of Record (PoR) for sustainment of residuals and rapid acquisition and fielding of production models. The DAE Pilot Program will pioneer a transformational new model for Department of Defense acquisition by using funding in BA5 and Procurement to provide a path for those capabilities that are so transformational that they must be put on a "fast track" to acquisition. The DAE Pilot Program supports the Joint Capabilities Interoperability Development System (JCIDS) by addressing the needs of CoComs directly. The Defense Wide funding for this program in BA3, BA4, BA5 and Procurement allows the Deputy Under Secretary of Defense for Advanced Systems and Concepts (DUSD(AS&C)) on behalf of the DAE (USD (AT&L)) to support the spectrum of technology development through initial acquisition providing the Combatant Commanders, Services, Agencies, and operators with a new model for tailoring acquisition solutions to meet warfighter needs.

Under the new JCTD program, only the ACTD/JCTDs that demonstrate the highest military utility will be considered for the transition funding in the DAE BA5 PE. Many JCTDs will transition smoothly into a well identified program of record and not require funding from these two PEs which are the transition arm of the JCTD model.

In FY 2006, the Joint Automated Deep Operations Coordination System (JADOCS) was selected as the first DAE Pilot program. JADOCS is currently in use by the CoComs and has proven effective in both Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF). It integrates approximately 20 Service and Defense Agency C4ISR systems, making each of the 20 systems more powerful and valuable for the warfighter by creating a truly interoperable and joint Common Operating Picture (COP) for time sensitive targeting and warfighter operations. During the first year, Army utilized the DAE pilot program funding, to sustain/maintain existing COCOM JADOCS capability [infrastructure, software, and technical field support]; develop new functionality based upon emerging critical OIF/OEF requirements; and began the three year process of transitioning JADOCS functionality into Joint Net Enabled Command Capability (NECC) the replacement for the CoCom's Global Command Control System in FY10.

B. Accomplishments/Planned Program:

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Joint Automated Deep Operations Coordination System (JADOCS)	5.844	5.788	5.883

The Joint Automated Deep Operations Coordination System (JADOCS) is the Department's "go to war" system for targeting and fire support coordination. It is the first DAE pilot program the Department is sponsoring under this innovative process that will maintain the development of a capability coming out of a successful Advanced Concept Technology Demonstration (ACTD), but is not yet ready for a Service program of record. The outcome anticipated in JADOCS is a fully functioning, C4ISR capability that is seamlessly joint, integrating approximately 20 different Service and Agency systems into one common operational picture for the Combatant Commander (CoCom).

The Joint Automated Deep Operations Coordination System (JADOCS) is a successful product of a series of previous ACTDs, most notably the Theater Precision Strike Operations (TPSO) and Counter-Multiple Rocket Launcher (C-MRL) ACTDs. JADOCS has evolved into a joint warfighter system application with over 2,000 workstations and 3,000 users worldwide. It is presently embedded in the architecture at USCENTCOM, USPACOM, USFK, and USEUCOM, but has not been formally designated a program of record. JADOCS provides a critical warfighting capability for the CoComs, including use in OIF and OEF as a residual leave behind capability from the ACTD. This system was previously employed in U.S. Tsunami relief humanitarian efforts and recently began to support USNORTHCOM for C2 automation of Defense Support to Civil Authorities. JADOCS is the system used for Time Sensitive Targeting coordination within the USCENTCOM AOR. The JADOCS capability includes software, tactics, techniques, and procedures (TTP), and field support. JADOCS is managed by PEO C3Ts, PM Battle Command Fire Support Command and Control Program Office.
The initial Automated Deep Operations Coordination System (ADOCS) system was renamed as the Joint Automated Deep Operations Coordination System (JADOCS) in FY 2005. In Oct 2005, the Army accepted joint responsibility to begin transition of JADOCS functionality into PM Battle Command Fire Support Command and Control and is being modernized and integrated into the NECC architecture. Until the transition to NECC is complete in 2009, JADOCS will continue to meet the critical requirements of the CoCom by providing enhanced automation support to command centers and component headquarters for horizontal and vertical interoperability of C4ISR systems in the areas of Strike Planning, Situational Awareness, Joint and Combined Interoperability, Joint Targeting, Force Transition in War, and Defense Support to Civil Authorities.
The funds identified in the DAE Pilot program in FY07 through FY09 will enable modernization of the JADOCS architecture to ensure compatibility with the Army Battle Command System and the DoD Network Enhanced Command Capability (NECC); continuing the JADOCS business model of responding to evolving urgent warfighter requirements with operational capabilities, and ensuring JADOCS remains a joint versus Service specific capability.
FY 2007 Planned Output: Develop and field new operational capabilities in response to a USCENTCOM Urgent Needs Statement; Increased capability will address asymmetric threats faster. Provide prototype set of NECC services; provide second generation CDE capability.

FY 2008 Planned Output: Refine CENTCOM Urgent Needs Statement capabilities for improved targeting in an asymmetric warfighting environment; provide enhanced technical capability for prototype NECC services to begin transition to the NECC program of record.
FY 2009 Planned Output: Military Utility Assessment of new CENTCOM targeting capabilities will be assessed. Continue final development preparation for transition to the Army in FY10.

C. Other Program Funding Summary	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Procurement (JCTD Pilot), Major Equipment-OSD Def Wide (0902198D8Z)	1.972	1.961	1.967	1.986	1.974	2.000	2.028

Comment: The new JCTD Program provides a "cradle to grave" path for transformational joint capabilities. The model contains a BA3 development arm as well as the JCTD Transition (BA4) PE and Defense Acquisition Executive (DAE) Pilot (BA5). Under the new JCTD process, only the JCTDs that demonstrate the highest military utility as well as "operational like" maturity will be considered for the transition funding in the DAE Pilot program.

The DAE Pilot program was initiated in FY 2006 to assist in the continued development and eventual sustainment of a few selected Advanced Concept/Joint Capability Technology Demonstrations (AC/JCTDs). The DAE Pilot program creates an acquisition path for "joint unique" programs that do not have a traditional Service or Agency program of record. For sustainment of the selected projects the DAE Pilot uses Defense Wide Program Elements (PEs) in BA-5 for System Development and Demonstration (SDD), Procurement for initial acquisition of equipment, and a limited amount of Operations and Maintenance (O&M) funding at Joint Forces Command (JFCOM).

D. Acquisition Strategy The DAE Pilot will review and select the most promising "joint unique" JCTDs or ACTDs that do not neatly fit under a Service area of responsibility and provide resources to enable the smooth transition of a critical capability to the warfighter. The DAE will provide an avenue for joint and transformational capabilities that are not easily resourced by any one Service. The DAE pilot program aims to continue a logical progression of program phases and development in order to be suitable for full production and deployment to the warfighter. The DAE Pilot is part of the new JCTD model established in the FY 2006 President's Budget.

Only the JCTDs that demonstrate the highest military utility and "operational like" maturity will be considered for the transition funding in the DAE BA5 PE. Many JCTDs will transition smoothly into a well identified program of record and not require funding from the DAE Pilot which is one of two components to the transition arm of the JCTD model. The DAE Pilot program will support selected joint capability technologies that are being integrated into programs that have passed Milestone B and are conducting engineering and manufacturing development to meet validated joint needs. The aim is to fully integrate these more mature capabilities into either an existing system or a new system being deployed. The result should be a successful Milestone C decision. With strong support from CoComs, ACTDs have enhanced joint capabilities providing an "on ramp" to conventional acquisition processes for joint needs in a system that emphasizes Service-sponsored core military capabilities. JCTDs will concentrate that effort with continued emphasis on transitioning demonstration-proven capabilities into Programs of Record (PoR) for sustainment of residuals and rapid acquisition and fielding of production models.

Fitting the JCTD model strategy, the Joint Automated Deep Operations Coordination System (JADOCS) ACTD was selected as the first DAE Pilot project in FY 2006. JADOCS is under the purview of the Joint Precision Strike Demonstration (JPSD) program office and is providing new, enhanced automation support to command centers and component

headquarters for horizontal and vertical interoperability of approximately twenty (20) C4ISR systems in the areas of Strike Planning, Situational Awareness, Joint and Combined Interoperability, and Force Transition in War. Currently, this joint capability has not been absorbed into a program of record prior to FY-08. To the joint warfighter, JADOCS has become a critical "go to war" planning and engagement execution tool. It continues to be used in OEF and OIF. The JADOCS prototype system is operationally deployed in four CoCom theaters. It is integrated with each Military Service and several Defense Agencies, with a wide range of real-world applications, from the tactical to the strategic level. JADOCS has not been supported by the Services as a program of record; however, it has evolved into a joint warfighting system deployed to over 900 locations and employed by over 5,000 joint operators worldwide. While still a prototype, it is presently embedded in the C2 architecture at USCENTCOM, USPACOM, USFK, and USEUCOM.

E. Major Performers Not applicable for this item.

OSD RDT&E COST ANALYSIS (R3)

February 2008

BUDGET ACTIVITY
5 - System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0605648D8Z - Defense Acquisition Executive (DAE)

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
JADOCS Primary Hardware Development				1000	1-4Q	1000	1-4Q	1000	1-4Q		3000	
Subtotal:				1000		1000		1000			3000	

II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
JADOCS Support Costs				3000	1-4Q	3000	1-4Q	3000	1-4Q		9000	
Subtotal:				3000		3000		3000			9000	

III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
JADOCS Test & Eval				844	1-4Q	788	1-4Q	883	1-4Q		2515	
Subtotal:				844		788		883			2515	

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
JADOCS Mgt Svcs				1000	1-4Q	1000	1-4Q	1000	1-4Q		3000	
Subtotal:				1000		1000		1000			3000	

OSD RDT&E COST ANALYSIS (R3)

February 2008

BUDGET ACTIVITY	PE NUMBER AND TITLE
5 - System Development and Demonstration (SDD)	**0605648D8Z - Defense Acquisition Executive (DAE)**

Project Total Cost:		**5844**		**5788**		**5883**			**17515**	

Schedule Profile (R4 Exhibit)

February 2008

BUDGET ACTIVITY
5 - System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0605648D8Z - Defense Acquisition Executive (DAE)

Event Name	FY 07				FY 08				FY 09				FY 10				FY 11				FY 12				FY 13			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Schedule Detail (R4a Exhibit)

February 2008

BUDGET ACTIVITY
5 - System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0605648D8Z - Defense Acquisition Executive (DAE)

Schedule Detail	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Planning	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q			
Software Development	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q			
Internal Test	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q			
External Test	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 2Q			
Fielding	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q			
Support	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q			

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