

**OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)**

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY RDT&E/ Defense Wide BA# 5		PE NUMBER AND TITLE <b>0604051D8Z - Defense Acquisition Challenge Program (DACP)</b>						
Cost (\$ in Millions)	FY 2006 Actual	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total Program Element (PE) Cost	33.198	29.332	28.970	30.210	31.175	31.309	31.721	32.167
P051 Defense Acquisition Challenge Program (DACP)	33.198	29.332	28.970	30.210	31.175	31.309	31.721	32.167

**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.

In FY 2003/2004, DAC was a sub element in the Quick Reaction Special Projects Program (Program Element 0603826D8Z), which had three separate efforts: Defense Acquisition Challenge (DAC) Program, Technology Transition Initiative (TTI) and Quick Reaction Special Projects (QRSP). In FY 2005, the Defense Appropriation Act directed the Department of Defense to transfer the Defense Acquisition Challenge (DAC) Program from Budget Activity 3 to Budget Activity 5.

The 2007 Congressional language directed DAC to establish a mechanism that would address a Nunn-McCurdy breach. Implementation details are being finalized and the FY08 DAC Broad Area Announcement (BAA) has a provision addressing programs experiencing a Nunn-McCurdy breach.

Approximately 450 draft proposals addressing key technology thrust areas were submitted by industry and government representatives in response to the December 2005 BAA. 53 final proposals were submitted for consideration for FY 2007 funding. Final selection of FY 2007 DAC new start projects was determined in September 2006. 18 FY 2007 DAC new start projects were funded.

<b><u>B. Program Change Summary</u></b>	FY 2006	FY 2007	FY 2008	FY 2009
Previous President's Budget (FY 2007)	33.533	29.500	29.855	31.055
Current BES/President's Budget (FY 2008/2009)	33.198	29.332	28.970	30.210
Total Adjustments	-0.335	-0.168	-0.885	-0.845
Congressional Program Reductions				
Congressional Rescissions		-0.168		
Congressional Increases				
Reprogrammings				
SBIR/STTR Transfer	-0.335			

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RDT&E/ Defense Wide BA# 5

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

Other			-0.885	-0.845
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**C. Other Program Funding Summary:** Not Applicable.

**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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APPROPRIATION/ BUDGET ACTIVITY RDT&E/ Defense Wide BA# 5		PE NUMBER AND TITLE <b>0604051D8Z - Defense Acquisition Challenge Program (DACP)</b>						PROJECT <b>P051</b>	
Cost (\$ in Millions)	FY 2006 Actual	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	
P051 Defense Acquisition Challenge Program (DACP)	33.198	29.332	28.970	30.210	31.175	31.309	31.721	32.167	

**A. Mission Description and Project 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.

In FY 2003/2004, DAC was a sub element in the Quick Reaction Special Projects Program (Program Element 0603826D8Z), which had three separate efforts: Defense Acquisition Challenge (DAC) Program, Technology Transition Initiative (TTI) and Quick Reaction Special Projects (QRSP). In FY 2005, the Defense Appropriation Act directed the Department of Defense to transfer the Defense Acquisition Challenge (DAC) Program from Budget Activity 3 to Budget Activity 5.

As a result of the DAC Program's rapid establishment in mid-FY 2003, the Comparative Testing Office and its Foreign Comparative Testing (FCT) Program were selected by OUSD(AT&L) as the infrastructure to support the DAC pilot business model. Currently, U.S. Special Operations Command, U.S. Army, U.S. Marine Corp, and the Navy's Naval Sea Systems Command, Naval Air Systems Command, and Space and Naval Warfare Systems Command are supporting DAC with the current FCT service infrastructure. The U.S. Air Force is supporting DAC through Secretary of the Air Force for Acquisition (SAF/AQ).

Final selection of FY 2007 DAC new start projects was determined in September 2006. 18 FY 2007 DAC new start projects were funded.

**B. Accomplishments/Planned Program:**

<b>Accomplishment/Planned Program Title</b>	FY 2006	FY 2007	FY 2008	FY 2009
7.62 & 9MM Reduced Environmental Hazard Ammunition (REHA) (Navy)	0.598	0.000	0.000	0.000

Outcome: A successful DAC Project will provide the Warfighter with a lead-free, training and combat cartridge that will alleviate \$106M in range remediation costs while demonstrating the Marine Corps' greater commitment in preserving the environment. This project will qualify commercially available Small Arms Reduced Environmental Hazard Ammunition (SAREHA) to replace the current 7.62mm, 4 & 1 Linked cartridges and 9mm cartridges that contain lead components. Without regular remediation, the lead based components in these cartridges can seep into the ground and poison the supply of drinking water used by surrounding communities or wildlife and can make the air within indoor training ranges toxic to breathe. A three-year project under sponsorship of the OSD Comparative Testing Office (CTO) and the Marine Corps Systems Command (MARCORSYSCOM). Projected completion of testing and qualification will be CY 2008 with transition to USMC MAGTF forces during CY 2008. The primary outputs and efficiencies to be demonstrated in the DAC Test are: (1) rounds are produced with environmentally safe components; (2) rounds must meet or exceed the ballistic performance of the current cartridges; (3) avoid \$8.8M in RDT&E costs and provide a ROI of 280:1.

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FY 2006 Output: Initial funds were received at the end of the 2nd Qtr. Contract Prep & Award was completed at the beginning of the 3rd Qtr. Test Planning was completed middle of the 3rd Qtr. The test articles received during 4th Qtr. Completed comparative bid sample evaluation at the Naval Surface Warfare Center, Crane, Indiana. USMC 9mm Down Select to Olin Winchester, type classified as DODIC AA16, and awarded IDIQ production contract. 9mm Technical Test Report and Project Close-out Report anticipated during 1st Qtr FY07. Program Office will release a Performance Specification and Technical Data Package for full and open solicitation of 7.62mm test samples. After delivery, the project office will conduct testing for the Qualification of Energetics, Safety/Environmental Testing, and a User Evaluation coordinated with the Navy Ordnance Safety and Security Activity (NOSSA).

<b>Accomplishment/Planned Program Title</b>	FY 2006	FY 2007	FY 2008	FY 2009
Clinical Development of Topical Paromomycin for the Treatment of Cutaneous Leishmaniasis (Army)	1.108	1.043	0.000	0.000

Outcome: Project outcome includes: (1) Provide a safe & effective treatment for Soldiers with CL who deserve to have one; 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 Pentostam, 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. Manufacture the drug product for Phase 3 clinical studies that will support FDA approval. This project will develop and obtain FDA approval for a new, safe, effective, and easily applied topical drug to treat Cutaneous Leishmaniasis (CL), a parasitic disease spread by sand-flies that has become a serious medical threat to our forces deployed in support of OIF/OEF. As of December 2005, approximately 1,100 US soldiers were diagnosed with CL, a disease endemic to Iraq, Afghanistan, and other areas in the Middle East. Infected soldiers are evacuated to one of two US locations where they must reside during the extent of the treatments. Currently, the average cost per patient receiving Pentostam™ are approximately \$17,000 for hospitalization and treatment with roughly 60 lost duty days per incident. This equates to roughly \$18 million in direct costs for the infected troops requiring treatment from 2003-2005. "Topical Paromomycin" will be positioned as the new first-line therapeutic drug at deployed combat hospitals to treat this disease.

FY 2006 Output: Initiate the pivotal Phase 3 clinical study.

FY 2007 Planned Output: Continue stability testing of the drug, conduct end-of-phase 2 meeting with FDA, and initiate preparation of the new drug application package for FDA approval.

<b>Accomplishment/Planned Program Title</b>	FY 2006	FY 2007	FY 2008	FY 2009
CoBRA Intelligence and Information Systems Enhancements (SOCOM)	0.775	0.058	0.000	0.000

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 DAC 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 \$10M. Savings in procurement costs is expected to be \$2.5M and Operational Life Cycle savings are \$1M. Completion date is 15 January 2008.

FY 2006 Output: Developed final project plan of action and milestones; analyzed vendor data; completed contract negotiation re-defining test article functionality and performance specification.

FY 2007 Planned Output: Perform Phase I technical testing and 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 in 2008.

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<b>Accomplishment/Planned Program Title</b>	FY 2006	FY 2007	FY 2008	FY 2009
Communications and Networking for a Deployable Internet (CANDI) (Air Force)	1.207	0.128	0.000	0.000
<p>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.</p> <p>FY 2006 Output: Performed analysis of existing ICAN architecture to facilitate development of SCA compliant architecture. Developed decomposition of ICAN functionality into appropriate SCA resources. Initiated software development to implement required ICAN functionality in SCA compliant code. Initiated assembly of tools and development of CANDI software development and testing.</p> <p>FY 2007 Planned Output: Complete development of SCA compliant ICAN implementation. Test and evaluate system in completed CANDI software development and lab. Finalize documentation. Continue to investigate and develop additional transition opportunities, including potential integration into SCA compliant commercial radio hardware. The CANDI project is scheduled for completion in September 2007. The transition manager is JTRS Joint Program Office.</p>				
<b>Accomplishment/Planned Program Title</b>	FY 2006	FY 2007	FY 2008	FY 2009
Composite Twisted Rudder (Navy)	1.311	0.000	0.000	0.000
<p>Outcome: The complex curved surface of the twisted rudders can be more easily manufactured using composites. Structural Composites has experience building composite rudders for the Navy's Mine Counter Measure ships to reduce rudder weight by 50%. The future DD(X) platform also plans on utilizing composite rudders. Completed port plugs and molds; concluded coupon testing; completed the process trials and cavitation testing for surface treatment; three HY-80 hub castings; built HY-80 hub assembly for test article; installed fiber optic and mechanical strain gages on hub assembly; developed manufacturing guide for CTR; conducted two scale model process trials.</p> <p>FY 2006 Output: Manufacture test article; complete shock test planning and conduct tests; comprehensive testing report; Manufacturing Readiness Review; manufacture port and starboard rudders; install rudders on DDG 66, April 2007; at-sea evaluation. Remove test articles. Evaluate and prepare test report and close out report.</p>				
<b>Accomplishment/Planned Program Title</b>	FY 2006	FY 2007	FY 2008	FY 2009
Covert Eyes 3-D Video Camera (SOCOM)	0.830	0.070	0.000	0.000
<p>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.</p> <p>The primary outputs and efficiencies to be demonstrated in the DAC include: 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&amp;E cost avoidance is \$10M. Additionally, savings in procurement, operations and support life cycle cost saving are expected to be</p>				

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\$2.75M.

FY 2006 Output: Developed project plan of action and milestones; authored test and evaluation plans; completed contract negotiation for test articles and vendor test support; analyzed vendor data; began Phase I system definition.

FY 2007 Planend Output: Complete Phase I system definition; conduct Phase II technical testing and Phase III operational testing /user assessment. Finalize Milestone C production and fielding decision documentation based on test and evaluation outcome; complete project closeout report.

Accomplishment/Planned Program Title	FY 2006	FY 2007	FY 2008	FY 2009
Digital Head Up Display for F/A-18 Aircraft (Navy)	1.925	1.044	0.000	0.000

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 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 2006 Output: Developed a project plan of action and milestones; completed contract for test articles.

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). 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. Full aircraft integration and developmental testing will begin.

Accomplishment/Planned Program Title	FY 2006	FY 2007	FY 2008	FY 2009
ELINT RECEIVER (SOCOM)	0.221	0.000	0.000	0.000

Outcome: This project will evaluate a threat warning receiver that detects threat radar signals emitted from enemy missiles, maritime craft, helicopters and surveillance aircraft, which represent a potential threat to Special Operations Forces (SOF) personnel and maritime craft. Paramount to the safety of SOF is the ability to detect and immediately react whenever counter-detection by hostile forces has occurred. This receiver promises to provide that capability. The ELINT receiver may be qualified for possible SOF maritime and unmanned aerial vehicle integration for radar detection and threat avoidance. The primary outputs and efficiencies to be demonstrated in the DAC include: improved sensitivity detecting Band 3 emitters (8-18 Ghz); smaller, lighter weight, lower cost than current threat warning receiver in existing Joint Threat Warning System architecture. Anticipated cost savings include \$5M in RDT&E cost avoidance, \$2M in manufacturing savings, and \$5M in procurement cost savings. Additionally \$1M in Operations and Support Life Cycle savings are expected. Developed project plan of action and milestones; authored test and evaluation plans; completed contract negotiation for test articles and vendor test support; analyzed vendor data.

FY 2006 Output: Conducted initial technical and operational tests; performed user evaluation in a side by side test; obtained Milestone C production and fielding milestone decision; completed project closeout report.

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<b>Accomplishment/Planned Program Title</b>	FY 2006	FY 2007	FY 2008	FY 2009
Enhanced Military Readiness, Safety, and Personal Bearing through (PFB) Treatment (Air Force)	1.097	0.000	0.000	0.000
<p>Outcome: To demonstrate the safety and efficacy of a topical treatment for Pseudofolliculitis Barbae (PFB), a significant inflammatory skin disease that impacts negatively on the warfighter by degrading combat readiness, personal safety, unit cohesion, and individual morale. PFB disproportionately affects those of African and Hispanic origin, resulting in up to 33% (400,000) of active duty males affected by this condition. PFB can range from minor skin irritation to severe skin lesions which can act as portals for biological or chemical agents. If left untreated, PFB can result in infection and keloid scar formation. The lead service is Air Force. 1) a significant savings in research and developmental cost to Government, and 2) increased morale and greater warfighter responsiveness and effectiveness. Clinical trial relocated from Keesler AFB LA, to Wilford Hall Medical Center (WHMC), San Antonio TX. Contract was let and pre-study preparation and manning completed. Concurrently, the USAF Surgeon General approved the trial and WHMC Institutional Review Board approval was secured. Recruitment and enrollment of study subjects was initiated, and study medication was transferred to the two study sites, WHMC and Washington University Medical School, St Louis Mo.</p> <p>FY 2006 Output: Complete enrollment of study subjects. Complete study on 90 subjects, analyze data and finalize study report containing a description of the study rationale, description of study procedures and patient population, efficacy and safety results and information regarding material compatibility. The PFB project is scheduled for completion in September 2007. The transition manager is USAF Surgeon General's office.</p>				
<b>Accomplishment/Planned Program Title</b>	FY 2006	FY 2007	FY 2008	FY 2009
Enhanced Simulation for Training and Testing (Army)	0.443	0.000	0.000	0.000
<p>Outcome: This project will enable the re-use of millions of dollars worth of existing simulations in new warfighter training simulation applications. Currently, these simulations cannot be used in large-scale scenarios with real-time requirements. The Conductor platform will enable these large-scale scenarios with real-time requirements simulations and also provide a central integration point with new standards, the central collection of simulation data for analysis and the ability for field units to participate in high quality simulation.</p> <p>FY 2006 Output: Comparison testing with and without the Conductor platform. Measurements taken to report on Throughput, Effective Data Throughput, Network Utilization, and Network Latency. In addition, application-level metrics such as frame rate and responsiveness developed to assess the impact on the simulation itself. The goal of the testing is to demonstrate a marked improvement in both the utilization of network resources as well as the quantitative measurement of simulation performance. The estimated cost savings due to this program are RDT&amp;E cost avoidance \$12.000 million, Procurement savings \$100.000 million, O&amp;S Life-cycle savings \$10.000 million, and Manufacturing savings \$5.000 million.</p>				
<b>Accomplishment/Planned Program Title</b>	FY 2006	FY 2007	FY 2008	FY 2009
Extended Databus-Graceful Degradation (Air Force)	1.726	1.914	0.000	0.000
<p>Output: To save the Air Force approximately \$1.6 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 aircraft's local area network (LAN). The lead service is Air Force. The primary outputs and efficiencies to be demonstrated are 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.</p> <p>FY 2006 Output: Contracting actions were completed as well as a demonstration plan.</p>				

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<p>FY 2007 Planned Output: 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 will result 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. 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.</p>				
<b>Accomplishment/Planned Program Title</b>	FY 2006	FY 2007	FY 2008	FY 2009
External A/C Rescue Hoist for the US Army HH/UH-60 Black Hawk (Army)	1.081	0.000	0.000	0.000
<p>Outcome: This project will lower the risk of potential loss of life of wounded soldiers in the field by providing the HH-60M Medical Evacuation (MEDEVAC) Helicopter with a fully mission capable External Aircraft Rescue Hoist. It will provide the Army with a second source vendor for purchasing future hoist and allow the procurement of the best and most affordable hoist for the soldier. Both vendors have provided an upgraded hoist as compared to the existing hoist. The Army is the lead service. The primary outputs and efficiencies to be demonstrated in the qualification of these hoists are (1) each hoist susceptibility to electromagnetic environmental interference, (2) each hoist susceptibility to environmental affects, (3) Airworthiness qualification for each vendor's hoist. Improvements: Increased Time Between Overhaul from 5 years to 10 years and a 25% reduction in the procurement price. Procurement Savings: \$10.000 million; Life Cycle O&amp;S Savings: \$60.000 million.</p> <p>FY 2006 Output: Conducted IPT meetings. Finalized EMI and Environmental Test Plans for both Breeze-Eastern and Goodrich hoists. Procured Goodrich test hoist. Requested and received existing test reports from vendors for review. Received qualification by similarity support documentation from both vendors. Aviation Engineering Directorate evaluated test data and provided recommendation of required qualification test. Wrote and received approval for both vendors Environmental and Electromagnetic Environmental Interference Test Plans. Received test item from Goodrich. Activities to be completed in FY 2007: Initiate Phase I of testing (E3/Environmental Testing) at the Redstone Technical Testing Center (RTTC). Complete E3/Environmental testing at RTTC. Complete Test Reports and submit to AED for approval for Airworthiness Qualification. Initiate and complete Phase II (Flight Testing) at the Aviation Technical Testing Center (ATTC). Complete Engineering Change Proposal, and begin installing hoist on new production HH-60M aircraft.</p>				
<b>Accomplishment/Planned Program Title</b>	FY 2006	FY 2007	FY 2008	FY 2009
Friction Stir Process (FSP) for Submarine Propellers (Navy)	0.625	0.000	0.000	0.000
<p>Outcome: Friction stir processing is a new method to improve propeller casting surface quality strengthen weld joints by altering the microstructure via thermo-mechanical working. Casting defects can limit the structural integrity of propellers; conventional weld repair has become a significant part of the manufacturing process. Substituting FSP for conventional welding will save manufacturing time and cost while increasing strength and quality of processed area.</p> <p>FY 2006 Output: Completed final feasibility study. Finalize FSP design in FY 2007. Award contract to manufacture FSP. Build and Deliver FSP Equipment. Equipment delivery. Equipment installation. Equipment shakedown. Demonstrate 3-D capability on propeller.</p>				
<b>Accomplishment/Planned Program Title</b>	FY 2006	FY 2007	FY 2008	FY 2009
GBS Transponder Throughput Improvement Using DVB-S2 (Air Force)	0.105	0.000	0.000	0.000
<p>Outcome: To reduce--by 30%, or about \$58.0mil annually--the cost of transponders required to support the Air Force's Global Broadcast System (GBS) waveform by transitioning from the current air interface to a new, more efficient commercial standard. This capability will also provide advanced services such as a High Definition video and broadband data. Fewer transponders will be required to satisfy</p>				

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the mission requirements, thereby reducing the number of commercial teleport sites needed. The lead service is Air Force. Efficiencies to be demonstrated are 1) increased speed of data transmission rates by 30%, and 2) triple the number of users that receive data at any given time.

FY 2006 Output: Completed satellite loop-back testing using DVB-S2 equipment. Performed broadcasting of data from the Norfolk GBS uplink facility to GBS user terminals. Tests were conducted to evaluate data products (digital video, imagery, FTP traffic, and Web traffic). The final GBS2 demonstration was held 19-20 JUL 06 at DISA Headquarters to show the operational effectiveness and suitability of the DVB-S2 waveform for actual field operations. This effort was scoped to develop constant coding and modulation (CCM); it was delivered as demonstrated. Also delivered and demonstrated were DVB-S2 variable coding and modulation (VCM) for concurrent operation of different terminal aperture sizes. The VCM demonstration employed ultra lightweight encapsulation (ULE), which also exceeded objectives. In addition to CCM, VCM and ULE, this effort laid the foundation for continuing DVB-S2 developments in Adaptive Coding and Modulation (ACM) and IP(v)6. The pursuit of these capabilities will be turned over to the GBS JPO. Subsequently, final reports and documentation were complete and this one-year project closed 15 Sep 06. Transition of this capability will occur through the change in policy issued by OSD/NDI and the Joint Internet Protocol Modem program office beginning in FY 2010. The GBS Transponder Improvement Program is complete. Transition Manager is DISA.

Accomplishment/Planned Program Title	FY 2006	FY 2007	FY 2008	FY 2009
Green Light Aiming Laser for SOF Small Arms (SOCOM)	0.382	0.000	0.000	0.000

Outcome: This project will evaluate green light laser aiming devices for small arms as replacement for the existing red light laser aiming devices. Green light lasers are closer to the center of the spectrum of human vision and they provide much better contrast than red lasers when used against green or black targets, even in bright sunlight. The primary outputs and efficiencies to be demonstrated in this DAC include: target acquisition to 200 meters; better contrast and visibility in bright sunlight; increased visibility on black and green targets; improved ergonomics; enhanced operational effectiveness in inclement weather conditions. RDT&E cost savings are expected to be approximately \$4M. Manufacturing savings will be \$3.975M and total savings in procurement costs as well as operations and support life cycle savings are about \$5M.

FY 2006 Output: Developed a project plan of action and milestones; obtained responses to a request for proposal and sample products; completed initial user assessment of product samples. Complete contract for test articles in 2007 with 2006 funds; conduct technical validation of test articles; finish operational evaluation of suitability and effectiveness; obtain Milestone C production and fielding decision; complete project closeout report.

Accomplishment/Planned Program Title	FY 2006	FY 2007	FY 2008	FY 2009
Improved Durability F100/F414 Exhaust Nozzle Divergent Seals (Air Force)	1.188	0.262	0.189	0.000

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. Eight Ceramic Matrix Composite (CMC) F100 exhaust nozzle divergent seals flying in an FSE at McEntire ANGCS since 17 Aug 05 on two F-16 fighter aircraft. Five seals accumulated 429 Total Accumulated Cycles (TAC) while the remaining three seals have accumulated 361 TAC. The goal is to reach 700 TACs per seal.

FY 2006 Output: Twenty additional CMC seals were purchased to expand the FSE. These 20 seals were shipped to Mountain Home AFB to begin a second FSE using two F-15 and two F-16 aircraft. Project recently expanded to include evaluation of the CMC seals on the F414 engine that powers the Navy F-18 fighter. Six F414 exhaust nozzles were shipped to the engine manufacturer for ground testing on an F414 test engine.

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Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY RDT&E/ Defense Wide BA# 5	PE NUMBER AND TITLE <b>0604051D8Z - Defense Acquisition Challenge Program (DACP)</b>			PROJECT <b>P051</b>
<p>FY 2007 Planned Output: Continue FSE flight test of CMC Divergent Seals at McEntire ANGS and Mountain Home AFB. Measure retained strength and properties of flight-tested hardware that reaches 700 TAC. Conduct a full life cycle cost analysis to document the value of using CMC divergent seals. Prepare an Engineering Change Proposal to officially document CMC divergent seals as fully flight certified. Submit final report on F100 field service evaluation. Establish a contract with F414 engine manufacturer to analyze CMC seals and to conduct ground testing of CMC seals on a F414 engine. A total of 24 additional F414 seals will be purchased for continued ground testing and an FSE.</p> <p>FY 2008 Planned Output: Continue ground tests of CMC seals on F414 engine. Proceed to an FSE on an F-18 aircraft if ground testing is successful. The Divergent Seals project is schedule for completion in March 2008. The transition managers are the F100-100/200/220 Augmentor Program Manager and Naval Air Systems Command.</p>				
Accomplishment/Planned Program Title	FY 2006	FY 2007	FY 2008	FY 2009
Improved IR Missile Self Protection System for F-15 Aircraft (Air Force)	0.658	0.441	0.000	0.000
<p>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. Primary outputs and efficiencies to be demonstrated are 1) integration of 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.</p> <p>FY 2006 Output: Accomplished the aircraft computer interface design, completed test planning, initiated the upgrade of initial dispenser test unit and modified the initial missile launch rail test unit, and designed and initiated the upgrade of the Boeing System Integration Lab (SIL) to support the testing.</p> <p>FY 2007 Planned Output: Complete the upgrade of the dispenser test unit and SIL, develop test software, verification test and evaluation at the Boeing St. Louis SIL; implement design changes coming out of testing and obtain final design hardware. Capability is projected to transition to warfighting capability by 2011. Project is scheduled to be complete and test report provided by September 2008. Transition Manager is F-15 Program Office.</p>				
Accomplishment/Planned Program Title	FY 2006	FY 2007	FY 2008	FY 2009
Live Fire Testing of Composite Materials for Future Air Platforms (Air Force)	0.133	0.000	0.000	0.000
<p>Outcome: This project will provide data/analysis to guide future design/fabrication and determine requirements for future composite aircraft. This project will determine the hydro-dynamic ram effects of a 23mm HEI round penetrating a water-filled (wet) composite wing under load and the fragmentation effects of a 23mm HEI round penetrating a dry composite wing under load.</p> <p>FY 2006 Output: Conducted testing for effects of penetrating a pressurized composite fuselage and determining the effects of rock coupon foreign object debris (FOD) impacting a non-pressurized composite fuselage. Collected ballistic damage data on a Raytheon Starship composite structure using 23mm High Explosive Incendiary (HEI) projectiles. Final analysis and evaluation are expected in FY2007.</p>				
Accomplishment/Planned Program Title	FY 2006	FY 2007	FY 2008	FY 2009

**OSD RDT&E PROJECT JUSTIFICATION (R2a Exhibit)**

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY RDT&E/ Defense Wide BA# 5	PE NUMBER AND TITLE <b>0604051D8Z - Defense Acquisition Challenge Program (DACP)</b>			PROJECT <b>P051</b>	
Low Frequency Synthetic Instrument Measurement and Stimulus System (SIMSS-LF) (Air Force)	0.181	0.000	0.000	0.000	
<p>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 1) timely and accurate diagnoses of electronic attack pod failures, thus contributing to aircrew and aircraft survival. Successfully completed technical testing to include completion of data gathering, analysis, and tabulation.</p> <p>FY 2006 Output: The SIMSS-LF project was completed in September 2006. Final report developed. Transition Manager is Ogden Air Logistics Center.</p>					
<b>Accomplishment/Planned Program Title</b>	FY 2006	FY 2007	FY 2008	FY 2009	
Modular Land Warrior Fuel Cell Power System (Army)	1.605	1.508	0.000	0.000	
<p>Outcome: This project will enable the U.S. Army's Land Warrior (LW) and future 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). This 9 to 1 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&amp;E cost avoidance is estimated to be \$45.000 million. O&amp;S cost savings is estimated at \$193.000 million.</p> <p>FY 2006 Output: Generate Program SOW, milestone payments, test and safety requirements, prepare test plans, and safety plans. Award contract for building and testing of the DMFC power system. Convene IPT meetings and prepare final test evaluation, and safety assessment plans. Conduct system requirements, preliminary, and critical design reviews. Contractor will build and test alpha units, prepare for critical design review, and perform integration into Land Warrior systems.</p> <p>FY 2007 Planned Output: Convene beta system critical design review. Build and deliver Beta systems for technical test verification of interface with Land Warrior, environmental requirements, and user feedback. Conduct the final design review. Build and deliver M-25 test and evaluation systems. Final procurement decision.</p>					
<b>Accomplishment/Planned Program Title</b>	FY 2006	FY 2007	FY 2008	FY 2009	
Nickel Nanostrand Coatings for Improved Lighting Strike Protection (Air Force)	0.830	0.754	0.000	0.000	
<p>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 primary outputs and efficiencies to be demonstrated are 1) significant RDT&amp;E cost avoidance (\$4-10mil), manufacturing savings (\$10-25mil), procurement savings (\$35 mil) and 2) improved all weather mission refueling capability and protection of aircraft from the direct and indirect EMI effect of lightning.</p> <p>FY 2006 Output: Contracted for test articles, manufactured prototype booms for 1/4 scale testing. Developed and delivered prototype lighting strike composite repair kits. Contracted with commercial vendor</p>					

**OSD RDT&E PROJECT JUSTIFICATION (R2a Exhibit)**

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY RDT&E/ Defense Wide BA# 5	PE NUMBER AND TITLE <b>0604051D8Z - Defense Acquisition Challenge Program (DACP)</b>	PROJECT <b>P051</b>
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to produce initial low rate production of nickel nanostrand resin films.

FY 2007 Planned Output: Manufacture second generation of improved refueling boom design on ¼ scale article. Demonstrate a full-scale boom sheath and validate EMI hardening. Complete initial ground based test and evaluation of patch kit material and make nanostrand repair kits available as a GSA scheduled item. Commercialize nanostrand resin film for both EMI hardening and lightning strike protection. The Nickel Nanostrand project is scheduled for completion in September 2007. The transition manager is Air Force Research Lab, Materials Directorate.

<b>Accomplishment/Planned Program Title</b>	FY 2006	FY 2007	FY 2008	FY 2009
On-Aircraft (B2) Laser Additive Repair (LAR) of Titanium (Air Force)	0.316	0.000	0.000	0.000

Outcome: To demonstrate an on-aircraft repair capability that will significantly increase the operational availability of the Air Force's premier stealth bomber. Full mission capability rates of the B-2 Spirit have suffered due to the severe cracking issue that currently exists in the aft deck titanium structure. This project will operationalize an on-aircraft repair process that will provide a field repair option that will, in turn, ensure full B-2 mission capability and avoid the necessity to return aircraft to depot for required maintenance. This program could represent the long-term solution to the aft deck cracking problem which could result in a large savings (~\$200mil) to the Air Force and DoD. The lead service is Air Force. The primary outputs and efficiencies are 1) estimated operations and maintenance cost savings of as much as \$200mil, and 2) significantly increased mission availability rates for the Air Force's frontline bomber fleet.

FY 2006 Output: Completed fatigue testing for both on and off aircraft type repairs. Developed a macro-level view and notional mechanical core for on-aircraft laser-additive repair process. Outlined summary of technical risks that will need to be addressed in a systems engineering approach for successful on-aircraft application. Built test-bed demonstration unit; demonstration not yet completed. Created LAR development and transition roadmap to outline path forward for successful prototyping and validation.

<b>Accomplishment/Planned Program Title</b>	FY 2006	FY 2007	FY 2008	FY 2009
Portable Tactical Wireless Broadband Network (SOCOM)	0.719	0.000	0.000	0.000

Outcome: This product will greatly improve Special Operations Forces (SOF) communication on the battlefield. It will provide a voice, video and data transmission capability in areas where communications traditionally have been difficult such as caves, tunnels, mountainous and urban areas. The primary outputs and efficiencies to be demonstrated in the DAC include: ability to provide short/long haul, bi-directional wireless communications and interface with conventional and satellite reach-back technology; secure capability to authenticate entities attempting to enter the network; capacity to provide communication underground, in-buildings and shipboard environments, to include personnel tracking; capability for field-deployable WiFi or "Cell Tower on the Move" communications, supporting VOIP, Internet, video, and data to hand-held devices. RDT&E Cost avoidance is estimated as \$12M and savings in procurement costs \$3M. Procurement cost avoidance savings is estimated between \$1.5M and \$3M for orders of 500-1000 units.

FY 2006 Output: Developed a project plan of action and milestones based on project resourcing; contracted for test articles and vendor technical support; analyzed vendor test data. Conduct technical validation and operational testing; finalize Milestone C procurement and fielding decision package based on project test and evaluation results.

<b>Accomplishment/Planned Program Title</b>	FY 2006	FY 2007	FY 2008	FY 2009
Project Angel Fire (Air Force)	2.766	0.000	0.000	0.000

Outcome: To demonstrate a real time tactical persistent surveillance situational awareness system capable of providing very high resolution, city-sized images of vehicles, people and other items of tactical and operational interest to hundreds of users simultaneously. This capability provides situational awareness to tactical decision makers and facilitates forensic and predictive analysis, directly supporting urban

**OSD RDT&E PROJECT JUSTIFICATION (R2a Exhibit)**

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY  
RDT&E/ Defense Wide BA# 5

PE NUMBER AND TITLE

**0604051D8Z - Defense Acquisition Challenge Program (DACP)**PROJECT  
**P051**

combat, base defense, border security, and other anti-insurgency/counter terrorist efforts. Upon successful completion of the six-camera suite demonstration, the Angel Fire system will be enhanced to a 24-camera array, replicated and deployed in 2007 to the OIF Area of Responsibility. The lead service is Air Force.

The primary outputs and efficiencies are 1) RDT&E cost avoidance (\$10mil), procurement cost avoidance: (\$7mil), 2) quantum improvement over existing Predator-type ISR capability, 3) vastly increased real-time tactical situational awareness to battle staff, tactical managers and intelligence analysts and 4) fratricide avoidance and force protection.

FY 2006 Output: The 6-camera system was successfully demonstrated at the Mojave Viper Exercise, 14 May-7 June, 2006, resulting in continued endorsement of the system and its operational potential by the USMC. The decision to deploy the system in conjunction with a Marine infantry battalion was sustained. Commander, Air Force Research Lab, agreed to provide a 24-person manpower package to support the system in-theater. Necessary hardware engineering and software development were completed for the 24-camera package, and airborne platforms sufficient to provide continuous coverage over a designated urban area, dawn to dusk, seven days a week, were secured. Deploy to OIF for operational support of USMC and other ground forces. The Project Angel Fire project was completed in September 2006. Transition manager is the Air Force Research Lab.

**Accomplishment/Planned Program Title**

FY 2006

FY 2007

FY 2008

FY 2009

Qualification of Conformal Fabrics (Air Force)

0.885

0.000

0.000

0.000

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% 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 lead service is Air Force.

The primary outputs and efficiencies to be demonstrated are 1) fabrication of complex shapes to Boeing specification and award of the Boeing Standard Material Specification.

FY 2006 Output: Fabrication process was verified. The Boeing Standard Material Specification was drafted, setting the performance goals of the program. The performance verification test matrix was designed, and the requirements for material production were established. Fabricated test coupons in accordance with the approved test matrix. Testing included inspection of the coupon panels and development of a (nondestructive testing (NDT) process specification and standard. NDT tasks were completed. The demonstration component design will be completed and the part fabricated. Finish testing, publish test results and submit final report.

**Accomplishment/Planned Program Title**

FY 2006

FY 2007

FY 2008

FY 2009

Quiet Eyes Low Cost DIRCM Laser-Pointer-Tracker Demonstration (Air Force)

3.073

0.000

0.000

0.000

Outcome: To demonstrate a lower cost Directed InfraRed Counter-Measures (DIRCM) turret that will provide protection from and defeat enemy-fired infrared missiles. The turret is based on the currently-in-production AIM-9X guidance unit, thus, significant savings can be achieved. The lead service is Air Force. The Primary outputs and efficiencies to be demonstrated are 1) demonstrate that a laser jammer can be integrated inside the seeker head of an AIM-9X seeker assembly. Conducted multiple test planning meetings in preparation for the demonstration of the capability. Fired Smokey SAM missiles at the Wright-Patterson LID Range to verify the QE turret ability to acquire and track a missile-like object rather than an aircraft. Collected live fire data at Air Force 46th Test Wing Live Fire, showing the ability to track MANPAD threats. Tested Quiet Eyes (QE) turret under the vibration environment of a C-17 and AH-1Z. Completed a digital model of the QE turret. Demonstrated the ability of the QE turret to maintain stable track of a target while under vibration. Air Force and NAVAIR continued to work together to add value to efforts by jointly planning the LID range testing at WPAFB to benefit both the QE and Scorpion Programs.

FY 2006 Output: Completed assembly of a fully functional QE turret, turret/laser integration and characterized laser characteristics through the QE turret. Demonstrated the ability of the QE turret to maintain

**OSD RDT&E PROJECT JUSTIFICATION (R2a Exhibit)**

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY RDT&E/ Defense Wide BA# 5	PE NUMBER AND TITLE <b>0604051D8Z - Defense Acquisition Challenge Program (DACP)</b>	PROJECT <b>P051</b>		
track of a target while emitting laser power into the receiver/ transmitter set. Completed final demonstration during "tower test" at WPAFB. Publish final report on the results of qualification of the Quiet Eyes laser and seeker head demonstration. The Quiet Eyes Low Cost DIRCM project is complete. Transition of this capability will occur through the modification of the Cost Effective Light Aircraft Missile.				
<b>Accomplishment/Planned Program Title</b>	FY 2006	FY 2007	FY 2008	FY 2009
RESUS (Restore Effective Survival in Shock) (Air Force)	0.332	0.000	0.000	0.000
Outcome: To demonstrate the efficacy of bovine polymerized hemoglobin for the pre-hospital resuscitation of casualties in hemorrhagic shock. The trial product, Hemopure, is a low volume and weight, room temperature stable substitute for blood transfusions for combat casualties that can be stored for 3 years without refrigeration and is pathogen free. It is highly likely to significantly decrease combat casualty morbidity and mortality. The lead service is Air Force. The primary outputs and efficiencies are 1) operations and support life cycle cost reduction of 50-70% due to Hemopure increased shelf life and 2) life saving potential of product since room temperature storage and long shelf life allow greater access in combat.				
FY 2006 Output: Subsequent to the 8 July 2005 clinical hold placed on RESUS by the Food and Drug Administration (FDA) as a result of concerns about potential elevated blood pressure and secondary side effects on clinical trial subjects, little progress has been achieved within the RESUS program. On 3 October 2005 FDA counter-responded to an 8 September 2005 Naval Medical Research Center (NMRC) response to the clinical hold, requesting additional information. NMRC responded to this request. FDA subsequently continued the hold and asked for an FDA Blood Products Advisory Committee review of RESUS. This review was scheduled for 14 July 2006. On 12 July 2006, a public citizens' group sued the FDA in federal court to force the meeting to be open to the public or cancelled. FDA elected to cancel the meeting and reschedule it in October 2006. The October meeting was subsequently rescheduled for mid-December 2006. Funds will continue to execute if the clinical hold is lifted as a result of the December 2006 review.				
<b>Accomplishment/Planned Program Title</b>	FY 2006	FY 2007	FY 2008	FY 2009
Risk Reduction for Specific Emitter Identification (SEI) Insertion into AN/ALQ-211 System (SOCOM)	0.387	0.754	0.000	0.000
Outcome: Digital 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 3 years ahead of planned spiral development integration of the same technology with the AN/ALQ-211. The primary outputs and efficiencies to be demonstrated in the DAC include: improved Geo-location of threats; correct correlation of preloaded database threats against actual collected threats 95% of the time; subsequent accurate update of threat database 100% of the time. Production cost savings of approximately \$38.5M could be realized by developing an SEI capability during the development of the digital receiver. Additionally \$5.0M RDT&E costs, \$23.2M savings in procurement and \$19.5M Operations and Support Life Cycle savings should be realized. Completion date is 30 September 2007.				
FY 2006 Output: Completed Phase I Technical Requirements Definition; concluded contract negotiations involving data rights issue; began Phase II Implementation Test and Evaluation planning.				
FY 2007 Planned Output: Receive test articles; complete Phase II test to include an architecture study and integration of SEI receiver test fixture with Suite of Integrated Radio Frequency Countermeasures system to validate improved performance; obtain Milestone C procurement and fielding decision; submit project closeout report.				
<b>Accomplishment/Planned Program Title</b>	FY 2006	FY 2007	FY 2008	FY 2009
Super-Capacitor Power Source for Gun Launched Munitions (Army)	0.382	0.295	0.000	0.000

**OSD RDT&E PROJECT JUSTIFICATION (R2a Exhibit)**

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY RDT&E/ Defense Wide BA# 5	PE NUMBER AND TITLE <b>0604051D8Z - Defense Acquisition Challenge Program (DACP)</b>	PROJECT <b>P051</b>
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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. The primary outputs and efficiencies to be demonstrated are as follows: (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, Enhanced Portable Inductive Artillery Fuze Setter (EPIAFS) interoperation, and (5) unlimited re-charging and projectile re-initialization cycles. 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 @ \$36 thousand ea. Procurement Potential: \$2.100 million. Other Benefits: Increased factory handling safety since supercapacitor power source approach eliminates battery primer.

FY 2006 Output: Four months of accelerated life testing consisting of approximately three hundred temperature cycles was successfully conducted on sixty hundred parts. High G, air gun survivability testing up to approximately 14000 G's were successfully conducted on scores of supercapacitors. A packaging feasibility study was performed showing that the circuitry can fit inside the current data hold battery volume constraints. Preliminary cold temperature electrical performance characterization testing was performed on sample supercapacitors.

FY 2007 Planned Output: Conduct component functional tests pre, post and during level, high G, rail gun test at hot and cold temperature extremes using an OBR. Develop artillery gun launch survivable packaging concept for the power source. Conduct power source subassembly high G survivability air gun and electrical performance validation testing. Modify Excalibur Guidance and Navigation Unit (GNU) subsystem design to incorporate new power source. Conduct performance verification testing using prototype GNU subassemblies. Demonstrate interoperability between prototype GNU and Enhanced Portable Inductive Artillery Fuze Setter (EPIAFS) used to charge the power source and program the projectile. Spiral Output - mechanical and electrical design features have already been incorporated into the Excalibur projectile were incorporated for future insertion of the supercapacitor power source.

Accomplishment/Planned Program Title	FY 2006	FY 2007	FY 2008	FY 2009
Superior Surface Treatment Techniques for Adherent Bore Coatings (Army)	0.432	0.000	0.000	0.000

Outcome: This project applies innovative surface treatment and plasma engineering technology to improve gun bore coating deposition process for US Army Legacy (Abrams) cannons, Future Combat Systems, and Navy Advanced Gun System. The new technology represents a cost-effective innovation to deposit EPA-compliant bore coatings with component cycle life comparable or exceeding current production Cr bore coatings. Under this project, plasma enhanced cylindrical magnetron technology will be developed to coat a 1-ft long 120mm diameter gun bore section and to demonstrate superior adhesion properties. The project is under the sponsorship of US Army ARDEC Warfighting Systems Integration Directorate, and a total program cost saving of \$53.000 million is expected in 5 years after implementation.

FY 2006 Output: Superior plasma surface techniques including pre-deposition surface cleaning and ion-assisted sputtering deposition were tested in the planar geometry. The EPA-compliant coatings demonstrated superior properties: Thick sputtered Ta coatings showed no cohesive and no adhesive failures under cross groove test; and showed excellent crack resistance, no delamination, no failures under pulsed laser heating test simulating 120mm firing hot round at 1490°K. A 1-ft long 120mm diameter RF plasma-enhanced cylindrical magnetron sputtering system has been constructed and pre-deposition surface cleaning techniques successfully developed. Preliminary testing of thin Ta coatings deposited on steel in 120mm cylindrical geometry showed very promising results. A patent application entitled 'RF Plasma Enhanced Cylindrical Magnetron Sputter Deposition of Inner Surface of Cylinders' has been filed. Planar magnetron deposited thick coatings will be tested in Benét Labs Vented Combustor, simulating the thermal-mechanical-chemical environment of gun bore firing at 1490°K. RF-plasma enhanced cylindrical magnetron will be used to deposit coatings, followed by analytical testing, pulsed laser heating and vented combustor testing. A 1-ft 120mm M256 section will be coated with thick adhesive EPA-compliant bore coatings for delivery to US Army ARDEC Warfighting Systems Integration Directorate. An internal summary report will be prepared; presentation and publication in several technical journals are planned. Begin transition of this technology to US Army ARDEC Warfighting Systems Integration Directorate, through Benét Labs MTO-CMS (Cylindrical Magnetron Sputtering) project.

**OSD RDT&E PROJECT JUSTIFICATION (R2a Exhibit)**

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY RDT&E/ Defense Wide BA# 5	PE NUMBER AND TITLE <b>0604051D8Z - Defense Acquisition Challenge Program (DACP)</b>	PROJECT <b>P051</b>
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Accomplishment/Planned Program Title	FY 2006	FY 2007	FY 2008	FY 2009
Tactical Remote Sensor Systems (TRSS) Monitoring Station Modernization Program (Navy)	1.660	0.000	0.000	0.000

Outcome: A successful DAC project will provide a compact TRSS Monitoring System that will enable sensor monitoring on-the-move at the unit level, be adaptable to legacy sensor systems as well as future designs, and reduce equipment and lifecycle costs by over \$98M. Based on an operational requirement to remotely monitor and collect intelligence on the threat presence and movements with TRSS, the USMC will test the TRSS Monitoring System manufactured by Nova Engineering, Inc. of Cincinnati, OH to replace the obsolete technology currently utilized in the Global War on Terror (GWOT). These Monitoring Systems provide the "hub" between the deployed remote sensor systems and the Warfighter's command and control infrastructure by collecting, displaying, and disseminating remote sensor information to intelligence collection activities. A two-year project under sponsorship of the OSD CTO and MARCORSSYSCOM. Projected completion of testing and qualification will be CY 2008 with transition to USMC MAGTF forces during CY 2008. The primary outputs and efficiencies to be demonstrated in the DAC Test are: (1) reduces user complexity, power consumption, and provides Intelligence information directly to the units on the battlefield and in operation centers simultaneously; (2) reduces system size and weight by 90% (backpackable); (3) provides 100-fold increase in system bandwidth; and (4) avoid RDT&E costs of up to \$15M with a ROI of 80:1.

FY 2006 Output: Initial funds were received at the end of the 2nd Qtr. Contract Preparation and Award completed. Test Planning and fabrication of test articles. Complete Test Planning. The delivery of test articles. Technical Testing will commence at Nova Engineering and finalize. Concurrently, test articles will be installed in a HMMWV platform for Operational Testing at Camp Pendleton to determine the system's on-the-move capabilities. The User Evaluation will be conducted at the Marine Corps Communications-Electronics Schools in 29 Palms, CA to be completed at the end of the 1st Qtr FY 2007. Upon completion of all testing, a Technical Test Report will be furnished.

Accomplishment/Planned Program Title	FY 2006	FY 2007	FY 2008	FY 2009
Titanium Encapsulated Silicon Carbide Skirt Armor with Multi-Hit Capability (Navy)	0.832	0.406	0.000	0.000

Outcome: A successful DAC project will allow DRPM AAA to integrate multi-hit capable, composite skirt armor on the 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. A two-year project under sponsorship of the OSD CTO and MARCORSSYSCOM. Projected completion of testing and qualification will be CY 2008 with transition to DRPM AAA during 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 \$56M for EFV production and maintenance, and avoid RDT&E costs of \$2.5M with and ROI of 108:1.

FY 2006 Output: Initial funds received at the end of the 2nd Qtr. Contract Preparation & Award was completed at the end of the 4th Qtr.

FY 2007 Planned Output: Initiate test planning. Commence test article fabrication. Perform 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 2nd Qtr. Upon successful Lab Testing, the Test Articles will be shipped to DRPM AAA, where Validation Testing will be completed with support from General Dynamics and BAE for EFV fit and integration. Completion of Validation Testing anticipated during the 4th Qtr. The Safety/Environmental (S/E) Testing will be conducted 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. Upon completion of the Live-Fire Testing, a Technical Test Report will be provided. A Procurement Decision will be made by DRPM AAA for inclusion in the EFV design and build during the 2nd Qtr.

Accomplishment/Planned Program Title	FY 2006	FY 2007	FY 2008	FY 2009
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**OSD RDT&E PROJECT JUSTIFICATION (R2a Exhibit)**

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY RDT&E/ Defense Wide BA# 5	PE NUMBER AND TITLE <b>0604051D8Z - Defense Acquisition Challenge Program (DACP)</b>	PROJECT <b>P051</b>			
Trailer Mounted Power Generator & ECU (Navy)	0.562	1.146	0.000	0.000	
<p>Outcome: A successful DAC 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. A two-year project under sponsorship of the OSD CTO and MARCORSYSCOM. 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 in the DAC Test 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&amp;E cost avoidance of \$4.0M, Procurement Cost savings of \$16.0M, and provide an ROI of 16:1. FY 2006 Out of Cycle approved project.</p> <p>FY 2006 Output: Initial project funding was received during the 3rd Qtr. Test Articles were received at the Aberdeen Test Center (ATC) and Limited User Evaluation was completed during the 3rd Qtr. Source Selection was awarded to General Dynamics C4 Systems. A contract option for additional test quantities from General Dynamics was exercised for delivery to MARCORSYSCOM.</p> <p>FY 2007 Planned Output: After delivery of the test articles, the program office will conduct parallel Verification Testing and a Field/User Evaluation. Upon completion of all testing, a Technical Test Report will be furnished, a Procurement Decision will be reached at the end of the 3rd Qtr FY 2007, and a Close-out Report provided to complete the project during the 4th Qtr FY 2007.</p>					
Accomplishment/Planned Program Title	FY 2006	FY 2007	FY 2008	FY 2009	
UUV-N Mine Neutralization by EOD Teams in VSW Environment (Navy)	1.015	1.393	0.378	0.000	
<p>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.</p> <p>FY 2006 Output: Developed the SOW and deliverables (includes life cycle support contract); Contract Awarded and development of notional CONOPS and Exit criteria; AMNS Prototype Demonstration to NSCT 1.</p> <p>FY 2007 Planned Output: Preliminary Design Review for vehicle and launcher and control console.</p> <p>FY 2008 Planned Output: Complete User Evaluation and Performance Testing. After completion of all testing, a Technical Test Report will be provided, and a Close-out Report submitted.</p>					
Accomplishment/Planned Program Title	FY 2006	FY 2007	FY 2008	FY 2009	
Washable Read/Read-Write 2.45GHz RFID Tags with Highly Flexible Antenna (Army)	0.922	0.058	0.000	0.000	
<p>Outcome: This project is testing Radio Frequency Identification (RFID) tags that can be read swiftly from long distances. 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. RDT&amp;E cost avoidance: \$22.000 million. Using publicly available information on US Army annual expenditures on military uniform issue and maintenance as a benchmark, ~\$180.000 million in FY 2005 with 10% annual adjustments for the out years, estimated savings of \$29.700 million over the three year period.</p>					

**OSD RDT&E PROJECT JUSTIFICATION (R2a Exhibit)**

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY RDT&E/ Defense Wide BA# 5	PE NUMBER AND TITLE <b>0604051D8Z - Defense Acquisition Challenge Program (DACP)</b>	PROJECT <b>P051</b>		
<p>FY 2006 Output: Tested and evaluated Tags for military environment use on Army M4 Carbine modular weapon, AN/PRC-148 Multi-band Inter/Intra Team Radio (MBITR), and other Soldier equipment items. Technical tests included, but are not limited to: RF emissions interference testing to determine potential effect on sponsor identified military and commercial systems; Best use recommendations for adhering RFID tags to M4 Carbine modular weapon, AN/PRC-148 Multi-band Inter/Intra Team Radio, other systems and uniforms/textiles; Recommendations for operator programmed data content; Field trials and operation tests with the M4 Carbine, AN/PRC-148 Multi-band Inter/Intra Team Radio, and possibly NBC clothing; Standard DoD MIL-STD-810 testing; Characterize and confirm read/read-write function; Opposing force analysis, readability distance scenarios; Conformity to applicable standards; Other test/evaluation criteria as required.</p> <p>FY 2007 Planned Output: A full test plan and detailed pass / fail criteria for individual tests will be provided to the program office within 90 days of contract award.</p>				
<b>Accomplishment/Planned Program Title</b>	FY 2006	FY 2007	FY 2008	FY 2009
X-Cor Replacement for Conventional Honeycomb (Army)	0.886	0.000	0.000	0.000
<p>Outcome: This project demonstrated lightweight, damage tolerant core material that replaces conventional honeycomb in aerospace structures. The DAC project provided an enabling technology in support of a four-year project sponsored by Army ManTech, Utility Helicopter, and Special Operations PMOs. The primary outputs and efficiencies demonstrated by the X-Cor replacement project (1) based on 47 lb. weight reduction - reduced negative effect of Aft CG condition, (2) elimination of corrosion prone metallic structure - reduce O&amp;S cost 20% (3) part count reduced 73% (4) fastener count reduced 92% (5) Highly desired by Special Operations variant (6) reduction of touch labor hours in assembly. FY 2006 Output: (1) demonstrated all X-Cor and K-Cor manufacturing and inspection process steps, (2) developed formal process documents for each processing step and "Fixed", (3) implemented a "Customer" approved Quality plan, (4) validated through testing all material properties, (5) validated through inspection all dimensional requirements, (6) manufactured and delivered six sets of core to the composite tailcone manufacturer. Savings in Procurement costs: \$67.200 million minimum 45%.</p> <p>FY 2006 Output: The DAC technical effort was successfully completed in FY 2006 with the ManTech work scheduled to be finished in FY 2007 with the delivery of four test articles and two flight test articles. Utility PMO will commence qualification test, including a flight test program. The Common Composite Tailcone is slated for implementation in Block 1A of the UH-60M program. There will be one common tailcone for both the UH-60M and MH-60M platforms. The UH-60 Blackhawk is part of the Army's Objective Force. To meet Objective Force goals of improved aircraft performance, Blackhawk aggressively pursued weight reduction. Aircraft weight is directly tied to vertical rate of climb (VROC) and range. Implementing X-Cor™ onto Blackhawk allows weight savings by replacing metallic structure with lightweight low O&amp;S cost composite structure. Current estimates put this weight savings at 47 lbs. This technology also increases damage tolerance therefore improving ballistic survivability and reducing maintenance repairs due to damage.</p>				
<b>Accomplishment/Planned Program Title</b>	FY 2006	FY 2007	FY 2008	FY 2009
FY 2007 New Start Projects	0.000	0.000	0.000	0.000
<p>FY 2007 Plan: The DAC program will continue to fund testing activities on 16 continuing projects executing \$11.274 million in FY 2007 funding. The remaining \$17.465 million in funding will initiate 18 new start DAC Projects which have been selected from the FY 2007 DAC Proposal Process. Detailed descriptions of these new starts are provided below.</p>				
<b>Accomplishment/Planned Program Title</b>	FY 2006	FY 2007	FY 2008	FY 2009
Improved Performance Environmental Control System (Army)	0.000	1.154	0.464	0.000
<p>Outcome: This project will lower the risk of potential loss of life of wounded soldiers in the field by providing the HH-60M Medical Evacuation (MEDEVAC) Helicopter with a fully mission capable ECS. It will provide the Army with a more robust and efficient heating and cooling environment for the HH-60M. The future ECS will be more efficient, more affordable and weigh 49 lbs. less than the current ECS.</p>				

**OSD RDT&E PROJECT JUSTIFICATION (R2a Exhibit)**

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY RDT&E/ Defense Wide BA# 5	PE NUMBER AND TITLE <b>0604051D8Z - Defense Acquisition Challenge Program (DACP)</b>	PROJECT <b>P051</b>
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The Army is the lead service. The primary outputs and efficiencies to be demonstrated in the qualification of the ECS are (1) the ECS susceptibility to electromagnetic environmental interference, (2) ECS susceptibility to environmental affects, (3) Airworthiness qualification for the ECS. Improvements: Increase cooling capacity of 25%; a weight reduction of 49.2 pounds; a reduction in the procurement and operational maintenance costs; Resolves obsolescence issues; Life Cycle O&S savings: \$31 million.

FY 2007 Planned Output: Conduct IPT meetings. Procure ECS from Enviro. Inc. Request and receive qualification by similarity support documentation from the vendor. Prepare and finalize test plans. Aviation Engineering Directorate will evaluate test data and provided recommendation of required qualification test. Write and receive approval for Environmental and Electromagnetic Environmental Interference Test Plans. Receive test article and Initiate Phase I of testing (E3/Environmental testing at the Redstone Technical Test Center (RTTC).

FY 2008 Planned Output: Complete E3/Environmental testing at RTTC. Complete Test Reports and submit to AED for approval for Airworthiness Qualification. Initiate and complete Phase II (Flight Testing) at the Aviation Technical Testing Center (ATTC). Complete Engineering Change Proposal, and begin installing ECS on new production HH-60M aircraft.

Accomplishment/Planned Program Title	FY 2006	FY 2007	FY 2008	FY 2009
Application of Low Plasticity Burnishings to F-100 Engine Airfoils (Air Force)	0.000	0.812	0.252	0.000

Outcome: To demonstrate a metal stressing process on aircraft engine airfoils that will reduce foreign object damage 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 \$20 per blade, with a threshold of \$40.

FY 2007 Planned Output: Contract awarded; test planning and engineering; validation and verification of LBP process; deliver 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.

Accomplishment/Planned Program Title	FY 2006	FY 2007	FY 2008	FY 2009
USMC M1A1 Improved Loader's Weapon Station (Navy)	0.000	1.154	0.000	0.000

Outcome: A successful DAC Program will provide the USMC with an ILWS for the M1A1 that will decrease the loader's exposed profile by 50%, while providing a more stable firing platform for up to 25% 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. A one-year project under sponsorship of the OSD CTO and MARCORSYSCOM. Projected completion of testing and qualification will be CY 2007 with 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% threshold / 25% objective); (3) decrease crew exposure (50% threshold / 100% objective); (4) ring operation does not interference with loader's hatch; (5) avoid RDT&E costs of \$1.1M and provide a ROI of 4.6:1.

FY 2007 Planned Output: Test article contract award and test planning completion anticipated during the 2nd Qtr. Delivery of test articles is expected during the 3rd Qtr. Completion of Integration Testing

**OSD RDT&E PROJECT JUSTIFICATION (R2a Exhibit)**

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY RDT&E/ Defense Wide BA# 5	PE NUMBER AND TITLE <b>0604051D8Z - Defense Acquisition Challenge Program (DACP)</b>	PROJECT <b>P051</b>		
anticipated during the 4th Qtr. at ATC, Aberdeen, MD. Initiation of User Evaluation and Performance Testing is planned for 4th Qtr at ATC. Complete User Evaluation and Performance Testing. After completion of all testing, a Technical Test Report will be provided, Milestone C Decision reached, and a Close-out Report submitted.				
<b>Accomplishment/Planned Program Title</b>	FY 2006	FY 2007	FY 2008	FY 2009
Lithium Ion Battery System for the MK8 MOD1 SEAL Delivery Vehicle (SOCOM)	0.000	2.088	0.000	0.000
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 Silver Zinc (Ag Zn) battery cells originally designed for SDV use in the 1970's. The Ag Zn system is insufficient to provide adequate power to meet the increased demand garnered by several SDV enhancements incorporated over the past 10 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 DAC 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 \$8.0M and anticipates a procurement cost avoidance savings of approximately \$1.0M. The operations and support lifecycle cost avoidance savings is estimated to be \$18.2M.				
FY 2007 Planned Output: Analyze vendor test data and complete project test planning; complete procurement contract for test articles and take possession of test articles; conduct initial technical testing and begin operator/user assessment test. Complete operator/user assessment testing; finalize Milestone C procurement & fielding decision documentation based on test and evaluation; if applicable, accomplish "first unit equipped" fielding; submit project closeout report.				
<b>Accomplishment/Planned Program Title</b>	FY 2006	FY 2007	FY 2008	FY 2009
10kW Tactical Vehicle Inverter System (Army)	0.000	1.138	0.806	0.000
Outcome: The project is testing a 10 kW Tactical Vehicle Inverter Systems (TVIS), to determine if these systems can meet electrical requirements currently addressed with either a vehicle mounted Auxiliary Power Unit (APU) or Trailer mounted generator sets (3 - 10 kW). If successful, this project has the potential to replace both the APU and the trailer mounted Tactical Quiet Generators for Command Post Platform (CPP) Operations. One of the critical benefits is reduction of weight to light tactical vehicles (approximately 455 lb reduction in weight) This is especially important given that vehicle weights have increased with the addition of Up-Armor kits.				
FY 2007 Planned Output: Develop test plan, award contract, procure test articles.				
FY 2008 Planned Output: Complete User Evaluation and Performance Testing. After completion of all testing, a Technical Test Report will be provided, and a Close-out Report submitted.				
<b>Accomplishment/Planned Program Title</b>	FY 2006	FY 2007	FY 2008	FY 2009
Angel Fire - Situational Awareness of Large-Area Urban Operations (Air Force)	0.000	1.972	1.638	0.000
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 (.5m), city-sized images (66 mega pixels) 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 06, 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				

**OSD RDT&E PROJECT JUSTIFICATION (R2a Exhibit)**

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY RDT&E/ Defense Wide BA# 5	PE NUMBER AND TITLE <b>0604051D8Z - Defense Acquisition Challenge Program (DACP)</b>	PROJECT <b>P051</b>
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multi-beam high-resolution capability to augment the wide-area lower resolution AF imagery at 3-inch resolution vice one-half meter resolution, 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 Planned Output: Contract awarded; high resolution spot beam cameras procured; software integration activities; aircraft integration; flight evaluations.

FY 2008 Planned Output: Infrared cameras procured; software integration activities; aircraft integration; flight evaluation operations; transition planning. The Angel Fire project is scheduled for completion in July 2008. The transition manager is Air Force Research Lab.

<b>Accomplishment/Planned Program Title</b>	FY 2006	FY 2007	FY 2008	FY 2009
Combat Rubber Raiding Craft (CRRC) Product Improvement Plan (PIP) (Navy)	0.000	0.868	0.000	0.000

Outcome: A successful DAC project will provide the USMC with a CRRC that features a self inflation system and an inflatable, rigid floor that reduces system weight by 17% and set up by 87% 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 CTO and MARCORSSYSCOM, with completion of testing and qualification in CY 2007, transition to USMC MAGTF forces 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 and the NBOE; (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 \$6M and provide an ROI of 14:1.

FY 2007 Planned Output: Test article contract award and test planning completion anticipated for the 2nd Qtr. Delivery of test articles is expected during the 3rd Qtr. Operational Testing planned for 3rd Qtr. at NSWC Carderock, MD. User Evaluation scheduled for 3rd Qtr. with 3rd Recon Battalion. With 2007 resources we will complete the Operational Testing and is anticipated during the 1st Qtr FY 2008. After completion of all testing, a Technical Test Report will be provided, Milestone C Decision reached, and a Close-out Report submitted during the 2nd Qtr FY 2008.

<b>Accomplishment/Planned Program Title</b>	FY 2006	FY 2007	FY 2008	FY 2009
Improvements to Suite of Integrated Radio Frequency Countermeasures Systems (SOCOM)	0.000	0.506	0.819	0.000

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: validation that commercially available GaAs RF chip component insertions to replace the current MCA's provide easier tuning during manufacturing and depot repair operations; demonstration of the capacity to detect and jam the most modern RF threats to Special Operations Aviation (SOA); 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 non SOA Joint aircraft applications totaling approximately \$17.9M. Completion date is 30 September 2008.

FY 2007 Planned Output: Analyze vendor test data and complete project test planning; conduct analysis and integration studies; complete procurement contract for test articles and vendor services and take possession of test articles; begin Phase I concept demonstration.

FY 2008 Planned Output: Complete Phase I concept demonstration and Phase II implementation and validation testing; finalize Milestone C procurement & fielding decision documentation based on test and

<b>OSD RDT&amp;E PROJECT JUSTIFICATION (R2a Exhibit)</b>			Date: February 2007	
APPROPRIATION/ BUDGET ACTIVITY RDT&E/ Defense Wide BA# 5	PE NUMBER AND TITLE <b>0604051D8Z - Defense Acquisition Challenge Program (DACP)</b>	PROJECT <b>P051</b>		
evaluation; submit project closeout report.				
<b>Accomplishment/Planned Program Title</b>	FY 2006	FY 2007	FY 2008	FY 2009
Fiber Optic Gyro Rate Sensors for Combat Vehicles (Army)	0.000	1.044	1.134	0.000
<p>Outcome: This project will provide the Army with a family of Rate Sensors based on fiber optic technology for use in current force combat vehicles. Rate Sensors are the sensing 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 with 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 Corp. 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&amp;S Cost Avoidance : \$6.27 million (5 Years) / \$41.75 million (life). Procurement Cost Avoidance: \$2.27 million (5 Years) / \$15 million (life). RDTE Cost Avoidance: \$1.3 million. Fielding Reduction: 3 + years. Procurement Potential: 1400 units per year, 7,000 units first 5 years. Lifetime potential is ~33,400 rate sensors /\$167 million.</p> <p>FY 2007 Planned Output: Conduct 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.</p> <p>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.</p>				
<b>Accomplishment/Planned Program Title</b>	FY 2006	FY 2007	FY 2008	FY 2009
Cost Effective Light Aircraft Missile Protection (CELAMP) (Air Force)	0.000	1.160	3.149	0.000
<p>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 IR countermeasure 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.</p> <p>FY 2007 Planned Output: Generate contractual agreement between Air Force, Raytheon and Northrop Grumman and start integration efforts.</p> <p>FY 2008 Planned Output: Test CELAMP turret in lab and live fire environments with a production-ready turret. The 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.</p>				
<b>Accomplishment/Planned Program Title</b>	FY 2006	FY 2007	FY 2008	FY 2009
Non-Gasoline Burning Outboard Engine (Navy)	0.000	1.089	0.000	0.000
Outcome: A successful DAC 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				

**OSD RDT&E PROJECT JUSTIFICATION (R2a Exhibit)**

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY  
RDT&E/ Defense Wide BA# 5

PE NUMBER AND TITLE

**0604051D8Z - Defense Acquisition Challenge Program (DACP)**PROJECT  
**P051**

(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. Two-year project under sponsorship of the OSD CTO and MARCORSYSCOM, with completion of testing and qualification in CY 2008, 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% plunging surf with a wave height of 8 ft. and a period of 8 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 \$3.0M and provide an ROI of 19:1.

FY 2007 Planned Output: Contract Preparation and Award scheduled for completion during the 2nd Qtr. Anticipate completion of Test Planning during 2nd Qtr. Delivery of test articles is expected during the 3rd Qtr. Signature/ Destructive Testing is planned for 3rd Qtr at Naval Surface Warfare Center (NSWC) Carderock, MD. Fleet User Evaluation scheduled for 3rd Qtr; 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. Completion of Technical Testing is anticipated at the end of the 1st Qtr FY 2008. After completion of all testing, a Technical Test Report will be provided, a Milestone C Decision reached, and a Close-out Report submitted by the end of the 2nd Qtr FY 2008.

**Accomplishment/Planned Program Title**

FY 2006

FY 2007

FY 2008

FY 2009

Crew Served and Heavy Weapons Aiming Laser (CSHWAL) (SOCOM)

0.000

0.500

0.000

0.000

Outcome: The 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 in the DAC is effective operation out to 2200 meters; 8X 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 \$15.96M. Completion date is 31 January 2008.

FY 2007 Planned Output: Complete project test planning; complete procurement contract for test articles and take possession of hardware; conduct technical testing and operator/user assessment test. Finalize Milestone C procurement & fielding decision documentation based on test and evaluation; submit project closeout report.

**Accomplishment/Planned Program Title**

FY 2006

FY 2007

FY 2008

FY 2009

Portable oxygen concentrator for patient treatment and transport. (Army)

0.000

0.367

0.378

0.000

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 associated with this task.

FY 2007 Planned Output: Develop test plan, award contract, procure test articles.

FY 2008 Planned Output: Complete User Evaluation and Performance Testing. After completion of all testing, a Technical Test Report will be provided, and a Close-out Report submitted.

**OSD RDT&E PROJECT JUSTIFICATION (R2a Exhibit)**

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY RDT&E/ Defense Wide BA# 5	PE NUMBER AND TITLE <b>0604051D8Z - Defense Acquisition Challenge Program (DACP)</b>			PROJECT <b>P051</b>
<b>Accomplishment/Planned Program Title</b>	FY 2006	FY 2007	FY 2008	FY 2009
Modular Advanced Composite Armor Kits for SUVs (SOCOM)	0.000	1.338	1.571	0.000
<p>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&amp;E, manufacturing and production cost avoidance savings anticipated as a result of this DAC are approximately \$68M. Completion date is 30 June 2008.</p> <p>FY 2007 Planned Output: Complete project plan of action and milestones; solicit and receive product sample coupons from interested vendors; conduct Phase I initial technical evaluation and live fire testing; carry out a down selection of vendor materiel solutions for further testing; complete procurement/test article contracts with selected vendors.</p> <p>FY 2008 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.</p>				
<b>Accomplishment/Planned Program Title</b>	FY 2006	FY 2007	FY 2008	FY 2009
Low Cost Land Warrior Cable Connector System (Army)	0.000	0.795	0.500	0.000
<p>Outcome: This project will reduce manufacturing time and cost for connectors down to \$15/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. This machining process requires more than 15 minutes of machining time, costing approximately \$25/shell.</p> <p>FY 2007 Planned Output: Each Land Warrior ensemble needs 10 cables, 20 cable connector shells plus 20 receptacle body connector shells, (40 shells total) costing approximately \$1000 per ensemble. Develop test plan, award contract, procure test articles.</p> <p>FY 2008 Planned Output: Complete User Evaluation and Performance Testing. After completion of all testing, a Technical Test Report will be provided, and a Close-out Report submitted.</p>				
<b>Accomplishment/Planned Program Title</b>	FY 2006	FY 2007	FY 2008	FY 2009
AN/BSN-2 Digital Depth Detector (Navy)	0.000	0.471	0.000	0.000
<p>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% and provides additional functional/operational capabilities necessary to support the objectives of the Navy's Submarine Modernization Program.</p> <p>FY 2007 Planned Output: Develop TEMPALT, test Plan and installations and operational test. Develop Final Test report and Close Out Report.</p>				
<b>Accomplishment/Planned Program Title</b>	FY 2006	FY 2007	FY 2008	FY 2009

OSD RDT&E PROJECT JUSTIFICATION (R2a Exhibit)			Date: February 2007	
APPROPRIATION/ BUDGET ACTIVITY RDT&E/ Defense Wide BA# 5	PE NUMBER AND TITLE <b>0604051D8Z - Defense Acquisition Challenge Program (DACP)</b>	PROJECT <b>P051</b>		
C2 Resource Management: Master Caution Panel (MCP) (Air Force)	0.000	1.160	0.252	0.000
<p>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. 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 outputs and efficiencies to be demonstrated are 1) improved situational awareness during real world operations.</p> <p>FY 2007 Planned Output: Produce 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 will also be 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) will be developed. This document is required in order to certify that MCP is safe to operate in a network.</p> <p>FY 2008 Planned Output: 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 AF Research Lab.</p>				
Accomplishment/Planned Program Title	FY 2006	FY 2007	FY 2008	FY 2009
Rucksack Portable Receive Suite (Navy)	0.000	0.442	0.000	0.000
<p>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.</p> <p>FY 2007 Planned Outcome: Develop test plan, award contract, procure test articles, conduct test, prepare final test report.</p>				
Accomplishment/Planned Program Title	FY 2006	FY 2007	FY 2008	FY 2009
FY 2008 Plans	0.000	0.000	17.440	0.000
<p>FY 2008 Plan: The DAC program will continue to fund testing activities on 13 projects executing \$11.529 million in FY 2008 funding. Remaining funding will be used to initiate new start DAC Projects selected from the FY 2008 DAC Proposal Process. The FY 2008 DAC Proposal Process will begin with the release of the BAA in December 2006. Final selection of FY 2008 New Start DAC Projects is planned for the fourth quarter FY 2007.</p>				
Accomplishment/Planned Program Title	FY 2006	FY 2007	FY 2008	FY 2009
FY 2009 Plans	0.000	0.000	0.000	30.210
<p>FY 2009 Plan: The DAC program will continue testing activities on the projects selected from the FY 2008 proposal cycle. 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.</p>				

**OSD RDT&E PROJECT JUSTIFICATION (R2a Exhibit)**

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY  
RDT&E/ Defense Wide BA# 5PE NUMBER AND TITLE  
**0604051D8Z - Defense Acquisition Challenge Program (DACP)**PROJECT  
**P051****C. Other Program Funding Summary:** Not Applicable.

**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.

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<b>OSD RDT&amp;E COST ANALYSIS (R3)</b>											Date: February 2007	
APPROPRIATION/ BUDGET ACTIVITY RDT&E/ Defense Wide BA# 5			PE NUMBER AND TITLE <b>0604051D8Z - Defense Acquisition Challenge Program (DACP)</b>							PROJECT <b>P051</b>		
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 Projects	TBD	TBD	0	0		0		0		0	0	0
Subtotal:			0	0		0		0		0	0	0
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	0	0	1-4Q	0	1-4Q	0		0	0	0
Subtotal:			0	0		0		0		0	0	0
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		33198	29332	1-4Q	28970	1-4Q	30210	1-4Q	0	121710	0
Subtotal:			33198	29332		28970		30210		0	121710	0
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	0	0	1-4Q	0	1-4Q	0		0	0	0
Subtotal:			0	0		0		0		0	0	0

**OSD RDT&E COST ANALYSIS (R3)**

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY RDT&E/ Defense Wide BA# 5	PE NUMBER AND TITLE <b>0604051D8Z - Defense Acquisition Challenge Program (DACP)</b>	PROJECT <b>P051</b>								
<b>Project Total Cost:</b>	33198	29332		28970		30210		0	121710	0

**Schedule Profile (R4 Exhibit)**

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY  
RDT&E/ Defense Wide BA# 5

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

PROJECT  
**P051**

Event Name	FY 06				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	1	2	3	4

UNCLASSIFIED

Date: February 2007

**Schedule Detail (R4a Exhibit)**

APPROPRIATION/ BUDGET ACTIVITY RDT&E/ Defense Wide BA# 5		PE NUMBER AND TITLE <b>0604051D8Z - Defense Acquisition Challenge Program (DACP)</b>						PROJECT <b>P051</b>	
<b><u>Schedule Detail</u></b>	<b><u>FY 2006</u></b>	<b><u>FY 2007</u></b>	<b><u>FY 2008</u></b>	<b><u>FY 2009</u></b>	<b><u>FY 2010</u></b>	<b><u>FY 2011</u></b>	<b><u>FY 2012</u></b>	<b><u>FY 2013</u></b>	
Funding Received		2Q							
Test Plan / Initial Testing and Down Selection		2-3Q							
Test Item Procured / Received			1Q						
Technical / Operational Testing			1-4Q						
Evaluation Report			4Q						
Decision / Close Out Report			4Q						

**Comment:**

**OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)**

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY RDT&E/ Defense Wide BA# 5		PE NUMBER AND TITLE <b>0604161D8Z – Nuclear and Conventional Physical Security Equipment RDT&amp;E SDD</b>						
Cost (\$ in Millions)	FY 2006 Actual	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total Program Element (PE) Cost	0.000	12.008	3.281	4.332	4.558	4.569	4.657	4.781
P163 Nuclear & Conventional Phys Sec Equip	0.000	12.008	3.281	4.332	4.558	4.569	4.657	4.781

**A. Mission Description and Budget Item Justification:** The purpose of this program is to design 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 the Army's system demonstration and validation of Interior and Exterior Detection, Security Lighting, Security Barriers and Security Display Units. In a like manner, the program element also supports the Air Force's PSE RDT&E effort in the areas of Exterior Detection/Surveillance, Entry Control, Delay/Denial, Tactical Systems and Airborne Intrusion. Finally, the program supports Navy RDT&E efforts in the areas of Waterside Security, Explosive Detection, and improved technology for Locks, Safes and Vaults. 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.

Prior efforts were transitioned from Air Force PE 604287F and OSD 605161D8Z.

<b>B. Program Change Summary</b>	FY 2006	FY 2007	FY 2008	FY 2009
Previous President's Budget (FY 2007)	0.000	9.277	3.517	4.576
Current BES/President's Budget (FY 2008/2009)	0.000	12.008	3.281	4.332
Total Adjustments	0.000	2.731	-0.236	-0.244
Congressional Program Reductions				
Congressional Rescissions				
Congressional Increases		2.422		
Reprogrammings				

**OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)**

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY RDT&E/ Defense Wide BA# 5	PE NUMBER AND TITLE <b>0604161D8Z – Nuclear and Conventional Physical Security Equipment RDT&amp;E SDD</b>
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SBIR/STTR Transfer				
Other		0.309	-0.236	-0.244

**C. Other Program Funding Summary:** Not Applicable.

**D. Acquisition Strategy:** Not Applicable.

**E. Performance Metrics:** Not Applicable.

<b>OSD RDT&amp;E PROJECT JUSTIFICATION (R2a Exhibit)</b>	Date: February 2007
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APPROPRIATION/ BUDGET ACTIVITY RDT&E/ Defense Wide BA# 5	PE NUMBER AND TITLE <b>0604161D8Z – Nuclear and Conventional Physical Security Equipment RDT&amp;E SDD</b>	PROJECT <b>P163</b>
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Cost (\$ in Millions)	FY 2006 Actual	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
P163 Nuclear & Conventional Phys Sec Equip	0.000	12.008	3.281	4.332	4.558	4.569	4.657	4.781

**A. Mission Description and Project Justification:** The purpose of this program is to design 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 the Army's system demonstration and validation of Interior and Exterior Detection, Security Lighting, Security Barriers and Security Display Units. In a like manner, the program element also supports the Air Force's PSE RDT&E effort in the areas of Exterior Detection/Surveillance, Entry Control, Delay/Denial, Tactical Systems and Airborne Intrusion. Finally, the program supports Navy RDT&E efforts in the areas of Waterside Security, Explosive Detection, and improved technology for Locks, Safes and Vaults. 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.

Prior efforts were transitioned from Air Force PE 604287F and OSD PE 605161D8Z.

**B. Accomplishments/Planned Program:**

Accomplishment/Planned Program Title	FY 2006	FY 2007	FY 2008	FY 2009
Robotic Security Systems Integration	0.000	7.532	1.000	2.000

FY 2006 Accomplishments:  
Prior efforts were transitioned from Air Force PE 603287F and OSD PE 605161D8Z.

- FY 2007 Plans:
- Conduct Pre-planned Program Improvements (P3I) for Mobile Detection Assessment and Response System (MDARS) for greater sensing distance.
  - Increase MDARS speed and response feed to support Remote Detection Challenge and Response (REDCAR).
  - Execute a congressional add to develop the Transportable Under Vehicle Inspection System.

**OSD RDT&E PROJECT JUSTIFICATION (R2a Exhibit)**

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY RDT&E/ Defense Wide BA# 5	PE NUMBER AND TITLE <b>0604161D8Z – Nuclear and Conventional Physical Security Equipment RDT&amp;E SDD</b>	PROJECT <b>P163</b>
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- 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 2008 Plans:

- Begin final coordination for Milestone (MS) C Full Rate Production of MDARS.
- 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.

Accomplishment/Planned Program Title	FY 2006	FY 2007	FY 2008	FY 2009
Force Protection/Tactical Security Equipment	0.000	4.476	2.281	2.332

FY 2006 Accomplishments:

Prior efforts were transitioned from Air Force PE 603287F and OSD PE 605161D8Z.

FY 2007 Plans:

- Continue the spiral development/modernization of the Battlefield Anti-Intrusion System (BAIS).
- Develop BAIS two-way communications capability by developing and testing a Handheld Monitor/Transceiver.
- 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 2008 Plans:

**OSD RDT&E PROJECT JUSTIFICATION (R2a Exhibit)**

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY  
RDT&E/ Defense Wide BA# 5

PE NUMBER AND TITLE

**0604161D8Z – Nuclear and Conventional Physical Security Equipment  
RDT&E SDD**

PROJECT

**P163**

- 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 qualification testing 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.

**D. Acquisition Strategy:** Not Applicable.

**E. Major Performers:** Not Applicable.

**OSD RDT&E COST ANALYSIS (R3)**

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY  
RDT&E/ Defense Wide BA# 5

PE NUMBER AND TITLE  
**0604161D8Z – Nuclear and Conventional Physical Security Equipment**  
**RDT&E SDD**

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	0	4332		1000	1-2Q	2000		Continue	7332	0
BAIS	MIPR	PM-FPS (USA), Ft. Belvoir, VA	0	3976		0		0		Continue	3976	0
TUVIS (Congressional Add)	MIPR	AFRL (USAF), Tyndall, AFB, FL	0	2500		0		0		0	2500	0
Subtotal:			0	10808		1000		2000		Continue	13808	0

Remarks: Prior year efforts were transitioned for Air Force PE 604 287F and OSD PE 605161D8Z.

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:			0									

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	0	0		2081	1-2Q	1932	1-2Q	0	4013	0
Subtotal:			0	0		2081		1932		0	4013	0

**OSD RDT&E COST ANALYSIS (R3)**

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY RDT&E/ Defense Wide BA# 5			PE NUMBER AND TITLE <b>0604161D8Z – Nuclear and Conventional Physical Security Equipment RDT&amp;E SDD</b>							PROJECT <b>P163</b>		
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. Belvoir, VA	0	400		100	1-2Q	0	1-4Q	0	500	0
BAIS	MIPR	PM-FPS (USA), Ft. Belvoir, VA	0	500		100	1-2Q	200	1-2Q	0	800	0
TUVIS (Congressional Add)	MIPR	AFRL (USAF), Tyndall, AFB, FL	0	300		0		0		0	300	0
MDARS	MIPR	PM-FPS (USA), Ft. Belvoir, VA	0	0		0		200		0	200	0
Subtotal:			0	1200		200		400		0	1800	0
<b>Project Total Cost:</b>			<b>0</b>	<b>12008</b>		<b>3281</b>		<b>4332</b>		<b>0</b>	<b>19621</b>	<b>0</b>

<b>Schedule Detail (R4a Exhibit)</b>							Date: February 2007	
APPROPRIATION/ BUDGET ACTIVITY RDT&E/ Defense Wide BA# 5			PE NUMBER AND TITLE <b>0604161D8Z – Nuclear and Conventional Physical Security Equipment RDT&amp;E SDD</b>				PROJECT <b>P163</b>	
<u>Schedule Detail</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>
Complete Pre-planned Product Improvements (P3I) for MDARS.		1-2Q	1-2Q	1-2Q				
MDARS Milestone C Readiness Review and MDA approval.		1-4Q						
Execute Transportable Under Vehicle Inspection System (TUVIS) Congressional Add.		1-4Q						
Final coordination of Milestone C Full Rate Production of MDAS.			1Q					
Begin Qualification testing of the Battlefield Anti-Intrusion System (BAIS).				1-3Q				
Continue spiral development/modernization of BAIS.		2-4Q	1-4Q	1-4Q				
<b>Comment:</b> Prior year efforts were transitioned for Air Force PE 604 287F and OSD PE 605161D8Z.								

**OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)**

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY RDT&E/ Defense Wide BA# 5		PE NUMBER AND TITLE <b>0604618D8Z - Man Portable Air Defense Systems (MANPADS) Countermeasures</b>							
Cost (\$ in Millions)	FY 2006 Actual	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	
Total Program Element (PE) Cost	18.021	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
P618 Man Portable Air Defense Systems (MANPADS) Countermeasures	18.021	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

**A. Mission Description and Budget Item Justification:** (U) Man Portable Air Defense (MANPAD) systems are very widely proliferated, with greater than 500,000 produced and many poorly controlled. These weapons can be easily concealed and transported in a container as small as a suitcase, and can be lethal to a wide range of military and dual use aircraft. MANPAD systems and their launchers are available on the black market for as little as \$15,000. As demonstrated by recent events in Operation Iraqi/Enduring Freedom, Department of Defense (DOD) and Civil aircraft are attractive terrorist targets.

(U) The process of defeating an IR missile includes two necessary tasks, detecting missile launch, and executing countermeasures to defeat the missile guidance system. Modern IRCM systems rely on sensors mounted on the protected aircraft and either infrared decoys (flares) or directed energy lamp or laser systems. Although various onboard systems have been developed and fielded to counter the IRCM threat, including MANPADS, they remain costly (between \$250,000 and \$5,000,000 per aircraft installation) and their integration is complex and time consuming.

(U) Alternatives are needed to reduce the cost and lead time required to protect aircraft from IR missiles in the near-ground urban and expeditionary environment. This program investigates the development of a ground based, networked electro-optical sensor grid that would provide missile launch detection and warning, including examination of commercially available components to lower costs and to reduce the lead-time for system fielding. In conjunction with development of ground based sensor grid, directed energy technologies that could be used to counter ManPADS will be evaluated. By using vehicle mounting and wireless networking, it will be potentially possible make the system readily portable for rapid coverage area reconfiguration. Expeditionary airfields could thus be quickly protected.

(U) A second component of this program explores the development of more effective and affordable missile warning and countermeasures technologies suitable for use in urban and expeditionary airfield environments.

(U) The objective of this effort is to develop and demonstrate a low-cost, rapidly fieldable IRCM options for the rapid protection of expeditionary airfields and urban areas where comprehensive onboard protection cannot be guaranteed. An element of this task is to track and evaluate emerging electronic warfare techniques that can be used to counter asymmetric threats such as infrared and command guided ManPADS.

<b>B. Program Change Summary</b>	FY 2006	FY 2007	FY 2008	FY 2009
Previous President's Budget (FY 2007)	18.548	0.000	0.000	0.000
Current BES/President's Budget (FY 2008/2009)	18.021	0.000	0.000	0.000

**OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)**

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY RDT&E/ Defense Wide BA# 5		PE NUMBER AND TITLE <b>0604618D8Z - Man Portable Air Defense Systems (MANPADS) Countermeasures</b>		
Total Adjustments	-0.527	0.000	0.000	0.000
Congressional Program Reductions				
Congressional Rescissions				
Congressional Increases				
Reprogrammings				
SBIR/STTR Transfer				
Other	-0.527			

**C. Other Program Funding Summary:** Not Applicable.

**D. Acquisition Strategy:** Not Applicable.

**E. Performance Metrics:** Not Applicable.

**OSD RDT&E PROJECT JUSTIFICATION (R2a Exhibit)**

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY RDT&E/ Defense Wide BA# 5		PE NUMBER AND TITLE <b>0604618D8Z - Man Portable Air Defense Systems (MANPADS) Countermeasures</b>						PROJECT <b>P618</b>	
Cost (\$ in Millions)	FY 2006 Actual	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	
P618 Man Portable Air Defense Systems (MANPADS) Countermeasures	18.021	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

**A. Mission Description and Project Justification:** (U) Man Portable Air Defense (MANPAD) systems are very widely proliferated, with greater than 500,000 produced and many poorly controlled. These weapons can be easily concealed and transported in a container as small as a suitcase, and can be lethal to a wide range of military and dual use aircraft. MANPAD systems and their launchers are available on the black market for as little as \$15,000. As demonstrated by recent events in Operation Iraqi/Enduring Freedom, Department of Defense (DOD) and Civil aircraft are attractive terrorist targets.

(U) The process of defeating an IR missile includes two necessary tasks, detecting missile launch, and executing countermeasures to defeat the missile guidance system. Modern IRCM systems rely on sensors mounted on the protected aircraft and either infrared decoys (flares) or directed energy lamp or laser systems. Although various onboard systems have been developed and fielded to counter the IRCM threat, including MANPADS, they remain costly (between \$250,000 and \$5,000,000 per aircraft installation) and their integration is complex and time consuming.

(U) Alternatives are needed to reduce the cost and lead time required to protect aircraft from IR missiles in the near-ground urban and expeditionary environment. This program investigates the development of a ground based, networked electro-optical sensor grid that would provide missile launch detection and warning, including examination of commercially available components to lower costs and to reduce the lead-time for system fielding. In conjunction with development of ground based sensor grid, directed energy technologies that could be used to counter ManPADS will be evaluated. By using vehicle mounting and wireless networking, it will be potentially possible make the system readily portable for rapid coverage area reconfiguration. Expeditionary airfields could thus be quickly protected.

(U) A second component of this program explores the development of more effective and affordable missile warning and countermeasures technologies suitable for use in urban and expeditionary airfield environments.

(U) The objective of this effort is to develop and demonstrate a low-cost, rapidly fieldable IRCM options for the rapid protection of expeditionary airfields and urban areas where comprehensive onboard protection cannot be guaranteed. An element of this task is to track and evaluate emerging electronic warfare techniques that can be used to counter asymmetric threats such as infrared and command guided ManPADS.

**B. Accomplishments/Planned Program:**

Accomplishment/Planned Program Title	FY 2006	FY 2007	FY 2008	FY 2009
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**OSD RDT&E PROJECT JUSTIFICATION (R2a Exhibit)**

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY  
RDT&E/ Defense Wide BA# 5

PE NUMBER AND TITLE  
**0604618D8Z - Man Portable Air Defense Systems (MANPADS)  
Countermeasures**

PROJECT  
**P618**

Demo Phases	18.021	0.000	0.000	0.000
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- (U) Based upon results from an FY 2003 study, this effort is planned to consist of two demonstration phases. Phase I will consist of a ground-based sensor grid component evaluation, system design, performance evaluation and demonstration. Phase II will consist of reduced cost, ground and/or on aircraft countermeasures.
- (U) The initial testing will occur at the Naval Air Warfare Center, Weapons Division (NAWC-WD), China Lake, and will consist of a network of promising ground sensors. Objectives of the test are to show that the sensor and associated computational algorithms can reliably detect a missile launch and provide a declaration in sufficient time to initiate appropriate countermeasures (time is classified).
- (U) The ground based sensor grid will consist of an array of sensors that constantly monitor for the presence of a MANPAD launch. Several factors favor this architecture, with much higher detection and lower false alarm rates than current on-aircraft launch detectors. The sensor grid will use commercially available components to reduce cost and the lead-time to field a system. Additionally, it will be possible make the system portable by mounting the sensors on vehicles and using wireless networking between the sensors. Expeditionary airfields and urban areas could be quickly augmented for MANPADS protection.

**C. Other Program Funding Summary:** Not Applicable.

**D. Acquisition Strategy:** Not Applicable.

**E. Major Performers** Not Applicable.

## OSD RDT&amp;E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY  
RDT&E/ Defense Wide BA# 5PE NUMBER AND TITLE  
**0604709D8Z - Joint Robotics EMD**

Cost (\$ in Millions)	FY 2006 Actual	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total Program Element (PE) Cost	17.382	9.947	2.911	0.000	0.000	0.000	0.000	0.000
P609 Joint Ground Robotics Enterprise (JGRE) SDD	17.382	9.947	2.911	0.000	0.000	0.000	0.000	0.000

**A. Mission Description and Budget Item Justification:** (U) This Program Element (PE), 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 to 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.

<b>B. Program Change Summary</b>	FY 2006	FY 2007	FY 2008	FY 2009
Previous President's Budget (FY 2007)	20.464	6.004	3.004	0.000
Current BES/President's Budget (FY 2008/2009)	17.382	9.947	2.911	0.000
Total Adjustments	-3.082	3.943	-0.093	0.000
Congressional Program Reductions				
Congressional Rescissions	-2.500			
Congressional Increases		4.000		
Reprogrammings				
SBIR/STTR Transfer	-0.582			
Other		-0.057	-0.093	

**OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)**

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY  
RDT&E/ Defense Wide BA# 5

PE NUMBER AND TITLE  
**0604709D8Z - Joint Robotics EMD**

<b>C. Other Program Funding Summary</b>	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Compl	Total Cost
PE0603711D8Z (BA3) Joint Robotics Program/Autonomous Systems	0.000	7.700	11.256	14.202	14.626	14.825	15.020	15.231	0.000	92.860
PE 0603709D8Z (BA4) Joint Ground Robotics Enterprise (JGRE) ACD&P	27.264	12.210	11.860	11.867	12.119	12.389	12.711	13.041	0.000	113.461

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.

**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 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 PROJECT JUSTIFICATION (R2a Exhibit)**

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY RDT&E/ Defense Wide BA# 5		PE NUMBER AND TITLE <b>0604709D8Z - Joint Robotics EMD</b>					PROJECT <b>P609</b>		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	
P609 Joint Ground Robotics Enterprise (JGRE) SDD	17.382	9.947	2.911	0.000	0.000	0.000	0.000	0.000	

**A. Mission Description and Project Justification:** U This Program Element (PE), 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 to 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.

**B. Accomplishments/Planned Program:**

<b>Accomplishment/Planned Program Title</b>	FY 2006	FY 2007	FY 2008	FY 2009
(U) Autonomous & Tactical Behaviors	2.572	1.475	0.573	0.000

**FY2006 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.
- \* MDARS-Expeditionary Capabilities Assessment
- \* 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 autonomous unmanned ground robotic vehicles via the 2006 Intelligent Ground Vehicle Competition (IGVC).
- \* 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.

FY 2007, 2008 and 2009 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

**OSD RDT&E PROJECT JUSTIFICATION (R2a Exhibit)**

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY  
RDT&E/ Defense Wide BA# 5PE NUMBER AND TITLE  
**0604709D8Z - Joint Robotics EMD**PROJECT  
**P609**

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.

**Accomplishment/Planned Program Title**

FY 2006

FY 2007

FY 2008

FY 2009

(U) Manipulation Technologies

1.407

1.492

0.364

0.000

## FY2006 Accomplishments:

- \* Continued development of manipulation and navigation maturity via the 2006 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 development of the Man Transportable Robotic System (MTRS) as an acquisition program of record (ACAT IV-M).
- \* Continued support for concept exploration and demo, "quick fix" priority for deployed systems, and ongoing technical and operational assessment for systems deployed and in spiral.
- \* Supported limited objective experiments, feasibility demonstrations, and concept exploration projects.
- \* Continued robotic payload development.

FY 2007, 2008 and 2009 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.

**Accomplishment/Planned Program Title**

FY 2006

FY 2007

FY 2008

FY 2009

(U) Collaborative Operations

3.760

1.311

0.424

0.000

## FY2006 Accomplishments:

- \* 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 2006 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.

FY 2007, 2008 and 2009 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.

**Accomplishment/Planned Program Title**

FY 2006

FY 2007

FY 2008

FY 2009

(U) Interoperability

2.790

1.267

0.357

0.000

## FY2006 Accomplishments:

- \* Continued JAUS compliance within projects such as Family of Rapid Response Equipment (FIRRE).
- \* Furthered the integration of future sensors and weapons.

**OSD RDT&E PROJECT JUSTIFICATION (R2a Exhibit)**

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY RDT&E/ Defense Wide BA# 5	PE NUMBER AND TITLE <b>0604709D8Z - Joint Robotics EMD</b>	PROJECT <b>P609</b>
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- \* Continued research and experimentation of unmanned vehicles, sensors, simulation, training, demonstration, and information distribution.
- \* Supported refinement of and transition of documentation for Joint Architecture for Unmanned Systems (JAUS) to a Society of Automotive Engineers (SAE) standard.
- \* Began Risk Reduction effort for USMC Gladiator program.
- \* Supported final testing on distributed communications system targeted for a Man-Portable Robotic System (MPRS).

FY 2007, 2008 and 2009 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.

Accomplishment/Planned Program Title	FY 2006	FY 2007	FY 2008	FY 2009
(U) Man-Portable Unmanned Ground System Technologies	2.855	2.127	0.353	0.000

- FY2006 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).
  - \* 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, "quick fix" priority for deployed systems, and continuing technical and operational assessment for systems deployed and in spiral.

FY 2007, 2008 and 2009 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.

Accomplishment/Planned Program Title	FY 2006	FY 2007	FY 2008	FY 2009
(U) Technology Transition/Transformation	3.998	2.275	0.840	0.000

- FY2006 Accomplishments:
- \* 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.
  - \* Continued the establishing of criteria, guidelines, and content for robotics systems engineering education programs at the graduate and post graduate levels.
  - \* 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 to support fielding and support of RCSS COTS systems to War on Terrorism forces.

**OSD RDT&E PROJECT JUSTIFICATION (R2a Exhibit)**

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY  
RDT&E/ Defense Wide BA# 5PE NUMBER AND TITLE  
**0604709D8Z - Joint Robotics EMD**PROJECT  
**P609**

FY 2007, 2008 and 2009 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.

<b>C. Other Program Funding Summary</b>	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Compl	Total Cost
PE 0603711D8Z (BA3) Joint Robotics/Autonomous Systems	0.000	7.700	11.256	14.202	14.626	14.825	15.020	15.231	0.000	92.860
PE 0603709D8Z (BA4) Joint Ground Robotics Enterprise (JGRE) ACD&P	27.264	12.210	11.860	11.867	12.119	12.389	12.711	13.041	0.000	113.461

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.

**E. Major Performers**

Category	Name	Location	Type of Work and Description	Award Date
<b>Labs</b>				
	Air Force Research Laboratory (AFRL)	Tyndall AFB, FL	Program Management	
	AMRDEC	Redstone Arsenal, AL	Program Management. U.S. Army Aviation and Missile Research, Engineering, and Development Center (AMRDEC).	
	TARDEC	Detroit, MI	Program Management. U.S. Army Tank Automotive Research, Development and Engineering Center (TARDEC)	
<b>Contractors</b>				
	National Center for Defense Robotics (NCDR)	Pittsburg, PA	Program Management.	

**Others**

**OSD RDT&E PROJECT JUSTIFICATION (R2a Exhibit)**

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY RDT&E/ Defense Wide BA# 5		PE NUMBER AND TITLE <b>0604709D8Z - Joint Robotics EMD</b>		PROJECT <b>P609</b>
Program Manager Force Protection Systems (PM FPS)	Fort Belvoir, VA	Program Management.		
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. Space and Naval Warfare [SPAWAR] Systems Center, San Diego (SSC San Diego).		

**OSD RDT&E COST ANALYSIS (R3)**

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY RDT&E/ Defense Wide BA# 5			PE NUMBER AND TITLE <b>0604709D8Z - Joint Robotics EMD</b>							PROJECT <b>P609</b>		
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			2368	4020	1-4Q	0		0		0	6388	0
Navy			1817	1390	1-4Q	0		0		0	3207	0
Army			1180	1464	1-4Q	0		0		0	2644	0
Subtotal:			5365	6874		0		0		0	12239	0
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
JRP Program Support			10418	0		2911	1-4Q	0		0	13329	0
Subtotal:			10418	0		2911		0		0	13329	0
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:			0									
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
JRP Management Support			1599	3073	1-4Q	0		0		0	4672	0
Subtotal:			1599	3073		0		0		0	4672	0

**OSD RDT&E COST ANALYSIS (R3)**

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY RDT&E/ Defense Wide BA# 5	PE NUMBER AND TITLE <b>0604709D8Z - Joint Robotics EMD</b>						PROJECT <b>P609</b>			
<b>Project Total Cost:</b>	17382	9947		2911		0		0	30240	0

**Schedule Detail (R4a Exhibit)**

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY  
RDT&E/ Defense Wide BA# 5

PE NUMBER AND TITLE  
**0604709D8Z - Joint Robotics EMD**

PROJECT  
**P609**

<u>Schedule Detail</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>
MTRS PSVM T&E	1-4Q	1-4Q						
MTRS PRM T&E	1-4Q	1-4Q						
MTRS AAP PROD DEC	1-4Q	1-4Q						
RONs CIP	1-4Q	1-4Q						
Next Gen EOD RCV	1-4Q	1-4Q						
EOD Cooperative Robotics	1-4Q	1-4Q	1-4Q	1-4Q				

**Comment:**

EXHIBIT R-2, RDT&E Budget Item Justification							DATE: February 2007	
APPROPRIATION/BUDGET ACTIVITY RDT&E Defense-Wide/BA-5			R-1 ITEM NOMENCLATURE 0604771D8Z Joint Tactical Information Distribution System (JTIDS)					
COST (\$ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total PE Cost	10.589	8.130	16.527	20.495	20.954	21.287	21.619	21.952
P771 Link-16 Tactical Data Link (TDL) Transformation								
Subtotal Cost	10.589	8.130	16.527	20.495	20.954	21.287	21.619	21.952
<p><b>A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:</b></p> <p>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 all primary tactical and Common Data Link (CDL) communications. The implementation of these network capabilities into the TDL and CDL 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. The developing stealth platforms have developed Low Observable (LO) data links and there is a need to incorporate Joint LO data link capabilities into the NCOW migration. To ensure the timely implementation, these network-enabling capabilities are being incorporated into the Joint Tactical Data Enterprise Services (TDES) Migration Plan (JTMP). The documentation of these network-enabling capabilities in the JTMP has been identified by the Joint Requirements Oversight Council (JROC), Allied/Coalition partners and the NATO C3 Board as critical to transformation of the data links.</p> <p>The funds provided by this budget request will be used to update the JTMP to reflect the Services' migration plans towards the NCOW objectives. This plan in turn will be used by the Services and our Allied/Coalition partners in developing future acquisitions and fielding plans. In addition, funding will be used to expand the JTMP to 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). Starting this funding period, the Allied TDES migration will be added to the JTMP to ensure combined network interoperability in future conflicts and training exercises. This international effort will begin by adding the UK and Australia; both of which are currently operating the same TDL systems as the US and are actively participating in the TDES migration. A final area to be added will focus on the development of network-enabled weapons.</p> <p>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 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 for the 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.</p> <p>This program will support the OSD the mission to balance validated warfighter capability needs across the full set of NCOW capability areas and to identify the development of 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 architecture, conducting risk assessments of NCOW programs, assessing NCOW program dependencies, and ensuring adherence to the GIG enterprise wide technical baseline.</p> <p>The associated P773 program previously supported the RDT&amp;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.</p>								

EXHIBIT R-2, RDT&E Budget Item Justification		DATE:	February 2007	
APPROPRIATION/BUDGET ACTIVITY RDT&E Defense-Wide/BA-5		R-1 ITEM NOMENCLATURE 0604771D8Z Joint Tactical Information Distribution System (JTIDS)		
<b>B. Program Change Summary:</b>				
	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY2009</u>
Previous POM/BES	10.899	8.177	16.527	20.495
Current Presidents Budget	10.589	8.130	16.527	20.495
Total Adjustments	-0.310	-0.047		
Congressional program reductions				
Congressional rescissions, Inflation Adjustments	-0.310	-0.047		
Congressional increases				
Reprogrammings				
Program Change Explanation:				
FY 2006: SBIR -.277 million, STTR -.033 million.				
FY 2007: FFRDC -.016 million, Economic Assumptions -.031 million.				
FY 2008: No change.				
FY 2009: No change.				
<b>C. Other Program Funding Summary:</b> N/A				
<b>D. Acquisition Strategy:</b> In Executing JTDL tasking, existing cost-plus contracts will be utilized.				
<b>E. Performance Metrics:</b> Program metrics will be developed in support of requests for program resources. The metrics will follow the guidelines of the OSD Net-Centric Checklist and aid programs in the move into the Net-Centric environment in the GIG. Metrics will be updated as standards and protocols and approved in the Joint Technical Architecture or the NCOW RM.				

EXHIBIT R-2a, RDT&E Project Justification						DATE: February 2007		
APPROPRIATION/BUDGET ACTIVITY					PROJECT NUMBER AND NAME			
<b>RDT&amp;E Defense-Wide/BA-5</b>					P771 Link-16 Tactical Data Link (TDL) Transformation			
COST (\$ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
P771 Link-16 Tactical Data Link (TDL) Transformation								
Subtotal Cost	10.589	8.130	16.527	20.495	20.954	21.287	21.619	21.952
RDT&E Articles Qty								
<p><b>A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:</b></p> <p>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 all primary tactical and Common Data Link (CDL) communications. The implementation of these network capabilities into the TDL and CDL 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. The developing stealth platforms have developed Low Observable (LO) data links and there is a need to incorporate Joint LO data link capabilities into the NCOW migration. To ensure the timely implementation, these network-enabling capabilities are being incorporated into the Joint Tactical Data Enterprise Services (TDES) Migration Plan (JTMP). The documentation of these network-enabling capabilities in the JTMP has been identified by the Joint Requirements Oversight Council (JROC), Allied/Coalition partners and the NATO C3 Board as critical to transformation of the data links.</p> <p>The funds provided by this budget request will be used to update the JTMP to reflect the Services' migration plans towards the NCOW objectives. This plan in turn will be used by the Services and our Allied/Coalition partners in developing future acquisitions and fielding plans. In addition, funding will be used to expand the JTMP to 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). Starting this funding period, the Allied TDES migration will be added to the JTMP to ensure combined network interoperability in future conflicts and training exercises. This international effort will begin by adding the UK and Australia; both of which are currently operating the same TDL systems as the US and are actively participating in the TDES migration. A final area to be added will focus on the development of network-enabled weapons.</p> <p>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 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 for the 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.</p> <p>This program will support the OSD the mission to balance validated warfighter capability needs across the full set of NCOW capability areas and to identify the development of 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 architecture, conducting risk assessments of NCOW programs, assessing NCOW program dependencies, and ensuring adherence to the GIG enterprise wide technical baseline.</p> <p>P771 is 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.</p>								

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E Defense-Wide/BA-5	PROJECT NUMBER AND NAME P771 Link-16 Tactical Data Link (TDL) Transformation	
<b>B. Accomplishments/Planned Program</b>		
FY 2006 ACCOMPLISHMENTS (\$10.589 million):		
<ul style="list-style-type: none"> <li>- Developed the Joint TDES Migration Guidance (JTMG) defining the Joint NCOW transformational objectives</li> <li>- Revised and updated 2000 Joint Tactical Data Link Management Plan (JTDLMP) into the Joint TDES Migration Plan (JTMP) detailing the transformation to NCOW for 2006 publication and submit the JTMP for Joint review</li> <li>- Led Joint team with OSD, JCS, DISA, Services, and Agencies for TDES migration to include integration and synchronization of NCOW and JNO capabilities</li> <li>- Led TDES teams to address transformation of the tactical gateways and the Joint Interoperability of Tactical Command and Control Systems (JINTACCS) process</li> <li>- Acted as the Joint subject matter experts for Joint, Allied, and Coalition Tactical Near-Term Interoperability and Net-Centric Transformation Initiatives</li> <li>- Provided technical oversight, planning, and coordination of Joint TDL interoperability and transformation initiatives (e.g., Joint Electro Magnetic Compatibility Features DoD Performance Specification, Service TDES migrations)</li> <li>- Acted as Joint TDL subject matter experts and participate with GIG End-to-End Systems Engineering teams</li> <li>- Conducted tactical network loading and topology study to support migration to NCOW operations</li> <li>- Provided requirements for operationally driven, technical functionalities needed to meet tactical data exchange requirements within a critical/warfighting environment</li> <li>- Completed networking on the move study across multiple NCOW programs and capabilities</li> <li>- Planned and conducted net-centric capability assessments and terminal synchronization studies</li> <li>- Established policy, provided oversight, and developed net-centric architectures which addressed the wireless and mobility aspects of IP</li> </ul>		
FY 2007 PLANNED (\$8.130 million):		
<ul style="list-style-type: none"> <li>- Initiate the revision and updating of the 2006 Joint TDES Migration Plan (JTMP) for update publication in 2008</li> <li>- Initiate the incorporation of the Common Data Link (CDL) into the JTMP to guide the net centric migration of Joint Intelligence, Surveillance, and Reconnaissance assets (ISR)</li> <li>- Initiate the incorporation of the Integrated Broadcast System (IBS) into the JTMP to guide the net centric migration of Joint Intelligence Broadcasts</li> <li>- Initiate the incorporation of Low Observable (LO) data links into the JTMP to address stealth platform requirements</li> <li>- Initiate the Interoperability Enhancement Process (IEP) with DISA demonstrating Joint TDES interoperability assessments and developing a Joint process for populating and maintaining a database of Joint TDES implementations and interoperability assessments</li> <li>- Lead Joint team with OSD, JCS, DISA, Services, and Agencies for TDES migration to include integration and synchronization of NCOW and JNO capabilities</li> <li>- Lead TDES teams to address transformation of the tactical gateways and the JINTACCS process</li> <li>- Act as the Joint subject matter experts for Joint, Allied, and Coalition Tactical Near-Term Interoperability and Net-Centric Transformation Initiatives</li> <li>- Provide technical oversight, planning, and coordination of Joint TDL interoperability and transformation initiatives</li> <li>- Act as Joint TDL subject matter experts and participate with GIG End-to-End Systems Engineering and related teams</li> <li>- Identify transformational solutions for dissemination of tactical data within the GIG Enterprise</li> <li>- Provide insight into operationally driven, technical functionalities needed to meet tactical data exchange requirements within a critical and/or warfighting environment</li> <li>- Conduct analytic evaluations to define and plan implementation of key technologies to include tactical information integration and configuration management</li> <li>- Demonstrate TDES being accessible to other web servers/systems via extensible markup language (XML) translation for Advanced Waveforms initiatives</li> <li>- Continue development of approved standards, protocols, and processes for implementation and testing across programs from end-to-end</li> <li>- Complete Joint warfighter utilization of networked Internet Protocol (IP) data in tactical cockpits</li> <li>- Establish policy, provide oversight, and develop net-centric architectures which will address the wireless and mobility aspects of IP</li> <li>- Initiate the building of a NCOW integrated architecture; Assess cross-program engineering, integration, and test for NCOW / JNO programs and capabilities</li> <li>- Conduct initial risk assessments and Independent Program Assessments for NCOW and JNO programs and capabilities</li> <li>- Initiate the process to identify NCOW program dependencies and integration points and their ensure adherence to the GIG enterprise-wide technical baseline</li> </ul>		

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E Defense-Wide/BA-5		PROJECT NUMBER AND NAME P771 Link-16 Tactical Data Link (TDL) Transformation
<p><b>B. Accomplishments/Planned Program</b></p> <p>FY 2008 PLANS (\$16.527 million):</p> <ul style="list-style-type: none"> <li>- Revision and update of the 2006 Joint TDES Migration Plan (JTMP) for publication in 2008</li> <li>- Incorporate the Common Data Link (CDL) into the JTMP to guide the net centric migration of Joint airborne Intelligence, Surveillance, and Reconnaissance assets (ISR) into the 2008 JTMP</li> <li>- Incorporate the Integrated Broadcast System (IBS) into the JTMP to guide the net centric migration of Joint Intelligence Broadcasts into the 2008 JTMP</li> <li>- Incorporate Low Observable data links into the JTMP to address stealth platform requirements for Low Probability of Intercept (LPI) and Low Probability of Exploitation (LPE) digital communications into the 2008 JTMP</li> <li>- Initiate the integration of Allied participants in the JTMP starting with the United Kingdom (UK)</li> <li>- Formalize the initial Joint Interoperability Enhancement Process (IEP) with DISA implementing a Joint process for developing and maintaining a database of Joint TDES implementation and interoperability assessments</li> <li>- Lead Joint team with OSD, JCS, DISA, Services, and Agencies for TDES migration to include integration and synchronization of NCOW and JNO capabilities</li> <li>- Lead TDES teams to address transformation of the tactical gateways and the JINTACCS process</li> <li>- Act as the Joint subject matter experts for Joint, Allied, and Coalition Tactical Near-Term Interoperability and Net-Centric Transformation Initiatives</li> <li>- Provide technical oversight, planning, and coordination of Joint TDL interoperability and transformation initiatives</li> <li>- Act as Joint TDL subject matter experts and participate with GIG End-to-End Systems Engineering and related teams</li> <li>- Identify transformational solutions for dissemination of tactical data within the GIG Enterprise</li> <li>- Provide insight into operationally driven, technical functionalities needed to meet tactical data exchange requirements within a critical and/or warfighting environment</li> <li>- Conduct analytic evaluations to define and plan implementation of key technologies to include tactical information integration and configuration management</li> <li>- Demonstrate TDES being accessible to other web servers/systems via XML translation for Advanced Waveforms initiatives</li> <li>- Continue development of approved standards, protocols, and processes for implementation and testing across programs from end-to-end</li> <li>- Plan and composite net-centric capability assessment</li> <li>- Establish policy, provide oversight, and develop net-centric architectures which will address the wireless and mobility aspects of IP</li> <li>- 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.</li> <li>- Develop an ad hoc mobile net-centric tactical wireless architecture for 2020 that interfaces with the GIG</li> <li>- Build a Joint NCOW integrated architecture</li> <li>- Assess cross-program engineering, integration, and test for NCOW and JNO programs and capabilities</li> <li>- Conduct risk assessments and Independent Program Assessments for NCOW and JNO programs and capabilities</li> <li>- Identify NCOW program dependencies and integration points and their ensure adherence to the GIG enterprise-wide technical baseline</li> </ul>		

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E Defense-Wide/BA-5		PROJECT NUMBER AND NAME P771 Link-16 Tactical Data Link (TDL) Transformation
<p><b>B. Accomplishments/Planned Program</b></p> <p>FY 2009 PLANS (\$20.495 million):</p> <ul style="list-style-type: none"> <li>- Publish the 2008 version of the Joint TDES Migration Plan (JTMP) documenting the TDES migration toward the Department's NCOW objectives</li> <li>- Integrate Allied participants in the JTMP with United Kingdom (UK) for the 2010 publication</li> <li>- Expand the integration of Allied participants in the JTMP with Australia</li> <li>- 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</li> <li>- Lead Joint team with OSD, JCS, DISA, Services, and Agencies for TDES migration to include integration and synchronization of NCOW and JNO capabilities</li> <li>- Lead TDES teams to address transformation of the tactical gateways and the JINTACCS process</li> <li>- Act as the Joint subject matter experts for Joint, Allied, and Coalition Tactical Near-Term Interoperability and Net-Centric Transformation Initiatives</li> <li>- Provide technical oversight, planning, and coordination of Joint TDL interoperability and transformation initiatives</li> <li>- Act as Joint TDL subject matter experts and participate with GIG End-to-End Systems Engineering and related teams</li> <li>- Identify transformational solutions for dissemination of tactical data within the GIG Enterprise</li> <li>- Provide insight into operationally driven, technical functionalities needed to meet tactical data exchange requirements within a critical and/or warfighting environment</li> <li>- Conduct analytic evaluations to define and plan implementation of key technologies to include tactical information integration and configuration management</li> <li>- Demonstrate TDES being accessible to other web servers/systems via XML translation for Advanced Waveforms initiatives</li> <li>- Continue development of approved standards, protocols, and processes for implementation and testing across programs from end-to-end</li> <li>- Establish policy, provide oversight, and develop net-centric architectures which will address the wireless and mobility aspects of IP</li> <li>- 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.</li> <li>- Develop an ad hoc mobile net-centric tactical wireless architecture for 2020 that interfaces with the GIG</li> <li>- Update the Joint NCOW / JNO integrated architecture</li> <li>- Assess cross-program engineering, integration, and test for NCOW and JNO programs and capabilities</li> <li>- Conduct risk assessments and Independent Program Assessments for NCOW and JNO programs and capabilities</li> <li>- Identify NCOW and JNO programs and capabilities dependencies and integration points and their ensure adherence to the GIG enterprise-wide technical baseline</li> </ul>		

EXHIBIT R-3, Cost Analysis									DATE: February 2007	
APPROPRIATION/BUDGET ACTIVITY RDT&E Defense-Wide/BA-5			PROGRAM ELEMENT 0604771D8Z				PROJECT NUMBER AND NAME P771 Link-16 Tactical Data Link (TDL) Transformation			
Cost Categories (\$ in millions)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost to Complete	Total Cost	Target Value of Contract
<b>Product Development</b>										
Spectrum Support	Various	Various	12.248	1.109	Various	0.796	Various	Continuing	Continuing	Continuing
Data Link Migration Engineering Support	Various	Various	14.227						14.227	
Net-Centric Engineering	Various	Various	1.604	2.166	Various	1.506	Various	Continuing	Continuing	Continuing
GIG Engineering Support	Various	Various	6.682	2.848	Various	2.797	Various	Continuing	Continuing	Continuing
Enhancements	Various	Various	0.626	0.292						
JICO Toolset (JSS) Development	Various	Various	0.529							
Joint Initiatives	Various	Various	2.157	0.942	Various	0.994	Various	Continuing	Continuing	Continuing
Joint TDES Migration and Technology Insertion Plan	Various	Various	6.092	0.720	Various	0.964	Various	Continuing	Continuing	Continuing
Joint and International Engineering	Various	Various	2.691	2.035	Various	0.626	Various	Continuing	Continuing	Continuing
Joint Interoperability Enhancement Process	Various	Various	0.000	0.477	Various	0.447	Various	Continuing	Continuing	Continuing
Weapons Networks	Various	Various	1.403							
Web Enabled Cockpit	Various	Various	1.280							
<b>Subtotal Product Development</b>			<b>49.539</b>	<b>10.589</b>		<b>8.130</b>				
<b>Total Cost</b>			<b>49.539</b>	<b>10.859</b>		<b>8.130</b>				

EXHIBIT R-4, Schedule Profile																	DATE: February 2007																							
APPROPRIATION/BUDGET ACTIVITY					PROGRAM ELEMENT NUMBER AND NAME												PROJECT NUMBER AND NAME																							
RDT&E Defense-Wide/BA-5					0604771D8Z Common Joint Tactical Information												P771 Link-16 Tactical Data Link (TDL) Transformation																							
Fiscal Year	2004				2005				2006				2007				2008				2009				2010				2011											
	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	1	2	3	4								
TDES migration to NCOW - Joint TDES Migration Plan (JTMP)								Data Call △				Publish 2006 △				Data Call △				Publish 2008 △				Data Call △				Publish 2010 △				Data Call △								
Common Data Link (CDL) Integration into the JTMP												Initiate △				Draft △				Integrate in JTMP △				Publish △				Update △				Publish △				Update △				
Integrated Broadcast Service (IBS) Integration into the JTMP												Initiate △				Draft △				Integrate in JTMP △				Publish △				Update △				Publish △				Update △				
Low Observable (LO) DL Integration into the JTMP												Initiate △				Draft △				Integrate in JTMP △				Publish △				Update △				Publish △				Update △				
Integrate selected Allied TDES Migration into JTMP																Initiate US Effort △				Initiate UK △								Draft UK JTMP △				Initiate Aus △				Publish △				Update UK JTMP △
Interoperability Enhancement Process (IEP)												Initiate △				Joint Demonstration △				Initiate Joint Process △								First Joint Interoperability △				Update Joint Interoperability △								
Tactical Wireless Architecture								Initiate △								Architecture Delivered △																								
Network Management								Initiate △								Deliver △																								
Capability Program Assessments												Initiate △								Update △								Update △								Update △				
NCOW Architecture																Initiate △				Update △								Update △								Update △				
Capability Delivery Plan																Initiate △				Update △								Update △								Update △				
Resource Recommendations																Issue Papers △				Issue Papers △								Issue Papers △				Issue Papers △				Issue Papers △				

<b>EXHIBIT R-4a, Schedule Detail</b>					DATE: February 2007		
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT				PROJECT NUMBER AND NAME		
<b>RDT&amp;E Defense-Wide/BA-5</b>	<b>0604771D8Z</b>				<b>P771 Link-16 Tactical Data Link (TDL)</b>		
Schedule Profile	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Joint TDES Migration Guidance (JTMG)	3Q						
Joint TDES Migration Plan (JTMP)	3Q						
Initiate Common Data Link (CDL) integration to JTMP		1Q					
Initiate Integrated Broadcast Sys (IBS) integration to JTMP		1Q					
Initiate Low Observable (LO) integration to JTMP		1Q					
Initiate Capability Program Assessments		1Q					
Initiate Joint Interoperability Enhancement Process (IEP)		2Q					
Deliver Tactical Wireless Architecture		2Q					
Deliver Network Management Assessment		2Q					
Initiate NCOW Architecture development		2Q					
Initiate Capability Delivery Plan		3Q					
Data Call for 2008 JTMP		4Q					
Draft CDL, IBS, and LO integration for 2008 JTMP		4Q					
Resource Recommendations with Issue Papers		4Q					
Initiate International participation in JTMP			1Q				
Joint Demonstration of Joint IEP			1Q				
Update Capability Program Assessments			1Q				for 2012:
Integrate CDL, IBS, and LO into 2008 JTMP draft			2Q				2Q
Update NCOW Architecture			2Q				
Initiate UK integration into JTMP			3Q				
Update Capability Delivery Plan			3Q				for 2012:
Publish 2008 JTMP (with CDL, IBS, and LO)			4Q				4Q
Resource Recommendations with Issue Papers			4Q			Update:	
Implement Joint IEP				1Q		1Q	
Update Capability Program Assessments				1Q			
Update NCOW Architecture				2Q			
Update Capability Delivery Plan				3Q		for 2012:	
Data Call for 2010 JTMP				4Q		4Q	
Update CDL, IBS, and LO in 2010 JTMP				4Q		4Q	
Initial Draft UK integration to JTMP				4Q			
Resource Recommendations with Issue Papers				4Q			
Joint IEP operational					1Q	Continue:	Continue:
Update Capability Program Assessments					1Q	1Q	1Q
Update NCOW Architecture					2Q	2Q	2Q
Initiate Australian integration to JTMP					3Q		
Update Capability Delivery Plan					3Q	3Q	3Q
Publish 2010 JTMP (with UK)					4Q		
Resource Recommendations with Issue Papers					4Q	4Q	4Q

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Exhibit R-2/R-2a, RDT&E Budget Item Justification					February 2007				
Appropriation/Budget Activity Engineering and Manufacturing Development RDT&E, DW, Budget Activity: 5					100 Item Nomenclature: PE 0605016D8Z – Financial Management System Improvements				
Cost (\$ in Millions)	Prior Year	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total PE Cost	251.115	36.791	0	0	0	0	0	0	0

**A. Mission Description and Budget Item Justification**

The Business Management Modernization Program (BMMP) will drive greater innovation and higher levels of efficiency throughout the Department Of Defense. BMMP’s mission is to transform business operations to achieve improved Warfighter support while enabling accountability. BMMP is implementing enterprise level business capabilities to accelerate department-wide improvements in business processes and information systems. The next-generation BMMP is now characterized by the following agenda for action:

- Provide future business capabilities necessary to support the Warfighting Mission, and focus the activity of business system modernization on acquiring those business capabilities.
- Identify business capabilities that should be common throughout the DoD business enterprise and direct the implementation of enterprise-wide systems with greater visibility at the highest levels of leadership within the Department.
- Control current and future investments in business systems through the governance of the Defense Business Systems Management Committee (DBSMC) and Investment Review Boards (IRBs).

The program is optimizing previous architectural work, focusing more intently on enhancing DoD enterprise-wide business capabilities, and has realigned governance to facilitate the implementation of measurable capabilities aligned to support the Warfighter. In realigning the BMMP, the Department has identified Business Enterprise Priorities, which are supported by the newly established governance process.

The goal of BMMP is to focus on *deploying* advanced capabilities that are DoD wide in scope. System consolidation, although important, is not an objective – it is an outcome of capability-focused transformation. A capabilities-focused approach will naturally lead to systems reduction while maintaining focus on critical transformation objectives.

This new collaborative structure for decision-making is designed to eliminate past barriers to effective integrated operations and improve the defense Business Management Area execution where it is needed most – supporting the Warfighter!!

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**Program Accomplishments and Plans/New Starts:**

FY 2006:

1. Implement the ETP (bi-annual updates).
2. The following rapid deployment capabilities will be provided to the Warfighter:

Name	Description	Impact
USXPORTS	USXPORTS provides an enterprise system that will improve the export control practices of the Department of Defense, Commerce and State.	<ul style="list-style-type: none"> <li>•Significantly reduces the amount of paper used in the export control process within DoD.</li> <li>•Data is moved in a secure electronic environment to authorized DoD users.</li> <li>•Precedent searches are run automatically based on sets of pre-defined user criteria.</li> </ul>
DoD FPDS-NG Reporting Application	Develop, deploy & maintain a modernized tool through which to receive machine-to-machine contract action reports from contract writing systems to Federal FPDS-NG.	The Navy will not be able to report contract actions.
Standard Procurement System (SPS) (Increment 2 Sustainment)	Supports Increment 2 deployment by the Services; critical to upgrading SPS Incr 3 due to Milestone C decision in Feb 2006 & deployment in Jul 06; only 20% of sites and 31% of users have been migrated; additional 14000 users and 450 sites to go; also includes server migration.	Delay in getting all users to same Increment; heightened programmatic risk with delay of Increment 3 deployments. Inability to deploy SPS to remaining weapon systems communities and continued maintenance of legacy applications.
WAWF	Supports Phase 2 and 3 integrations w/ DLA for 3.0.9 release in Dec 2005; critical to timing of DLA's DSS upgrade and BSM (EDI 861) both scheduled for Jan 2006. Cost avoidance of separate testing if included in v3.0.9 release versus later	Potential delay of BSM deployment & Milestone C decision; rejection of UID information passed from DSS to WAWF. Additional cost if not part of release 3.0.9. Required by July 25.

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	<p>patch of approximately \$60K.</p>	
<p>BEIS/Standard Financial Information Structure Deployment</p>	<p>The Standard Financial Information Structure (SFIS) is a comprehensive data structure that supports requirements for budgeting, financial accounting, cost/performance management, and external reporting across the DoD enterprise.</p>	<p>Links program execution to performance, budgetary resources, and actual financial information. Provides contracting officers visibility into linkages between funding, execution, and performance. Standardizes financial reporting data across DoD, reduces costs by streamlining systems and enhancing interoperability. Enables decision-makers to efficiently compare similar programs and activities across DoD</p>
<p>Advanced Shipping Notice (ASN)</p>	<p>DLA Consolidation and Containerization Points (CCPs) are now provided EDI 856 SC/A transaction sets as advance shipping notices of shipment arrivals that will be processed for onward movement by air or ocean container.</p>	<ul style="list-style-type: none"> <li>•Improved in transit visibility from contractor and vendor sources of supply. Increased data availability for onward movement planning,.</li> <li>•Reductions in re-requisitioning due to lack of visibility of shipments from contractor and vendor ASN data and information received by automated means adds significant value to the onward movement planning process as well as to the in transit visibility and asset visibility processes.</li> <li>•Reduces the time needed to plan onward movement actions since the movement can be planned in advance of shipment receipt.</li> <li>•ASN information reduces the time needed for planning lift allocations since anticipated shipments can be inserted in the lift planning process sooner.</li> </ul>

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<p>Assisted Determination of Semantic Equivalence by Intelligent Agents (ADSEIA).</p>	<p>Develops software based on the processing of structured data by intelligent agents to develop recommendations of semantic equivalence, accompanied by statistical degrees of confidence for the contextual data upon which the recommendation was based.</p>	<p>Frees critical human resources from data processing to the complex tasks of functional analysis and decision making.</p>
<p>DLMS Bridge</p>	<p>Supports a partial near term implementation of the Item Unique Identifier (IUID) and the Radio Frequency Identification (RFID) initiatives. It places middleware in front of legacy receiving systems that are not currently capable of interfacing with other systems using the DLMS.</p>	<p>Enables implementation of RFID receiving by legacy systems that are not DLMS compliant and supports passing of UID data to the UID registry.</p>
<p>DoD Master Data (DMD)</p>	<p>Provides the capability to identify, manage, synchronize and make master data available in shared spaces, focusing on the item, vendor and customer masters.</p>	<p>Accessible, accurate, timely, and trusted source of data for the warfighter.                  Identification of authoritative sources.                  DoD common capability in shared space.                  Synchronization of master data</p>
<p>DoD Standard Truck Manifest</p>	<p>Funds implementation and construction of a DOD standard truck manifest transaction set in both EDI and XML schemas; provides visibility of truck shipments in theater in GTN 21 beyond the POD.</p>	<p>Manifest transaction set will permit visibility of truck shipments in theater in GTN 21, and provide visibility beyond the POD to the destination Supply Support Activity (SSA), eliminates error-prone manual processes, and fully automates manual process.</p>
<p>DODAAD Reengineering</p>	<p>This is a continuation of an ongoing initiative to reengineer the DODAAD. The effort is to overcome deficiencies that are inherent in the architecture of many of the DOD reference repositories that were put in place well before current technology capabilities.</p>	<p>Improves accuracy and currency of DODAAD data. Insures consistency of authoritative source database and utilize authoritative sources of customer master data to support application systems.</p>

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<p>Ontology/Intelligent Collaborative Assistance</p>	<p>Provides DOD's deployment and distribution elements with an integrated, ontology-based, intelligent collaborative toolset that is focused on Distribution &amp; Deployment Operations Center (DDOC) planning and re-planning, decision-support, automated discovery of changing conditions, query assistance, and in-transit visibility.</p>	<ul style="list-style-type: none"> <li>•Ontology-based software and autonomic computing utilize the 'understanding' that can be represented within an information-centric (data in context) software.</li> <li>•Provides intelligent decision-support with collaborative software agents and automated interpretation of data.</li> <li>•Systems discover, diagnose, and react to disruption automatically reconfiguring themselves under dynamically changing conditions.</li> <li>•Anticipate, detect, identify, and protect themselves from external and internal attacks.</li> </ul>
<p>Shipment Visibility/Warfighter Support (SFWS)</p>	<p>Loss of visibility of containers in current operations has resulted in waste of perishables, excessive costs (since containers are normally leased), and unnecessary personnel costs to seek them out and return them for use/return.</p>	<p>Pull-based fulfillment system, that responds to actual demand, provides instant access to real time information throughout the network and supports postponement strategies</p>
<p>Weapon System Management Product Data Interoperability using the Standard for the Exchange of Product Model Data (ISO 10303)</p>	<p>Converts the highest leverage DoD data objects that support business transformation WEB-language interpretable data exchange sets (DEX) in compliance with the international standard titled Standard for the Exchange of Product Model Data (STEP).</p>	<p>More accurate and interoperable data that optimizes spare parts ordering, reduction of backlogs and customer wait times. It also improves accountability of defense material, and reduces workload to manage redundant product life cycle data for defense weapon systems.</p>
<p>Real Property Inventory Requirements</p>	<p>The initiative goal is to make consistent real property data (fiscal, physical, legal, environmental and geospatial) available across DoD through development of an integrated real property inventory where data is maintained by the authoritative source.</p>	<ul style="list-style-type: none"> <li>•Improved ability to achieve an unqualified audit opinion</li> <li>•Appropriately coordinated and integrated business processes</li> <li>•Effective business processes that eliminate duplication</li> <li>•Effective and comprehensive data management, including enterprise-wide data standards fostering transparency and interoperability</li> </ul>

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FY 2007-2009:

Accomplishments for FY 2007 and beyond are separately addressed in the budget exhibit for the Business Transformation Agency.

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R-1 Shopping List Item No 112

Page 6 of 11

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<b>B. Program Change Summary</b>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
FY 2007/2008 President's Budget	75.987			
FY 2008 BES	36.791			
Total Adjustments	+3.710			
Congressional Adjustments(Distributed)	+5.000			
Congressional Adjustments(Undistributed)	-1.290			
Reprogrammings	-42.906			

Program Change Summary Explanation:

FY 2007 reflects the Deputy Secretary of Defense's decision to functionally transfer these mission's requirements, and resources to the Defense Business Transformation Agency (BTA). The details of the BTA are addressed in a separate exhibit.

Schedule: Maintenance of the Department-wide BEA, perform Business Process Modeling (BPM) and integration Domain Business Process Engineering into the BEA.

Technical: Not Applicable

**C. Other Program Funding Summary:** N/A

**D. Acquisition Strategy:** The strategy will be to contract with the private sector for required effort, to include public accounting firms.

**E. Performance Metrics:** The performance metrics for these resources are separately addressed in the Exhibit 300, Part 1.C. Performance Goals and Measures.

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R-1 Shopping List Item No 112

Page 7 of 11

UNCLASSIFIED

Exhibit R-3, RDT & E, DW Project Cost Analysis										Date: September 2006		
Appropriation: RDT&E, DW, Budget Activity: 5					Program Element: 0605016D8Z					Transformation Support Office		
Cost Categories	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
Architectural Development/Maintenance	Competitive Blanket Purchase Agreement	BMMP	200.607									
Independent Verification and Validation and OCI functions; Risk assessment; Systems Engineering Support	Competitive Time & Material	BMMP	5.800									

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Business Enterprise Priorities (Details Provided in Transition Plan)	Competitive Time & Material	BMMP	0									
Governance, Transition, IRB & Start-up costs for Defense	Competitive Time & Material	BMMP	0									

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R-4 Schedule Profile - Item No. 20-3 of 20-4

Exhibit R-4, Schedule Profile																									Date: September 2006											
Appropriation/Budget Activity RDT&E, DW, Budget Activity: 5										Program Element Number and Name 0605016D8Z – Financial Management System Improvements										Project Number and Name Transformation Support Office PE 0605016D8Z																
Fiscal Year	2005				2006				2007				2008				2009				2010				2011				2012				2013			
	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	1	2	3	4	1	2	3	4
Develop BEA 2.4	△																																			
Develop BEA 3.0						△																														
Transition Plan						△																														
Develop BEA 4.0								△																												
Transition Plan								△																												

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<b>Exhibit R-2/R-2a, RDT&amp;E Budget Item Justification</b>								February 2007	
Appropriation/Budget Activity Engineering and Manufacturing Development RDT&E, DW, Budget Activity: 5					100 Item Nomenclature:  PE 0605019D8Z – Acquisition Domain				
Cost (\$ in Millions)		FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total PE Cost		3.442	0	0	0	0	0	0	0

**A. Mission Description and Budget Item Justification**

The Business Management Modernization Program (BMMP) Core Business Mission Areas (CBMAs) were established as part of the program’s governance approach. The mission of the CBMA is to lead business process transformation through business process reengineering (BPR) and system integration. The Supply Chain Systems Transformation (AQ) CBMA leads the transformation to strategic acquisition by integrating the people, processes, and technologies required to implement a modern acquisition environment that supports the Warfighter’s needs.

The Weapons System Lifecycle Management (WSLM) CBMA is one of five end-to-end functional business areas established by the Department as a framework to transform business operations, implement the Department’s Business Enterprise Architecture, and manage the Core Business Mission Area’s Information Technology (IT) portfolio. Key mandates for the WSLM include the President’s Management Agenda, the E-Government Act of 2002, and the National Defense Authorization Acts of 2003 and 2005. The WSLM Core Business Mission Area includes 153 reported procurement systems and almost 176,000 systems users, representing \$124 million. In addition to managing its Defense Department investments, WSLM must also align federal enterprise systems and initiatives with DoD enterprise initiatives.

WSLM is an end-to-end functional area that includes systems and capabilities to better provide for the warfighter’s needs. Through determination of common business processes and management of enterprise wide investments in information technology for WSLM business solutions, and within the framework of its governance structure, WSLM brings transparency to acquisition information. This transparency is critical to supporting full life-cycle management of the Department’s processes that deliver weapon systems and automated information technology support systems.

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**Accomplishments/Planned Program:**

FY 2006:

1. Funds will continue to be used for system changes as part of the DoD portfolio management process with regard to merger or consolidation of systems based on duplicate capability.
2. Standard Procurement System (SPS) will incur some functionality adjustments based on the migration to the new Federal Procurement Data System -Next Generation.
3. FPDS-NG is mandatory for all Federal agencies and requires the shut down of multiple feeder systems from DoD agencies. Functionality must be included in SPS to shut down the systems.
4. Funds will also be used to incorporate strategic sourcing functional capability in existing systems. Currently there are multiple agencies with portions of this capability (Army, Navy, Air Force, etc.) that need to be merged or consolidated into a single capability delivery vehicle.

FY 2007-2009:

Accomplishments for FY 2007 and beyond are separately addressed in the budget exhibit for the Business Transformation Agency.

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R-1 Shopping List Item No 115

Page 2 of 6

UNCLASSIFIED

<b>B. Program Change Summary</b>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
FY 2007 President's Budget	3.543			
FY 2008/2009 President's Budget	3.442			
Total Revised Estimate	3.442			
Total Adjustments	-0.101			
Congressional Adjustments(Distributed)				
Congressional Adjustments(Undistributed)	-0.101			

**Current Budget Submit/Budget Estimate**

FY 2007 reflects the Deputy Secretary of Defense's decision to functionally transfer these mission's requirements, and resources to the Defense Business Transformation Agency (BTA). The details of the BTA are addressed in a separate exhibit.

Schedule: Business process reengineering commenced with the completion of the first version of the BEA. The reengineering will be ongoing in an incremental approach consistent with the increments of BMMP. All results will be documented in updates to the BEA. Additionally, this information is addressed in more detail in the Enterprise Transition Plan, which is provided separately to the Congress and the Office of Management and Budget.

Technical: Not Applicable

**C. Other Program Funding Summary: N/A**

**D. Acquisition Strategy:** Program will make use of competed vehicles or internal resources. The strategy is to competitively contract work with the private sector for required effort. Additional details about the Acquisition Strategy are listed in the Exhibit 300/Modified 300.

**E. Performance Metrics:** The performance metrics for these resources are addressed in the Exhibit 300/Modified 300.

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Exhibit R-3, RDT & E, DW Project Cost Analysis									Date: September 2006			
Appropriation: RDT&E, DW, Budget Activity: 5						Program Element: 0605019D8Z			Weapon System Lifecycle Management Core Business			
Cost Categories	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
WAWF Eng Changes	Interagency Agreement	OSD	2.100									
SPS Eng Changes	Time and Material		3.442									

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R-4 Schedule Profile - Item No. 20-3 of 20-4

Exhibit R-4, Schedule Profile																							Date: September 2006									
Appropriation/Budget Activity RDT&E, DW, Budget Activity: 5												Program Element Number and Name 0605019D8Z – Acquisition Domain										Project Number and Name Weapon System Lifecycle Management Core Business										
Fiscal Year	2006				2007				2008				2009				2010				2011				2012				2013			
	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	1	2	3	4
Additional System Eng Changes	△																															

R-4a Schedule Profile - Item No. 20-4 of 20-4

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R-1 Shopping List Item No 115



**OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)**

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY  
RDT&E/ Defense Wide BA# 5

PE NUMBER AND TITLE

**0605140D8Z - Trusted Foundry**

Cost (\$ in Millions)	FY 2006 Actual	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total Program Element (PE) Cost	30.390	42.279	43.604	42.146	42.352	41.999	42.550	43.149
P014 Trusted Foundry	30.390	42.279	43.604	42.146	42.352	41.999	42.550	43.149

**A. Mission Description and Budget Item Justification:** The Trusted Foundry Program is a combined 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 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 'fables' 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.

<b>B. Program Change Summary</b>	FY 2006	FY 2007	FY 2008	FY 2009
Previous President's Budget (FY 2007)	31.151	42.522	44.935	43.327
Current BES/President's Budget (FY 2008/2009)	30.390	42.279	43.604	42.146
Total Adjustments	-0.761	-0.243	-1.331	-1.181
Congressional Program Reductions		-0.243		
Congressional Rescissions				
Congressional Increases				

**OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)**

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY RDT&E/ Defense Wide BA# 5		PE NUMBER AND TITLE <b>0605140D8Z - Trusted Foundry</b>		
Reprogrammings				
SBIR/STTR Transfer	-0.761			
Other			-1.331	-1.181

**C. Other Program Funding Summary:** Not Applicable.

**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.

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**OSD RDT&E COST ANALYSIS (R3)**

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY RDT&E/ Defense Wide BA# 5			PE NUMBER AND TITLE <b>0605140D8Z - Trusted Foundry</b>								PROJECT <b>0605140D8Z</b>	
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:			0									
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	25295	1-4Q	26401	1-4Q	25184	1-4Q	Continue	157812	Continue
IP (Software)	MIPR	NSA	32168	10000	1-4Q	10000	1-4Q	10000	1-4Q	Continue	62168	Continue
Security Upgrades	MIPR	NSA	16510	5714	1-4Q	5893	1-4Q	5696	1-4Q	Continue	33813	Continue
Certify Trusted Suppliers	MIPR	NSA	0	1270	1-4Q	1310	1-4Q	1266	1-4Q	Continue	3846	Continue
Subtotal:			129610	42279		43604		42146		Continue	257639	Continue
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:			0									
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:			0									

**OSD RDT&E COST ANALYSIS (R3)**

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY RDT&E/ Defense Wide BA# 5	PE NUMBER AND TITLE <b>0605140D8Z - Trusted Foundry</b>	PROJECT <b>0605140D8Z</b>
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<b>Project Total Cost:</b>	129610	42279		43604	42146		0	257639	0
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**Schedule Detail (R4a Exhibit)**

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY  
RDT&E/ Defense Wide BA# 5

PE NUMBER AND TITLE  
**0605140D8Z - Trusted Foundry**

PROJECT  
**0605140D8Z**

<u>Schedule Detail</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>
Aggregate Volume Purchases	1-4Q							
Visualization Software	1-4Q							
Certify Trusted Suppliers	1-4Q	2-3Q						

**Comment:**

**OSD RDT&E PROJECT JUSTIFICATION (R2a Exhibit)**

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY  
RDT&E/ Defense Wide BA# 5PE NUMBER AND TITLE  
**0605140D8Z - Trusted Foundry**PROJECT  
**P014**

Cost (\$ in Millions)	FY 2006 Actual	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
P014 Trusted Foundry	30.390	42.279	43.604	42.146	42.352	41.999	42.550	43.149

**A. Mission Description and Project 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:**

Accomplishment/Planned Program Title	FY 2006	FY 2007	FY 2008	FY 2009
Trusted Foundry FY2006 Accomplishments & FY2007 Plans	30.390	42.279	0.000	0.000

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.

**OSD RDT&E PROJECT JUSTIFICATION (R2a Exhibit)**

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY  
RDT&E/ Defense Wide BA# 5PE NUMBER AND TITLE  
**0605140D8Z - Trusted Foundry**PROJECT  
**P014**

Accomplishment/Planned Program Title	FY 2006	FY 2007	FY 2008	FY 2009
Tursted Foundry FY2008 and FY2009 Plans	0.000	0.000	43.604	42.146

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.

**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.

**OSD RDT&E COST ANALYSIS (R3)**

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY RDT&E/ Defense Wide BA# 5			PE NUMBER AND TITLE <b>0605140D8Z - Trusted Foundry</b>								PROJECT <b>P014</b>	
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:			0									
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	111322	25295	1-4Q	26401	1-4Q	25184	1-4Q	Continue	188202	Continue
IP (Software)	MIPR	NSA	32168	10000	1-4Q	10000	1-4Q	10000	1-4Q	Continue	62168	Continue
Security Upgrades	MIPR	NSA	16510	5714	1-4Q	5893	1-4Q	5696	1-4Q	Continue	33813	Continue
Certify Trusted Suppliers	MIPR	NSA	0	1270	1-4Q	1310	1-4Q	1266	1-4Q	Continue	3846	Continue
Subtotal:			160000	42279		43604		42146		Continue	288029	Continue
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:			0									
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:			0									

**OSD RDT&E COST ANALYSIS (R3)**

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY RDT&E/ Defense Wide BA# 5	PE NUMBER AND TITLE <b>0605140D8Z - Trusted Foundry</b>	PROJECT <b>P014</b>								
<b>Project Total Cost:</b>	160000	42279		43604		42146		0	288029	0

**Schedule Detail (R4a Exhibit)**

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY  
RDT&E/ Defense Wide BA# 5

PE NUMBER AND TITLE  
**0605140D8Z - Trusted Foundry**

PROJECT  
**P014**

Schedule Detail: Not applicable for this item.

**OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)**

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY RDT&E/ Defense Wide BA# 5		PE NUMBER AND TITLE <b>0605648D8Z - Defense Acquisition Executive (DAE) Pilot Program</b>						
Cost (\$ in Millions)	FY 2006 Actual	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total Program Element (PE) Cost	0.964	5.980	5.838	5.853	5.906	5.867	5.945	6.028
P650 Defense Acquisition Executive (DAE)	0.964	5.980	5.838	5.853	5.906	5.867	5.945	6.028

**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 peculiar" programs that do not have a traditional Service or Agency program of record. The program will provide an avenue 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

**OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)**

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY  
RDT&E/ Defense Wide BA# 5

PE NUMBER AND TITLE

**0605648D8Z - Defense Acquisition Executive (DAE) Pilot Program**

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><u>B. Program Change Summary</u></b>	FY 2006	FY 2007	FY 2008	FY 2009
Previous President's Budget (FY 2007)	0.985	6.015	6.016	6.017
Current BES/President's Budget (FY 2008/2009)	0.964	5.980	5.838	5.853
Total Adjustments	-0.021	-0.035	-0.178	-0.164
Congressional Program Reductions		-0.035		
Congressional Rescissions				
Congressional Increases				
Reprogrammings				
SBIR/STTR Transfer	-0.021			
Other			-0.178	-0.164

In FY06 and FY07 there were no congressional increases or decreases to the Defense Acquisition Executive (DAE) program element. Congressional rescissions and other taxes such as Section 8125 and FFRDC totaled \$15 thousand that were displayed in the FY 2007 President's Budget. The SBIR/STTR transfer totaled \$21 thousand. In FY07 the Congressional rescissions and other taxes such as Section 8023 for FFRDC totaled \$35.

<b><u>C. Other Program Funding Summary</u></b>	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Compl	Total Cost
JCTD Procurement (OSD Major Equipment: PE 0902198D8Z)	0.985	1.972	1.961	1.967	1.986	1.974	2.000	2.028	0.000	14.873

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 ACTD/JCTDs that demonstrate the highest military utility will be considered for the transition funding in the JCTD BA4 Transition PE. Promising ACTDs may receive transition funding during the transition period to the JCTD program.

**OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)**

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY  
RDT&E/ Defense Wide BA# 5

PE NUMBER AND TITLE  
**0605648D8Z - Defense Acquisition Executive (DAE) Pilot 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 peculiar" 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, 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 peculiar" 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 ACTD/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. 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. Promising ongoing ACTDs may also receive transition funding from the JCTD Transition arm as the ACTD program completes.

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					

**OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)**

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY RDT&E/ Defense Wide BA# 5		PE NUMBER AND TITLE <b>0605648D8Z - Defense Acquisition Executive (DAE) Pilot Program</b>				
08	Final Demonstration Completed					
08	Shared Funding and Visibility					
08	Independent MUA Assessment					
08	Transition of technology					

Comment: The majority of funding from this Program Element is forwarded to the Services/Defense Agencies that execute the individual ACTD projects. DUSD(AS&C) maintains and provides overall programmatic oversight for the ACTD program, to include the individual ACTD projects. The JCTD/ACTD performance metrics center on how fast relevant joint and/or transformational technologies can be demonstrated and provided to the joint warfighter. 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 these metrics and helps compare/contrast the current ACTD program with the new JCTD business process model.

A comparison of ACTD and JCTD metrics are:

1) Project Selection Focus:

- a. ACTD - Threat based: shared military service and CoCom influence.
- b. JCTD - Capability Based: Greater CoCom influence looking at nearer term joint/coalition needs.

2) Sprial Technologies:

- a. ACTD - No metric
- b. JCTD - 25% will provide an operationally relevant product demonstration within 24 months of ID signature.

3) Final Demonstation Completed

- a. ACTD - 3 to 4 years after initiation
- b. JCTD - 75% of projects complete final demonstration within three years of ID signature.

4) Shared Funding and Viability of resources:

- a. ACTD - OSD provides no more than 30% of the budgeted resources. Funding provided form many different program elements.
- b. JCTD - OSD provides significantly more funding, greater than 30% in some cases a majority of projected funding, especially in the first two years.

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<b>OSD RDT&amp;E COST ANALYSIS (R3)</b>										Date: February 2007		
APPROPRIATION/ BUDGET ACTIVITY RDT&E/ Defense Wide BA# 5			PE NUMBER AND TITLE <b>0605648D8Z - Defense Acquisition Executive (DAE) Pilot Program</b>							PROJECT <b>0605648D8Z</b>		
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
Primary Hardware Development			964	5980		5838		5853		0	18635	0
Subtotal:			964	5980		5838		5853		0	18635	0
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:			0									
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:			0									
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:			0									
<b>Project Total Cost:</b>			<b>964</b>	<b>5980</b>		<b>5838</b>		<b>5853</b>		<b>0</b>	<b>18635</b>	<b>0</b>

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**Schedule Detail (R4a Exhibit)**

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY  
RDT&E/ Defense Wide BA# 5

PE NUMBER AND TITLE

**0605648D8Z - Defense Acquisition Executive (DAE) Pilot Program**

PROJECT  
**0605648D8Z**

<u>Schedule Detail</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>
Planning	1-4Q							
Software Development	1-4Q							
Internal Test	2Q	1-3Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q
External Test	2-4Q	2Q						
Fielding	3Q	1-4Q	4Q	4Q	4Q	4Q	4Q	4Q
Support	1-4Q							

**Comment:** Development schedule and milestone chart is in Exhibit R4a.

**OSD RDT&E PROJECT JUSTIFICATION (R2a Exhibit)**

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY RDT&E/ Defense Wide BA# 5		PE NUMBER AND TITLE <b>0605648D8Z - Defense Acquisition Executive (DAE) Pilot Program</b>						PROJECT <b>P650</b>	
Cost (\$ in Millions)	FY 2006 Actual	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	
P650 Defense Acquisition Executive (DAE)	0.964	5.980	5.838	5.853	5.906	5.867	5.945	6.028	

**A. Mission Description and Project 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 peculiar" programs that do not have a traditional Service or Agency program of record. The program will provide an avenue 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

**OSD RDT&E PROJECT JUSTIFICATION (R2a Exhibit)**

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY RDT&E/ Defense Wide BA# 5	PE NUMBER AND TITLE <b>0605648D8Z - Defense Acquisition Executive (DAE) Pilot Program</b>	PROJECT <b>P650</b>
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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:**

Accomplishment/Planned Program Title	FY 2006	FY 2007	FY 2008	FY 2009
Joint Automated Deep Operations Coordination System (JADOCS)	0.964	5.980	5.838	5.853

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 C3T's, 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.

- FY06 Output: Enabled a network-centric capability in JADOCS, and phase I Collateral Damage Estimator (CDE). JADOCS continues to be used by the CoCom as a joint, C4ISR residual capability that originated from the TPSO ACTD which ended in FY-03.

- FY07 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.

- FY08 Planned Output: Refine CENTCOM Urgent Needs Statement capabilities for improved targeting in an asymmetric warfighting environment; provide enhanced technical capability for prototype NECC

**OSD RDT&E PROJECT JUSTIFICATION (R2a Exhibit)**

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY RDT&E/ Defense Wide BA# 5	PE NUMBER AND TITLE <b>0605648D8Z - Defense Acquisition Executive (DAE) Pilot Program</b>	PROJECT <b>P650</b>
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services to begin transition to the NECC program of record.  
 - FY09 Planned Output: Military Utility Assessment of new CENTCOM targeting capabilities will be assessed. Continue final development preparation for transition to the Army Battle Command System and NECC. Transition/Acquisition strategy will see a fully operational JADOCS capability within a PoR by FY 2010.

<u>C. Other Program Funding Summary</u>	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Compl	Total Cost
Procurement (JCTD Pilot), Major Equipment-OSD Def Wide (0902198D8Z)	0.985	1.972	1.961	1.967	1.986	1.974	2.000	2.028	0.000	14.873

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 ACTD/JCTDs that demonstrate the highest military utility will be considered for the transition funding in the JCTD BA4 Transition PE. Promising ACTDs 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 peculiar" 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, 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 peculiar" 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 ACTD/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. 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. Promising ongoing ACTDs may also receive transition funding from the JCTD Transition arm as the ACTD program completes.

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"

**OSD RDT&E PROJECT JUSTIFICATION (R2a Exhibit)**

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
RDT&E/ Defense Wide BA# 5	<b>0605648D8Z - Defense Acquisition Executive (DAE) Pilot Program</b>	<b>P650</b>

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.

**Schedule Profile (R4 Exhibit)**

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY  
RDT&E/ Defense Wide BA# 5

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

PROJECT  
**P650**

Event Name	FY 06				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	1	2	3	4
Planning, Planning	█				█																											
Planning, Planning					█				█																							
Planning									█				█																			
Planning													█				█															
Planning																	█				█											
Software Development, Software Development	█						█																									
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Software Development									█				█																			
Software Development													█				█															
Software Development																					█				█							
Internal Testing			█																													
Internal Testing, Internal Testing					█						█																					
Internal Testing, Internal Testing												█																				

UNCLASSIFIED

Date: February 2007

**Schedule Detail (R4a Exhibit)**

APPROPRIATION/ BUDGET ACTIVITY RDT&E/ Defense Wide BA# 5		PE NUMBER AND TITLE <b>0605648D8Z - Defense Acquisition Executive (DAE) Pilot Program</b>						PROJECT <b>P650</b>	
<u>Schedule Detail</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	
1.0.2.0	1-3Q								
1.0.3.0	1-4Q	1Q							
1.0.4.0	2-4Q	1-4Q							
1.0.5.0		1-4Q	1-3Q						
1.0.6.0		3-4Q	1-4Q	1-2Q					
1.0.7.0			3-4Q	1-4Q	1-2Q				
1.0.8.0				3-4Q	1-4Q	1-2Q			
1.0.9.0					3-4Q	1-4Q	1-2Q	1Q	

**Comment:**

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Exhibit R-2/R-2a, RDT&E Budget Item Justification					February 2007				
Appropriation/Budget Activity Engineering and Manufacturing Development RDT&E, DW, Budget Activity: 5					100 Item Nomenclature: PE 0901200D8Z – BMMP Domain Management and Systems Integration				
Cost (\$ in Millions)		FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total PE Cost		11.130	0	0	0	0	0	0	

**A. Mission Description and Budget Item Justification**

The Business Management Modernization Program (BMMP) Core Business Mission Areas (CBMA), were established as part of the program’s governance approach. The mission of the CBMAs, is to lead business process transformation through business process reengineering (BPR) and system integration in order to deliver end-to-end capabilities in support of the Warfighter. The results of the reengineering efforts will be documented in the Business Enterprise Architecture (BEA) and together with the Enterprise Transition Plan (ETP) will serve as a framework to guide investments in business management operations and systems. The BEA and ETP are both living evolving documents. Investment Review Boards (IRB) provides oversight to review and make recommendations for component investments that should be certified by the Defense Business Systems Management Committee (DBSMC). Individual CBMA sponsored initiatives will complement business enterprise programs in the execution of business transformation.

In accordance with the National Defense Authorization Act for FY 2005, the Secretary established the Defense Business Systems Management Committee (DBSMC), chaired by the Deputy Secretary of Defense with the Under Secretary of Defense (Acquisition, Technology, and Logistics) (USD (AT&L)) as the Vice Chair. The DBSMC provides recommendations to the Secretary that ensures the use of common decision criteria for DoD business system modernization to align business transformation to Warfighter capabilities and objectives. The Vice Chair provides acquisition oversight of the Department’s business transformation efforts along with the four appointed Approval Authorities for defense business systems; USD (AT&L), USD (Personnel and Readiness), USD (Comptroller), and Assistant Secretary of Defense (Networks and Information Integration). The DBSMC is under charter as defined by Section 186 of USC Title 10. The IRBs enable the DBSMC to conduct a formal review of the Defense Business Systems Modernization Program’s accomplishments to date. The IRBs also enable the DBSMC to review and ratify new program objectives, structure, and baseline.

As of October 7, 2005 the deputy Under Secretary of Defense notified Congress that the mission functions of various components within the DoD will transfer to the Business Transformation Agency (BTA). The details of the BTA are addressed in a separate exhibit.

UNCLASSIFIED

R-1 Shopping List Item No 124

Page 1 of 6

**Accomplishments/Planned Program:**FY 2006:

1. The FM CBMA is continuing to modeling the Department's program and budget formulation process. The results of the BPR will be documented in the BEA which will be used to define the requirements for a COTS system solution(s).
2. The FM CBMA will begin reengineering the cost accounting and Funds Distribution processes with a focus on data standardization. The results of the BPR will be documented in the (BEA).
3. The RP&ILM CBMA rewrote and issued policy document (DoDI 4165.14, "Real Property Inventory and Forecasting") to ensure enterprise-wide compliance with modernized procedures for managing the real property inventory. We also worked closely with Components to develop detailed plans for implementing real property inventory procedures.
4. The RP&ILM CBMA drafted standard business processes and information requirements for acceptance of real property into the DoD inventory. The real property acceptance requirements document was released to the RP&ILM Governance Board for formal coordination.
5. The RP&ILM CBMA completed business process re-engineering workshops to standardize processes and data for Construction in Progress.
6. The RP&ILM CBMA developed, upgraded, and/or integrated the "To-Be" standard process models, logical data models, and data elements for the following initiatives into BEA 4.0:
  - a. Real Property Construction in Progress Requirements (RPCIPR) will facilitate enterprise-wide consistent accounting and financial management for all real property construction and capital improvement projects.
  - b. Environmental Liabilities Recognition, Valuation and Reporting Requirements (ELRV&RR) data model was expanded to include non-Defense Environmental Restoration Program (DERP) liabilities. This will enable consistent accounting for and managing of DoD environmental liabilities, and provide the linkage between the liabilities and real property asset records; also delivered a requirements document.
  - c. Hazardous Materials Process Controls & Information Management Requirements (HMPC&IMR) will enable the achievement of significant reduction in risks to personnel and materiel, through ready access to authoritative and timely Hazmat information. We also delivered a requirements document and initiated Phase II of the BPR.
7. The Financial Management Domain will continue modeling the Department's program and budget formulation process. The results of the BPR will be documented in the BEA that will be used to define the requirements for a COTS system solution(s).
8. The Financial Management Domain will begin reengineering the cost accounting and Funds Distribution processes with a focus on data standardization. The results of the BPR will be documented in the Business Enterprise Architecture (BEA).

FY 2007-2009:

Accomplishments for FY 2007 and beyond are separately addressed in the budget exhibit for the Business Transformation Agency.

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<b>B. Program Change Summary</b>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
FY 2007 President's Budget	11.614			
FY 2008/2009 President's Budget	11.130			
Total Adjustments	-0.484			
Program Adjustment				
Congressional adjustments (distributed)				
Congressional adjustments(undistributed)	-0.484			

**Current Budget Submit/Budget Estimate**

The decrease in FY 2007 reflects the Deputy Secretary of Defense's decision to functionally transfer these mission's requirements, and resources to the Defense Business Transformation Agency (BTA). The details of the BTA are addressed in a separate exhibit.

**C. Other Program Funding Summary:** N/A

**D. Acquisition Strategy:** The strategy is to consolidate contractor support service and award competitively competed contract with the private sector on any new requirements. For new/specialized service needs statement of needs will be developed and GSA schedule based acquisitions will be conducted. Additional details about the Acquisition Strategy are listed in the Exhibit 300/Modified 300.

**E. Performance Metrics:** The performance metrics for these resources are separately addressed in the Exhibit 300/Modified 300. A separate exhibit is also included in the FY 2007 President's Budget in support of the Program Assessment Rating Tool. Additional performance metrics, other than those reported, are currently under development.

UNCLASSIFIED

R-1 Shopping List Item No 124

Page 3 of 6

UNCLASSIFIED

Exhibit R-3, RDT & E, DW Project Cost Analysis										Date: September 2006		
Appropriation: RDT&E, DW, Budget Activity: 5					Program Element: 0901200D8Z			Real Property and Installation Lifecycle Management and Financial Management - Core Business Mission Area				
Cost Categories	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
Financial Management Core Business Mission	Interagency Agreement	OSD	8.551								8.549	8.549
RP&ILM CBMA Technical and Administrative Services	GSA MOBIS Schedule Time and Material	OSD	10.600								10.158	10.158
JFMIP compliant DEAMS initiative support	Interagency Agreement	OSD	4.012								4.200	4.200
RP&ILM CBMA AoA	GSA IT Schedule Time and Material	OSD	0.459								0.459	0.459

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R-1 Shopping List Item No 124



