OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

Date: February 2006

APPROPRIATION/ BUDGET ACTIVITY	PE NUMBER AND TITLE
RDT&E/ Defense Wide BA# 6	**0605130D8Z - Foreign Comparative Testing (FCT)**

Cost ($ in Millions)		FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
	Total Program Element (PE) Cost	36.268	37.260	31.995	33.924	35.954	36.733	35.600
P130	Foreign Comparative Testing (FCT)	36.268	37.260	31.995	33.924	35.954	36.733	35.600

A. Mission Description and Budget Item Justification: The Foreign Comparative Testing (FCT) program supports the warfighter by leveraging mature technologies and equipment from allied nations and coalition partners to satisfy U.S. defense requirements, thereby accelerating the U.S. acquisition process and lowering development costs. Authorized by Title 10, U.S. Code, Section 2350a(g), the FCT Program is managed by the Deputy Under Secretary of Defense (Advanced Systems & Concepts), Comparative Testing Office. FCT projects are nominated by the Services and U.S. Special Operations Command (USSOCOM) each year. Evaluation processes for project selection include a detailed review to confirm the proposed item addresses valid requirements, a thorough market survey, and development of a viable acquisition strategy. A 30-day Congressional notification of the intent to fund the most meritorious projects is required, prior to the issuance of funds to the Services/SOCOM for execution.

Since the program's inception in 1980, OSD has initiated 546 projects; 473 projects have been completed to date. Of the 249 evaluations that met the sponsors' requirements, 169 led to procurements worth approximately $7.500 billion in FY 2006 constant year dollars. With an OSD investment of about $980.000 million, the FCT Program has realized an estimated RDT&E cost avoidance of $6.500 billion in FY 2006 constant year dollars.

The FCT program is frequently a catalyst for teaming or other business relationships between foreign and U.S. industries; many successful FCT projects result in arrangements for the licensed production of the qualified foreign item in the U.S. Other nations recognize the long-term value of such practices for competing in the U.S. defense market and the resultant strengthening of the "two-way street" in defense procurement. For the U.S., the result often means the creation of jobs and contributions to local economies. To date, companies across 31 states have benefited from FCT projects.

This Research Category 6.5 is assigned and identified in this descriptive summary in accordance with existing DoD policy.

B. Program Change Summary	FY 2005	FY 2006	FY 2007
Previous President's Budget (FY 2006)	36.833	35.738	36.419
Current BES/President's Budget (FY 2007)	36.268	37.260	31.995
Total Adjustments	-0.565	1.522	-4.424
Congressional Program Reductions		-0.603	
Congressional Rescissions			
Congressional Increases		2.125	
Reprogrammings			

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SBIR/STTR Transfer	-0.515		
Other	-0.050		-4.424

Major Performers: The majority of funding from this Program Element is forwarded directly to the Services and US Special Operations Command (USSOCOM) who manage all contracting and support requirements for the FCT projects identified in this budget exhibit (i.e., R-2a).

C. Other Program Funding Summary: Not Applicable.

D. Acquisition Strategy: Not Applicable.

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
07						

Comment: In FY 2005 - FY 2011, initiate the new start of approximately 15-20 projects and conclude activities on many continuing projects.

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APPROPRIATION/ BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
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Cost ($ in Millions)		FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
P130	Foreign Comparative Testing (FCT)	36.268	37.260	31.995	33.924	35.954	36.733	35.600

A. Mission Description and Project Justification: The Foreign Comparative Testing (FCT) program supports the warfighter by leveraging mature technologies and equipment from allied nations and coalition partners to satisfy U.S. defense requirements, thereby accelerating the U.S. acquisition process and lowering development costs. Authorized by Title 10, U.S. Code, Section 2350a(g), the FCT Program is managed by the Deputy Under Secretary of Defense (Advanced Systems & Concepts), Comparative Testing Office. FCT projects are nominated by the Services and U.S. Special Operations Command (USSOCOM) each year. Evaluation processes for project selection include a detailed review to confirm the proposed item addresses valid requirements, a thorough market survey, and development of a viable acquisition strategy. A 30-day Congressional notification of the intent to fund the most meritorious projects is required, prior to the issuance of funds to the Services/SOCOM for execution.

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B. Accomplishments/Planned Program:

Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007
120mm Mortar Propellant: (Army)	0.739	0.865	0.000

This project is evaluating a high-performance Extruded-Impregnated (EI) propellant for long-range mortar systems developed by Rheinmetall/Nitrochemie Wimmis AG of Switzerland. Qualification of EI propellant will support the Army's Future Combat System requirements for a 15% increased range over current 120mm mortar systems, will eliminate use of a hazardous/toxic stabilizer, reduce blast overpressure, increase rate of fire, decrease gun tube wear, and increase propellant shelf life.

FY 2005 Accomplishments: Manufactured downselected EI main charge propellant for qualification testing at YPG. Project scope expanded to also evaluate EI propellant for use in the mortar igniter. Awarded contract mod to procure EI igniter propellant. Started initial evaluation testing of main charge propellant at YPG. Charge assessment and uniformity tests were conducted.

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FY 2006 Plans: Load, assemble and pack (LAP) mortar increment containers and ignition cartridges with EI propellant and conduct qualification testing at YPG.

Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007
20 MM Replacement Round: (Air Force)	0.989	0.000	0.000

This project corrects a safety hazard in current 20MM rounds. The PGU-28B inventory has been declared "For Emergency Use Only" even though the rounds meet the USAF requirements for employment ranges and target damage. This was a result of twenty-five in-barrel detonations that caused aircraft damage and could have resulted in pilot death and loss of the aircraft. Air Combat Command through Hill AFB is evaluating 20mm ammunition developed by Diehl Munitionssyteme of Germany and Oerlikon of Switzerland to replace current 20mm combat rounds. FY 2005 Accomplishments: Acquire sufficient USAF funding to procure live-fire targets and accomplish live-fire testing. Completed DOT&E. Awarded contract for 25,000 rounds to conduct OT&E. FY 2005 Plans: Complete OT&E testing and transition to procurement. ROI: $88.000 million over 4 years.

Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007
3rd Generation Focal Plane Arrays for Future Combat and Apache Weapon Systems: (Army)	1.598	1.269	0.000

This Project will decrease the cost per focal plane array (FPA) by 75% resulting in acquisition savings of $572.000 million and increases reliability of the FPA by 200% which reduces operating costs by $75.000 milliom. This project is evaluating high-performance low-cost Third Generation Focal Plane Arrays (FPAs) developed by Qinetiq and BAE of England. Qualification of Third Gen FPA will support the Army's Future Combat requirements to see first, understand first, act first and finish decisively. FY 2005 Accomplishments: Test documents and interface requirements have been established for each contractor. Delivery of the first focal plane arrays (FPAs) received end of FY 2005. FY 2006 Accomplishments: FPAs and integrated dewar cooler assemblies have been received. FY 2006 Plans: Testing will begin of the first imagers from each contractor. A downselect to one contractor will be performed by end of second quarter FY 2006 . Delivery and testing of larger format FPA and camera from the selected company will take place later in the year.

Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007
40 mm Tactical Marking & 40 mm Day/Night Training Cartridges: (USSOCOM)	0.540	2.349	0.000

The 40mm Day/Night training cartridges allow soldiers to train as they fight, at night using their night vision goggles, a capability not currently available. This inert training ammunition is less toxic and will reduce range clean up costs by 10-20%, prevents range fires in the impact areas of bases in Southern California and will save over $1.000 million a year in base operations and maintenance funds (one fire alone burned 8,592 acres aboard the base and surrounding community, required 1,300 firefighters, numerous fire trucks, and a dozen aircraft from various agencies to extinguish) as well as save lives and prevent injuries caused by unexploded ordnances. FY 2005 Accomplishments: Project funds received. Contracted for and received test articles. Begin Phase I Performance Test. FY 2006 Plans: Complete Phase I Performance Test. Conduct Phase II Safety Test and environmental impact study. Conduct Phase III Operational User Assessment. Receive WSESRB approval. Milestone C Decision.

Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007
40mm High Explosive Dual Purpose (HEDP) Improvement : (Marine Corps (joint w/USSOCOM))	1.739	0.000	0.000

This project is testing a more lethal and accurate 40mm High Velocity (HV), High Explosive Dual Purpose (HEDP) round that integrates a commercially available Insensitive Munition for an increase in safety during operation and transportation. By integrating NDI components to produce a certified round, the USMC will avoid RDT&E costs of $8.800 million, O&S costs of $50.000 million, and provide an ROI of 80:1. FY 2005 Accomplishments: Procured the PAX-2A from Holston Army Ammunition Plant and transferred it to Norway for loading into the candidate cartridge. Completed baseline Insensitive Munitions (IM) and lethality testing of the US M430A1 cartridge. On 20 June, 2005, conducted a Milestone B Review of the Program. Based on this review, the Milestone Decision Authority (MDA) provided authority to continue to Milestone C. On 30 June, 2005, exercised the contract option to conduct the integration test of cartridges. The Swiss propellant that will be used in the candidate cartridge was

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qualified by NSWC, Crane in conjunction with the USSOCOM effort to field the Mk285 cartridge. FY 2005 Plans: Complete Engineering Phase of the integration effort at NAMMO, deliver test articles, complete Safety and Environmental Tests at NSWC, Dalgren, and User Testing of Marine Corps cartridge and Government Integration at Marine Corps Base Quantico. Prepare and submit WSESRB Certification and provide Technical Test Report. Obtain WSESRB Certification. Procurement decision to occur early in FYDP.

Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007
40mm Low Velocity HEDP Ammunition: (Marine Corps (joint w/USSOCOM))	0.560	0.472	0.000

This project is testing a 50% more accurate 40mm Low Velocity (LV), HEDP round that features greater lethality, new Insensitive Munitions for greater safety, and a new fuze to avoid remediation costs of $50.000 million for unexploded ordnance. The fielded cartridge will feature a high penetration capability against light armored targets and a high fragmentation effect against enemy personnel while integrating a self-destruct mechanism to eliminate instances of unexploded ordnance. By successfully qualifying an existing commercial round, the USMC will avoid RDT&E costs of $8.800 million and provide a ROI of 85:1. FY 2005 Accomplishments: Foreign Test Data received and reviewed. Contract Award and Test Planning complete. Received Test Articles. Contract Awarded to both Rheinmatall and ARGES for the test samples evaluation in April 2005. The Marine Corps Single Acquisition Management Plan was approved on 2 May 2005. FY 2006 Plans: Conduct Qualification of Energetics at the Vendor's Facility. Perform Safety & Environmental Tests in Germany. User Evaluation to be performed at Marine Corps Base Quantico. Prepare WSESRB Briefing and receive Certification. Procurement Decision.

Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007
70mm (2.75 inch) Rocket Warhead: (USSOCOM)	0.609	3.644	0.000

This project is qualifying an improved 70mm "bunker buster" warhead for use by Special Operations Aviation Regiment (SOAR) (Task Force 160) aircraft (AH/MH-6J). This warhead will provide special operations forces (SOF) with a significant new capability to defeat hardened targets such as bunkers, buildings, or other structures consisting of up to 24 inches reinforced concrete or 4 feet of timber and earth. Total cost avoidance and savings exceed $43.000 million. FY 2005 Accomplishments: Project funds received. Contract preparation. Test planning conducted. FY 2006 Plans: Receive additional project funds. Receive test articles. Interim hazard classifications, conduct Phase I technical and safety testing. Insensistive munitions (IM) testing. Obtain WSESRB approvals. Obtain air worthiness certification. Conduct Phase II Operational and User Assessment. Milestone C decision.

Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007
84 mm Multi- Target Warhead: (USSOCOM)	1.417	1.033	1.398

This project is evaluating an 84 mm Multi-Target (MT) Warhead for use in the Multi-Role Anti-Armor, Anti-Personnel System (MAAWS), the primary Special Operations Forces (SOF) crew served shoulder fired weapon. This munition will greatly enhance SOF capabilities to blast through wall-structures and targets urban/built up areas using a tandem warhead with a follow-through charge. This project will accelerate the weapons into the hands of the warfighter by 5 years sooner and save $45.000 million in RDT&E and life-cyle costs. FY 2005 Accomplishments: Project funds received. Contract preparation and award of test articles. Test planning. Initiated hardware integration and delivery. Initiated technical and safety testing. FY 2006 Plans: Continue hardware integration. Continue technical and safety testing. FY 2007 Plans: Complete technical and safety testing. Perform limited user testing. Navy WSESRB approval. Milestone C Decision.

Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007
Air Launch Tethered Balloon ISR Platform: (USSOCOM)	0.652	0.000	0.000

This project is evaluating a means of employing a unique Intelligence, Surveillance, and Reconnaissance (ISR) Sensor/Communications Package (802.11) using a tethered balloon platform concept. Well suited for use in poor weather or at night, this cost effective material solution will provide Special Operations Forces (SOF) a new capability that will significantly improve tactical situation awareness in the

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conduct of USSOCOM's mission objective to find, fix and destroy the enemy, and simultaneously provide friendly force protection. Cost avoidance and life-cyle savings are over $7.000 million. FY 2005 Accomplishments: Project funds received. Complete project planning. Contract for and receive test articles. Conduct analysis of vendor data and conduct initial technical testing. Conduct operational and user assessments. Procurement decision to occur early in FYDP.

Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007
Assault Breacher Vehicle Remote Control System: (Marine Corps)	1.468	0.000	0.000

This project will enable the force protection of all soldiers and vehicles traveling within the Marine Air Ground Task Force by a single Warfighter possessing the capability to clear buried mines and mark a safe lane across the battlefield. The ABV will meet the requirement for in-stride breaching of minefields and complex obstacles in a cost effective, survivable platform with Main Battle Tank speed and mobility, which does not currently exist in the USMC inventory. The Marine Corps can avoid RDT&E costs of over $10.000 million and provide an ROI of 18:1. FY 2005 Accomplishments: Foreign Test Data Received. Received initial test articles for preliminary user evaluations. Contract Preparation and Award. Test Planning Completed. Receive FCT Test Articles. Initiate system integration and system software test. FY 2005 Plans: Complete system integration and System Software tests by Remote Systems Joint Program Office. Conduct Technical Testing at Aberdeen Test Center to determine if the RCS can effectively and safely maneuver the ABV through various operational scenarios. The Operational Tests will be performed at Ft. A.P. Hill and 29 Palms, CA to confirm that the remote control system can accomplish the mission, as specified in the ORD. Data Analysis & Evaluation provided by MCOTEA and MCSC. Procurement Decision.

Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007
Celluloid Mortar Increment Containers: (Army)	0.511	0.000	0.000

This project is evaluating and qualifying a second source for nitrocellulose-based belted-fiber Mortar Increment Containers (MICs) for use with 60mm, 81mm and 120mm mortars. Qualification of the celluloid MICs developed by Kaufman & Gottwald Gmbh (KAGO), of Austria, will significantly reduce procurement cost, thereby reducing overall program production costs (>50% per MIC)., and will improve the robustness of the propulsion charge systems for semi- and auto- loading capabilities required for the Army's Future Combat System. These containers are more "environmentally friendly" and safer than the current domestic product. FY 2005 Accomplishments: Completed manufacture of celluloid MIC tooling. Conducted dimensional analysis and laboratory testing of celluloid MICs. Produced celluloid MICs and initiated evaluation testing at Yuma Proving Ground (YPG). 120mm mortar test rounds with celluloid MICs were prepared for sequential rough handling testing. FY 2005 Plans: Conduct final qualification testing with celluloid MICs at YPG. Total Procurement Savings: $32.800 million.

Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007
Close Quarter Battle (CQB) Pistol: (USSOCOM)	0.250	0.191	0.000

This project is testing and evaluating CQB pistols from foreign vendors that have demonstrated the ability of firing multiple caliber rounds from a single pistol. Non-developmental multi-caliber (9mm and .45 cal) pistols with a weight less than 40 ounces and improved accuracy, reliability and ergonomics will be tested to replace the legacy SIG226 battle pistol used by Special Operations Forces (SOF) for the past 15 years. FY 2005 Accomplishments: Project funds received. Conduct project planning. Held Pistol Industry Conference. Draft Performance Specifications submitted to Industry. Revised Specifications. Received proposals and product samples. Contracted and received test articles. Initiated technical and safety testing. FY 2006 Plans: Award IDIQ contract; receive initial low rate production articles, Complete technical and safety testing. Conduct operational and user assessment. Milestone C Decision. Initate full production. RDT&E, O&S, and procurement savings are projected at $13.000 million.

Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007
Composite Shroud for LCAC: (Navy)	0.978	1.572	0.112

This project will provide more easily repairable, and 30% more reliable shrouds; thus, reducing life cycle maintenance costs and increasing craft mission availability. Potential US Navy savings of $500.000

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thousand specification development, $13.500 million in material/labor and R&D costs plus an estimated additional reliability savings of $1.200 million over the life of the LCAC Program. FY 2005 Accomplishments: The RFP for the test shroud procurement, and the RFQ for the demonstration pieces and proposals were issued. Analysis is being performed to evaluate and quantify aerodynamic performance enhancements. FY 2006 Plans: Award the demonstration piece and proposal development contracts in the first quarter of FY 2006. Receive and evaluate proposals via a Contract Award Review Panel (CARP) and Technical Evaluation Review Panel (TERP) in late December or January. Award large construction contract in January or February to one or two of the vendors depending on available resources. Participate in the first Critical Design Review (CDR) with the vendor/s by the end of the quarter. Outfitting of 2 different Craft (one at each ACU) will allow for real-world evaluation of Test Articles during certification and training evolutions. FY 2007 Plans: Perform engineering labor and Logistics support which will be extensive on this effort.

Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007
Deployable Instrumentation for Marine Air Ground Task Force: (MAGTF)	0.924	0.000	0.000

This project will enable the USMC to employ realistic training to improve the probability of tactical success and correspondingly, a reduction of losses in terms of resources and personnel. The USMC is evaluating mobile Range Instrumentation Systems developed by Saab Training Systems of Sweden and RUAG of Switzerland to meet Marine Corps requirements to integrate training devices that provide deployable force-on-force training for the MAGTF. The project will integrate this capability into current training systems such as the Multiple Integrated Laser Engagement System (MILES) 2000 and enhance interoperability in the Joint-Coalition environment. The USMC will avoid RDT&E costs of $33.000 million, Procurement costs of $7.000 million, O&S costs of $5.000 million, and provide a ROI of 26:1. FY 2005 Accomplishments: Completed Phase II Operational Tests with Saab in Sweden on a Swedish Army post and initiated Phase III Field Evaluation. MILES 2000 vehicle kits provided to RUAG. Complete Phase II Operational Tests with RUAG and Phase III Field Evaluation with both vendors. Procurement decision to be made early in FYDP.

Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007
Deployable GSM Cellular Network: (USSOCOM)	1.952	0.000	0.000

This project is evaluating a commercially available transportable cellular network developed by Ericsson Systems of Sweden that can be deployed worldwide (stand-alone) in support of mission requirements in austere environments for USSOCOM and US Army. The Swedish equipment will satisfy critical requirements of the Special Operations Forces Tactical Assured Connectivity System and the Joint Threat Warning System. FY 2005 Accomplishments: Training of Program Manager U.S. Army Warfighter Information Network - Tactical (WIN-T) engineers and technicians completed at CECOM. Operational testing continues and test data being analyzed. User test and evaluation is ongoing. Additional funds were provided to test third generation Wideband Code Division Multiple Access Network upgrades to the DC Net that potentially merge internet with cellular, and enable secure voice/data communication with high-speed data based services. This potential capability would allow SOF to transmit images from video phones any where in the world. FY 2005 Plans: Obtain procurement decision.

Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007
Deployable Multi-Purpose Moving Target System (DTS):	0.359	0.000	0.000

This project will enable Marines to train on a deployable, automated, targeting system to train as they fight and enhance proficiency with anti-armor and infantry engagement tactics. DTS will enable Marines to utilize anti-armor weapons, SESAMS, and armored vehicles, equipped with MILES 2000 equipment, for realistic training at any deployment location. The USMC will avoid RDT&E costs of $4.000 million, Procurement costs of $240.000 million, O&S costs of $6.000 million and provide a ROI of 334:1. FY 2005 Accomplishments: Completed Phase I System Integration at Theissen in Germany. Initiated Phase II Operational Test at Camp Pendleton, CA and Camp Lejuene, NC. Complete Phase II Testing. Procurement decision to occur early in FYDP.

Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007
Diver Hull Inspection and Navigation System: (Navy)	0.272	0.393	0.000

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This project will determine suitability for use by U.S. Naval forces conducting Explosive Ordnance Disposal (EOD) diving operations, including searching and inspections of ship hulls and berthing areas. It is an open architecture system that combines video streams from multiple sensors, underwater positioning data and the ship's hull schematics to accurately track and record the diver's underwater movements. FY 2005 Accomplishments: Completed integration work of DVIS, Mk 48 Mask, and DHINS Simulator. Completed construction and integration of Diver Electronic Unit (DEU). DHINS FCT Test #1 executed in August at the Australian Maritime Museum in Sydney, AUS with support from local police divers. All software enhancements were successfully demonstrated. Enhance Marking 100% completed. Enhanced Diver Position Modification 100% completed. OMA Evaluated two different navigation systems during August test. Exit criteria assessment: Conducted DHINS system integration test in Dec 2005 Del Monte Pier, Little Creek, VA. FY 2006 Plans: Searching Multiple Ships in the same harbor. Integrate and stream sensor data and navigational data via acoustic communications to a topside display. Interoperability with other fleet Navy assets: such as unmanned underwater vehicles (UUVs), fleet divers, etc.

Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007
Engine Air Particle Separator (EAPS): (Army)	1.087	0.562	0.000

This project is buying additional EAPS in support of desert operations and the need for flexibility in operating tempo. Current configuration of EAPS does not facilitate performing maintenance on the aircraft. The Engine Air Particle Separator (EAPS) swirls engine inlet air at a high velocity separating particulate matter via centrifugal force. EAPS is used as mission equipment in dusty/sandy environments and can significantly increase engine life due to decreased erosion of engine components. EAPS currently used by the U.S. Army is the long can design and requires that EAPS be moved forward on its mounting rails to open the engine cowling when performing maintenance or inspections. The U.K design is a short can that will allow maintenance to be performed without unfastening and moving EAPS. A cost savings to a unit to buy a new engine at $1.100 million with a turn in credit of $800.000 thousand hence a unit spends a net of $300.000 thousand. Assuming 400 hours of operation a year, each aircraft will save 2 engines each. Fifty-one aircraft in country (28 OIF, 23 OEF) would yield $600.000 thousand per aircraft. This savings would be roughly $30.600 million for the units in theater. FY 2005 Accomplishments: Awarded EAPS production contract for 38 new sets of current configuration. Awarded EAPS Short Cans ECP for Short Can configuration and redesign of the Cross Shaft Fairing Cover. FY 2006 Plans: After approval of EAPS Short Can ECP, will cut in to the new production contract to start producing Short Can EAPS. Start retrofitting our fielded EAPS with new Cross Shaft Fairing Covers and Shorten to facilitate maintenance. Establish new performance standard for T55-GA714A Engine with the Short Can EAPS in the operators manual for the CH47 aircraft.

Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007
Eye-Safe Laser Rangefinder (ESLR) for M1A1 Main Battle Tank: (Marine Corps)	0.054	0.000	0.000

This project will enable the M1A1 tank crew to increase their range to targets by 2,000 meters while reducing the risk of blinding soldiers during training exercises. The ESLR will enable the tank crew to provide accurate target coordinate information at extended ranges for target-handoff and provide ordnance downrange before the M1A1 can be targeted by the enemy. This enhancement will contribute significantly to the mission of winning decisively on the battlefield, improving survivability and lethality. By successfully fielding an NDI solution, the USMC will avoid RDT&E costs of $2.000 million, Procurement costs of $3.000 million, O&S costs of $0.500 million, and provide a ROI of 7:1. FY 2005 Accomplishments: System Testing and User Evaluations completed at Fort AP Hill, VA. Extinction Requirements Testing performed at Aberdeen Proving Ground and White Sands Missile Range. Only the Zeiss laser has met requirements. Complete Long Distance Testing. Procurement decision to occur early in FYDP.

Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007
Guidance Components for Missiles: (Air Force)	0.174	0.000	0.000

This project enhances the performance of U.S. non-strategic missile systems. Improvements to basic guidance and control (G&C) technology and miniaturization of G&C components have application to U.S. system. Advanced components are being used by foreign suppliers and are candidates for easy integration into U.S. programs. The Space and Missile Command at Kirtland AFB has evaluated the performance of missile guidance components developed by Radstone Technology of the United Kingdom, DY4/Force Computers of Canada, Aitech Defense of Israel, Saab Ericsson Space of Sweden, SBS (OR) Technologies of Germany, and Thales Computers of France. FY 2005 Accomplishments: Developed baseline schedule, finalized environmental test procedures, developed performance and flight

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simulation test plan with detailed schedule. Received hardware and completed integration of hardware and software into the test facility. Evaluated candidates and down selected to the Radstone Technology. FY 2005 Plans: Complete the evaluation of the Radstone Technology, write and distribute the test report. Total procurement for 14 flights is $1.040 million/year over the projected 10 years Contract is $10.400 million.

Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007
Highly Mobile Oxygen Supplementation System (HMO2SS): (Marine Corps)	0.652	0.000	0.000

This project is testing a highly mobile oxygen-breathing mask that can provide increased oxygen therapy in mass casualty medical care 8 to 12 times longer than current masks, reducing the need for heavy, high pressure oxygen bottles. When deployed, the HMO2SS will reduce the logistical footprint by 400% without negatively impacting the current mission for mass casualty medical care. If successful, the USMC will avoid RDT&E costs of $2.00 million and provide a ROI of 5:1. FY 2005 Accomplishments: Initiated contract preparation and test planning. Award test article contract. Receive foreign test data. Receive test articles. FY 2005 Plans: Complete test planning. Technical tests performed at Aberdeen Proving Ground. Operational tests performed at Naval Medical Research Center, San Diego and overseen by MCOTEA. Data analysis & evaluation and the technical test report provided by the Naval Medical Research Center, San Diego. Initiate FDA approval. Procurement decision to occur early in FYDP.

Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007
HT Protective Coating for Gas Turbine Engines: (Navy)	0.713	0.000	0.000

This project will result in significant increases to the readiness and reliability of AV-8B Harrier aircraft thus providing the Marine Corps with the assets necessary to prosecute its missions successfully. Annual savings in procurement costs for the Harrier is estimated to be $18.000 million with additional operations and support life-cycle cost savings totaling $36.000 million. FY 2005 Accomplishments: MPT under contract to provide coated coupons for testing at NASA-Glenn and NAVSEA Carderock. Test coupons have been procured and prepared for coating application. The F402 Component Improvement Program (CIP) has tasked Rolls-Royce with providing support for testing of coated engine parts in FY 2006/2007. NRL web-based microscope capability has been activated to exchange component metallurgical data with MPT Russian scientists. 1st Quarter FY 2006 Accomplishments: Test coupons have been shipped to MPT for coating application. Rolls-Royce has been contracted to support engine-level testing of the coatings. FY 2005 Plans: Complete comparative testing of coupons. Conduct component level comparative testing using F402 parts coated with MPT and comparative coatings. Coordinate with F402 Accelerated Mission Endurance Test (ASMET) Program. Test program to include MPT-coated turbine hardware in ASMET.

Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007
Laser Marksmanship Training System (LMTS), Environmentally Enhanced (LMTS, E2) - Scoring Device (Hummerbook): (Army)	0.163	0.000	0.000

This project is evaluating a COTS, fully ruggedized LMTS Scoring Device known as the Hummerbook 50,000. The LMTS, E2 will provide an additional capability to a proven training device which will now enable the Army National Guard (ARNG) to add an additional training dimension for ARNG Soldiers by enabling them to conduct marksmanship training, more realistically, outdoors. The LMTS is a validated ARNG training requirement and the device is scheduled to be fielded to all 3,000+ ARNG Armories and Facilities. The ARNG's experiences with using the LMTS as an outdoor individual and collective marksmanship trainer will benefit the overall US Army's objective of "Making every Soldier a Rifleman." FY 2005 Accomplishments: Preliminary testing with a production Hummerbook revealed some deficiencies in the waterproofing of the screen. FY 2005 Plans: Purchase Order for 15 Hummerbooks with spare battery and battery charger will be provided to International Trade & Technologies, Inc. (IT&T). Procurement to be finalized early in FYDP. Procurement Potential: $6.620 million.

Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007
Hydraulic Regenerative Drive System: (Army)	0.145	0.000	0.000

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APPROPRIATION/ BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
RDT&E/ Defense Wide BA# 6	**0605130D8Z - Foreign Comparative Testing (FCT)**	**P130**

This project will reduce fuel consumption (Logistics footprint) by 50% by 2010. The hydraulic Regenerative Drive System (RDS) uses mature hydraulic propulsion technology and has the potential for reducing the Army Family of Medium Tactical Vehicles (FMTV) fuel consumption by 25% to 30% or increase acceleration and hill climbing performance by 40% while reducing brake component wear by over 50% (O&S costs). RDS captures vehicle braking energy in pressurized hydraulic fluid and reuses it to assist the vehicle drive shaft, reducing the main engine burden (reduced fuel usage, and emissions). This project procures FMTV specific RDS hardware, retrofits 3 prototype vehicles and conducts performance and durability testing at Aberdeen Test Center. Peace time savings over the life of the vehicle is estimated at 10-15,000 which considering the size of the fleet will be considerable. FY 2005 Accomplishments: Procured necessary hardware, and software. Retrofitted 6 vehicles (3 engineering and 3 test articles) Conducted performance and durability testing (about to be completed). FY 2005 Plans: Testing will be completed and project closed out.

Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007
Individual Serviceman Non Lethal System: (Army)	0.409	0.689	0.000

This project is qualifying a compressed air non-lethal system that extends the engagement range out to 100 meters. This system has been urgently released by the Army to Iraq and Afghanistan in support of the GWOT. This system provides the soldier with the capability to disperse crowds and/or mark individuals at ranges up to 100 meters with increased accuracy and rate of fire than existing non-lethal capabilities. The launcher can also be used in an under barrel configuration for the M4/M16 weapon. FY 2006 Plans: Testing to support Milestone S C is scheduled for second quarter FY 2006 and the system will achieve Milestone C during fourth quarter FY 2006. Upon reaching Milestone C, the system will be included in the Non Lethal Capabilities Set (NLCS) and will augment the existing capabilities of the soldier in the field. RDT&E Cost avoidance: $2.100 million. Engineering Estimate based on historical ACAT III R&D. Based on 1 per squad and 6 per non-lethal capability set; LCC of ~$2400 per system; Procurement potential up to 6624 systems (Active and NG infantry components); Rule-of-Thumb of 10% RDTE, 30% Procurement, 60% Operations & Maintenance.

Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007
JSLIST Block II Glove Upgrade (JB2GU): (Marine Corps)	0.471	0.000	0.000

This project will provide the Warfighter with a nuclear, biological, and chemical (NBC) glove that can perform a full range of missions in NBC environments, worldwide, up to 30 days without performance degradation. The JB2GU will provide NBC protective gloves for the Army, Marine Corps, Navy and Air Force military personnel and will increase the tactility, dexterity, and durability beyond that found in the currently fielded butyl glove. This project will realize an RDT&E costs avoidance of $2.275 million and provide a ROI of 15:1. FY 2005 Accomplishments: Completed Phase II, Human Factors Wear Test and Chemical Agent Testing. Phase II down-selection completed by JPMO-IP. AirBoss-Defense was selected for Phase III Testing. All services have signed the JPMO-IP TEMP. Receive Phase III Test Articles. Start Phase III FD Testing and Chemical Protection Testing. FY 2005 Plans: Complete Phase III Testing. Procurement Decision. Produce Technical Test Report.

Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007
LCAC Lube Oil Cooler: (Navy)	0.811	0.337	0.000

This project is evaluating improved corrosion resistant hovercraft Lube Oil Coolers, which will reduce life cycle maintenance costs; procurement costs and increases Craft Mission Availability. Potential US Navy savings of $7.600 million in material costs plus an estimated additional maintenance labor savings of $3.000 million over the life of the LCAC program are anticipated. PIP RDT&E cost avoidance of $4.000 milliom. Total Cost Savings $14.600 million. FY 2005 Accomplishments: A formal Request-for-Quote was issued by NSWC-PC contracts office to TTC Norge. Quotes were received from TTC Norge for two different design options. The LOC purchase specification has been completed in order to define all performance and interface requirements that the LOC must meet. Included in this effort was production of an interface/envelope drawing. A test chamber was fabricated, and a test was performed, in order to evaluate the potential for sand fouling of the LOC heat exchanger as a function of fin orientation. A decision to procure the design option with horizontal fins instead of the vertical fins was made as a result of this test. A test report documenting the results was completed. A delivery order for engineering support for the LOC effort was awarded. FY 2006 Plans: Issue delivery order for development of laboratory performance and on-craft testing of the evaluation units. Development of test plans for the laboratory performance and on-craft testing.

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Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007
Lightweight Prime Mover: (Marine Corps)	2.174	0.899	0.000

This project will provide the USMC with the capability to tow the M777 LW155 howitzer for artillery batteries in support of the Marine Expeditionary Units while meeting the requirements for external transportation via the MV-22 Osprey. The USMC will avoid RDT&E costs of $20.000 milliom, Procurement Costs of $4.000 million, and provide an ROI of 15:1. FY 2005 Accomplishments: Contract prep and award completed for test articles. Completed test plan. Test articles received. Surrogate howitzers built and delivered. Initiated comparative assessment at NATC for towing capability and operational suitability. Complete comparative assessment of Automotive Technik Ltd of United Kingdom and Supacat Ltd of United Kingdom, and Krauss-Maffei-Wegman of Germany. Lockheed Martin/Supacat Ltd was selected for the final test phase. FY 2006 Plans: Execute flight certification tests for external transport via MV-22 Osprey. MCOTEA performs User Evaluation. Live fire test execution at Aberdeen Test Center. Provide Final Test Report. Procurement Decision. Complete technical Test Report.

Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007
Lightweight Smoke Generator: (Army)	0.250	0.000	0.000

The U.S. Army is evaluating a visual/infrared liquid obscurant used by the Polish Army as a potential replacement for fog oil and graphite used by the U.S. Army. A "two-in-one" obscurant would have produced significant weight savings needed to meet Future Combat Systems needs for a smaller/lighter obscuration system. FY 2005 Accomplishments: Completed field performance testing of the Polish visual/infrared obscuration liquid field testing using a modified M56 Smoke Generating System (SGS). Completed test report summarizing the results of the field and chamber tests where the performance of the Polish visual/infrared obscuration liquid versus the U.S. fog oil/graphite system was tested.

Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007
Link-16, 11B Management Integrator: (Navy)	0.533	0.539	0.000

This project will assist in the implementation of Link-16/Link-11 capability in Special Projects Aircraft (SPA). It will provide situational awareness of friendly Blue Forces and enemy threats, assist in the prevention of fratricide, and improve the timeliness of enemy targeting solutions in support of the Global War on Terrorism (GWOT). Successful execution will result in a cost savings/avoidance of $3.000 million for Initial Operational Capability (IOC) implementation (avoids requirement to develop a new processor). Additional, estimated savings of $1.300 million will be realized during Full Operating Capabilities (FOC) MIP development and integration due to the Joint development ventures currently underway on other APC ADSI programs. FY 2005 Accomplishments: Procured two 1/2 ATR Air Defense Systems Integrators and associated NRE to facilitate integration into the SPA platform. Units are entering final integration and test phase. These integrators will allow for a parallel developmental paradigm that will expedite the development and integration of the Datalink requirements and eventually provide FOC Datalink transfer capability to the SPA platform. FY 2006 Plans: Conduct IOC NCTSI Certification/Test and JITC Certification/Test. Commence Datalink Requirements (DLR) and FOC Integration and Test at APC with complete Zephyr Link system. Commence aircraft integration of first IOC production baseline system. Commence interface development for Sea Vue Radar integration, Time Of Arrival/Time Differential Of Arrival (TOA/TDOA), IFF and TDDS replacement.

Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007
Li-Ion Batteries: (Army)	2.174	0.000	0.000

This project is evaluating the potential for Advanced chemistries Li-Ion cells and integration to batteries to satisfy user requirements for a high energy density (125 Wh/kg), high cell potential (3.6-3.7V) fuel source. Based on initial successes of a previous FCT (using Li-Ion cylindrical cells), this FCT will evaluate various cells with advancement in chemistries for application to: X90, X500 X600, X847, X388, X557, X516, X599 and X598 type batteries - satisfying requirements for both all military users of these batteries (will be transitioned to DLA). FY 2005 Accomplishments: Completed performance testing of BB-2600 and BB-2800 batteries manufactured with AGM (UK) cylindrical Li-Ion cells. Completed performance testing of BB-2590 batteries manufactured by SKC (Korea) utilizing their flat Li-Ion cells. Developed prototypes batteries for X847, X388, and X557 utilizing SKC Li-Ion cells. FY 2005 Plans: Field testing of the SKC BB-2590 batteries. Complete development of X516, X599, and X598 prototype

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batteries. RDT&E Cost avoidance estimated at $10.000 million over three years for development/testing of a new battery chemistry and associated application. O&S savings estimated at $10.000 million over 5 years after full implementation.

Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007
Low Probability of Intercept (LPI) Communications Intelligence Direction Finding: (USSOCOM)	0.065	0.000	0.000

This project originally planned to evaluate commercially available equipment developed by Elta Electronics, Ltd. of Israel that will detect sideband, spread spectrum/broadband, and other types of low probability of intercept communication signals from potential adversaries to provide threat warning to meet the requirements of the Joint Threat Warning System. However during the contract period Elta increased prices well beyond budget constraints, and proved unresponsive to project management communications. Elta was subsequently eliminated as a viable candidate. The Program Manager discovered that TRL Technology of the United Kingdom had comparable equipment and was procured for testing. FY 2005 Accomplishments: Due to reselection of vendor, project experienced a 3 month schedule slip. Training and system familiarization was conducted on-site in Tewkesbury, England. Test articles were procured and delivered to Space and Aviation Warfare Center (SPAWAR) Charleston. Completed technical testing. Operational testing is ongoing at Penn State University. FY 2005 Plans: Complete operational testing; compile test data, prepare decision packet, and obtain production decision. RDT&E, O&S, and procurement savings are projected at $8.000 million.

Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007
M16A2/M4 Training Replacement Bolt : (Marine Corps)	0.429	0.000	0.000

This project will allow the USMC to safely train Warfighters for Military Operations in Urban Terrain (MOUT) by firing, at short range, the Special Effects Small Arms Marking System (SESAMS) training cartridge and preventing the accidental chambering and firing of lethal ammunition. The Training Bolt will replace the currently existing SESAMS Upper Receiver for the M16A2 and M4 Service Rifles, increasing safety by reducing the ability to fire live rounds and minimizing the logistical footprint for equipment storage. The USMC will avoid RDT&E costs of $0.650 million, Procurement Costs of $3.000 million, and provide a ROI of 13:1. FY 2005 Accomplishments: Received foreign test data. Completed contract preparation and award. Complete test planning. Receive test articles. Commence laboratory testing for Phase I technical testing at Naval Surface Warfare Center, Crane to safely determine that live 5.56 ammunition cannot be fired with the bolt. FY 2005 Plans: Complete lab testing. Perform Phase 2 Operational Testing at MARCORSYSCOM's Ordnance Test Facility, Quantico, VA by PM TRASYS with operational M16A2. Data analysis & evaluation and technical test report provided by PM TRASYS. Procurement Decision to occur early in FYDP.

Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007
MARIA: CONGRESSIONAL ADD (Navy)	1.141	0.000	0.000

This project is evaluating a software-based high performance map application from Teleplan AS that provides a superior tool to collect, present and filter position dependent information for planning and analysis. The Navy Readiness Reporting Systems initiative is a dynamic, on-going evolutionary development aimed at providing the Navy, Afloat, Type Commander (TYCOM) and Fleet Commanders-in Chief (FLTCINs) the highest level of readiness reporting, collection, display and analysis for readiness assessment and planning. MARIA will be used to graphically present these data and also provide a point-and-click interface for data collection and reporting. FY 2005 Accomplishments: Conducted Initial Planning Team meeting. Held technical meeting and produced a roadmap to integrate MARIA in three developmental Spirals. Conducted MARIA user and development training. Installed and configured MARIA developmental server. Completed contract negotiations with NAID for purchase of MARIA Licenses and technical support for Spiral 1. Currently developing application module and interface to display readiness data on MARIA map client. Testing to be performed at end of FY2005, completing Spiral 1.

Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007

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Micro Electro Mechanical System (MEMS) Inertial Measurement Units (IMUs): (Air Force)	1.359	0.000	0.000

This project is qualifying a $12.000 thousand unit whose weight is measured in ounces that will replace units costing $100.000 thousand and weighing pounds. Many U.S. weapons require an IMU to make them intelligent/precision assets that can strike targets accurately. IMU costs have always been a major contributor to the high overall guidance system cost. Additionally, the IMU's relatively large "payload mass" reduces the available mass for lethal portion of the payload. FY 2005 Accomplishments: Finalized the selection of SiIMU02 interface type and finalized Purchase Order (and delivery schedule) for BAE SiIMU02. SMC/Det12 modified the NG Task Order to include provisions to procure the four fully functional units and the engineering test unit (ETU). Purchase Order (86330JY15C) was issued on June 22 2005 by Northrop Grumman to BAE systems. FY 2005 Plans: A Test Readiness Meeting to coincide with the fully functional unit arrival. The team will meet at Holloman AFB to assess the 46TG readiness for SiIMU02 lab, flight, and sled tests. An additional Test Readiness Meeting will be scheduled at Coleman Aerospace. Execute MEMS IMU program activities and Test Plans. The total IMUs purchased are 2,700 per year, which equals $8.100 million.

Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007
Mine Countermeasures Small UUV: (Navy)	0.196	0.000	0.000

This project is evaluating small UUV capabilities in Mine Countermeasures (MCM) Operations in the Very Shallow Water Zone (VSW) (10 feet - 40 feet) in preparation for amphibious assault, force protections and harbor security operations. The US Navy is currently incorporating small UUVs into Navy Special Warfare, VSW MCM operations, and Anti-terrorism Force Protection tactics. FY 2005 Acomplishments: Issues were noted on vehicle from AUV Fest (6-17 June) addressed by Hafmynd in early July. Actual Gavia UUV delivery to San Diego occurred on 26 July. Training course was put on by Hafmynd for U.S. Navy personnel from Naval Special Clearance Team One and Government engineers from SPAWAR System Center. Hafmynd personnel remained on-site for the subsequent 3 weeks. The training and test program started and stopped numerous times, awaiting the on-site technicians to troubleshoot problems, which were exposed during various attempted vehicle operations. During the nineteen work day window of 26 July to 19 August, five days of missions were accomplished. During those five days, 20 missions were run. The remainder of the days was non-operational due to vehicle technical issues, which Hafmynd technical representatives worked very hard to address. Some of those days were troubleshooting, and others were awaiting arrival of parts. Testing was stopped on 19 August when Hafmynd personnel decided to take the vehicle back to Iceland to conduct more extensive diagnostics and repairs at their facility. Inputs on specific improvements were provided to Hafmynd by the U.S. team. The system that is intended for delivery to the U.S. Navy is still at Hafmynd being repaired. Re-delivery is anticipated for November 2005. An Initial Engineering Evaluation Report was written on test results. RDT&E Cost avoidance: $1.000 million Savings in Procurement costs: $4.500 million Operations and Support Life-Cycle savings: $144.000 thousand

Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007
Miniature Synthetic Aperture Radar: (Army)	0.239	0.000	0.000

This project is testing a miniaturized Synthetic Aperture Radar (SAR) sensor system which produces radar images in near-photographic quality in day and night conditions. PM Robotic and Unmanned Sensors (PM RUS), with the support of RDECOM CERDEC I2WD, will integrate and test the Mini SAR for use on the Army Shadow 200 TUAV. This project was cancelled in FY 2005 due to lack of a firm transition/procurement path. The FY 2005 funding was used for pre testing activities.

Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007
Mobile Acoustic Support System (MASS) : (Navy)	0.163	0.000	0.000

The MASS is a system that performs Post Flight Analysis (PFA) of recorded sonobuoy (underwater microphones) information from all Anti-Submarine Warfare (ASW) platforms (fixed and rotary wing, surface and subsurface). The MASS would replace the current Fast Time Analysis System (FTAS) system fielded in the fleet, which has been in service for at least 10 years and has reached the end of its projected life cycle. It will provide operational commanders with post-mission acoustic intelligence and provide a scalable system that will keep pace with emerging technology. FY 2005 Accomplishments: Completed testing on one foreign system against the current specification and assessed the following suitability areas: Reliability, Maintainability, Availability, Logistic Supportability, Compatibility, Interoperability, Training, Human Factors, and Safety Documentation. Completed analysis of test data and Finalized Test Reports. De-briefed test results to the Canadian Government. Projected procurement:

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15 units @ $1 million each = $15 million.

Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007
Mounted Cooperative Target Identification System (MCTIS):	0.457	0.000	0.000

This project will provide a non-existent Combat Identification capability to the USMC to acquire, train, and fight on the Joint/Coalition battlefield, significantly reducing incidents of fratricide. This system will provide a positive encrypted identification of friend or unknown, bore sighted through the gunner's primary sight on Marine Corps M1A1 Tanks, Light Armored Vehicles (LAVs), and Advanced Amphibious Assault Vehicles (AAAVs). As a result, the range at which threat targets may be engaged without fear of misidentification regardless of battlefield obscurants will increase significantly and related incidents of fratricide will decline significantly. If successful, the USMC will avoid RDT&E costs of $15.000 million, Procurement Costs of $90.000 million, and provide a ROI of 69:1. FY 2005 Accomplishments: Received and accepted remaining test articles. Completed M1A1 System Integration on II MARDIV tank platoon. Complete remaining lab and range testing. Conduct user evaluation with II MARDIV tank platoon during CCID ACTD Urgent Quest exercise. Complete field and user evaluation. Complete data analysis & evaluation and provide technical test report. Procurement decision to occur early in FYDP.

Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007
Multi-Spectral Camouflage Netting: (Marine Corps)	0.870	0.562	0.000

This project will enable the Marine Corps to employ ground forces with a two sided, multi-spectral, camouflage net in a single system that protects against night vision and radar detection, while reducing the logistics burden and avoiding Procurement costs of $69.000 million. These nets will provide two camouflage patterns on opposing sides of one net, resulting in significant reductions for purchase quantity, cost, logistical transportation, and storage requirements while fielding the full camouflage capability in a much shorter time. The successful outcome of this FCT will allow the USMC to avoid RDT&E costs of $4.800 million and provide a ROI of 157:1. FY 2005 Accomplishments: Received foreign test data. Contract awarded and test planning complete. Received test articles. Complete field image collection testing at Ft. Deven, 29 Palms, White Sands Missile Test Range, and Imperial Dune. Completed radar field testing at Eglin AFB. Commence Laboratory testing at the Naval Research Lab. FY 2006 Plans: Complete field testing and lab testing. Perform material/physical properties testing at Aberdeen Proving Ground. Conduct user evaluation at Marine Corps Base Quantico. Test report provided by the Night Vision Lab, Ft. Belvoir. Close out report furnished by PM NBCS, MARCORSYSCOM. Procurement Decision.

Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007
Naval Active Intercept and Collision Avoidance: (Navy)	1.087	0.000	0.000

This project is evaluating a system developed by Sonartech, to support the submarine force's number one priority of collision avoidance and situational awareness. FY 2005 Accomplishments: Working with NUWCNPT and MIKEL, reviewed four NAIRCAS planning options and have selected one (Virginia option) for the final testing of the NAIRCAS program. Held planning meeting with MIKEL, NUWC, and Sonartech-Atlas to revise the road map for NAIRCAS. Awarded final contract vehicle between NAVSEA and MIKEL (this will also allowing funding to move to Sonartech-Atlas). FY 2005 Plans: Finalize Technical Assistance Agreement (TAA). Brief Virginia Program Office (PMS 450) of revised NAIRCAS plan and develop schedule accordingly. Operations and Support Life-Cycle savings: $5.100 million; RDT&E Cost avoidance: $13.000 million.

Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007
Next Generation Underwater Breathing Device: (Navy)	0.489	0.505	0.000

This project will allow test and evaluation of mature state of the art diver life support equipment to determine suitability of use by U.S. Naval Forces in Underwater Explosive Ordnance Disposal (EOD) Mine Counter Measures (MCM)/Unexploded Ordnance (UXO), Naval Special Warfare (NSW) missions, battle space preparation for Amphibious Assault, Force Protection and Harbor Security operations. FY 2005

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Accomplishments: Received all 5 systems from 3 manufacturers, Jul 2005. Completed second round of initial unmanned testing of the Viper E and Mk16 Mod 2 (Carleton Technologies Inc), Sep 2005. The Viper E experienced one anomaly that involved the primary electronics shutting down. NUBA was reset and worked fine, but this was a failure criteria set for the program, Sep 2005. Mk16 Mod 2 was cleared to move to Phase II (manned) testing. Viper E was not recommended for further testing. Divex re-engineered the scrubbers for the Stealth EOD-M. This solved the leak problem that we experienced on one of our systems. Divex has addressed an issue discovered during initial environmental tests, however a full fix may not be possible with current design. FY 2006 Plans: Conduct manned testing of the Mk16 Mod 2 UBA, Oct 2005. Conduct a user evaluation of the two (2) remaining NUBA candidate UBAs, Nov-Dec 2005. Issue and receive responses from Carleton and Divex for request for proposals for fleet fill quantities of NUBAs. Technical Evaluation Review of the NUBA responses. RDT&E Cost avoidance: $2.658 million; Savings in Procurement costs: $2.500-5.000 million over production cycle with an inventory objective of 500 UBAs Operations and Support Life-Cycle savings: $3.000 million over a 15 year service life.

Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007
Pitch Adapting Composite Marine Propeller: (Navy)	1.087	1.741	0.000

These propeller blades are designed to flex in a controlled manner under certain operating conditions. This flexing causes a pitch modification that is claimed to improve vehicle stealth, speed, and propulsion efficiency. In addition, the pitch modification causes a reduction in maintenance costs by reducing cavitation damage, reducing marine growth fouling, and permitting in-water blade replacement. RDT&E cost avoidance estimate is derived from the known programs that have attempted to develop composite propellers for submarine applications: Design and evaluation of blade-hub junctions will typically cost $5.000-8.000 million. Development of numerical tools to design carbon fiber orientation will require development and validation, at an approximate cost of $1 million. FY 2005 Accomplishments: Re-fabricated the 1st series of the small-scale flex propeller using different material. Conducted the re-fabricated hardware inspection for the 1st series of the small-scale flex propeller. Conducted the test for the re-fabricated flex propeller in the NSWCCD 36-in water tunnel to validate the prediction tools. Preliminary results confirm hydrodynamic, acoustic, and efficiency performance improvements. Completed the test analysis for the 1st series. FY 2006 Plans: Conduct the design and fabrication for the unconstrained flex propeller (2nd series) to maximize the flex propeller potentials. Conduct the design and fabrication for the unconstrained rigid propeller (2nd series) to have a fair comparison with the flex prop. Perform the unconstrained hardware inspection for the 2nd series of the small-scale rigid and the flex propellers. Conduct experiments for the unconstrained rigid and flex propellers in the NSWCCD 36-in water tunnel. (2nd phase). Complete the test analysis for the re-fabricated prop. Conduct the fabrication of a two bladed flex prop with the new embedded sensors. Conduct a piggyback test with the unconstrained prop tests. Perform the ASDS parametric study.

Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007
Radarsat II Commercial High Resolution SAR: (Air Force)	0.428	0.000	0.000

This project will provide all-weather imaging capability at 3 meter resolution for support of target detection, ocean surveillance, homeland defense, moving target indicators, and disaster response, as an upgrade when integrated with the Air Force's Eagle Vision. Eagle Vision is an open architecture satellite ground station that will support the interface to Radarsat II with the existing hardware architecture. The project will include field operations to collect and process the data received from Radarsat II to evaluate operational effectiveness and performance. The Canadian Radarsat II satellite is the first commercially available high-resolution synthetic aperture radar imaging capability. The Eagle Vision office at Hanscom AFB is evaluating the ability of the Canadian Radarsat II upgrade, developed by MacDonald-Dettwiler, to interface with the Eagle Vision system. FY 2005 plans: Project was on hold due to the delay in launching the satellite. Future plans are to complete integration, launch the satellite and continue testing and data analysis. Publish final report. 3 units will be procured at $2.050 million each for a total of $6.200 million.

Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007
Replacement Structures for Aircraft: (Navy)	0.314	0.000	0.000

This project will produce a lightweight, hybrid/composite structure for the AH-1W Cobra aircraft that integrates a ballistics shielding capable of protecting our aviators from the current threat in the Iraqi and Afghan theaters of operation. This is a form, fit and function structure that replaces the current non-protected panel flying on Cobra aircraft. This project makes optimum use of new advances in materials technologies and various process improvements to produce a high-quality replacement component at a reasonable price. This project also created unique teaming agreements between US and Polish

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companies, and encourages mutual cooperation to promote future business partnerships between the US and Poland. FY 2005 Accomplishments: The Polish vendor was successfully established by the US Navy/F-14 Program as a preferred source for the F-14D transmitter bay access panel assembly (A51B18007-39). Qualification included the controlled destruction and analysis of the first flight worthy panel at the US Navy Materials Laboratory in Jacksonville, FL. Results were conclusive in proving that the Polish product exceeded the qualification criteria required to meet the US Navy's performance requirements. The last remaining F-14 fleet squadrons were retrofitted with the hardware and are in the final stages of performing a seven-month in-service reliability test. Initial estimates indicate that the one-for-one replacement cost to retrofit the new AH-1 panel will be 25% to 30% higher when compared to the cost for the original non-protected panel. It is anticipated that the new panel will save approximately $250.000 thousand per Cobra, per combat mission, during a combat tour in the two theaters of operation.

Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007
Resilient Abrasive-Resistant Skirt for LCAC: (Navy)	0.011	0.410	0.000

Improved HoverCraft Skirt Materials will reduce life cycle maintenance costs; procurement costs and increase Craft Mission Availability. Potential US Navy savings of $41.400 million in material costs plus an estimated additional maintenance labor savings of $30.000 million over the life of the LCAC program are anticipated. RDT&E cost avoidance of $8.000 million. Total Cost Savings $79.400 million. FY 2005 Accomplishments: The various phase 1 test materials remain installed on LCAC 055 at Assault Craft Unit Four (ACU4) and LCAC 059 at ACU5. The extra-wide test material remains installed on LCAC 044 at ACU5 and LCAC 089 at ACU4. The crafts are accumulating operating hours. An inspection was performed of LCAC 044, and an inspection report completed and forwarded to the vendor. LCAC 089 recently participated in the hurricane relief efforts. A purchase order for fabrication of two full craft-sets of test fingers for the phase 2 materials was issued to Bell Avon In Picayune Mississippi. This was a limited competitive procurement between the two approved skirt component suppliers- Bell Avon and SMR. A purchase order for installation of the phase 2 test finger sets at the Assault Craft Units was issued to Gryphon Technologies. Efforts to schedule the craft installations are ongoing- LCAC 071 has been identified as a candidate at ACU4 and LCAC 044 at ACU5. Funding was received from NAVSEA PMS377 for purchase of domestic skirt test material Reeves Brothers US for evaluation along with the foreign materials. A purchase order was issued for two different types of material from Reeves. A purchase order was issued to Akron rubber Development Labs for some limited laboratory testing of the phase 2 materials. This will be done as a check for the results from Smithers Scientific, and also will include a couple of lab tests that Smithers is not capable of performing. A purchase order was issued to GKN Westland Aerospace for flagellation testing of the phase 2 materials. FY 2006 Plans: Commence fabrication and craft installation of Phase II materials.

Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007
Ship's Mast Surveillance Pod (SMSP): (Navy)	0.288	0.873	0.537

This project is evaluating the threat warning effectiveness of combined miniature beam forming technologies developed by Sundance DSP of Great Britain and WinRadio Communications of Australia. Besides being smaller than other conventional beam forming systems, it costs less than 1/5th (< $100.000 K) and works over LANs so we can afford to outfit more warfighters (land, sea or air) with the capability and network them together which enhances the probability of finding terrorists and enemy forces. FY 2005 Accomplishments: Met with Navy DF Calibration group to discuss test criteria required for shipboard radio direction finding systems and brief capabilities of Sundance and WinRadio products. Briefed NSA on preliminary tests of WinRadio tuners and requested operational test criteria for Navy and UAV surveillance systems. Contracted WinRadio to create more generic based COTS based interface software for use by many DOD systems. Negotiated with Sundance a one time cost for IP rights to beam forming software for royalty free runtime licenses. FY 2006 Plans: Purchase rapid prototyping COTS software tools to support the test fixture to accommodate the various test criteria from different surveillance program offices. Purchase equipment to create 2-3 SMSP systems, to be field tested by more organizations. Due to the harsh military environment, Sundance and WinRadio will provide ruggedized enclosures for their equipment. The products will be tested against existing surveillance technologies located at the Charleston test facility. Work towards small business contracts with both vendors. FY 2007 Plans: Based on successful testing at the Charleston site, SPAWAR PMW-180, NSA, NAVAIR PMA-290 and PMA-263, and MARCORPSYSCOM, will be briefed on the SMSP technology and asked to provide test platforms and test criteria. Contact efforts will be made to brief USSOCOM/SOF, the Army Guardrail and Prophet Program Offices, the USAF RIVETJOINT and UAV BATTLELAB on the results. Under the HLS program, the USCG will be contacted about the results.

Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007

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Special Operations Forces (SOF) Combat Rifle: (USSOCOM)	0.330	0.000	0.000

This project is evaluating advanced 5.56mm and 7.62mm rifles developed by FN Herstal of Belgium, Heckler and Koch GmbH of Germany, Beretta of Italy, and IMI from Israel, along with domestic sources, to meet requirements for highly reliable and modular light and heavy combat rifles for Special Operations Forces as a replacement for the aging M4A1 carbine. FY 2005 Accomplishments: A technical down select was made and a final design review held. HQ USSOCOM selected the FN Herstal rifle as their Combat Assault Rifle weapon of choice. An initial IDIQ contract was awarded to FN Herstal, which included the Enhanced Grenade Launcher Module feature. Operational assessments of both the light and heavy SCAR (5.56mm and 7.62mm respectively) with the integrated EGLM are continuing. Milestone C decision for minimum IDIQ. FY 2005 Plans: Complete operational assessment; Obtain Milestone C full production decision. RDT&E, O&S, and procurement savings are projected at $9.000 million.

Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007
Telemetry Buoy for Underwater Communications (TBUCS): (Navy)	0.513	1.204	0.674

TBUCS will provide an underwater communications link between various different US Navy platforms. By providing underwater communications, TBUCS will be a valuable asset as a contributor to Network Centric Warfare (NCW). TBUCS will utilize air dropped expendable sonobouys to establish a two way underwater communications link between US Navy submerged platforms and aircraft using a Hydro Acoustic Communications Link (HAIL) system. Estimated $15.000 M RDT&E cost avoidance for this system. FY2005 Accomplishments: Held initial discussion with Sonobuoy program office and Naval Surface Warfare Center, Crane with regards to TBUCS design. Held planning discussions with Nautronix Maripro to prepare for contract completion. FY 2006 Plans: Requested two SSQ 62 sonobuoys for Nautronix preliminary development. Meet with sonobuoy vendors, NAVAIR Sonobuoy Program Office, SPAWAR Submarine Communications Program Office, NAVSEA Submarine Acoustic Systems Program Office and others to gather more complete data on current sonobuoy interfaces and concept of operations for system use. FY 2007 Plans: Finalize the Systems Requirement Review (SRR). The contractor and US Government shall review the objectives of the preliminary Statement of Work and adopt as requirements, modify, or delete. SRR will review the Statement of Work (per the Contracts Data Requirements List) for Phase II which will be agreed upon between the contractor and US Government.

Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007
Traveling Wave Tube Amplifier (TWTA): (USSOCOM)	0.348	0.000	0.000

This project is evaluating alternative traveling wave tube amplifiers developed by ELTA Electronics, Inc. of Israel, Dornier Satellitensysteme/ND SATCOM GmbH of Germany, E2V of United Kingdom, and Thomson Tubes Electroniques (Thales) of France for use within the Joint Threat Warning System and Deployable Multi-Channels Satellite Communications (SATCOM) Systems. The objective of this project is to qualify additional sources of amplifiers in order to reduce SATCOM terminal cost and reduce program risk due to reliance on a single source. FY 2005 Accomplishments: Completed technical evaluation of test articles from ELTA and Thomson Tubes; initiated operational testing of both as a stand alone unit and integrated into the SATCOM terminal. FY 2005 Plans: Award contract and procure test articles from remaining two vendors (E2V and ND Satcom); Conduct technical testing both as a stand alone unit and integrated into the SATCOM terminal; Prepare procurement decision package. RDT&E, O&S, and procurement savings are projected at $8.000 million.

Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007
Weather Scout UAV *Congressionally directed concept investigation (Air Force)	1.087	0.000	0.000

This project will provide the capability to forecast tropical cyclones and target area weather and provide decision-quality weather information. Current weather observation capabilities are limited in providing situational and resultant predictive battle space awareness weather information required for commanders' operational risk management decisions, as well as for weapons selection and tactics. The Small Unmanned Aerial Systems Office at Wright Patterson AFB is evaluating the employment of a weather-sensing UAV developed by Aerosonde Pty Ltd of Australia for tropical cyclone and target area weather reconnaissance. FY 2005 Accomplishments: Tested the Aerosonde UAV in the climatic chamber at Eglin AFB to validate the ability of the weather sensors to accurately measure weather conditions and transmit the data in a format compatible with USAF weather modeling systems. Flight testing at Wallops Island, VA, to compare data collected by Aerosonde UAV with data collected by normal weather systems in a weather data dense area. Flight-testing in Guam to collect tropical weather data to compare with Weather data collected via satellite and other normal means. $10.000 million saved in R&D costs

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and a $1.800 million per year return on the investment.

Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007
	0.000	0.000	0.000

FY 2006 FCT New Start Projects

Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007
1760 Umbilical and Connector: (Air Force)	0.000	0.449	0.000

This project will increase the reliability of the 1760 umbilical by 10 fold above the one time use and throw away of the current connector and cord. The current Air Force 1760 connecter, which transfers guidance information to weapons, is of a "screw on/pop off" design which is experiencing damage weapon release. The British "smart bomb" umbilical uses a collar that screws onto the weapon's 1760 connector and an umbilical cable that snaps onto the collar and is repairable. The umbilical snaps off of the collar when the weapon is released, preventing damage to the umbilical connector. The 508th Fighter Support Group at Hill AFB, Utah will evaluate this advanced umbilical connector developed by EDO MBM Technology, Ltd. of the United Kingdom. FY2006 Plans: Ensure that the connector mates with Mil DTL-38999/20 and /24 and that the connectors accept SAE-AS85049 self-locking accessories. Connectors will be tested to ensure that they will disengage without damage from any coupled connector including partially mated. The connector will be tested to ensure that it incorporates a swivel action for the lanyard attachment to prevent twisting of the cable and that the degree of rotation be restricted to prevent the lanyard going under the cable. USAF could save roughly $315 thousand per year on cables for the F-16. Considering that the F-16 is projected to be in use until 2026, the overall life-cycle savings could reach as much as $6.000 million.

Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007
30mm Programmable Air Burst Munition: (Navy)	0.000	0.562	2.246

This project will test the 30MM ABM for lethality and effectiveness across the full spectrum of combat operations than currently available combat munitions. This capability provides US combat forces greater survivability thru increased lethality to four to six times. This increase in lethality will afford DoD war fighters the capability to engage and defeat 4 to 6 times the number of enemy forces per unit load of ammunition. FY 2006 Plans: IPT Meeting at Hawthorne Nevada Test Facility to finalize ABM evaluation plans; Receive NDI candidate 30MM Programmable ABM Cartridges; Start lethality testing/evaluation at Hawthorne Test Facility; Complete lethality testing at Hawthorne and Aberdeen Proving Grounds; Analyze data and compile results and final reports; Prepare RFP for procurement contract with lethality primary evaluation factor; Receive and review RFP responses. Down-select to a single ABM vendor/design; Prepare short-of-award contract documentation and prepare for qualification testing. FY 2007 Plans: Award contract for qualification ABM rounds with follow-on procurement options; Conduct ABM round qualification testing.

Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007
Air Flotation Platform: (Air Force)	0.000	0.505	0.281

This evaluation will reduce the number of work flow days per aircraft (A/C) by ten and save $25.000 thousand per A/C in rigging costs resulting in annual savings of $3.600 million for lean moving structural production lines. Currently, during Air Force maintenance operations aircraft airframes are disassembled for repair and/or replacement of major structural components and the inability to move the aircraft requires all tooling and labor to be transported to the airframe, resulting in added wait-time and degraded lean-moving production lines. The 309th Air Maintenance Group at Hill AFB, Utah will evaluate air flotation platforms developed by Solving of Finland that are used to reposition aircraft and airframe structures as integral units during depot level maintenance operations, while maintaining structural alignment. The Air Flotation Platforms are being used by Airbus in France and by the Dutch Royal Air Force. FY 2006 Plans: Conduct static airframe alignment measurements and generate support requirements. FY 2007 Plans: Demonstrate successful motion over shop floors and confirm via initial production use in structural modification line.

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Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007
Aluminum 5059 for Armor Applications: (Army)	0.000	0.483	0.000

This project is evaluating and qualifying an improved aluminum developed by Corus of Germany for armored ground systems used in PEO Ground Combat Systems as well as for possible use in Future Combat Systems (FCS) applications. Preliminary data indicate excellent performance among aluminum materials in ballistics, particularly against frag based threats. In addition, the alloy possesses a lower density versus other aluminum alloys imparting good potential for reducing the overall weight of weapon systems while simultaneously increasing or maintaining current armor performance levels. FY 2006 Accomplishments: The armor plate material has been received by ARL from Corus. The overall test plan and an IPT has been established. The prime contractor British Aerospace and Engineering (BAE) has submitted a quote for an upcoming contract for work in evaluating weld performance of the 5059 armor. Preparations for MIPRs disbursing funds to US Navy laboratories NAVAIR and NAVSEA for evaluation of 5059 corrosion resistance are underway and will commence upon receipt of funds. ARL maintains its target for project completion by the end of FY 2006. RDT&E Cost Savings: $2.500 million over 4 years (minimum). O&S Cost Savings: $1.200 billion. Procurement Cost Savings: Recouped from simplified welds. Procurement Potential: (448) M2 IFVs $ breakout TBD by PEO Other Benefits: Use on other armored platforms and structures.

Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007
Amphibious Reconnaissance Insertion Vehicle (ARIV) : (USSOCOM)	0.000	0.571	0.000

The ARIV will improve reconnaissance and surveillance (R&S) capabilities by extending the operational range, endurance and increased payload for Special Operations Forces. This will be accomplished by using the same vehicle to insert over the water and continue to the target on land. FY2006 Plans: Receive funds, contract for and receive test article. Perform Phase I and Phase II technical and operational testing. Milestone C decision. Savings of approximately $7.000 million in RDT&E cost avoidance and $6.000 million in Procurement savings are expected.

Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007
Area Mine Clearing System (AMCS): (Army)	0.000	2.668	1.258

This project is evaluating and qualifying the area mine clearing capability for the Army's new Combat Engineer Clearance Companies in the Future Engineer Force. The current techniques for clearing large areas of mines are Soldiers using handheld mine detectors and mine probes or explosive breachers and line charges. These methods are problematic because they are time consuming, they leave Soldiers unprotected and they do not neutralize anti-tank mines. The AMCS candidate systems are large mechanical mine clearing flails predominantly used for humanitarian demining operations around the world. They clear large areas by detonating or destroying the mines and they are blast hardened to withstand multiple AT mine blasts. The Army's performance testing will include flailing operations against live anti-tank mines. FY 2006 Plans: Market research and candidate selection will be completed in February 2006. The full spectrum of DT/OT testing is planned for 1st and second quarter FY 2007. Cost avoidance in R&D is estimated to be $20.000-40.000 million.

Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007
AT4CS Enhanced Blast Tandem Warhead *Congressional Add (FY 2006 only) (Army)	0.000	2.125	1.971

This project is an enhanced blast tandem warhead and will be tested and qualified in order to verify its capability of incapacitating enemy soldiers positioned behind urban walls and structures made of 8 inch double reinforced concrete and 12 inch triple brick. The AT4CS is currently the only shoulder launched munition fielded in DoD inventory able to be fired from enclosures found in MOUT environments. This enhanced blast tandem warhead is needed in MOUT to complement the US Army and US Special Operations Forces' (USSOCOM) current suite of shoulder launched munitions. The AT4CS weapon is the primary shoulder launched munition for both US Army and USSOCOM capable of being fired from an enclosure. The current AT4CS warhead provides high lethality and incendiary effects against armor (defeats 16 inches of armor) but lacks overmatching penetration against masonry walls made of brick and concrete and other urban targets/structures. With increased deployment of US Army and US Special

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Operations Forces (SOF) around the world in urban warfare environments a new warhead with the ability to penetrate brick and concrete walls and incapacitate enemy forces behind urban structures is required. FY 2006 Plans: Complete the TEMP and place test hardware requirements on contract. FY 2007 Plans: Funding to support these activities to be provided through the FCT Program. Accept and deliver test assets and initiate conduct of developmental and operational tests. Complete full system evaluation per the TEMP, a final FCT report and type classification documentation in support of a production decision. The procurement cost savings of this project is estimated at 40-50% of the unit cost of each weapon by leveraging ammunition and fuzing components from other similar 84mm family weapons . Assuming $3.000 thousand per round savings x 20,000 rounds over 5 years = $60.000 million. By analogy, there is significant cost impact associated with other shoulder launched weapons which do not have equivalent economies of scale or sufficient commonality to rounds already in production.

Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007
Emergency Battery System: (Marine Corps (joint w/USSOCOM))	0.000	0.309	0.000

This project will provide the Warfighter with a lightweight, renewable, emergency power source capable of operating computers and communications equipment while minimizing the warfighters' battery load and ensuring adequate power resources throughout a mission. During OIF and OEF, world production limitations of the BA5590 lithium battery have driven the requirement for supplemental sources of expeditionary power. The USMC will test the Metal Cell from MEET of South Korea and the Magnesium-Air Power Cell from MagPower Systems Inc. of Canada to meet the requirement for alternative power sources. Based on experiences in the field with lithium batteries, multiple/redundant sources of emergency battery power are a mission critical need. Upon completion of successful testing, the USMC will avoid RDT&E costs of $2.000 million and Operational costs of nearly $0.500 million per year, providing a ROI of 27:1. FY 2006 Plans: Complete contract preparation and award. Receive Foreign Test Data. Complete Test Plan. Receive Test Articles. Complete Performance Test and Field/User Evaluation. Provide Technical Final Report. Procurement Decision.

Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007
Expeditionary Assault Bridge (EAB) Launcher : (Marine Corps)	0.000	1.499	0.410

This project will provide a river and canyon crossing system, capable of spanning natural and manmade obstacles up to 60 feet for 70-ton class tracked vehicles while moving at the speed of the Marine Air Ground Task Force (MAGTF). Lessons learned during OIF have driven the requirement to increase the mobility of the USMC Armored Vehicle Launched Bridge (AVLB). To meet this need, the USMC will test the BR90 EAB Launcher from BAE Systems of the United Kingdom to integrate the AVLB with an M1A1 Tank chassis. By replacing the M60 with an M1A1, the AVLB will be capable of maneuvering with USMC armored and mechanized vehicles on the joint/coalition battlefield and share a common M1A1 platform to decrease operation and support costs by $0.500 million per year. By integrating a commercially available launching system, the USMC will avoid RDT&E costs of $20.000 million and Procurement costs of $18.000 million to achieve a ROI of 40:1. FY 2006 Plans: Complete Contract preparation and award. Draft the Test Plan. Receive Test Articles. Complete Integration and Acceptance Testing. Complete Technical Testing. FY 2007 Plans: Complete User Evaluation, Data Analysis & Evaluation. Provide Technical Test Report. Milestone C decision third quarter FY 2007.

Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007
Extended 1553 Databus: (Air Force)	0.000	0.225	0.225

Deployment of the extended 1553 data bus could save the Air Force approximately $1.600 million per aircraft in lieu of the installation of fiber optic cable. DoD platform data bus networks are based upon MIL-STD 1553B information exchange protocols that are constrained to 1 mega bit per second (Mb/sec) throughput rates. The integration of extended 1553B interface performance into high-bandwidth demand avionics will enable increased throughput rates, in excess of 200 Mb/sec, over existing cable. The Extremely High Frequency (EHF) Satellite Communications (SatCom) Program establishes B-2 connectivity with the global information grid; however, existing avionics network bandwidth headroom constrains the B-2's ability to leverage this critical force structure multiplier capability. The goal is to cost-effectively enable the upgrading of legacy Air Force and Department of Defense mobile warfighting support platforms with the additional capabilities required in a network-centric environment. FY 2006 plans: Testing of 1553 performance compliance, and B-2 SIL integration to validate that the technology is capable of supporting B-2 avionics requirements. The identified efforts involve verification of basic functionality on all B-2 Mux bus lengths with analysis of signal characteristics in a Mux lab environment, followed by validation that the Edgewater solution performs as advertised and that it complies with

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established MIL-STD 1553C protocols. FY 2007 plans: Testing will exercise selected elements of the B-2 avionics architecture to determine overall system stability while hosting high bandwidth, peak demand, multiline drop traffic supported with extended 1553B interfaces.

Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007
High Frequency Combat Net Radio: (Army)	0.000	0.544	0.000

This project will enhance the Joint Tactical Radio System with a higher speed High Frequency data modem that will increase the effectiveness and capabilities of the Joint Tactical Radio System. The project involves the evaluation of the software based Italian HF Combat Radio (CNR 2000) produced by Selex Communications. Evaluation will include interoperability aspects, yet focus on data modem performance is of more concern. If the data modem is found to be superior then current High Frequency modems, the radio software will then be procured from Selex Communications. The software can then be inserted or utilized by the High Frequency modem to provide a more capable Joint Tactical Radio System while avoiding $2.700 million in software development. FY 2006 Plans: Project is working towards procurement of High Frequency radios from Selex Communications while setting up a laboratory and field test bed. Once radios are obtained, interoperability and a data performance evaluation will be performed with the test results funneled into a final test report.

Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007
Improved Crew Served Weapon Mounts (ICSWM) : (USSOCOM)	0.000	1.516	0.000

The ICSWM will provide Special Operations Forces with an improved, un-stabilized gun mount for crew served weapons. These mounts will improve accuracy when firing on the move, resulting in less dispersion and reducing the amount of ammunition required to defeat targets. FY 2006 Plans: Receive project funding. Submit solicitation notice. Conduct demonstration of any additional vendors. Down select to one vendor. Contract for and receive test articles. Conduct technical tests. WSERB Approval and Safety Release. Conduct operational tests. Milestone C Decision. The estimated savings in RDT&E, procurement and Operations and Support Life Cycle is over $41.000 million.

Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007
Improved Limpet Mine (ILM) : (USSOCOM)	0.000	1.011	0.000

This project will determine if the Improved Limpet Mine developed by Royal Ordnance of the United Kingdom can destroy or incapacitate enemy vessels and maritime structures with a device that is 50 percent smaller, lighter and 2 to 3 times more effective than the current legacy Limpet Assembly Module. FY 2006 Plans: Receive project funding. Contract for and receive test articles. Perform safety and technical validity tests. At sea trials in Virginia Capes and scale Testing at Aberdeen Proving Grounds. Review and modify Improved Limpet Assembly Module Requirement Document as necessary. By leveraging on the R&D successes of Royal Ordnance, the US will save approximately $10.000 million and 5 years of R&D.

Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007
MK13 Muzzle Break Sound Suppressor (MBSS) : (USSOCOM)	0.000	0.140	0.000

The ability of a sniper to remain concealed when firing his weapon is paramount to the safety of the shooter. This muzzle break suppressor project will comparatively evaluate muzzle break suppressors to determine which can best meet the requirements of SOF snipers. FY 2006 Plans: Receive project funding. Contract for and receive test articles. Conduct technical and operational tests. Milestone C Decision. The cost avoidance associated with this project is estimated at $1.300 million.

Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007

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Multipurpose Tank Blade (MTB) System: (Marine Corps)	0.000	1.112	0.000

This project will meet an urgent requirement for the M1A1 Main Battle Tank (MBT) to remove roadblocks, create hasty fighting positions, and impose non-kinetic destruction of enemy obstacles in Urban Combat. During Operation Iraqi Freedom (OIF), the USMC identified an urgent M1A1 MBT requirement to meet mobility, counter-mobility and vulnerability deficiencies for the Marine Air Ground Task Force (MAGTF). The MTB System is a force multiplier that will allow the M1A1 MBT assume the roles of slower moving engineer assets while reducing the use of the main gun ammunition to reduce the risk of costly damage to equipment and unnecessary collateral damage. By integrating a NDI solution, the USMC will avoid RDT&E costs of $3.000 million, Procurement Costs of $1.8400 million, and provide a ROI of 14:1. FY 2006 Plans: Complete Contract preparation and award. Draft Initiate Test Plan. Complete Test Article Fabrication/Integration. Complete RAM Testing and field Test. Complete Technical Test Report and Closeout Report.

Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007
Ninjo Weather Analysis and Forecasting System: (Air Force)	0.000	0.125	0.000

This project will replace an antiquated expensive system with a more economical and robust system allowing forecasters to generate significantly improved pinpoint military forecasts and provide timely weather watches and warnings for U.S. European Command operations. The USAFE Weather Plans and Programs Office, Ramstein AFB, Germany will evaluate the NinJo software developed by the consortium of Ernst Basler and Partners GmbH. FY2006 Plans: Test to verify that the system will display current and last 6 hours of satellite, radar, lightning, and observation data, display current UK MetOffice (UKMO) model data, ability to automatically generate graphical weather charts and that it is comparable to USAFE Operational Weather Squadron (OWS) current software. Additional testing will be conducted to determine the capability for forecasters to easily generate weather graphic charts using the Ninjo system. The ROI is $220.000 thousand per year with a 7 year projected use.

Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007
Noise Robust Voice Recognition System: (Army)	0.000	0.618	0.477

This project is evaluating the performance of foreign off the shelf Voice Recognition Systems. The emphasis will be analysis of the performance based on various inputs (speakers with different dialects, accents, stress levels, etc) in a simulated battlefield noise environment (with high impulsive noise such as gunfire). Based on successful testing, this system will be incorporated to POR systems to use voice control of systems vs (or in addition to) keyboards, input screen, etc. FY 2006 Plans: Collect initial evaluation database, Perform baseline testing on technology FY 2007 Plans: Collect Large-evaluation database, perform comprehensive testing on optimized technology. $5.000 million RDT&E Cost avoidance.

Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007
Portable Undersea Training Range (Navy)	0.000	1.370	0.913

This project will satisfy a critical need for shallow water and forward-deployed Anti-Submarine Warfare (ASW) training as defined in the PACOM Integrated Priority List (IPL) for FY 2005-2009 and supported by COMLANTCOM. This project consists of two, closely-linked efforts that will occur concurrently. The first effort is to acquire and test one Station Keeping Buoy (SKB) developed in France that could be used to deploy instrumentation to enable ASW training in shallow littoral waters. The second effort is to acquire and test a commercial transponder system developed in Australia that could be used to deploy instrumentation to enable ASW training in shallow littoral waters. Successful execution will result in a RDT&E cost savings/avoidance of $2.000 million for Initial Operational Capability (IOC) implementation (avoids necessity to develop a new system). Additionally, estimated savings of $1.000 million will be realized in Procurement Cost Savings. FY 2006 Plans: Procure SKB test item from ACSA, France. Procure one transponder system including 7 transponders from Nautronix, Australia. During Phase I testing, the units will be tested in Narragansett Bay under calm conditions by Navy Undersea Warfare Center Division, Newport (NUWCDIVNPT) to verify basic performance parameters and to gain operational experience. FY 2007 Plans: Continue testing of SKB and transponders during Phase II. The units will be tested under environmental conditions approximating the specified operational conditions. This testing will examine antenna stability, endurance as a function of environmental conditions, and overall reliability. Pre-installed test instrumentation will independently measure, store, and telemeter critical performance data for post-test analysis. Submit final test report.

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Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007
Unit of Employment (UE) Battle Command (BC) : (Army)	0.000	0.477	0.000

This project is evaluating BC systems that are Command and Control Information Exchange Data Model (C2IEDM) compliant for application at TRADOC Battle Command Battle Labs. The international community has adopted C2IEDM as the structure for transfer of information between BC systems. To perform experiments with Army BC systems in a relation to a C2IEDM environment, TRADOC requires a surrogate C2IEDM compliant BC system. Based on successful test, TRADOC will incorporate the FCT system to there BC Experimentation Lab and TRADOC experiments. FY2006 Plans: This is a one year effort, procurement, installation and testing and evaluation will occur at TRADOC with potential applications by TRADOC in FY06. RDT&E Cost Savings: over $1.000-2.000 million. Procurement Potential: over $300.000 thousand per TRADOC Experiment location - potential to $ millions. Implementation Plan/Other Benefits: TRADOC surrogate UE BC system. Potential integration to Army UE BCS.

Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007
Void-Sensing Fuse: (Air Force)	0.000	0.842	0.000

This project will give the warfighter the capability to defeat hard and deeply buried targets. The Program Director, Cruise Missile Product Group at Tinker AFB, Oklahoma will evaluate a programmable void sensing and layer-counting fuse currently in production by TDW of Germany. The German fuse has potential for employment in the penetrating warhead of the Air Force's Conventional Air-launched Cruise Missile (CALCM) and/or the Navy's Tomahawk Cruise Missile. This capability will satisfy a long-standing and urgent requirement. FY 2006 Plans: Integrate the Programmable Intelligent Multi-Purpose Fuse (PIMPF) into the AUP-3M Warhead and to then prove functionality via sled tests at both china Lake and Eglin AFB. The initial procurement for the CALCM is $2.700 million. Additional procurement by the Navy Tomahawk is $12.000 million. This fuse will also have application with JSOW.

Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007
FY 2007 Plans	0.000	0.000	21.493

FY 2007 funding totaling approximately $21 million will support the FY 2007 new start projects as well as the second year funding commitments for the FY 2006 new start projects. The FY 2007 proposal submission process is scheduled to commence in December 2005.

C. Other Program Funding Summary: Not Applicable.

D. Acquisition Strategy: Not Applicable.

E. Major Performers Not Applicable.