Exhibit R-2, RDT&E BUDGET ITEM JUSTIFICATION							Date: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E Defense Wide (0400) Budget Activity 6				R-1 ITEM NOMENCLATURE Foreign Comparative Testing (FCT) PE 0605130D8Z				
COST *(In Millions)*	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Total Program Element (PE) Cost	35.956	36.833	35.738	36.419	38.278	38.271	39.049	39.942

A. Mission Description and Budget Item Justification

The Foreign Comparative Testing (FCT) program supports the warfighter by leveraging non-developmental items from allied and friendly nations 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 includes 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 obligation of funds.

Since the program's inception in 1980, OSD has initiated 528 projects and 444 projects have been completed to date. Of the 234 evaluations that met the sponsor's requirements, 161 led to procurements worth approximately $6.6 billion in FY 2005 constant year dollars. With an OSD investment of about $932 million, the FCT Program has realized an estimated RDT&E cost avoidance of $6.0 billion in FY 2005 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 2004	FY 2005	FY 2006	FY 2007
Previous President's Budget:	36.464	35.633	36.126	36.750
Current FY 2006 President's Budget Submission:	35.956	36.833	35.738	36.419
Adjustments to Appropriated Value:	-0.508	+1.200	-0.388	-0.331
Congressional Program Reductions:				
Congressional Rescissions:				
Congressional Increases:				
Reprogrammings:				
SBIR/STTR Transfers:				
Other:				
Congressional adds under other programs transferred to FCT		+2.050		
Other program adjustments	-0.508	-0.850	-0.388	-0.331

C. Other Program Funding Summary: N/A

D. Acquisition Strategy: N/A

E. Performance Metrics:

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

Exhibit R-2a RDT&E Budget Item Justification						Date: February 2005		
APPROPRIATION/BUDGET ACTIVITY RDT&E Defense Wide (0400) Budget Activity 6				R-1 ITEM NOMENCLATURE Foreign Comparative Testing (FCT) PE 0605130D8Z				
COST *(In Millions)*	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Total Program Element (PE) Cost	35.956	36.833	35.738	36.419	38.278	38.271	39.049	39.942

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Foreign Comparative Testing (FCT) program supports the warfighter by leveraging non-developmental items from allied and friendly nations 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 includes 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 obligation of funds.

Since the program's inception in 1980, OSD has initiated 528 projects and 444 projects have been completed to date. Of the 234 evaluations that met the sponsor's requirements, 161 led to procurements worth approximately $6.6 billion in FY 2005 constant year dollars. With an OSD investment of about $932 million, the FCT Program has realized an estimated RDT&E cost avoidance of $6.0 billion in FY2005 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. (U) PROGRAM ACCOMPLISHMENTS AND PLANS:

	Service	FY 2004	FY 2005	FY 2006	FY 2007
105mm Preformed Fragments	Army	1.477	0.000	0.000	0.000

This project, initiated in FY 2003, is evaluating the potential increased lethality and range of the conventional 105mm Field Artillery Ammunition, developed by Denel-Naschem, South Africa, over the current U.S. 105mm ammunition. If successful, the project will greatly enhance the lethality of U.S. Army light combat forces, giving them near the same fire support capability as with our current 155mm Artillery ammo, in operations where those heavier combat forces are not readily deployable.

FY 2004 Accomplishments: Awarded contract. 105mm HE Pff Projectile tested at Yuma Proving Ground. Results to date are according to expectations. Acquisition strategy/plan developed for the 105 HE Pff. User has endorsed ACA2P and made part of their Operational Studies.
FY 2005 Plans: Gun Classification and Type Classification activities

	Service	FY 2004	FY 2005	FY 2006	FY 2007
155mm Ammunition	Army	1.198	0.000	0.000	0.000

This project, initiated in FY 2003, is evaluating the potential increased range of the family of 155mm Field Artillery projectiles,

developed by Denel-Naschem, over current U.S. 155mm ammunition. If successful, the project will greatly increase the fire support provided to U.S. Army ground combat forces, by allowing them to engage hostile targets at ranges greater than what it currently can, utilizing our current 155mm Artillery weapon systems. This will result in their greater lethality and survivability.

FY 2004 Accomplishments: Awarded contract. Projectiles tested at Yuma Proving Ground, 155mm IM HE, 155mm Bi-Spectral Smoke, and 155mm IR Illumination. Results to date are according to expectations. Acquisition strategy/plan developed for the 155 Bi-Spectral Smoke and IM HE 155mm. User has endorsed ACA2P and made part of their Operational Studies.
FY 2005 Plans: Gun Classification and Type Classification activities

	Service	FY 2004	FY 2005	FY 2006	FY 2007
20 MM Replacement Round	Air Force	0.000	0.996	0.000	0.000

This project is evaluating 20mm ammunition developed by Diehl Munitionssyteme of Germany and Oerlikon of Switzerland to replace current 20mm combat rounds. The in-service round, the PGU-28B, currently presents a safety hazard due to twenty-five in-barrel detonations that caused aircraft damage and could have resulted in pilot death and loss of the aircraft. 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. The current alternative, the M-56 round, requires the pilot to engage targets at significantly closer ranges without the same lethality, resulting in an increase in vulnerability.

FY 2004 Accomplishments: Conducted DT&E Risk Reduction testing with AF funding.
FY 2005 Plans: Conduct OT&E and OPEVAL in June 2005. Transition to procurement

	Service	FY 2004	FY 2005	FY 2006	FY 2007
40mm Enhanced Grenade Launcher for M4 Carbine	USSOCOM	0.766	0.000	0.000	0.000

This project, initiated in FY 2003, is evaluating grenade launchers from Heckler and Koch of Germany, along with domestic sources, to find a technical solution to the requirement for a more accurate and reliable weapon for Special Operations Forces as a potential replacement for the current M203 40mm grenade launcher, which is over 30 years old and becoming logistically unsupportable.

FY 2004 Accomplishments: Completed safety certification of test fixture; Validated Capability Development Document and performance specification. Published Enhanced Grenade Launcher solicitation and received test samples using IDIQ contract awarded to NICO. EGLM schedule now integrated into the overall Special Operations Forces' Combat Assault Rifle (SCAR) schedule.
FY 2005 Plans: Conduct technical and operational testing. Determine competitive range; compile test results; complete final source selection / procurement decision. FCT close-out scheduled.

	Service	FY 2004	FY 2005	FY 2006	FY 2007
40mm High Explosive Dual Purpose (HEDP) Improvement	Marine Corps (joint w/USSOCOM)	0.575	1.751	0.000	0.000

This project is integrating and evaluating an improved propulsion propellant "after armor" effect technology and a standardized fuze interface into a 40mm HEDP cartridge for use in both the MK19 Grenade Machine Gun and MK 47 Advanced Lightweight Grenade Launcher. NAMMO of Norway developed the warhead and standardized fuze interface, Nico-Pyrotechnik of Germany developed the propulsion system, and Nitrochemie AG of Switzerland developed the propellant for the cartridge to be evaluated.

FY 2004 Accomplishments: Conducted an evaluation of the self-destruct fuse options. Down-selected Pax2A Insensitive Munitions (IM) fills for use in the improved warhead. Conducted preliminary engineering evaluation to integrate improved warhead and Mk281 propulsion system. Awarded integration contract to NAMMO. Completed Draft Test Plan.
FY 2005 Plans: Procure the PAX-2A from Holston Army Ammunition Plant and transfer it to Norway for loading into the candidate cartridge. Commence baseline Insensitive Munitions (IM) and lethality testing of the US M430A1 cartridge. Continue the Engineering Phase of the integration effort.
FY 2006 Plans: Complete Engineering Phase of the integration effort, finalize baseline IM and arena testing of Marine Corps cartridge, complete qualification of Swiss propellant.
FY 2007 Plans: Obtain WSESERB Certification. Procurement decision.

	Service	FY 2004	FY 2005	FY 2006	FY 2007
Advanced Family of Interfaces for Chem Bio Clothing	USSOCOM	0.383	0.000	0.000	0.000

With the advent of emerging chemical/biological (CB) protective material technologies a need arises for enhanced methods of sealing CB garment interfaces. The vulnerabilities created by the emerging barrier materials are the interfaces at the wrist, ankles, zippers, and the neck of CB garments, as demonstrated in recent vapor and aerosol testing. This project will evaluate new types of CB closures and interfaces developed by YKK Universal Fasteners of Japan and TiZip of Germany.

FY 2004 Accomplishments: Awarded contract for test articles; Received test articles and conducted technical and user testing for phase 1. Down select to a single vendor.
FY 2005 Plans: Perform operational user assessment for phase 2. Compile test results; Prepare decision packet. FCT close-out.

	Service	FY 2004	FY 2005	FY 2006	FY 2007
Assault Breacher Vehicle Remote Control System	Marine Corps	0.000	1.477	0.000	0.000

This project is evaluating foreign, non-developmental testing for a remote control system manufactured by Pearson Engineering of the UK. The RCS subsystem will be integrated into the Assault Breacher Vehicle (ABV) concept demonstrator and three Production Representative Prototype ABVs and tested to verify vendor performance claims. Upon successful completion of FCT, the US Marine Corps will procure 30 remote control systems for use on the production ABV's.

FY 2004 Accomplishments: Foreign Test Data Received. Contract Preparation and Award. Test Planning Completed. Test Articles Received.

FY 2005 Plans: Conduct Technical Testing at Aberdeen Test Center to determine if the RCS can effectively and safely maneuver the ABV through Various operational scenarios. MCOTEA will perform Operational Tests 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.

FY 2006 Plans: Data Analysis & Evaluation provided by MCOTEA and MCSC. Technical Test Report furnished by Aberdeen Test Center. Close out Report provided by MCSC. Procurement Decision (projected 4th quarter).

	Service	FY 2004	FY 2005	FY 2006	FY 2007
Biocular Image Control for M1A1 Main Battle Tank	Marine Corps	0.980	0.000	0.000	0.000

This project is evaluating the Biocular Image Control Unit (BICU). The BICU, developed by Brimar, will be part of the Marine Corps' M1A1 Firepower Enhancement Program. The BICU directly supports the tank crew's situational awareness by enabling the 2nd generation Forward Look Infrared (FLIR) imagery to be displayed in the Gunner's Primary Sight monocular display and also the biocular display. The BICU will provide eye relief to the gunner that will significantly reduce gunner's fatigue. A successful FCT will enable the crewman to utilize the best features of direct view optics and 2nd generation FLIR imagery at the same time to acquire and engage targets.

FY 2004 Accomplishments: Program accelerated by six months. Prepared and awarded the contract for testing of the FCT project. Received the Foreign Test Data and Test Articles. Conducted laboratory tests at the US Army's Night Vision & Electronic Sensors Directorate (NVESD), Fort Belvoir, VA. Initiated integration of the BICU into the Gunner's Sight of the M1A1 Main Battle Tank at the US Army Research and Development Center (ARDEC), Picatinny Arsenal, NJ. Conducted BICU system testing at Aberdeen Proving Ground, MD (3rd quarter FY 2004). Completed User evaluation tests (4th quarter FY 2004). Completed Milestone C.

FY 2005 Plans: Procurement Decision (projected for 1st quarter FY 2005). Award Full Rate Production contract (place 192 BICU on contract). Award an Initial Spare Contract (place 12 BICUs on contract). Complete Final Test Report.

	Service	FY 2004	FY 2005	FY 2006	FY 2007

Biosensors for Explosive Detection	Navy	0.200	0.109	0.000	0.000

This project is evaluating Biosens-E explosive detectors developed by Biosensors Applications of Sweden against improvised explosives devices, and conduct comparison analysis of test results of conventional explosive detection technologies being conducted by the Navy for the past three years.

FY 2004 Plans: Prepare contract for purchase of test items; prepare test equipment; receive test item sensors and initiate testing. Received test article and spare parts. Prepare test plan.
FY 2004 Plans: Completed and approved Test Plan. Purchased test items; prepared test equipment; and received test item sensors. Completed operator's course training. Completed in-house Test Readiness Review. Completed initial laboratory testing. Ran additional laboratory tests to better characterize system. Initiated analysis of laboratory data collected.
FY 2005 Plans: Complete analysis of laboratory data. Investigate whether manufacturer can apply system upgrades and rerun laboratory tests. Coordinate field testing with Laser IMS testing. Complete field testing. Analyze final test data. Issue Test Report

	Service	FY 2004	FY 2005	FY 2006	FY 2007
Celluloid Mortar Increment Containers	Army	0.826	0.514	0.000	0.000

This project is evaluating and qualifying a second source for nitrocellulose-based belted-fiber Mortar Increment Containers (MIC) for use with 60mm, 81mm and 120mm mortars. Qualification of the celluloid MICs developed by Kaufman & Gottwald GmbH (KAGO). Austria, will significantly reduce procurement cost, thereby reducing overall program production costs, 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 also more "environmentally friendly" and safer than the current domestic product.

FY 2004 Accomplishments: Contract awarded April 2004. Celluloid mortar increment container drawings (Phase 1) have been completed to meet the performance envelope for U.S. propulsion systems. Meeting with celluloid sheet manufacturer

was conducted. Manufacturer is preparing sheets to be used by KAGO to manufacture MICs. Manufacture of celluloid MIC tooling (Phase 2) was initiated to produce 60mm and 120mm MICs.
FY 2005 Plans: Complete manufacture of celluloid MIC tooling. Conduct initial evaluation testing with initial celluloid MIC test quantities at Yuma Proving Ground (YPG), Conduct final qualification testing with final celluloid MICs at YPG.

	Service	FY 2004	FY 2005	FY 2006	FY 2007
Composite Shroud for LCAC	Navy	0.000	0.900	1.500	0.000

This FCT is evaluating Landing Craft Air Cushion (LCAC) composite propeller shrouds. The current shroud is an extremely complex riveted construction with high maintenance and repair costs. Material costs are about $300 thousand per shroud, and parts procurement lead times are up to one year. Labor costs are nearly $150 thousand/years. There is only one supplier of the 508 different parts, and that supplier is now gone out of production and is no longer interested in providing parts. The situation is becoming critical and will soon impact the LCAC's ability to perform its mission. The composite shrouds identified in this FCT proposal will be more easily repairable, and 30% more reliable; thus, reducing life cycle maintenance costs and increasing craft mission availability. Potential US Navy savings of $500 thousand specification development, $13.5 million in material/labor and R&D costs plus an estimated additional reliability savings of $1.2 million over the life of the LCAC Program.

FY 2005 Plans: Procure test items that will be delivered and accepted as they come off of the Manufacturers Assembly line. Currently, anticipated lead times yield 4 units in the first year. One static form fit and function test at CSS prior to installation at the ACUs. Technical tests will commence upon installation at the Assault Craft Units. Evaluation over the course of a year will provide a fair measure of product durability. The number of test items needed (4) is necessary in order to evaluate the effects of diverse operational environments, support equipment variations, and maintenance personnel skill sets at the respective ACU's.
FY 2006 Plans: The outfitting of 2 different Craft (one at each ACU) will allow for real-world evaluation of Test Articles during certification and training evolutions. Engineering labor and Logistics support will be extensive on this effort.

	Service	FY 2004	FY 2005	FY 2006	FY 2007

Deployable GSM Cellular Network	USSOCOM	0.328	1.965	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. If testing is successful, the Swedish equipment will satisfy critical requirements of the Special Operations Forces Tactical Assured Connectivity System and the Joint Threat Warning System.

FY 2004 Accomplishments: Implemented agreement with U.S. Army for joint evaluation; awarded contract for test article, technical support and receive vendor training. Completed initial training and initiated technical testing and began operational testing. The DC Net system continues to undergo test and evaluation at the U.S. Army Communications Electronics Command (CECOM), Ft. Monmouth, NJ, with favorable results. Training of Program Manager U.S. Army Warfighter Information Network – Tactical (WIN-T) engineers and technicians continued at CECOM. DC Net Test and Evaluation Program Management Review meeting was held with representatives of Ericsson, CECOM, and USSOCOM in July, August, and September 2004.
FY 2005 Plans: Complete operational testing; Compile test data, prepare decision packet and obtain procurement decision. FCT close—out.

	Service	FY 2004	FY 2005	FY 2006	FY 2007
Deployable Instrumentation for Marine Air Ground Task Force (MAGTF) Training System	Marine Corps	1.313	0.930	0.000	0.000

This project, initiated in FY 2003, is evaluating mobile Range Instrumentation Systems developed by Saab Training Systems of Sweden and RUAG of Switzerland to meet Marine Corps requirements to integrate current training devices, which provide deployable force-on-force training for the Marine Air Ground Task Force.

FY 2004 Accomplishments: Received Foreign Test Data. Completed Test Planning. Completed Contract Preparation & Award with Saab and RUAG. Government Furnished Equipment was provided and retrofitted. Conducted Phase I, preliminary system integration tests, and initiated operational evaluation.

FY 2005 Plans: Complete Operational Tests with RUAG and SAAB and field evaluation with both vendors. Provide Test Reports.
FY 2006 Plans: Procurement decision.

	Service	FY 2004	FY 2005	FY 2006	FY 2007
Deployable Multi-Purpose Moving Target System	Marine Corps	0.460	0.361	0.000	0.000

This project will evaluate a deployable moving pop-up automated marking and targeting system developed by Thiessen Training Systems GmbH for range performance, target lifting life, hit indication, and other critical reliability performance parameters. A successful FCT will enable Marines to train as they fight and enhance proficiency with anti-armor engagement tactics.

FY 2004 Accomplishments: Issued RFP. Received Foreign Test Data. Phase I contract awarded to Theissen, Germany for Preliminary System Integration of the testing. Supplied Theissen with the Interface Control Documents for MILES 2000. Completed the test plans for the integration of MILES 2000 and DTS. Received delivery of two complete DTS Systems. Initiated Phase I integration.
FY 2005 Plans: Complete Phase I testing. Conduct Phase II Operational Test at Camp Pendleton, CA and Camp Lejuene, NC, to include system integration and user evaluation tests. Provide test reports.
FY 2006 Plans: Procurement decision (projected for 1st quarter).

	Service	FY 2004	FY 2005	FY 2006	FY 2007
Digital Flight Control System for EA-6B	Navy	0.547	0.000	0.000	0.000

This project, initiated in FY 2002, is evaluating a Digital Flight Control System (DFCS) developed by British Aerospace (BAE) Systems Avionics Ltd. for the Eurofighter, to replace the increasingly obsolete automatic (analog) flight control system in the Navy's EA-6B "Prowler" aircraft. The project follows successful integration of the BAE DFCS into the Navy's F-14 "Tomcat" aircraft.

FY 2004 Accomplishments: Awarded BAE Basic Contract to modify F-14 DFCS computers into EA-6B DFCS Lab Test Prototypes. Completed Piloted Simulation Evaluation of Control Laws. Successfully completed Preliminary Design Review. Grounded Aircraft 158033 arrived at Patuxent River to support Ground Testing. Exercised BAE Contract Option 1 to modify F-14 DFCS computers into EA-6B DFCS Flight worthy Prototypes. DFCS Lab Test Prototype delivered on schedule to Patuxent River Laboratory. Awarded Letter to NGC for Flight Test Aircraft Instrumentation Package. Began Lab Testing and Ground Testing of Prototype EA-6B DFCS.
FY 2005 Plans: Identify particular unrestricted Block 89A aircraft as the DFCS DT Flight Test Asset and deliver to Patuxent River. Deliver flight worthy Prototype DFCC Test Articles. Exercise BAE Contract Option II to manufacture production representative DFCSs. Complete Phase I Ground Testing. Complete installation of DFCS and flight test instrumentation on DT aircraft. Complete qualification testing of DFCS build 1 software. Complete Phase II ground testing on DT aircraft. Conduct Flight Test Readiness Review. Conduct DT Flight Test with Build 1 software. Conduct DT Flight Test with Build 2 software. Submit final test report and closeout report.

	Service	FY 2004	FY 2005	FY 2006	FY 2007
Eye-Safe Laser Rangefinder for M1A1 Main Battle Tank	Marine Corps	0.612	0.054	0.000	0.000

This project, initiated in FY 2003, will evaluate eye-safe lasers developed by Zeiss of Germany and Thales (formerly AVIMO) of the United Kingdom, for range, beam divergence, output energy, shot life, receiver field of view, sustained rate of ranging, and other parameters used to locate distant targets for the M1A1 Firepower Enhancement Program. The eye-safe laser is expected to increase the range performance by 2000 meters.

FY 2004 Accomplishments: Foreign Test Data Received. Completed Contract Preparation and Award. Completed Detailed Test Plan. Received test articles and conducted M1A1 integration tests and Lab Testing. Initiated system testing and user evaluation tests at the Aberdeen Proving Ground, MD.
FY 2005 Plans: Completed Qualification Testing on Zeiss Laser and initiated Qual Test on Thales Laser. Complete remaining

Qualification Testing. Perform and Finalize Developmental Testing. Complete data analysis and evaluation. Procurement decision (projected 4th Quarter).

	Service	FY 2004	FY 2005	FY 2006	FY 2007
Floating Smoke Pot System	Marine Corps	0.672	0.000	0.000	0.000

This project is evaluating a Floating Smoke Pot manufactured by Diehl Munitionssysteme (formerly Comet Pyrotechnik) to replace the current K867 floating smoke pot for use in training and combat, on land and in water. The current floating smoke pot produces a smoke that possesses carcinogenic properties and a fuze that has experienced reliability problems. The German item adds infrared smoke to screen troops in low-light situations against night-vision devices.

FY 2004 Accomplishments: Phase I Test Article received. Completed Initial Operational Testing and the Tech Data Package have been redefined for Phase II portion of testing the FSP System.
FY 2005 Plans: Complete Phase II; Initial Functional Test, Insensitive Munitions Test, Safety & Environmental Test, Durability Test, Hazard Classification Test, Control & Functional Test, User Test. Complete the Data Analysis & Evaluation. Procurement decision projected 4th Quarter FY 2005.

	Service	FY 2004	FY 2005	FY 2006	FY 2007
Fuel Cells for Dismounted Soldier Systems	Army	0.602	0.000	0.000	0.000

This project, initiated in FY 2003, is evaluating electrochemical fuel cells developed by Ballard Power Systems and Hydrogenics, both of Canada; NoVars and Smart Fuel Cells, both of Germany; Intelligent Energy, Inc. of the United Kingdom, to meet Army requirements for longer lasting, lighter-weight portable power sources. This project directly supports Army "Transformation" in that it has direct application to the "Landwarrior" program, and potential application to the Future Combat System program, making for a lighter, more mobile, more lethal, yet more survivable fighting force.

FY 2004 Accomplishments: Complete testing of all units, deliver "good" units to USSOCOM for user evaluations. Prepare final report detailing results of FCT effort. Incorporate test results into future specs.

	Service	FY 2004	FY 2005	FY 2006	FY 2007
Gamma Titanium Sheets	Army	0.023	0.000	0.000	0.000

This project was supposed to evaluate gamma-titanium sheets developed by Plansee of Austria as potential replacement for current structural components used on Army helicopter manifolds and exhaust firewalls. The potential benefits of γ-TiAl are being recognized throughout the aerospace community and this substitution, for example, could increase Vertical Rate-of-Climb performance for Comanche aircraft, which would greatly increase both aircraft operational capability and survivability, while reducing RDT&E costs. Unfortunately the project was terminated when the Army cancelled the major program that this project supported.

	Service	FY 2004	FY 2005	FY 2006	FY 2007
Global Cellular Phone System Optimization	USSOCOM	0.361	0.000	0.000	0.000

This project, initiated in FY 2003, is evaluating commercially available hardware and software that can monitor, exploit, and interrupt portable cellular phone transmissions. Candidate systems to be tested are from MMI Research; Smith Meyers; GCOM of the United Kingdom, as well as from Spectra Communications of Sweden and CRC/Marconi of Canada.

FY 2004 Accomplishments: Operational tests completed on Sectra GSM Phone portion of evaluation. Evaluation of the

Military Digital Analysis System (MiDAS) from CRC/Marconi, was delayed by 90 days due to delivery delay.
FY 2005 Plans: Complete user testing and compile test results.
FY 2006 Plans: Prepare decision packet and obtain procurement decision. FCT close out to be completed at the beginning of second quarter.

	Service	FY 2004	FY 2005	FY 2006	FY 2007
Guidance Components for Missiles	Air Force	0.895	0.175	0.000	0.000

This project is evaluating 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. Improvements to basic guidance and control (G&C) technology and miniaturization of G&C components have potential to enhance the performance of U.S. non-strategic missile systems. Advanced components are being used by foreign suppliers and are candidates for easy integration into U.S. programs.

FY 2004 Accomplishments: Two vendors were eliminated from the candidate list. Thales does not provide a product that is designed to work in a vacuum environment and Saab Ericsson utilizes a special processor configuration, which would require the end users to incur additional cost to adapt to another development environment. Radstone, DY4, SBS and Aitech remain as candidate vendors
FY 2005 Plans: Complete testing and analysis
FY 2006 Plans: Interface with Vendors to procure new guidance systems

	Service	FY 2004	FY 2005	FY 2006	FY 2007
High Temperature Protective Coating for Gas Turbine	Navy	0.837	0.718	0.000	0.000

Engines					

This project, initiated in FY 2003, is evaluating a protective coating made by MDS-PRAD Technologies (MPT), a joint venture company of MDS Aero Support of Canada and PRAD (Ural Works of Civil Aviation) of Russia, for the high-temperature section of turbine engines. The protective coating reduces hot-gas corrosion, oxidation and thermal fatigue, thereby significantly increasing turbine life and reducing engine life cycle support costs.

FY 2004 Accomplishments: MPT delivered a report indicating a component engine life improvement greater than 2X using unique Russian coating process. MPT coatings under FCT consideration expanded to include thermal barrier coating technology. Representative uncoated alloy test coupons procured for FCT testing. Signed Space Act Agreement between NAVAIR and NASA GRC establishing a test capability for proprietary coatings. Selected Rolls-Royce (RR) AV-8B Harrier F402-RR-408 (F402) engine as the initial platform for fleet transition.
FY 2005 Plans: Contract with MPT to provide coated coupons, F402 IPT interface support for prototype hardware specification, ROI analysis and planning for transition of coatings production capability to North America. Leverage on-going NAVSEA MANTECH iMAST Center of Excellence turbine coatings program for coating of baseline coupons and increasing transition opportunities. Conduct comparative coatings tests at NASA GRC and NAVSEA Carderock. Task RR, through F402 Component Improvement Program (CIP), for uncoated turbine hardware new part coating specification and ROI analysis. Stand-up NRL web-based microscope capability to exchange fielded component metallurgical data with MPT Russian scientists.
FY 2006 Plans: Coordinate with planned FY 2007 F402 Accelerated Mission Endurance Test (ASMET) Program. Test program to include MPT-coated turbine hardware in ASMET. Initiate an F402 Engineering Change Proposal (ECP) to transition MPT coatings.

	Service	FY 2004	FY 2005	FY 2006	FY 2007
Improved Specific Emitter Identification (I-SEI) System	Navy	0.301	0.000	0.000	0.000

This project, initiated in FY 2003, is comparing NSA-compliant alternatives developed by QinetiQ of the United Kingdom to the U.S. Specific Emitter Identification processors for passive identification and fingerprinting of radar emitters in various applications. The two NSA-compliant systems currently in Navy use will be included in the tests for comparison.

FY 2004 Accomplishments: Completed four-phase performance comparison and released report via SIPRNET on the SPAWARSYSCEN SEI website. The results are classified due to the analysis of currently fielded U.S. intelligence systems. Environmental test criteria and test phase planning were initiated. An extension of the test deadline to 31 March 2005 was granted due to extensive difficulties in identifying the Environmental test criteria and test locations.
FY 2005 Plans: Complete contracting, determine test and equipment rack requirements, and conduct environmental testing phase of the I-SEI FCT at the Hi-Test Laboratories, Inc. in Virginia. Issue final test report and close out report.

	Service	FY 2004	FY 2005	FY 2006	FY 2007
JSLIST Alternative Footwear Solution	Marine Corps	0.485	0.000	0.000	0.000

This project is evaluating a one-size-fits-all, small packaged chemical-biological protective boot developed by Acton International, Inc. to meet urgent requirements of the Joint Service Lightweight Integrated Suit Technology (JSLIST) program. A successful FCT will enable improved operational suitability for the warfighter, meet urgent needs, and result in at least 25 percent production cost savings.

FY 2004 Accomplishments: Completed Test Plan for DT1 regarding the U.S. Navy (USN) Urgent Needs Statement (UNS). Completed USN UNS testing. Contract awarded to purchase $0.175 million boots over two year period of FY 2004 and FY 2005 for $6.5 million. Drafted Field Durability Developmental Testing (FDDT). Completed FDDT in Yuma, AZ. Coordinated combined test effort with JSLIST Block 2 Glove Upgrade FCT along with the Alternative Bead Suit Test led by JPMO-IP.
FY 2005 Plans: Complete Phase II, Human Factors and Field Artillery Group test. Complete the down selection, and start Developmental Testing and Operational Testing.
FY 2006 Plans: Complete Chemical Protection and Physical Properties testing. Procurement decision (projected 1st Quarter).

	Service	FY 2004	FY 2005	FY 2006	FY 2007
JSLIST Block II Glove Upgrade	Marine Corps	0.751	0.474	0.000	0.000

This project is evaluating nuclear, biological, chemical (NBC) protective gloves manufactured by Acton International, Inc. to meet the requirements for a "JB2GU" glove, a component of the Joint Service Lightweight Integrated Suit Technology (JSLIST) ensemble. The JB2GU will provide NBC protective gloves for the Army, Marine Corps, Navy and Air Force military personnel. The JB2BGU will be worn as part of the NBC protective ensemble and allow the warfighter to perform a full range of missions in NBC environments worldwide up to 30 days without performance degradation, by increasing tactility, dexterity, and durability beyond that found in the currently fielded butyl glove.

FY 2004 Accomplishments: Prepared for Developmental Testing during Contamination Avoidance at Seaports of Debarkation (CASPOD) ACTD final demonstration. Completed Field Durability Development Testing (FDDT) in Yuma, AZ. Completed wear testing in Yuma, AZ.
FY 2005 Plans: Complete Phase II, Human Factors and Field Artillery Group test. Complete the down selection, and start Developmental Testing and Operational Testing.
FY 2006 Plans: Complete Chemical Protection and Physical Properties testing. Procurement decision (projected 2nd Quarter).

	Service	FY 2004	FY 2005	FY 2006	FY 2007
Large Scale Display System	Army	0.328	0.000	0.000	0.000

This project is evaluating very high resolution Flat Screen Displays developed by NEC/Mitsubishi of Japan and Samsung of the Republic of Korea for potential application in Army battlefield C2 requirements. Successful evaluation and fielding will allow the commander and staff to simultaneously view the Command Operational Picture, employ collaborative tools, and directly monitor various feeds from sensors or news services to rapidly gain situational awareness/understanding. This will greatly enhance battlefield C2, thus overall operational effectiveness and survivability for units engaged in combat.

FY 2004 Accomplishments: Completed all justifications for purchase of FCT item (as this is considered an IT item, various procurement rules/regulations affected purchase of FCT item). Completed Engineering efforts for Common Hardware Systems (CHS) applications for FCT effort. Completed meetings with Program Manager CHS (PM-CHS) and supporting contractors to prepare for support of effort (environmental testing in place). Completed lab testing of video switches, interface devices, and scan converters to link FCT product to source equipment. Completed development of interfaces. Completed engineering evaluation and tests for FCT items with PM-CHS applications. Completed final report/brief PM-CHS.
FY 2005 Plans: Based on close our report and meetings with PM-CHS and PM - Tactical Operations Center (PM-TOC), C2D demonstrated the Foreign Comparative Test (FCT) Samsung 46 inch, high-resolution Liquid Crystal Display (LCD) panel at the PM-TOC Summit, 14 DEC 04. The Product Manager PdM-TOC, LTC Johnson was very pleased with the demonstration. As a result, LTC Johnson requested C2D to determine full ruggedization requirements for potential use in PM-TOC's new Command Post Platform (CPP) program (New effort within PM TOC). Subsequently, C2D met with representatives from Azbell Electronics (subcontractor responsible for developing rugged hardware for PM-TOC). C2D and Azbell will jointly complete this effort and interface the display to PM-TOC's CPP specific hardware during 2nd Quarter FY 2005. The U.S. Army could potentially purchase hundreds of these FCT LSDs, provided they're ruggedized and placed on the CPP Contract. The C2D will continue to pursue this endeavor.

	Service	FY 2004	FY 2005	FY 2006	FY 2007
LCAC Lube Oil Cooler	Navy	0.000	0.746	0.300	0.000

This FCT is evaluating Lube Oil Coolers that are potentially suitable for use on LCAC for performance, wear and corrosion resistance. Under the FCT program a number of foreign produced Lube Oil Coolers will be obtained and evaluated in accordance with tests specified in Specification 7614-947251. Improved corrosion resistant hovercraft Lube Oil Coolers will reduce life cycle maintenance costs; procurement costs and increases Craft Mission Availability.

FY 2005 Plans: Procure test items that will be delivered and accepted as they come off of the Manufacturers Assembly line. Currently anticipated lead times yield 2 units per quarter for 3 consecutive quarters. Technical tests will commence upon installation at the Assault Craft Units. Evaluation over the course of a year will provide a fair measure of product durability.

The number of test items needed (6) is necessary in order to evaluate the effects of diverse operational environments, support equipment variations, and maintenance personnel skill sets at the respective ACU's.
FY 2006 Plans: Outfitting of three different Craft at each ACU will allow for In-Theatre Evaluation while also allowing for Stateside evaluation of Test Articles during certification and training evolutions. Engineering labor and Logistics support will be extensive on this effort.

	Service	FY 2004	FY 2005	FY 2006	FY 2007
Lightweight Prime Mover	Marine Corps	0.547	2.189	0.000	0.000

This project is evaluating foreign, non-developmental, high mobility, off-road vehicles manufactured by Automotive Technik Ltd and Supacat Ltd of UK, Krauss-Maffei-Wegman of Germany, and MOWAG of Switzerland. These systems will be tested to verify vendor performance claims and to satisfy, at a minimum, the requirement for LW155 towing capability, operational suitability, and external transport via MV-22 Osprey. The Lightweight Prime Mover project will incorporate lessons learned from the joint program venture between the US Marine Corps, US Army, and United Kingdom for the LW155 medium howitzer program.

FY 2004 Accomplishments: Received Test Articles/Prime Mover (2 per vendor). Foreign Test Data Received. Two Part Test Contract issued to Nevada Automotive Test Center (NATC) to conduct verification/demonstration testing of candidate vehicles. Performance Spec for LWPM was contracted to NATC for development. Completed Draft Test Plan.
FY 2005 Plans: Release RFP to vendors. Complete Test Plan. Evaluate Schedule and Test Plan to determine if FCT can be shortened without compromising requirements and objectives. Contract Preparation & Award for Test Articles. Contract to build surrogate howitzers. Test Article delivery is slated for April 2005. Perform comparative assessment at NATC for towing capability and operational suitability. Execute Flight Certification tests for external transport via MV-22 Osprey.
FY 2006 Plans: USMC LRIP decision. MCOTEA performs User Evaluation. Live Fire Test executed at Aberdeen Test Center. Provide Final Test Report. Milestone C decision (projected 4th Quarter).

	Service	FY 2004	FY 2005	FY 2006	FY 2007
Lightweight Smoke Generator	Army	0.584	0.252	0.000	0.000

This project is evaluating a camouflage smoke generator developed by PZL Rzeszow of Poland that is significantly lighter, and produces a better screen, than the U.S. Army's M56 system. A key aspect of the Polish system is that it uses a combination of fog oil and infrared obscuring particles in one solution to provide visual/IR obscuration. This is in contrast to the M56 system, which uses additional components to separately disseminate fog oil and graphite. If the project is successful, significant weight reduction could be achieved and the Polish system could be incorporated into the Army's M56 production program, the Robotic Obscuration production program and the Future Combat System Obscuration development program. This will greatly enhance both operational effectiveness and survivability on the battlefield, as well as greatly increasing RDT&E cost avoidance. This is the very first U.S. Army FCT project with Poland, a new NATO ally, and active coalition partner in Operation Iraqi Freedom.

FY 2004 Accomplishments: Purchased 4000 liters of obscuring liquid from GFG Lastadia, Gdynia, Poland. Initiated chamber testing to determine extinction coefficient of Polish obscuring liquid.
FY 2005 Plans: Complete lease agreement with Agencja Mienia Wojskowego (AMW) in Warsaw for leasing one Polish Camouflage Smoke Generator (CSG). Integrate CSG onto a HMMWV in preparation for testing. Conduct visual/IR performance testing, hot/cold chamber testing and reliability testing. Prepare detailed report of test results.

	Service	FY 2004	FY 2005	FY 2006	FY 2007
Lithium-Ion Battery Cells	Army	1.970	2.191	0.000	0.000

This project is evaluating the potential for Li-Ion battery cells developed by SKC of the Republic of Korea, E-One Moli Energy Ltd. of Canada, and AGM Batteries, Ltd. of the United Kingdom to satisfy Army and USMC portable electrical power requirements for a high energy density, high cell potential fuel source. The candidates may provide greater energy than present Li-Ion cell-based batteries and have the potential to reduce the logistics burden and enhance cost effectiveness through increased mission times

(increases in power), greater shelf life, increases in power, and greater recharging capability. This project is also estimated to result in a $10 million RDT&E cost avoidance and a $10 million O&S cost savings.

FY 2004 Accomplishments: Purchased/evaluated Li-ion cells for XX90, XX47, XX57, XX88, XX600 and XX800 type batteries. Based on engineering evaluation, initial batteries constructed for XX90 type battery. Complete engineering evaluation of cells and designed the cases for XX47, XX57, XX88 batteries with smart SMBus interface. Testing of AGM XX600 and XX800 type batteries mostly complete. Testing of SKC XX90 batteries initiated. FCD (Full Capacity Discharge) testing almost complete (FY05). This involves 3 cycles (charge/discharge) of each battery (50 each) for a total of 150 cycles. Complete prep for purchase of cell types to evaluate for remaining battery types: XX98, XX99, XX30, XX58, XX16 and XX57.
FY 2005 Plans: Complete full spectrum of testing for SKC XX90 batteries. The remaining tests include (1) overcharge, (2) low temperature discharge, (3) high rate discharge, (4) charge retention, and (5) high rate pulse discharge. Complete evaluations of batteries using Li-Ion cells for XX90, XX47, XX57, XX88, XX600 and XX800 type batteries. Currently, the tooling for XX47, XX57, and XX88 battery cases are being fabricated and circuitry boards for XX47, XX57 and XX88 are completed. These battery types will be delivered 2nd qtr FY05. Perform field testing of all batteries in actual equipment. Purchase and evaluation of battery Cells for building battery types: XX98, XX99, XX30, XX58, and XX16. Complete written evaluations/reports for CECOM Logistics & Readiness Center (LRC) Battery group to purchase (if FCT successful) battery types. Working with LRC to complete the technical data package to incorporate the polymer technology for next procurement.

	Service	FY 2004	FY 2005	FY 2006	FY 2007
Low Probability of Intercept Communications Intelligence Direction Finding	USSOCOM	0.350	0.066	0.000	0.000

This project is evaluating 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.

FY 2004 Accomplishments: Awarded contract for test articles and receive equipment; began technical testing. Analyzed vendor data.

FY 2005 Plans: Procure and receive test articles. Conduct initial technical testing. Complete technical and operational testing; Compile test data, prepare decision packet, and obtain production decision. FCT close-out.

	Service	FY 2004	FY 2005	FY 2006	FY 2007
Man Portable Satellite Communications (SATCOM) System	USSOCOM	0.219	0.000	0.000	0.000

This project, initiated in FY 2003, is evaluating small, lightweight satellite dishes manufactured by SweDish of Sweden that can provide one-person operation of a turnkey satellite communications solution. Two sizes of small dishes promise to provide secure communications (live video/audio streaming, broadband transmission and automated setup) without sacrificing the identity or location of the user.

FY 2004 Accomplishments: Test was completed successfully and close-out report was submitted. Total procurements to date: fifty-one .9 meter systems and thirty 1.5 meter systems totaling $18.1 million. Additional procurements are projected for late 2004 and early 2005.

	Service	FY 2004	FY 2005	FY 2006	FY 2007
MARIA (Congressional Plus Up)	Navy	2.100	1.050	0.000	0.000

The FY 2004 and FY 2005 Appropriations included $2.1 million and $1.050 million plus ups respectively for MARIA to the Advanced Concept Technology Demonstration (ACTD) Program under Program Element 0603750D8Z. The ACTD Program did not have an existing MARIA Program in which to execute the FY 2004 or FY2005 funds appropriated. A Below Threshold Reprogramming Action was executed to reprogram these funds into the Foreign Comparative Testing (FCT) Program Element since MARIA was an active FCT project initiated in FY 2001.

This project is evaluating a software-based command and control system from Teleplan AS that provides superior battlespace

awareness through the rapid display of geographic imagery and positional information on friendly, neutral, and enemy units. 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. The Space and Naval Warfare Systems Command, San Diego, California, is conducting the test project.

FY 2004 Accomplishments: Conducted initial Planning Team meeting in Washington, DC with project stakeholders NNWC, Navy IPO, NAID, SPAWAR FCT, OPNAV and SPAWAR SYSACTPAC. Designated SPAWAR SYSACTPAC as the project manager. Held technical meeting with NAID, Teleplan, NNWC, SPAWAR SYSACTPAC and INNOVASYSTEMS in San Diego. Developed details on a three-phase spiral for MARIA integration.
FY 2005 Plans: Conduct MARIA user and development training conducted at North Island NAS, San Diego. Setup MARIA development server. Complete contract negotiations with NAID for purchase of MARIA Licenses. Write application module and interface to display readiness data on MARIA client. Write application module interface to accept data input from MARIA client and send data to readiness database. Deploy to two Ashore sites for testing.
FY 2006 Plans: Complete testing. Make procurement decision. Deploy to Fleet units.

	Service	FY 2004	FY 2005	FY 2006	FY 2007
Micro Electro Mechanical System (MEMS) Inertial Measurement Units (IMUs)	Air Force	0.274	1.368	0.000	0.000

This project is evaluating the currently developed and deployed British Aerospace (BAE) Systems MEMS Inertial Measurement Unit which is reported to represent a significant size, weight, and cost advantage over domestic alternatives. Many current 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 size has driven the guidance system to be a significant portion of the "payload mass" that is lifted by the propulsion system, thereby reducing the available mass for lethal portion of the payload.

FY 2004 Accomplishments: Technical specification (evaluation data) describing SiIMU01 has been received the Program

Office confirmed that the components are suitable for tactical assets. Acquired three each SiIMU01/02: one each for testing at the launch service subcontractors (OSC and Draper) and one for environmental testing. The IMUs will be integrated into a hardware-in-the-loop test fixture for evaluation. Efforts and costs are part of the launch service integrators' responsibility. Development of testing procedures
FY 2005 Plans: Test and assess the SiIMU01/02 to verify its performance and suitability for both strategic and tactical assets. The tests will include verifying input/output throughput capabilities, power consumption, and performance against vendor-supplied specifications. Environmental testing will be conducted and will include testing against vibration, shock, temperature, humidity, and altitude operating environment requirements. The tests are intended to be non-destructive, but destructive tests may be conducted to assess the ultimate capabilities of the unit. Initiate procurement if results are favorable. Procure test articles and complete testing.

	Service	FY 2004	FY 2005	FY 2006	FY 2007
Mine Countermeasures Small Unmanned Underwater Vehicle	Navy	0.410	0.197	0.000	0.000

This project is evaluating the capabilities of a small unmanned underwater vehicle, developed by Hafmynd of Finland, in mine countermeasures operations in the very shallow water zone (10 to 40 feet depth). This type of small underwater vehicle can be used to search coastal areas and identify hazards to naval operations in preparation for amphibious assault, force protections and harbor security operations.

FY 2004 Accomplishments: Contracted for purchase of properly MCM equipped GAVIA UUV with Hafmynd, Ltd. Reviewed GAVIA product specification and modified to meet USN needs. Awarded contract with Life Cycle Support. Conducted "Reacquire and Identify" PMT meeting to review the Requirements Compliance Testing Plans and develop RI UUV Tactics. Started production of GAVIA UUV system at company facilities and subcontractors. Received all major components and long lead items at the company's facilities. Started development of the Lithium Battery Safety Data Package

and began processing.
FY 2005 Plans: GAVIA UUV will undergo a 2-3 month Very Shallow Water Mine Countermeasure Test and Evaluation by SPAWAR Systems Center San Diego and a User Operational Evaluation conducted by fleet personnel in Naval Special Clearance Team One. Hafmynd, Ltd. to provide technical support during these trials. Consider contract option to purchase up to 10 more GAVIA UUV's with logistical support for incorporation into fleet operations.

	Service	FY 2004	FY 2005	FY 2006	FY 2007
Missile Reserve Battery Replacement	Air Force	0.679	0.000	0.000	0.000

This project, initiated in FY 2003, is evaluating battery cells developed by Saft Alcatel of France and Japan Storage Battery, Ltd. (Nippondenchi) for use in missile/booster environments. If testing is successful, Eagle Picher will assemble the batteries with cells from candidate source(s) incorporating the newer technologies.

FY 2004 Accomplishments: Completed contract actions with the testing facility; drafted and provided Test Requirements Document to NSWC Crane, Indiana. Completed acquisition negotiations for test articles. Test results were very positive and the project should transition to battery testing and qualification.

	Service	FY 2004	FY 2005	FY 2006	FY 2007
MK48 (7.62mm Lightweight Machine Gun) Semi-rigid Ammunition Container	USSOCOM	0.098	0.000	0.000	0.000

This project is evaluating a semi-rigid ammunition container from FN Herstal of Belgium for the MK48 Lightweight Machine Gun, an organic weapon for U.S. Special Forces Teams. The container increases the reliability of the weapon by protecting the ammunition while operating in harsh environments such as surf zones. The container also provides for a better balanced weapon due to its mounting under the centerline, providing greater operational suitability while patrolling.

FY 2004 Accomplishments: Held design review with FN Herstal and user representatives on 29 July 2004. Project received 55 each test units on 30 July 2004. Conducted operational assessment in August 2004 with Naval Special Warfare and the 75th Ranger Regiment Completed final design changes for the 175 each LRIP units. Procured test articles. Technical and operational testing was successfully conducted.
FY 2005 Plans: Preparation of decision packet and procurement decision. FCT close-out will be prepared.

	Service	FY 2004	FY 2005	FY 2006	FY 2007
Mobile Acoustic Support System	Navy	0.438	0.164	0.000	0.000

This project, initiated in FY 2004, is evaluating a mobile ground-based system developed by General Dynamics Canada to meet a Navy requirement for post flight analysis of sonabuoy (underwater microphone) acoustic data recorded on Maritime Patrol Reconnaissance Aircraft from fixed and rotary wing aircraft and surface and sub-surface units conducting anti-submarine warfare missions. The Mobile Analysis Support System (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 2004 Accomplishments: Completed testing on one domestic system against the current specification and assess the following suitability areas: Reliability, Maintainability, Availability, Logistic Supportability, Compatibility, Interoperability, Training, Human Factors, and Safety Documentation. This month, testing will be completed for one foreign system in the same suitability areas identified above.
FY 2004 Accomplishments: Sent official correspondence to the Canadian Department of National Defense (DND) Headquarters, Ottawa, Canada requesting access to the GDC-FTAS for the FCT project and obtained agreement. Conducted testing of the Canadian GDC System occurred August 9-22 2004 at Greenwood, Nova Scotia. Sent official correspondence to

the BBN Technology Solutions requesting concurrence to participate in the FCT project and obtained agreement. Testing of the BBN domestic system occurred June 7-18, 2004. Delivered Test Plan and Procedures to FCT office. Began analysis of test data for both domestic and foreign systems.
FY 2005 Plans: Complete data analysis and document system test results. Finalize Test Report.

	Service	FY 2004	FY 2005	FY 2006	FY 2007
Mortar Propellant	Army	0.629	0.744	0.000	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 this 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 2004 Accomplishments: Awarded Contract Mod 1 April 2004. Initiated production of EI main charge propellant for Phase 1 (Main Charge Initial Evaluation). Conducted preliminary ballistic testing of EI main charge propellant at Yuma Proving Ground (YPG).
FY 2005 Plans: Complete final qualification testing of EI main charge propellant at YPG. Scope expanded to also evaluate the powder for use in the mortar igniter. Award Contract Mod 2 to procure EI igniter propellant. Produce EI igniter propellant for Phase 1B (Igniter Initial Evaluation). Load, assemble and pack (LAP) mortar increment containers and ignition cartridges with EI propellant and conduct ballistic igniter testing at YPG.
FY 2006 Plans: Load, assemble and pack (LAP) mortar increment containers and ignition cartridges with EI propellant and conduct final qualification testing (Phase 2) at YPG.

	Service	FY 2004	FY 2005	FY 2006	FY 2007
Mounted Cooperative Target Identification System (MCTIS)	Marine Corps	0.547	0.460	0.000	0.000

This project is evaluating a combat identification system developed by Thales Missile Electronics that may be capable of meeting the requirement for the Marine Corps MCTIS. The British system provides 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.

FY 2004 Accomplishments: Initial FCT project tests were conducted under the Coalition Combat Identification (CCID) Advanced Concept Technology Demonstration (ACTD) Project. Participated in Thales Missile Electronics environmental analysis efforts. Prepared and awarded contract. Received Foreign Test Data and Test Articles. Initiated testing to perform design verification and to validate the design and performance characteristics against established requirements, to include: performance, environmental, vibration/shock, electromagnetic interference, reliability, and maintainability.
FY 2005 Plans: Complete Laboratory Testing to include system integration.
FY 2006 Plans: Complete Field and User Evaluation. Provide Data Analysis & Evaluation.
FY 2007 Plans: Procurement Decision.

	Service	FY 2004	FY 2005	FY 2006	FY 2007
Multi-Role Anti-Armor Anti-Personnel Weapon System (MAAWS) Illumination Round	USSOCOM	0.706	0.000	0.000	0.000

This project, initiated in FY 2001, is evaluating illumination ammunition developed by Saab Bofors Dynamics of Sweden for the 84mm Carl Gustaf recoilless rifle. The round has a visible candle with increased burn duration and a dual safe fuse that meets US Army Fuse Safety Review Board Standards.

FY 2004 Accomplishments: Air drop analysis completed and methodology forwarded to US Army Research Development and Engineering Command (ARDECOM), NATICK Soldier Center (NSC) for approval. Program office has been successful in obtaining

Saab Bofors Dynamics (SBD) methodology for calculating burn time, duration and illumination field. USSOCOM assessors have agreed to accept SBD methodology with a verification test observed by users. Nearly 1/2 of the overall Army and Navy Product Qualification Testing (PQT) have been completed. Blast Overpressure testing has begun. Streamlining of PQT has freed up test hardware. The additional hardware has been utilized to test blast overpressure in addition firing positions.
FY 2005 Plans: Complete user testing; Receive safety and production certification; Begin production. FCT close-out will be completed.

	Service	FY 2004	FY 2005	FY 2006	FY 2007
Naval Active Intercept and Collision Avoidance	Navy	0.657	0.875	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. The Australian system detects and localizes emissions from active sources such as sonar, sonabuoys, and active homing torpedoes using sensors already installed on US submarines. System functionality will be tested against the requirements for the AN/WLY-1 currently applicable to SSN688, SSN21, and SSN774 class submarines. It will prevent collisions with ships that have occurred in the past.

FY 2004 Accomplishments: Conducted FCT Kick-off meeting with program office and Sonartech (contractor). Obtained and analyzed technical data on NAIRCAS hardware and software. Conducted stand-alone test of the Naval Active Intercept and Ranging and Collision Avoidance System (NAIRCAS) followed by a test of a card set integrated into the A-RCI sonar system. Tested DT592, DT511, DT369, and DT276 hydrophones at University of Rhode Island to determine suitability for time delay of arrival (TDOA) analyses. Developed a DDL OMNI and NAIRCAS contractor report to review TEMPALT / SHIPALT cost and schedule. Developed Spatially Populated Volumetric Array (SPVA) recording system interface and data synthesizer. Reworked FCT plan of record (POR) due to failure of SPVA sea trials and distortion of SPVA sea trial data.
FY 2005 Plans: Conduct two submarine test events and system integration tests. Measure parameters such as bearing, bearing rate, range, range rate, passive detection, false alarm, and false alert rates; gauge against US active intercept and ranging requirements. Test NAIRCAS system at various depth and sound velocity profile (SVP) conditions against multiple platform

types. Integrate NAIRCAS functionality into the AN/BQQ-10 (V) (A-RCI) sonar system using PEO SUB (PMS 401) development and integrate funds as part of the established Advanced Processing Build (APB) and Technical Insertion (TI) process.
FY 2006 Plans: Perform Follow-On Test and Evaluation (FOT&E) by the Commander of Operational Test and Evaluation Group (COMOPTEVFOR). Analyze and evaluate results of FOT&E to determine the effectiveness of NAIRCAS with respect to US active intercept and ranging requirements.

	Service	FY 2004	FY 2005	FY 2006	FY 2007
Pitch Adaptive Composite Marine Propeller	Navy	0.492	1.094	1.500	0.000

This project is evaluating commercial Contur-series propeller developed by AIR Fertigung Technologies GmbH to improve submarine stealth. The propeller blades are designed to flex in a controlled manner under certain operating conditions, which causes a pitch modification that is claimed to improve vehicle stealth, speed, and propulsion efficiency. In addition, the pitch modification reduces cavitation damage, marine growth fouling, and permits in-water blade replacement. This advanced performance is enabled by the use of blades constructed from carbon fibers, instead of traditional metals.

FY 2004 Accomplishments: Gather information and specifications to develop the propeller blades to ensure compatibility with US Navy systems. Develop hydrodynamic and structural design of the new propeller for SSBN/SSGN. Determine the shape adaptable propeller blades enable advanced hydrodynamic performance. Determine the current state of the art graphite composites permits the construction of large propellers. Develop pitch adapting (flex) composite propeller design and analysis technology. Initial exchange of propeller geometry between NSWC and AIR to ensure the definitions are consistent. Completed development of fiber optic strain gage installation techniques, including manufacture of test blades. Initial Propeller geometry files transferred and propeller performance predictions between USN and vendor match. This is a confidence building exercise, so that USN can believe the performance predictions from Vendor for the flexible propellers that

will be designed by them.
FY 2005 Plans: Acquire a series of Contur Series Propeller blades for evaluations in land-based facilities, and then on the Advanced Swimmer Delivery System (ASDS). Compare USN propeller design cavitation avoidance techniques against those claimed by the vendor. Determine the structural adequacy of the blade material and hub designs, and the non-cavitating acoustic performance anticipated. Determine whether the vendor's product is a viable alternative to the metal propeller that the USN will be developing. Receive test items: ASDS blades (1), ASDS propellers (2), and SSBN sized blades (3) Complete Test and Evaluation plan. Test Plan and evaluation will be completed. Conduct fatigue and water tunnel Large Cavitation Channel Technical tests 1 and 2 (This testing will enable measurement of radiated noise, cavitation avoidance, and unsteady forces as well as permit a long-term operation to demonstrate the durability of the material. Conduct LCC Technical test 3).
FY 2006 Plans: Determine whether to order new propellers in FY 2007. Complete LCC Technical test 3. Complete ship installation and trial along with the FCT Close-out Report and Tech Data package.

	Service	FY 2004	FY 2005	FY 2006	FY 2007
Radarsat II Commercial High Resolution SAR	Air Force	1.642	0.431	0.000	0.000

This project is evaluating the ability of the Canadian Radarsat II, developed by MacDonald-Dettwiler, to 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 Deployable Satellite Imagery Receiving and Processing Station. The Canadian Radarsat II satellite is the first commercially available high resolution synthetic aperture radar imaging capability.

FY 2004 Accomplishments: Eagle Vision is an open architecture satellite ground station that will support the interface to Radarsat II with the existing hardware architecture. The FY 2004 effort will acquire the test article and integrate it into the system. The evaluation will include field operations to collect, process, the data received from Radarsat II to evaluate operational effectiveness and performance. Contract awarded June 2004. The contract for the test article was awarded in June 2004 and initial testing was completed.
FY 2005 Plans: Interface to the satellite, operator interface, quality and performance of the imagery products, and operational

utility will be evaluated. Testing and data analysis.
FY 2006 Plans: Publish final report.

	Service	FY 2004	FY 2005	FY 2006	FY 2007
Rayon for Heatshield and Motor Nozzles	Air Force	0.777	0.000	0.000	0.000

This project, initiated in FY 2003, is evaluating high-quality rayon from Lenzing Technik of Austria, Snecma Moteurs of France, Acordis of Germany; and Acordis of the United Kingdom to meet Air Force requirements for use in high temperature applications, such as heat shields and rocket motor nozzles. There are no longer any domestic suppliers of aerospace-grade rayon for rocket nozzles and reentry heat shield thermal protection.

FY 2004 Accomplishments: The candidate fibers have been processed into carbon phenolic, the test plans are finalized and the evaluation is being conducted. The testing to date has led to a down selection to two fibers, Fabelta and Snecma C-2. Current plans are to complete testing in 4th Quarter FY 2004.

	Service	FY 2004	FY 2005	FY 2006	FY 2007
Regenerative Drive System	Army	1.496	0.146	0.000	0.000

This project is evaluating the hydraulic Regenerative Drive System (RDS) for use in vehicles of 26000 to 36000 GVW, such as the Army's Family of Medium Tactical Vehicles. The RDS developed by Permo-Drive Technologies of Australia, recycles wasted power during vehicle deceleration and applies it to acceleration and or gained fuel economy. The Australian technology, which is easily retrofitted to the above military truck platform, captures normally wasted braking energy, stores it in the form of hydraulic pressure, and executes an electronically controlled releases to enhance dash capability or to achieve added fuel economy and brake life. Overall O&S cost savings are estimated to be in excess of $10,000 per truck over its life (Assuming typically over 20 years of peace time operation).

FY 2004 Accomplishments: Awarded a contract to Permo-Drive of Australia. Funded 2 blocks of work for hardware design, fabrication and installation using FCT funds. Contracted and funded Aberdeen Test Center (ATC) to develop a unique hybrid vehicle test plan. Conducted contractor start of work meeting. Delivered test assets to the contractor.
FY 2005-2006 Plans: Conduct vehicle structural integrity testing with simulated RDS mass on-board. Procure RDS hardware. Conduct calibration testing in U.S. Conduct bench testing and control software development in AU. Conduct hardware and program review in Australia. Research/select best value, approved test facility in US. Initiate technical and operational testing in April. Prepare and submit final FCT report by 30 Sept, 2005.

	Service	FY 2004	FY 2005	FY 2006	FY 2007
Replacement Structures for Aircraft	Navy	1.587	0.316	0.000	0.000

This project, initiated in FY 2003, is certifying and qualifying PZL-Swidnik of Lublin, Poland, as an approved source for the manufacture of aluminum honeycomb panels and sub-structures to support in-service, but out-of-production aircraft. Under this project, PZL is interpreting and translating complex manufacturing data, refurbishing and creating specialized tooling, and fabricating replacement aircraft structural components. These replacement components will be analyzed in the laboratory and installed on fleet F-14D aircraft and evaluated as part of an in-service reliability assessment. Legacy aircraft structures suffer from corrosion and are expensive to repair and maintain. This project makes optimum use of upgraded materials and streamlined manufacturing processes to produce a high quality replacement part at a reasonable price. This project also creates unique teaming agreements between three US companies and PZL to encourage mutual cooperation between US and Polish industry.

FY 2004 Accomplishments: Contract awarded to PZL-Swidnik and three domestic vendors. International Cooperative Administrative Support Services (ICASS) agreement and subsequent contract through US Embassy/Warsaw Admin Staff established to support USN/USAF FCT Project Office at PZL-Swidnik facility. Critical manufacturing specifications have been translated into Polish. Coupon specimens have been fabricated and are in the process of being delivered to USN

Laboratory for testing and analysis. Existing USN/F-14 project expanded to include USAF/F-16 Program Office and fabrication of airframe components to support USAF/F-16 spares requirement.
FY 2005 Plans: Test and analysis of coupon specimens. Fabrication and first article destruct test on first bonded assembly. Installation and in-service reliability testing of production representative panel assemblies in fleet service. Wrap-up and close out F-14 FCT effort. Submit qualification data package to NAVICP and Defense Supply Center Richmond (DSCR) for acceptance and subsequent inclusion into approved vendor's procurement database. Establish production/procurement contract with PZL-Swidnik. Conduct fabrication and destructive testing on F-16 part in USAF Laboratory. Test installation and reliability of F-16 production representative part of Air National Guard (ANG).
FY 2006 Plans: Issue reports and close out project.

	Service	FY 2004	FY 2005	FY 2006	FY 2007
Resilient Abrasive Resistant Skirt for Landing Craft Air Cushion (LCAC)	Navy	1.915	0.410	0.000	0.000

This project, initiated in FY 2003, is evaluating candidate materials developed by Reeves S.P.A. of Italy, Trelleborg of Sweden, and Northern Rubber of the United Kingdom to determine if they can provide a 50 percent improvement in the LCAC skirt's resistance to abrasion without a weight or cost penalty.

FY 2004 Accomplishments: Issued purchase orders to Reeves of Italy, Trelleborg of Sweden and Northern Icon of U.K. for delivery of phase one material. Completed the selection criteria for laboratory and flagellation testing phase one materials. Performed finger load characterization testing on LCAC 066 for comparison to standard skirt loads. Installed test fingers of phase one materials on LCAC at ACU4 and ACU5 for operational evaluation. Procured phase two evaluation materials,

performed laboratory comparative testing, and installed test fingers on LCAC. Completed evaluation of phase one and two and make final down select of top three materials. Started laboratory testing of the Phase one test materials at Smithers Scientific and is about 60% to 70% complete. Built test rigs for the specialized flagellation and dynamic folding tests. Made visit to the facility to observe the special tests and discuss testing issues. Installed forty-eight test fingers of the Trelleborg extra-wide material on LCAC 044 at ACU5, and are accumulating operational hours.
FY 2005 Plans: Install test fingers on LCAC 089 at ACU4. Extend Smithers contract for completion of work. Procure full sets of LCAC fingers made of top three materials and install onto Fleet craft. Start Fleet In-Service evaluation and complete FCT Close-out report. Make final revision to skirt material Project Peculiar Document (PPD) to reflect performance of top material(s).

	Service	FY 2004	FY 2005	FY 2006	FY 2007
Self Destruct Fuze for Multiple Launch Rocket System (MLRS)	Army	0.372	0.000	0.000	0.000

This project is evaluating the performance, safety, and feasibility of a self-destruct fuze developed by Israeli Military Industries of Israel. The fuze will be integrated into the submunitions of the MLRS system for testing, to the current dud rate of the submunitions from more than 5% to less than 1%. This is critical because that would greatly enhance both the operational capability and safety of our forces maneuvering on the battlefield, environmental cleanup of our training ranges, and future MLRS FMS cases to countries who have a self-destruct/dud-reducing requirement for their own munitions.

FY 2004 Accomplishments: Completed technical testing/ Phase II (ER MLRS rocket) and Phase III (GMLRS rocket) dispense testing. Completed High Rate Equipment (HRE) studies.
FY 2005 Plans: Analyze results/complete report phase III testing. Evaluate the necessity of Phase IV dispense testing. If necessary, conduct/evaluate results/complete report of Phase IV dispense testing. Production IPR decision.

	Service	FY 2004	FY 2005	FY 2006	FY 2007

Special Effects Small Arms Marking System (SESAMS)	Marine Corps	0.361	0.000	0.000	0.000

This project is evaluating the safety and integration suitability of Simunition's 5.56mm linked low-velocity training munitions for the M249 Squad Automatic Weapon (SAW). The SESAMS is a user-installed weapons modification kit that allows the individual Marine to fire low velocity ammunition with non-toxic primers, and a non-toxic marking medium at short range while precluding the weapon from firing live ammunition.

FY 2004 Accomplishments: Received M249 Conversion Kits and 120K rounds of 5.56 linked Simunition's rounds. Completed M2K Interface and Link Ammo Test. Completed the Terminal Ballistic Tests. Initiated safety testing at the Crane facility. Initiated M249 Conversion Kits testing at Quantico.
FY 2005 Plans: Complete laboratory, safety and user testing. Procurement decision (projected for 3rd Quarter).

	Service	FY 2004	FY 2005	FY 2006	FY 2007
Special Operations Forces (SOF) Combat Rifle	USSOCOM	0.821	0.327	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 2004 Accomplishments: Awarded contract for test samples; Obtained safety release and safety certification; Began operational assessment.
FY 2005 Plans: Complete operational assessment; Obtain Milestone C production decision.

	Service	FY 2004	FY 2005	FY 2006	FY 2007

Traveling Wave Tube Amplifier	USSOCOM	0.233	0.350	0.000	0.000

This project is evaluating alternative traveling wave tube amplifiers developed by ELTA Electronics, Inc. of Israel, Dornier Satellitensystems GmbH of Germany, E2V or 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 2004 Accomplishments: Awarded contract and procured test articles from one vendor; initiated technical testing 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; Conduct technical testing both as a stand alone unit and integrated into the SATCOM terminal; Prepare procurement decision package.

	Service	FY 2004	FY 2005	FY 2006	FY 2007
Ultra Light Aero Diesel Engine	USSOCOM	0.178	0.000	0.000	0.000

This project, initiated in FY 2003, is evaluating non-developmental diesel powered aero engine candidates in the 100 hp range that can operate from sea level to 20,000 feet Mean Sea Level, for possible use for a variety of Special Forces purposes, including an ultra light Unmanned Aerial Vehicle (UAV) platform for leaflet delivery. DAIR 100 engine from Diesel Air from United Kingdom and Thielert 125-01 from Thieler Aircraft Engines of Germany are two candidates to be tested, against a US manufactured candidate engine.

FY 2004 Accomplishments: Integrate DAIR 100 test engines into the Wind Supported Air Delivery System; Complete bench testing, safety certification, and operational flight testing. Mist Mobility Integrated Systems Technology Inc. provided their final test report to US Army Research Development and Engineering Command (RDECOM), Natick Soldier Center, for review and analysis. The DAIR-100 ULADE did not meet required performance parameters for the Leaflet Delivery System

Unmanned Aerial Vehicle – Wind Supported Air Delivery System (WSADS).
FY 2005 Plans: Request project funding from Psyops Global Reach ACTD to continue testing on the Thielert 125-01 engine to meet requirements. Receive and integrate engine. Bench test and operational flight test.
FY 2006 Plans: Data Analysis, Milestone C decision, FCT close-out.

	Service	FY 2004	FY 2005	FY 2006	FY 2007
Underwater Communication and Tracking System for Submarines	Navy	0.876	0.000	0.000	0.000

This project, initiated in FY 2003, is evaluating the suitability of the Nautronix/Maripro underwater digital communication (HAIL) system from Australia for real-time data exchange of positional information between submarines participating in open ocean exercises. The system has been successfully demonstrated in joint U.S.-Australian submarine exercises.

FY 2004 Accomplishments: Completed test plan for Sea Test 2A and Sea Test 2B. Developed Temporary Alterations (TEMPALTs) to support Sea Test 2A and Sea Test 2B. Conducted Sea Test 2A (ST2A). Conduct Sea Test 2B (ST2B) in conjunction with "Assured Access" exercise. Worked to install HAIL on 3 SSNs and 2 Japanese Maritime Self Defense Force (JMSDF) SSKs for Undersea Dominance 2004 trials. Developed draft test plan at NUWC Keyport – Final test plan created by COMSUBPAC. Installed and participated in numerous exercises at COMSUBPAC including a range exercise with US and Japanese submarines. Installed HAIL on USS CHARLOTTE in support of ASDS testing. Installed HAIL on USS GREENEVILLE and USS KEY WEST in support of PCO Ops and LUNGFISH. Installed and tested HAIL at PMRF
FY 2005 Plans: Conduct HAIL At Sea Trials at Pacific Missile Range Facility – Kauai, Hawaii. Issue HAIL Close Out Report. Work with Johns Hopkins Applied Physics Laboratory to analyze Undersea Dominance 2004 results. Conduct FCT Close Out Report Review. Provide Procurement Decision. Finalize and obtain approval for HAIL 688 / 688i TEMPALTs for PCI and PXI backfit versions of HAIL. Work with ASDS (PMS395) and SDV (NSSC Panama City) to field HAIL systems to SEAL and SOF units.

FY 2005 NEW START PROJECTS:

The projects identified below were highlighted as FY 2005 FCT new start projects in our Congressional Notification letter dated 20 November 2004.

	Service	FY 2004	FY 2005	FY 2006	FY 2007
3rd Generation Focal Plane Arrays for Future Combat and Apache Weapon Systems	Army	0.000	1.609	1.130	0.000

This Project will evaluate high-performance low-cost 3rd Generation Focal Plane Arrays (FPAs) developed by Qinetiq and BAE of England. Qualification of 3rd Gen FPA will support the Army's Future Combat System requirements to see first, understand first, act first and finish decisively. Qinetiq has developed an alternative substrate for 3rd Gen FPAs which reduces the cost of today's current and future FPAs by 75% and increasing the reliability by 200% , while meeting system requirements.

FY 2005 Plans: Performance and interface qualification testing will be done at the FPA level. Upon successful completion of this testing, the FPAs will be integrated into an LRAS system and operational testing will be done to include Noise Equivalent Test, Minimum Resolvable Temperature, Modulation Transfer Function, and range to detect and identify targets.

	Service	FY 2004	FY 2005	FY 2006	FY 2007
40 mm Tactical Marking & 40 mm Day/Night Training Cartridges	USSOCOM	0.000	0.544	2.629	0.000

This Joint FCT project will qualify two 40mm low velocity (LV) cartridges for multi-service use: (1) a non-developmental IR tactical marking cartridge and (2) a 40mm day/night training cartridge. Both 40mm cartridges use unique chemi-luminescent night marking technology. The 40mm tactical marking cartridges provide for accurate IR target marking to support precision fire control and air-ground combat in daylight and at nighttime. 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.

FY 2005 Plans: Project funds received. Contract for and receive 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 and complete FCT Close-Out Report.

	Service	FY 2004	FY 2005	FY 2006	FY 2007
40mm Low Velocity HEDP Ammunition	Marine Corps	0.000	0.564	0.420	0.000

This joint USMC and USSOCOM FCT project will integrate an improved propulsion system; cleaner burning propellant; a self-destruct fusing mechanism; and improved Insensitive Munitions (IM) energetic technology into an improved low velocity 40mm HEDP cartridge for use in the M79 and M203 Grenade Launchers.

FY 2005 Plans: Receive Foreign Test Data. Contract Preparation and Award and Test Planning. Foreign Test Data received and reviewed. Test Articles received and comparative test performed. Down-selection of vendors. Conduct qualification of energetics and perform safety & environmental tests as well as the user evaluation.
FY 2006 (Plans): WSESRB Preparation and Certification. Procurement Decision (projected 4th Quarter FY 2006).

	Service	FY 2004	FY 2005	FY 2006	FY 2007
70 mm (2.75”) Rocket Warhead	USSOCOM	0.000	1.335	2.585	0.000

This project will qualify 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 and buildings.

FY 2005 Plans: Project funds received. Contract preparation and award of test articles. Test planning. Interim hazard classifications. Receive test articles.
FY 2006 Plans: Conduct Phase I technical and safety testing. Obtain WSESRB approvals. Obtain air worthiness certification.

Conduct Phase II Operational and User Assessment. Milestone C decision and complete FCT Close-Out Report.

	Service	FY 2004	FY 2005	FY 2006	FY 2007
84 mm Multi-Target Warhead	USSOCOM	0.000	0.704	1.580	1.245

This project will evaluate 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 is optimized for use in urban/built up area and will defeat various types of structures and targets using a tandem warhead with a follow-through charge. This weapon could greatly enhance the capability of SOF during operations in urban environments.

FY 2005 Plans: Project funds received. Contract preparation and award of test articles. Test planning. Begin of hardware integration and delivery. Begin 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.

	Service	FY 2004	FY 2005	FY 2006	FY 2007
Air Launch Tethered Balloon ISR Platform	USSOCOM	0.000	0.657	0.000	0.000

This project will evaluate a means of employing a unique Intelligence, Surveillance, and Reconnaissance (ISR) Sensor/Communications Package (802.11) using a tethered balloon platform concept. If proven viable, this cost effective material solution will provide Special Operations Forces (SOF) a new capability that will significantly improve tactical situation awareness in the conduct of USSOCOM's mission objective to find, fix and destroy the enemy, and simultaneously provide friendly force protection.

FY 2005 Plans: 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.

	Service	FY 2004	FY 2005	FY 2006	FY 2007
Close Quarter Batter (CQB) Pistol	USSOCOM	0.000	0.252	0.170	0.000

This project will test and evaluate 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 Plans: Project funds received. Conduct project planning. Contract for and receive test articles. Begin technical and safety testing.
FY 2006 Plans: Complete technical and safety testing. Conduct operational and user assessment. Milestone C Decision and complete FCT Close-out Report.

	Service	FY 2004	FY 2005	FY 2006	FY 2007
Diver Hull Inspection and Navigation System	U.S. Navy	0.000	0.274	0.350	0.000

This FCT project will allow minimal integration, test and evaluation of a mature underwater survey system to determine its 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. The Spot-On Ship Hull Survey System is Commercial off the shelf (COTS) and is currently being used by the Swedish Coast Guard. 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. A diver hull inspection system is required to enable the rapid and accurate survey of ship hulls for unexploded explosive ordnance objects that

might impose a threat to Joint Military Operations.

FY 2005 Plans: Phase 1: Procure & test state of the art underwater survey system. Determine suitability for use in underwater EOD hull surveying missions.
FY 2006 Plans: Phase 2: Integrate system with appropriate sensors, navigation and diver display components and conduct technical evaluation.
FY2007 Plans: Phase 3: Conduct fleet evaluation of the integrated system

	Service	FY 2004	FY 2005	FY 2006	FY 2007
Engine Air Particle Separator	Army	0.000	1.094	0.500	0.000

The Engine Air Particle Separator (EAPS) project is 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. The EAPS is used as mission equipment in dusty/sandy environments and can significantly increase engine life due to decreased erosion of engine components. The EAPS currently used by the U.S. Army is the “long can” design and requires that the 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 the EAPS.

FY 2005 Plans: Army test phases. First Article Test in FY 2005 for fit and function on the CH-47 aircraft, including maintenance operational checks, ground and flight test.

	Service	FY 2004	FY 2005	FY 2006	FY 2007
Highly Mobile Oxygen Supplementation System (HMO2SS)	Marine Corps	0.000	0.657	0.000	0.000

This FCT project will test a portable, lightweight battery powered Highly Mobile Oxygen Supplementation System (HMO^2SS) from University Health Network, Canada for reliability, ruggedness, and adaptability. The HMO^2SS is 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. A successful FCT will result in the medical units needing fewer of heavy, high pressure oxygen bottles when deployed without negatively impacting their current mission for mass casualty medical care.

FY 2005 Plans: Receive Foreign Test Data. Contract Preparation and Award. Test Planning conducted. Receipt of Test Articles. Technical Tests performed at Aberdeen Proving Ground. Operational Tests performed at Naval Medical Research Center, Bethesda, MD and overseen by MCOTEA.
FY 2006 (Plans): Data Analysis & Evaluation and the Technical Test Report provided by the Naval Medical Research Center, Bethesda, MD. FDA approval sought. Procurement Decision (projected 4th Quarter).

	Service	FY 2004	FY 2005	FY 2006	FY 2007
Individual Serviceman Non-Lethal System	Army	0.000	0.411	0.613	0.000

This project will test and evaluate two foreign Non-Lethal capabilities that provide a higher rate of fire, greater engagement ranges, and greater magazine depth than currently fielded non-lethal capabilities.

FY 2005 Plans: Technical Testing. Conventional accuracy, reliability, maintainability, uniformity, plus Non-Lethal human effects, independently paneled through the NNLWD Human Effects Review Board (HERB). Safety Testing. Standard military requirements tailored to account for the function replacement of chemical energetics with compressed air, including the resulting changes in Hazardous Materials requirements in accordance with DOT 49 CFR 173.115 to evaluate any potential impact on tactical & strategic system transportability.

	Service	FY 2004	FY 2005	FY 2006	FY 2007

Laser Marksmanship Training System, (Hummerbook)	Marine Corps	0.000	0.164	0.000	0.000

This project will evaluate the ruggedized scoring device, known as the Hummerbook 50 thousand, from Seoul Standard Co., LTD based in Seoul, South Korea. This system will environmentally enhance the capability of the Laser Marksmanship Training System (LMTS) to move from an indoor marksmanship training system to a tactical engagement simulation in support of ground/convoy operations.

FY 2005 Plans: Receive Foreign Test Data for the Hummerbook-50 thousand. Evaluate for LMTS software and integration. Contract Preparation and Award. Receive test articles and determine capability of hardware. LMTS vendor, Beamhit, will perform technical testing to ensure system compatibility. Limited user test in a CONUS operational environment.

FY 2006 (Plans): Integration test in an OCONUS operational environment. Provide evaluation and test report. Procurement decision (projected 2nd Quarter).

	Service	FY 2004	FY 2005	FY 2006	FY 2007
Link-16, 11B, Management Integrator	Navy	0.000	0.536	0.480	0.000

This project will evaluate the Air Defense Systems Integrator (ADSI), developed by Advanced Programming Concepts/Ultra Electronics, for integration of systems and subsystems required to provide Datalink interoperability/capabilities to the Special Projects Aircraft. The Air Transportable Ruggedized (1/2 ATR) ADSI will provide a robust Link-16 and Link-11 Message Implementation Plan (MIP) and network provider communications channels ("J" Voice) required for battlefield operations.

FY 2005 Plans: Procure 2- ½ ATR Air Defense Systems Integrators and associated NRE designed for the SPA platform. These integrators will allow for a parallel developmental paradigm that will expedite the development of the Datalink requirements and provide Full Operating Capabilities (FOC) to the SPA platform.

FY 2006 Plans: Datalink Requirements (DLR) Integration and Test at APC with complete Zephyr Link system. Test implementation of Identification Friend or Foe (IFF) and SeaVue radar system that will enable SPA platform to achieve Track Quality greater than zero (TQ>0). This requirement will provide real time targeting information to battlefield commanders/decision makers. Test additional DLR postponed for FOC: Sea Vue Radar integration, Time Of Arrival/Time

Differential Of Arrival (TOA/TDOA), Tempest Test, NCTSI Certification/Test, JTIC Certification/Test

	Service	FY 2004	FY 2005	FY 2006	FY 2007
M16A2/M4 Training Replacement Bolt	Marine Corps	0.000	0.432	0.000	0.000

This project will evaluate the M16A2/M4 Training Bolt that will be capable to fire the Special Effects Small Arms Marking System (SESAMS) training cartridge. The USMC will test the training bolt candidate from Canada (SNC Technologies). A successful FCT will allow the Marine to fire, at short range, a low velocity marking ammunition in a Military Operations in Urban Terrain (MOUT) training operations.

FY 2005 Plans: Receive Foreign Test Data. Contract Preparation and Award. Test Planning conducted. Test Articles Received. Phase I Technical Testing at Naval Surface Warfare Center, Crane to safely determine that live 5.56 ammunition cannot be fired with the bolt. Phase 2 Operational Testing conducted 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.
FY 2006 (Plans): Procurement Decision.

	Service	FY 2004	FY 2005	FY 2006	FY 2007
Mini Synthetic Aperture Radar	Army	0.000	0.241	1.506	0.000

The Mini SAR is 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.

FY 2005 Plans: Conduct mechanical fit checks in the integration lab and ending with a defined flight test program. Integration Testing. Utilize a slow methodical approach to testing, verifying and validating the installation requirements to install the Mini SAR on the Shadow 200 TUAV. Conduct Operational Ground Testing. To the maximum degree possible all systems and sub-systems are exercised and tested to verify operations within normal parameters and no system incompatibilities exist. Main test are intersystem EMI/EMC checks and the engine run test where engine induced vibration effects are sought. Operational Flight Testing. System compatibilities are again verified prior to initiation of UAV Flight performance validation.

	Service	FY 2004	FY 2005	FY 2006	FY 2007
Multi-Spectral Camouflage Netting	Marine Corps	0.000	0.875	0.500	0.000

This project will test and evaluate a new 2-sided multi-spectral camouflage net from Israel (Fibrotex Ltd.), Canada (GMA Cover Corp) and Sweden (SAAB Barracuda LLC). A successful FCT will allow the Marine Corps to employ ground forces with “one net” that is capable of two different camouflage patterns. The result is a significant reduction in purchase quantity, cost, logistical transportation, and storage requirements while fielding the full camouflage capability in a much shorter time.

FY 2005 Plans: Receive Foreign Test Data. Contract Preparation & Award. Test Planning conducted. Test Articles Received. Lab Testing conducted at the Night Vision Lab, Ft. Belvoir, VA.
FY 2006 (Plans): Field Testing and Operational Assessment performed at White Sands Missile Range, New Mexico. Test Report provided by the Night Vision Lab, Ft. Belvoir.
FY 2007 (Plans): Close out Report furnished by PM NBCS, MARCORSYSCOM. Procurement Decision.

	Service	FY 2004	FY 2005	FY 2006	FY 2007
Next Generation Underwater Breathing Apparatus (NUBA)	Navy	0.000	0.492	0.450	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. This diver life support equipment is currently approved and in use by numerous NATO countries for underwater EOD MCM/UXO and NSW operations. Project benefit will be measured in enhanced diver safety, improved mission effectiveness, and increased interoperability with NATO/Coalition partners.

FY 2005 Plans: Procure NDI COTS items (Phase I) Technical Tests (magnetic signature, environmental, performance) Unmanned safety test and evaluation
FY 2006 Plans: Procure UBAs for manned testing (Phase II) In-water manned safety and performance test Operational Fleet Evaluation

	Service	FY 2004	FY 2005	FY 2006	FY 2007
Telementry Buoy for Underwater Communications (TBUCS)	Navy	0.000	0.516	1.072	0.600

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.

FY 2005 Plans: The first phase of TBUCS testing will involve lab testing the equipment to ensure that TBUCS meets system requirements before operational testing. This phase will include testing the communication algorithms for predicted ranges and depths that the submerged platform can maintain from the buoy and still communication effectively (this will help to create the Concept of Operations (CONOPS)). This phase will also include testing with surface, air, and space communication equipment to ensure interoperability.
FY 2006 Plans: This phase will test the TBUCS system in the operational environment. The initial portions of this phase will

place the TBUCS buoy in a controlled sea environment and allow for retrieval. The follow on stages of this phase will involve seeding areas of the open ocean with TBUCS buoys and testing the system in the open environment, which will require expendable test assets.

	Service	FY 2004	FY 2005	FY 2006	FY 2007
Weather Scout UAV *Congressionally directed concept investigation	Air Force	0.000	1.000	0.000	0.000

This project will test and evaluate the employment of a weather-sensing UAV developed by Aerosonde Pty Ltd of Australia for tropical cyclone and target area weather reconnaissance, and will evaluate the anticipated improvement in forecasting tropical cyclones and target area weather and decision-quality weather information. Current weather observation capabilities are limited in providing situational and resultant predictive battlespace awareness weather information required for commanders' operational risk management decisions, as well as for weapons selection and tactics.

FY 2005 Plans: Lease Test article, test and evaluate the system.
FY 2006 Plans: Complete data analysis and publish final report.

FY 2005 FCT Program Plans:

For FY 2005, the FCT program will continue testing activities on 54 projects executing $24.055 million in FY 2005 funding. The FY 2005 Proposal submission process was initiated in January 2004, with the final selection of 19 FY 2005 New Start Projects being determined in December 2004. FY 2005 funding totaling $12.778 million will support the initiation of these selections. The selected FY 2005 New Start projects were addressed in a formal notification letter submitted to Congress in November 2004.

C. (U) OTHER PROGRAM FUNDING Not Applicable.

D. (U) EXECUTION Not Applicable.