ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
6 - Management support	**0605605A - DOD High Energy Laser Test Facility**	**E97**

COST (In Thousands)	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate
E97 DOD HELSTF	17300	19505	16622	16404	16424	16976	2054

A. Mission Description and Budget Item Justification: The High Energy Laser Systems Test Facility (HELSTF) provides a one-of-a-kind, broad based high energy laser (HEL) test and evaluation capability which directly supports testing of laser variants of the Future Combat Systems (FCS). Specifically, HEL weapons will be part of the Extended Area Air Defense (EAAD) system, a key component of the Future Force supporting Full Dimensional Protection. HELSTF is part of the Deparment of Defense (DoD) Major Range and Test Facility Base (MRTFB) and supports Tri-Service HEL research and development and damage, vulnerability, propagation, and lethality laser testing as well as HEL weapon developmental and operational test and evaluation (DTE&OTE). The HELSTF's laser development support capabilities include an open-air HEL test range, a fully integrated laser support facility, an extensive array of fully instrumented test sites, full laser meteorological support, and an approved site for above-the-horizon dynamic HEL testing certified for predictive avoidance by the Laser Clearing House. HELSTF's location on White Sands Missile Range (WSMR) provides unparalleled testing flexibility because of WSMR's 3200 square miles of controlled land mass and 7000 square miles of controlled airspace. Additionally, WSMR has a wide variety of radar and optics facilities and HEL testing expertise that can support testing at HELSTF. HELSTF facilities include the Sea Lite Beam Director (SLBD), the Mid-Infrared Advanced Chemical Laser (MIRACL), the Large Vacuum Chamber (LVC) with associated Vacuum Test System (VTS), the Laser Device Demonstration (LDD), the 10KW Solid State Heat Capacity Laser (SSHCL) testbed, the Mobile Tactical High Energy Laser (MTHEL) static test site, and the Low Power Chemical Laser (LPCL). HELSTF supports the Pulsed Laser Vulnerability Test System and the MTHEL testbed system. This multiple use facility supports testing of laser effects for targets ranging from material coupon testing up through full-scale static and dynamic targets, explosive targets, and testing of targets in a simulated space environment. HELSTF has embarked on its own modernization to fully upgrade its mission control systems, develop state-of-the-art HEL diagnostic capabilities, data reduction, and a mobile HEL diagnostic test suite to support DTE and OTE for potential HEL weapons in the Army Future Force in all relevant combat environments. HELSTF will also develop a digitized scene generation capability, distributed training and testing capability, a live/virtual constructive test environment and open-architecture data links as part of the Army 21st Century Range. Another major upgrade will include a HEL System of Systems Testbed. This capability is critical for DTE and OTE since modern HEL weapons will be software driven to accommodate mass indirect fire raids. HELSTF plans further include a tactical-power level transportable work-horse laser testbed, to operate at a variety of HEL weapon lasing wavelengths. This modernization will create a more efficient and versatile HEL T&E facility, which will also benefit the development and testing of other Service materiel solutions using HEL technologies.

Accomplishments/Planned Program	FY 2005	FY 2006	FY 2007
Perform operation, maintenance and base operations support functions in support of the Army, Department of Defense and other agencies conducting high energy laser systems concept development studies and test and evaluation on candidate high energy laser weapon systems (Special Operations Command (SOCOM) Advanced Tactical Laser (ATL), Air Force Airborne Laser, and Navy HEL Low Aspect Target Tracking (HEL-LATT), other laser programs). Continue lethality testing experiments using 10KW flash lamp pumped SSHCL in accordance with the lethality and propagation test program and support Space & Missile Defense Command (SMDC) Technical Center lethality and propagation testing. Continue safety and control system upgrades to integrate other HEL technologies, and development of a mobile HEL diagnostic capability, the HEL System of Systems testbed and the transportable work-horse laser testbed. Repair and upgrade SLBD and MIRACL to support Navy HEL-LATT testing. Eliminate the existing backlog of maintenance and repair. Conduct a variety of tracking tests with SLBD to support Space and Missile Defense Command (SMDC), U.S. Air Force (USAF) and Missile Defense Agency (MDA) missions. HELSTF has integrated new hardware and software and conducted tracking missions in support of the HEL-LATT program. Additionally HELSTF supported HEL-LATT lethality testing at MIRACL power levels. HELSTF embarked on a significant upgrade of our mission computer and control systems and we built a beam transport system for propagating the 10 KW SSHCL	17300	19505	16622

to outdoor test areas.			
Total	17300	19505	16622

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B. Program Change Summary	FY 2005	FY 2006	FY 2007
Previous President's Budget (FY 2006)	15098	17688	18354
Current BES/President's Budget (FY 2007)	17300	19505	16622
Total Adjustments	2202	1817	-1732
Congressional Program Reductions		-86	
Congressional Rescissions		-197	
Congressional Increases		2100	
Reprogrammings	2202		
SBIR/STTR Transfer			
Adjustments to Budget Years			-1732

Change Summary Explanation: FY05 reprogramming funds upgrades to the mobile diagnostic system, aging laser, beam director, and test support facilities. These upgrades are critical in order to provide a modern, more maintainable HELSTF that supports both operational and developmental testing. FY06 includes a $2.1 million Congressional Add for HELSTF Upgrade.