OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2008

APPROPRIATION/ BUDGET ACTIVITY	PE NUMBER AND TITLE
RDTE, Defense Wide BA 06	**0605799D8Z - Force Transformation**

COST ($ in Millions)	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
Office of Force Transformation	50.985	20.407	20.701	21.361	21.679	22.022	22.362

A. Mission Description and Budget Item Justification: (U) This funding request supports the activities of Force Transformation under the Department of Defense Research & Engineering (DDR&E), Rapid Reaction Technology Office, in the Operational Experimentation Division. The request is intended to support transformational RDT&E activities. Within these activities, the office is expecting to sponsor groundbreaking research and prototyping, as well as operational experimentation in selected areas that are considered vital to the advancement of transformation within the OSD (DOD). Funding will be used to meld innovative warfighting concepts with cutting-edge technologies to help transform military operations by rapidly fielding experimental prototypes in anticipation of commanders urgent needs.

B. Program Change Summary	FY 2007	FY 2008	FY 2009
Previous President's Budget (FY 2008)	48.947	20.585	20.738
Current BES/President's Budget (FY 2009)	50.985	20.407	20.701
Total Adjustments	2.038	-0.178	-0.037
Congressional Program Reductions		-0.178	
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer	-1.371		
Other	3.409		-0.037

Change Summary Explanation: In FY 2007, GWOT supplemental funding ($3.409 million) has been displayed although it is actually for PE 0305125D8Z.

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

D. Acquisition Strategy Not applicable for this item.

E. Performance Metrics: Not Applicable.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2008

APPROPRIATION/ BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
RDTE, Defense Wide BA 06	**0605799D8Z - Force Transformation**	**P799**

COST ($ in Millions)	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
P799 Office of Force Transformation	50.985	20.407	20.701	21.361	21.679	22.022	22.362

A. Mission Description and Budget Item Justification: The Office of Force Transformation will catalyze transformational activities such as experimentation and exploration of the ramifications of new concepts and technologies and their combination. Activities include; research, testing, studies, analysis and development of transformation articles (prototype-like system surrogates) that will enable advanced experimentation for the co-evolution of concepts and technologies. Examples of such activities include: 1) the continued development and fielding of a prototype full-spectrum effects platform under the Wolf Pack initiative for use in urban operations that will have an integrated set of both lethal and non-lethal tactical capabilities, as well as a distributed network of advanced and highly mobile platforms, that provide options to the ground warrior beyond those currently available in Iraq, or any other urban engagement, giving the warrior the most effective means to engage across the mission spectrum. This concept/technology pairing attempts to create a new engagement model by shrinking the enemy_s engagement zone in both time and space while expanding ours to create maximum advantage; 2) the development of a transformational Tactical Relay Mirror System capability to re-direct laser energy for tactical applications/effects in which laser energy is re-directed from a ground-based laser through the use of a mirror-relay system carried by an airborne platform such as UAVs or airships. This system will extend the future use of lasers by ground commanders with a semi-persistent, ISR-strike platform that would perform all functions across the find-fix-track-target-engage (at the speed of light) - assess kill chain; 3) the development of a micro-satellite system that is responsive to the needs of the operational and tactical commander, which includes the critical design of a standardized bus for tactical satellite operations and the development of operationally responsive payload and a universal user interface in both the SIPR (DOD use) and NIPR (Interagency/NGO use) called VMOC (Virtual Mission Operations Center). VMOC will allow SIPR users to task an array of distant sensors and all users the ability to use real-time overhead products. 4) the conduct of technical performance trials and operational experimentation of the Stiletto advanced composite high-speed craft that addresses the military and interagency(USCG and Homeland Security) needs to develop engineering and operational solutions for effective littoral operations with distributed adaptive networked forces; and finally, 5) the exploration of an array of transformational capabilities addressing urgent personal countermeasures requirements, to include the development of optical augmentation systems capable of detecting various optical sensors, including human eyeballs, after which an integrated system could track these sensors followed by non-lethal through lethal engagement, thus providing the warfighter, particularly in the urban environment, with an ability to have the highest level of situational awareness.

B. Accomplishments/Planned Program:

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Wolf Pack Platoon	12.750	5.000	5.000

FY 2007 Accomplishments: The Wolf Pack project developed, integrated, and tested C4 architecture and vehicle subsystems to include UAVs, UGVs, multi-spectral sensors, lethal / non-lethal weapons, counter-IED, electronic warfare, acoustic shot detection and advanced maintenance diagnostic systems. Quarterly C2 experiments were conducted with USSOCOM and the Naval Postgraduate School. A draft concept of employment (to include cooperative engagement, dispersed operations and increased situational awareness below the current digital divide) was developed and war gamed with US Army and US Marine Corps stakeholders. Safety plans were developed, technical manuals prepared and operating forces trained on all systems. Final engineering integration and testing begins.

FY 2008 Plans: Testing on integrated systems is completed to rapid fielding standards of safe, suitable and sustainable. Vehicle platforms, subsystems and concepts of employment are delivered to

Marine Forces Pacific for two scheduled month-long, field experiments with operating forces at Twentynine Palms, California. Quarterly experiments with USSOCOM and the Naval Postgraduate School continue. Engineering and employment modifications are completed based on warfighter and experimental feedback. A Steering Group composed of US Army, US Marine, and Coalition combat developers and supporting S&T community representatives develop options for spin-out technology in support of current operational issues such as position location information and tactical biometrics as well as for programs like the Joint Light Tactical Vehicle and the Mine Resistant Ambush Protected Vehicle. Initial concept development, technology assessment and experimentation planning for Wolf Pack Platoon Spiral 2 begin, as well as a coordinated field experiment with the CASSANDRA JCTD.

FY 2009 Plans: Wolf Pack Spiral 2 continues, incorporating new technologies such as biometrics, evolving warfighter needs, and specific environments.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Operationally Responsive Space	29.719	2.000	

FY 2007 Accomplishments: During FY 2007, Operationally Responsive Space prepared the TacSat-1 ($1 million to NRL) satellite for launch scheduled May 07, but the launch was cancelled in order to evaluate potential modifications to the satellite and to allow time for the SpaceX Falcon launch vehicle to complete its testing. TacSat-2 ($0 to AFRL) launched Jan 07. TacSat-3 ($5 million to AFRL Congressional Plus Up) continued design and assembly. Force Transformation funding prototype satellite bus standards through a government-industry team. TacSat-4 ($15 million to NRL Congressional Plus Up) continued the design process into assembly. Launch is scheduled for Oct 08. VMOC & Operational Experimentation ($1.5 million to NRL) continued development as data portal and applications with TacSats, Stiletto and Wolf Pack. Payload Technology Development (FY06 $17 million to NRL): seven projects selected for below $500K category, four projects selected for $500K-$1M category. 3 projects selected for the $2-5 million category. Projects were jointly evaluated by AFRL, NRL, ARL. Satellite Technology/Standard Bus Development ($5million to NRL Congressional Plus Up): Continued development of standard interfaces for satellites and developed the business case for industry adoption of standards. Projects funded focus on bus technology as well as converting UAV/Aircraft sensors for space use.

FY 2008 Plans: Continue evaluating options for launching a modified version of the TacSat-1 satellite, while transitioning activities to the Joint Operationally Responsive Space Office at Kirltland AFB, NM. Complete all 15 Payload Technology Development projects (FY06 $17 million to NRL). Deliver Satellite Technology/Standard Bus Recommendations and Plan to the Joint ORS Office. Explore funding additional ORS technology development and risk reduction work, such as converting UAV/Aircraft sensors for space use. Develop plan to apply model for Satellite Technology/Standard Bus plan for other ORS enablers, such as launch vehicles and range activities.

FY 2009 Plans: ORS activities transition to the Joint ORS Program Office.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Tactical Relay Mirror Systems	4.610	1.050	

FY 2007 Accomplishments: During FY 2007, the prime contractor began assembly of the TRMS pallet. Coordination and design work continued to bring the completed pallet to the Starfire Optical Range at Kirtland AFB, Albuquerque, NM, where it will be suspended from a crane to simulate aerostat operations, and mated with an AFRL source laser (a 25 KW laser is in the process of being acquired) for the conduct of operational field testing. Key labor activities and milestones included payload software development, subcontractor and material hardware procurement oversight, and payload assembly, integration and test. Concurrently, a Boeing internal research and development activity to build a Dual Line of Sight (DLOS) test article was completed. The DLOS assembly will serve as a surrogate, scaled payload module (half scale of TRMS) for target acquisition, optical tracking, beacon tracking, and beam control software development in support of TRMS. TRMS continued wargame socialization with operational forces.

FY 2008 Plans: During FY 2008, funding from this PE will accelerate the TRMS project by approximately one year with advanced procurement of higher-risk parts. Additionally, further

wargaming will be conducted. By the end of FY 2008, the program should be postured to conduct high-power laser tests of the optical path. AFRL has fully embraced the TRMS project so funding for the TRMS project from this PE will be complete in FY 2008 with a service lab taking full ownership of the program.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Stiletto	3.906	2.640	2.681

FY 2007 Accomplishments: During FY 2007 the Stiletto project conducted naval architecture performance trials; continued to advance the design and validation of combatant craft design tools; conducted multiple operational experiments; participated in Trident Warrior 07; made hull, systems, and equipment upgrades to Stiletto; supported SOCOM experimentation; supported SOUTHCOM experimentation; and undertook collaborative efforts to support with the United States Naval Academy naval architecture and networking research. Continued supporting COCOM/Interagency experimentation.

FY 2008 and 2009 Plans: The Stiletto project will continue its operational experimentation through FY 2008 as well as the identification, design and execution of continued upgrades to Stiletto equipment and hull; continue supporting COCOM, Navy and USCG/HS experimentation. Specific experiments with SOUTHCOM are planned and opportunities with PACOM will be evaluated. The Stiletto project will evaluate its plans for FY 09 based upon its accomplishment, progress and opportunities presented during FY 2007 and FY 2008.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Griffin		1.700	2.041

Develop an unmanned surface vessel (USV) with excellent sea keeping capability, shallow draft, high speed, seven days endurance and a modular mission payload. USV with an _electronic keel_ and an experimental quadrimaran hull form which will be the platform to integrate previously tested technologies, sensors and weapon systems.
Objectives are to test quadrimaran hull; advance functionality of USVs; and integrate several unmanned systems.

FY 2008 Plans: Finalize design of USV with quadrimaran hull to builder, award contracts, and complete modeling and craft construction.

FY 2009 Plans: Sensors/weapon integration; operational test and evaluation. One full scale prototype will be ready for evaluation (1st Qtr FY 2009); training / CONOPS manuals to be delivered (FY 2009); and conduct operational testing with an operational command (FY 2009).

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Additional Programs		8.017	10.979

Additional programs to be funded will be assigned in FY 2008 and FY 2009 based on operational requirements and the technical maturity of emerging technologies.

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

D. Acquisition Strategy Not applicable for this item.

E. Major Performers Not applicable for this item.