

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)					DATE FEBRUARY 2008				
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 2			R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160401BB Special Operations Technology Development/S100						

COST (Dollars in Millions)	FY07	FY08	FY09	FY10	FY11	FY12	FY13	Cost to Complete	Total Cost
PE1160401BB	17.729	32.040	23.104	24.688	24.880	28.121	30.375	Cont.	Cont.
S100, SO TECHNOLOGY BASE DEV	17.729	32.040	23.104	24.688	24.880	28.121	30.375	Cont.	Cont.

A. Mission Description and Budget Item Justification: This program element enables USSOCOM to conduct studies and develop laboratory prototypes for applied research and advanced technology development, as well as leverage other organizations' technology projects that may not otherwise be affordable within MFP-11. Applying small incremental amounts of investments to DOD, other government agencies, and commercial organizations allows the Commander, USSOCOM to influence the direction of technology development or the schedule against which it is being pursued, and to acquire emerging technology for Special Operations Forces. This project provides an investment strategy for USSOCOM to link technology opportunities with USSOCOM capability deficiencies, capability objectives, technology thrust areas, and technology development objectives.

B. Program Change Summary:

	<u>FY07</u>	<u>FY08</u>	<u>FY09</u>
Previous President's Budget	17.730	21.282	23.135
Current President's Budget	17.729	32.040	23.104
Total Adjustments	-0.001	10.758	-0.031
Congressional Program Reductions		-0.209	
Congressional Increases		11.600	
Reprogrammings			
Other Program Adjustments			-0.031
SBIR Transfer		-0.633	

Funding:

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<p>FY07: Decrease (-\$0.001 million) is due to reprogramming action to correct Sectional 8106 taxes applied in initial distribution.</p> <p>FY08: Net increase (\$10.758) resulting from Congressional reduction that includes (-\$0.053 million) for Section 8097 and Section 8104 (-\$0.156 million). Other program adjustments include transfer to Small Business Innovative Research account (-\$0.633 million). And (\$11.600 million) for the following Congressional Adds:</p> <ul style="list-style-type: none"> - Pulsed Energy Projectile (\$1.000 million). - SOF Network – Configure Sharing and Storage (\$1.000 million). - Neckel Boron Coating (\$1.600 million). - Athena – Threat Signal Locator (\$1.000 million). - Advanced Multi-purpose Micro-Display System (\$1.000 million). - Flashlight Soldier-to-Soldier Combat ID System (\$2.000 million). - Improved Sensor System (\$2.000 million). - Foilage Penetrating Reconnaissance and Surveillance (\$2.000 million). <p>FY09: Decrease of (-\$0.31 million) is due to economic inflation adjustments.</p> <p>Schedule: None.</p> <p>Technical: None.</p>		

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Appropriation/Budget Activity
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Special Operations Technology Development/Project S100

Cost (\$ in millions)	FY07	FY08	FY09	FY10	FY11	FY12	FY13
SOF Technology Base Development	17.729	32.040	23.104	24.688	24.880	28.121	30.375
RDT&E Articles Quantity							

A. Mission Description and Budget Item Justification: This project conducts studies and develops laboratory prototypes for applied research and advanced technology development, as well as leverages other organizations' technology projects that may not otherwise be affordable within MFP-11. Applying small incremental amounts of investments to DOD, other government agencies, and commercial organizations allows the Commander USSOCOM to influence the direction of technology development or the schedule against which it is being pursued, and to acquire emerging technology for Special Operations Forces (SOF). This project provides an investment strategy for USSOCOM to link technology opportunities with USSOCOM capability deficiencies, capability objectives; technology thrust areas, and technology objectives. Requirements in these areas may be advertised to industry and government research and development agencies via broad area announcements and calls for white papers. Efforts include:

- **Intelligence Technologies.** Develop technologies that provide SOF with improved situational awareness and communications in all environments. Develop technologies to provide significant improvements to SOF's capability to accurately detect and track threats or targets. Exploit and demonstrate technologies that provide enhanced sensors and command and control. Develop technologies to provide new and improved capabilities in information operations and psychological operations.
- **Mobility Technologies.** Exploit and develop technologies to improve the performance and survivability, and reduce the detectability of SOF mobility assets. Exploit and develop technologies to provide SOF the capability to conduct ground, air, and sea mobility operations in denied areas. Exploit and develop technologies to enhance logistics support, reduce cost, and improve the performance of SOF mobility platforms.
- **Sensor Technologies.** Exploit and develop technologies to provide SOF with standoff capabilities for targeting and locating personnel and equipment. Exploit technologies to provide real-time active decision-making capabilities, increased situational awareness, improved multi-spectral sensors, and advanced processing and display capabilities. Exploit technologies that enhance logistics, reduce cost and enhance performance of SOF weapons and munitions. Exploit technologies to provide multipurpose, adaptable weapons applicable to SOF platform and missions.
- **Warrior Technologies.** Exploit and develop technologies to increase SOF's survivability and performance. Exploit technologies to improve the human endurance and sensory performance without interfering with normal sensory functions. Exploit and develop

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technologies to counter the threat of electro-optical devices--devices that detect human presence and enhance individual operator capabilities.

- Technology Studies. Conduct concept studies to explore/validate projects that support USSOCOM strategic capability guidance.
- Training Technologies. Develop technologies to meet critical SOF training capability objectives. Develop and apply software and hardware improvements for state-of-the-art training systems and equipment.
- Tagging, Tracking, and Locating (TTL) Technologies is a key element in the ability of the forces to find, fix, and finish targets in the Global War on Terrorism (GWOT). This effort invests in critical science and technology efforts to improve operational capabilities for TTL high value individuals and objects in support of the GWOT.

Additionally, these efforts were added by Congress in FY 2008:

- Pulsed Energy Projectile. Investigate application of laser in a counter-materiel role against UAV's.
- SOF Network-Centric Sharing and Storage. Develop secure data storage.
- Nickel Boron Coating for SOCOM Vehicles. Investigate anti-corrosive coating.
- Athena – Threat Signal Locator. Design, develop and demonstrate a modular capability to detect, locate and defeat combatant communications on the asymmetric battlefield.
- Advanced Multi-Purpose Micro Display System. Integrate highly efficient display component technology into several SOF applications.
- Flashlight Soldier-to-Soldier Combat ID System. Develop a flashlight soldier-to-soldier combat identification system.
- Improved Sensor System. Continue development of sensor package design for the Advanced Distributed Aperture system project.

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- Foliage Penetrating Reconnaissance and Surveillance System. Develop and evaluate a multi-sensor foliage penetrating reconnaissance and surveillance system,

B. Accomplishments/Planned Program

	FY07	FY08	FY09
Intelligence Technologies.	2.412	.512	1.043
RDT&E Articles Quantity			
<p>FY07 Continued development of FY06 efforts. Completed Antenna Enhancements project. Initiated TTL project to explore nanotechnology applications initiatives to TTL for SOF applications. Initiated C4 technology projects to address identified C4 science and technology capability gaps PSYOP AM Antenna and “Athena “ project to develop SOF mounted/dismounted direction finding/jamming capabilities.</p> <p>FY08 Continue development of FY07 efforts. Continue modular DF project. Initiates Intel technology projects to address identified Intel Science & Technology (S&T) capability gaps.</p> <p>FY09 Continues development of FY08 efforts. Initiates Intel technology projects to address identified Intel science and technology capability gaps. Continues to exploit, develop and demonstrate technologies that provide SOF with improved intelligence in all environments, the capability to accurately detect and track threats or targets, provides enhanced sensors and command and control, and continues investigations of science and technology focus areas.</p>			
	FY07	FY08	FY09
Mobility Technologies	3.866	3.443	3.311
RDT&E Articles Quantity			
<p>FY07 Continued development of FY06 efforts. Initiated follow-on studies and analyses and the investigation of new and existing technologies needed to replace the Mark V Special Operations Craft (MK V SOC). Completed Shock Mitigation for High Speed Boats. Initiated mobility technology projects to address mobility science and technology capability gaps: Sea, Air, Land Delivery Vehicle Nuclear Guided Missile Submarine (SDV SSGN) Vertical Launch project. Completed Small Versatile Maritime Mobility Craft project and transition to user community.</p> <p>FY08 Continue development of FY07 efforts. Initiate follow-on studies and Joint Capabilities Integration and Development System (JCIDS) support analyses needed to support a Mark V Special Operations Craft replacement requirements validation. Initiates mobility technology projects to address mobility S&T capability gaps, Joint Heavylift (JHL).</p> <p>FY09 Continues development of FY08 efforts. Continues to exploit technologies to improve the performance and survivability, and reduce the detection of SOF mobility assets. Continues to exploit and develops technologies to provide SOF the capability to conduct ground, air, and sea mobility operations in denied areas and continues investigations of science and technology focus areas. Continues to exploit and develop</p>			

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technologies to enhance logistics support, reduce cost and improve the performance of SOF mobility platforms.

	FY07	FY08	FY09
Sensor Technologies	0.900	0.819	1.043
RDT&E Articles Quantity			

FY07 Continued development of FY06 efforts. Continued Enhanced Hostile Detection Capability and Night Vision Windshield/Distributed Aperture System. Initiated sensor technology projects to address sensor science and technology capability gaps.
 FY08 Continue development of FY07 efforts. Continue investigations of science and technology focus areas. Continue Enhanced Hostile Detection Capability and Night Vision Windshield/Distributed Aperture System.
 FY09 Continues development of FY08 efforts. Continues to exploit technologies to provide SOF with standoff capabilities for targeting and locating personnel and equipment, enhancing sensors and situational awareness. Exploits technologies that enhance logistics, reduce cost and enhance performance of SOF sensors. Continues investigations of science and technology focus areas.

	FY07	FY08	FY09
Warrior Technologies	1.565	.512	
RDT&E Articles Quantity			

FY07 Completed color Night Vision Fusion (polarimetry) project.
 FY08 Continue Advanced Digital Multispectral Night Vision Goggle.
 FY09 Continue development of FY08 efforts. Continue to exploit technologies to provide the SOF warrior with enhanced force protection, weapons, and personal equipment.

	FY07	FY08	FY09
Technology Studies	.839	3.518	2.206
RDT&E Articles Quantity			

FY07 Initiated Ballistic Protection Required Capabilities Study for MH-47 Aircraft. Initiated follow-on studies and analyses and the investigation of new and existing technologies needed to replace the MK V SOC. Initiated Short Wave Infrared Radar (SWIR) Characterization Study.
 FY07 Initiated follow-on studies and analyses and the investigation of new and existing technologies needed to replace the MK V SOC.
 FY08 Initiate follow-on studies and JCIDS support analyses needed to support a MK V SOC replacement requirements validation. Continue to conduct concept studies to explore/validate projects that support SOF strategic capability gaps.

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FY09 Continues to conduct concept studies to explore/validate projects that support SOF strategic capability gaps.			
	FY07	FY08	FY09
Training Technologies	.787	1.524	1.867
RDT&E Articles Quantity			
<p>FY07 Complete Tactical Language Trainer.</p> <p>FY08 Complete Enhanced Display system for SAGIS trainer.</p> <p>FY09 Initiate training technology projects to address training Science & Technology capability gaps.</p>			
	FY07	FY08	FY09
Classified	2.000	1.997	2.086
RDT&E Articles Quantity			
<p>FY07 Details provided under separate cover.</p> <p>FY08 Details provided under separate cover.</p> <p>FY09 Details provided under separate cover.</p>			
	FY07	FY08	FY09
Tagging, Tracking, and Locating Technologies		8.480	11.548
RDT&E Articles Quantity			
<p>FY08 Specific objectives, priorities, and technical approaches are classified. Initiates projects from the USSOCOM/DDR&E TTL project database that exploit TTL relevant technologies (nanotechnology, biotechnology, and chemistry) to provide and demonstrate the maturity for the capabilities enhancements; enable very small packaging, functional elements, and increased endurance; enable very small sensor packages for object detection and identification, enhancement of biometric observables, and increased processing in small devices; and initiates new forms of communications, forward based and embedded processing; enhance long distant TTL; and increase communication range and network agility. Projects will include leveraging and cooperative efforts with DOD, other government agencies, and industry.</p> <p>FY09 Specific objectives, priorities, and technical approaches are classified. Continues projects to exploit nanotechnology, biotechnology, and chemistry for application to TTL systems. Initiates projects identified from the updated USSOCOM/DDR&E Roadmap and supports the Joint Chiefs of Staff TTL Quick Look Capability Assessment.</p>			

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		FY07	FY08	FY09
Close-In Layered Shield		2.193		
RDT&E Articles Quantity				
FY07 This initiative was a Congressional add and a follow-on to FY06 Angel Fire FCLAS project. Analyzed and prototyped active protection for rotary wing aircraft and vehicles from RPGs and other MANPAD type weapon systems.				
		FY07	FY08	FY09
Helios/Global Observer		2.193		
RDT&E Articles Quantity				
FY07 This initiative was a Congressional add and a follow on from FY06 for continued investigation and evaluation of alternative fuel propulsion systems for high altitude unmanned aerial systems.				
		FY07	FY08	FY09
Wearable Hyperspectral Imaging System		.974		
RDT&E Articles Quantity				
FY07 This initiative was a Congressional add. Minaturized hyperspectral imaging technologies into advanced micro-display for operator-borne applications providing the operator a significant advantage at night or in smoke.				
		FY07	FY08	FY09
Pulsed Energy Projectile			.974	
RDT&E Articles Quantity				
FY08 This initiative was a Congressional add. Investigate application of laser in a counter-materiel role against UAV's.				
		FY07	FY08	FY09
SOF Network-Centric Sharing and Storage			.907	
RDT&E Articles Quantity				
FY08 This initiative was a Congressional add. Develop secure data storage in support of multi-level and classification stateless networks.				

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	FY07	FY08	FY09
Nickel Boron Coating for SOCOM Vehicles		1.558	
RDT&E Articles Quantity			
FY08 This initiative was a Congressional add. Investigate coatings for military utility within Ground Vehicles to increase service life as application to support Breaching Operations, to investigate application on propellers to reduce cavitations, and to investigate applications as anti-corrosive coating.			
	FY07	FY08	FY09
Athena-Threat Signal Locator		.974	
RDT&E Articles Quantity			
FY08 This initiative was a Congressional add. Design, develop and demonstrate a modular capability to detect, locate and defeat combatant communications on the asymmetric battlefield.			
	FY07	FY08	FY09
Advanced Multi-Purpose Micro-Display System		.974	
RDT&E Articles Quantity			
FY08 This initiative was a Congressional add and a follow on to FY07 where the funding was in the S200 line. Integrate micro-display and miniature electronics heads-up displays..			
	FY07	FY08	FY09
Flashlight Soldier-to-Soldier Combat ID System		1.949	
RDT&E Articles Quantity			
FY08 This initiative was a Congressional add. Develop a flashlight soldier-to-soldier combat identification system.			
	FY07	FY08	FY09
Improved Sensor System		1.949	
RDT&E Articles Quantity			
FY08 This initiative was a Congressional add. Continue development of sensor package design for the Advanced Distributed Aperture system project.			

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	FY07	FY08	FY09
Foliage Penetrating Reconnaissance and Surveillance		1.950	
RDT&E Articles Quantity			

FY08 This initiative was a Congressional add. Develop and evaluate a multi-sensor foliage penetrating reconnaissance and surveillance system.

C. Other Program Funding Summary: None.

D. Acquisition Strategy. N/A.