RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 2006
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160403BB Special Operations Aviation Systems Advanced Development/Project SF100

COST (Dollars in Millions)	FY05	FY06	FY07	FY08	FY09	FY10	FY11		Cost to Complete	Total Cost
PE1160403BB	89.951	102.840	83.704	59.900	41.597	35.483	30.653		Cont.	Cont.
SF100, Special Operations Aviation Systems Advanced Development	89.951	102.840	83.704	59.900	41.597	35.483	30.653		Cont.	Cont.

A. Mission Description and Budget Item Justification: This project provides for the investigation, evaluation, demonstration and integration of current and maturing technologies for Special Operations Forces (SOF)-unique aviation requirements. Timely application of SOF-unique technology is critical and necessary to meet requirements in such areas as: Low Probability of Intercept/Low Probability of Detection radar; digital terrain elevation data and electronic order of battle; digital maps; enhanced situational awareness; near-real-time intelligence to include data fusion; threat detection and avoidance; electronic support measures for threat geo location and specific emitter identification; navigation; target detection and identification technologies; aerial refueling; and studies for future SOF aircraft requirements.

B. Program Change Summary:

	FY2005	FY2006	FY2007
Previous President's Budget	82.398	104.330	85.032
Current President's Budget	89.951	102.840	83.704
Total Adjustments	7.553	-1.490	-1.328
Congressional Program Reductions		-1.490	
Congressional Rescissions			
Congressional Increases			
Reprogrammings	7.553		-1.328
SBIR Transfer			

Funding:

FY05

- Net increase of ($7.553M) is a result of reprogramming from PE1160421BB, Special Operations CV-22 Development (-$9.197M), from PE1160404BB, SO Tactical Systems Development (-$2.992M) to PE1160408BB SOF Operational Enhancements (+.819M), and PE 1160426BB, ASDS Advanced Development (+3.817M).

FY06

- Congressional reductions include (-$1.038M) for global 1% reduction and (-$0.452M) for Section 8125 reduction.

FY07

- Net decrease (-$1.328M) includes:
- Increased funds (+$1.172M) for inflation rate changes.
- Decreased funds (-$2.500M) reprogrammed to support Command's higher priorities.

Schedule: None.

Technical: None.

	Exhibit R-2a, RDT&E Project Justification	Date: FEBRUARY 2006
Appropriation/Budget Activity RDT&E BA # 7	Aviation Systems Advance Development/Project SF100	

Cost ($ in millions)	FY05	FY06	FY07	FY08	FY09	FY10	FY11
Aviation Sys Adv Dev	89.951	102.840	83.704	59.900	41.597	35.483	30.653
RDT&E Articles Quantity							

A. Mission Description and Budget Item Justification: This project provides for the investigation, evaluation, demonstration and integration of current and maturing technologies for Special Operations Forces (SOF)-unique aviation requirements. Timely application of SOF-unique technology is critical and necessary to meet requirements in such areas as: Low Probability of Intercept/Low Probability of Detection (LPI/LPD) radar; digital terrain elevation data and electronic order of battle; digital maps; enhanced situational awareness; near-real-time intelligence to include data fusion, threat detection and avoidance; electronic support measures for threat geolocation and specific emitter identification; navigation, target detection and identification technologies; aerial refueling; and studies for future SOF aircraft requirements.

- Aviation Engineering Analysis. Provides a rapid response capability to support SOF fixed wing aircraft. The purpose is to correct system deficiencies, improve asset life, and enhance mission capability through the means of feasibility studies and engineering analyses. This sub-project provides the engineering required to improve the design and performance integrity of the aircraft support systems, sub-systems, equipment, and embedded computer software as they relate to the maintenance, overhaul, repair, quality assurance, modifications, materiel improvements and service life extensions.

- Common Avionics Architecture for Penetration (CAAP). This program is joined with the USAF C-130 Avionics Modernization Program (AMP). CAAP provides LPD navigation for MC-130 E/H/P and off-board enhanced situational awareness (ESA), large color displays and a SOF processor for AC-130H/U and MC-130 E/H/P.

- On-Board Enhanced Situational Awareness System (OBESA). This program continues development of OBESA, which consolidates threat data from on and off-board sensors into a single coherent image to the crew. OBESA includes the Below Line-Of-Sight Electronic Support Measures (BLOSEsM) processing software. BLOSEsM is an advanced receiver system which provides geo-location data on threats that are below the line of sight of the current SOF threat warning systems. OBESA will be integrated on SOF C-130s, CV-22s, MH-60s and MH-47s.

- SOF K-band Terrain Following/Terrain Avoidance (TF/TA) Radar. Initiates development of a SOF common K-band LPI/LPD radar to defeat advanced passive detection threat while maintaining ability to fly safe TF. This radar is targeted for use on all MC-130Hs, MH-47Gs, MH-60Ms & CV-22 aircraft.

- EC-130 Obsolescence. This program provides for development and design to resolve special mission equipment obsolescence and vanishing vendor issues.

- MC-130H Aerial Refueling (MCAR). Provides 20 MC-130H Combat Talon II aircraft with the capability to air refuel SOF rotary wing aircraft and CV-22. This capability will extend the range of rotary wing and CV-22 aircraft operating in politically sensitive/denied airspace. Elements of the air refueling system include non-developmental item aerial refueling pods and enlarged paratroop door windows.

B. Accomplishments/Planned Program

	FY05	FY06	FY07	
Aviation Engineering Analysis	9.352	8.081	4.348	
RDT&E Articles Quantity				

FY05 Continued the development to resolve ALLTV deficiencies for a Combat Mission Needs Statement.
FY06 Develop a replacement for sensor obsolescence issue.
FY07 Conduct engineering studies and ID replacement for SOF fixed wing avionics and sensors.

	FY05	FY06	FY07	
Common Avionics Architecture for Penetration (CAAP)	65.276	65.393	38.831	
RDT&E Articles Quantity				

FY05 Continued accelerated APN-241 and off-board ESA development. Specific activities: AMP/CAAP preliminary and critical design reviews; Gunship software specification review; and Test Readiness Review (TRR) for Combat Talon I preliminary TF Developmental Test & Evaluation (DT&E). Due to the $18.5M reduction in FY05, award of the SOF baseline configuration update contract modifications were delayed a total of six months.
FY06 The C-130 AMP/CAAP program tests the Block 2 hardware and software in the Systems Integration Laboratory (SIL) in preparation for first flight of the DT&E configuration for the MC-130E/H/P Combat Talon aircraft. Additionally, the CAAP ESA capability will complete its SIL evaluations to support a Test Readiness Review. CAAP ESA goes on all AC/MC-130 aircraft. In parallel, design and development for the baseline configuration update to reflect post-contract award avionic modifications (Block 10) progresses.
FY07 Flight testing continues for TF performance at low levels and against passive detection threats. The interaction between CAAP LPD TF and CAAP ESA threat response (in particular, route re-planning,) will be evaluated in flight.

	FY05	FY06	FY07	

On-Board ESA	13.300	8.045	11.181	
RDT&E Articles Quantity				

FY05 Continued development of BLOSEsM to include engineering and integration of system components. Initiated planning for technology demonstration flight test of BLOSEsM hardware and software.
FY06 Completes final laboratory integration and test of BLOSEsM components including Integrated Processor threat correlation, fusion, and display software; begin initial installation of BLOSEsM hardware/software components into test aircraft.
FY07: Perform aircraft integration of BLOSEsM on MC-130 flight test aircraft. Conduct MC-130 BLOSEsM system flight test. Provide BLOSEsM system transition documentation to USSOCOM to support OBESA legacy APR-46 system replacement on AC/MC-130s.

	FY05	FY06	FY07	
EC-130 Equipment Obsolescence	.642			
RDT&E Articles Quantity				

FY05 Developed and designed improvements to resolve special mission equipment obsolescence.

	FY05	FY06	FY07	
SOF K-band TF/TA Radar		21.321	29.344	
RDT&E Articles Quantity				

FY06 Radar technology demonstration development began in Project D615 and was transferred to this project beginning in FY06 to develop a SOF common TF/TA radar. Continue radar technology risk reduction activities in preparation for an FY07 System Design and Development (SDD) start. This is a SOF common K-band TF/TA radar to defeat advanced passive detection threat while maintaining ability to fly safe TF. This radar is targeted for use on all MC-130H , MH-47G, MH-60M and CV-22 aircraft.
FY07 Start development (SDD contract award) of SOF common K-band TF/TA radar. Specific activities include hardware and software development, aircraft integration design, and initiation of developmental test plans for MH-47G platform.

	FY05	FY06	FY07	
MC-130H Aerial Refueling	1.381			
RDT&E Articles Quantity				

FY05 Continued development activities

C. Other Program Funding Summary:

	FY05	FY06	FY07	FY08	FY09	FY10	FY11	To Complete	Total Cost
Proc, C-130 Mods	52.281	63.838	49.763	81.993	64.213	96.974	108.832	Cont.	Cont.

D. Acquisition Strategy :

- Aviation Engineering Analysis. Continue engineering analysis activities to correct system deficiencies, improve asset life, and enhance mission capability of SOF fixed-wing aircraft avionics and sensors.

- CAAP. Develop a common technical solution satisfying fixed wing requirements for penetration missions. CAAP is being accomplished in conjuction with the USAF C-130 Avionics Modernization Program (AMP).

- OBESA. Leverage current technology developed and demonstrated in the Air Force Research Lab Special Threat Awareness Receiver Transmitter Advanced Technology Demonstration to provide enhanced threat awareness to SOF aircrews.

- SOF K-band TF/TA Radar. Conducted competition and selected two contractors to conduct radar technology demonstrations. At the conclusion of these risk reduction activities, a second full and open competition will be conducted to select a vendor for the SDD phase. An SDD acquisition strategy will be implemented using the MH-47G as the lead platform.

- EC-130 Obsolescence. Initiated a special mission equipment program via a pre-competed contract to identify obsolete and vanishing vendor parts replacements, maximizing use of commercial off-the-shelf and non-developmental items.

- MCAR. Integrated a non-developmental item aerial refueling system onto MC-130H Talon II aircraft. The first phase of this program was Foreign Comparative Testing of the MK 32B-902E Aerial Refueling pod. Phase II development of aircraft integration and production installations were awarded on a pre-competed contract with Boeing, Ft. Walton Beach, FL.

Exhibit R-3 COST ANALYSIS						DATE: FEBRUARY 2006					
APPROPRIATION / BUDGET ACTIVITY RDT&E DEFENSE-WIDE / 7			Special Operations Aviation Systems Advanced Development/PE1160403BB Aviation Systems Advance Development/SF100								
Actual or Budget Value ($ in millions)											
Cost Categories (Tailor to WBS, or System/ Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	Budget Cost FY06	Award Date FY06	Budget Cost FY07	Award Date FY07			To Complete	Total Program
Primary Hardware Development											
CAAP	C/CPAF	Boeing, Long Beach, CA	174.355	65.393	Various	38.831	Various			4.577	283.156
Award Fees			2.081								2.081
MC-130 Air Ref	CPAF	Boeing, Ft. Walton Beach, FL	36.369								36.369
Joint K-band TF/TA Radar	TBD	TBD		21.321	Various	29.344	Various			116.683	167.348
OBESA	CPIF	Northrop Grumman, Dayton, Ohio	43.292	8.045	Various	11.181	Various			23.928	86.446
Subtotal Product Dev			256.097	94.759		79.356				145.188	575.400
Remarks:											
Development Support Engineering/Studies											
Aviation Engineering Analysis	Various	Various	4.989	8.081	Various	4.348	Various			22.445	39.863
Subtotal Spt			4.989	8.081		4.348				22.445	39.863
Remarks:											
Total Cost			261.086	102.840		83.704				167.633	615.263
Remarks:											

Exhibit R-4, Schedule Profile		Date: FEBRUARY 2006
Appropriation/Budget Activity RDT&E/7	Program Element Number and Name PE1160403BB/Special Operations Aviation Systems Advanced Dev	Project Number and Name SF100/Aviation System Advance Development

Fiscal Year	2005				2006				2007				2008				2009				2010				2011			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Aviation Engineering Analysis - System Design Development																												
C-130 CAAP/USAF AMP Development/Test																												
MC-130H Aerial Refueling Dev/Integration/Test								△																				
OBESA																												
Joint K-band Terrain Following/Terrain Avoidance Radar Development/Test		△																										

Exhibit R-4a, Schedule Profile		Date: FEBRUARY 2006						
Appropriation/Budget Activity RDT&E/7	Program Element Number and Name PE1160403BB/Special Operations Aviationl Systems Adv Dev	Project Number and Name Project SF100/Aviation Systems Advance Development						
Schedule Profile	FY2005	FY2006	FY2007	FY2008	FY2009	FY2010	FY2011
Aviation Engineering Analysis - System Design Development	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q
C-130 CAAP/USAF AMP Development/Test	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q
MC-130H Aerial Refueling Dev/Integration/Test	1-4Q	1-4Q					
OBESA	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q
Joint Terrain Following/Terrain Avoidance Radar Development/Test	2-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q