

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification									Date: February 1999	
APPROPRIATION/BUDGET ACTIVITY RESEARCH, DEVELOPMENT, TEST & EVALUATION, DEFENSE-WIDE, BUDGET ACTIVITY 4					R-1 ITEM NOMENCLATURE PHYSICAL SECURITY EQUIPMENT PE 0603228D8Z					
COST (\$ in Millions)	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to Complete	Total Cost
Total PE Cost	17.801	25.465	37.107	36.201	36.383	36.729	37.370	38.029	CONTINUING	CONTINUING
Force Protection COTS	1.624	6.065	15.607	14.201						
Tactical Automated Security	1.320	2.300	2.560	1.875						
Weapon Storage Area	2.068	2.400	2.665	3.525						
MDARS-I	2.201									
MDARS-E	1.903	5.500	4.890	5.590						
WSS	1.800	1.800	1.950	1.650						
EDE	0.300	0.900	1.250	1.750						
SPS	0.900	1.200	1.350	1.150						
Locks, Safes, Vaults	1.300	1.100	1.450	1.450						

A. Mission Description and Budget Item Justification. This program is a budget activity level 4 based on the demonstration/ validation activities ongoing within the program. The purpose of this program is to develop physical security equipment (PSE) systems and to safeguard DoD acquisition information for all DoD components, to include Force Protection. This program supports the protection of nuclear weapons, tactical and nuclear weapons systems, DoD personnel and DoD weapon systems. Funding for critical RDT&E security improvements within service channels has fluctuated widely over the years and prompted the consolidation of the Services and former Defense Special Weapons Agency (DSWA) PSE RDT&E funds into this single OSD controlled program element. This program was originally formed by the Congressional consolidation of the three Services and the former DSWA RDT&E PSE budget submissions for FY 1989. The funds are used to provide PSE RDT&E for individual Service and joint PSE requirements. The PSE program is organized so that an ongoing DoD-coordinated Joint Action Group, consisting of Army, Navy, Air Force, and Defense Threat Reduction Agency (DTRA) representatives monitor, direct, and prioritize potential and existing PSE programs. With few exceptions, each Service sponsors RDT&E efforts for technologies and programs, which have multi-service applications. In several cases, applications are unique to only one service. The funds are also employed to evaluate exploratory development of Physical Security Equipment. This program element supports the Army's advanced and engineering development of Interior Detection, Exterior Detection, Security Lighting, Security Barriers and Security Display Units. In a like manner, the program element also supports the Air Force's PSE RDT&E effort in the area of Exterior Surveillance, Entry Control and Airborne Intrusion. Finally, the program supports Navy RDT&E efforts in the areas of Shipboard Security, Waterside Security, Explosive Detection, Locks and anti-compromise and emergency destruction of classified material equipment. Concerns regarding the protection of DoD weapon systems acquisition information at DoD

Exhibit R-2, RDT&E Budget Item Justification	Date: February 1999
---	------------------------

RDT&E facilities has led to an expanded role for this Program Element since FY 1995. Beginning with FY 1997, this PE includes funding for Force Protection Commercial-Off-The-Shelf (FP COTS) evaluation and testing, which has received focus since the 1996 Khobar Towers bombing incident. The FP COTS testing applies to all available technologies, which are considered effective for DoD use.

OTHER PROGRAMS

(U) FY 1998 Accomplishments

DELAY-DENIAL (SABER 203) (1.100 million)

- Conduct Saber 203 Initial Operational Test & Evaluation
- Continue Hindering Adversaries with Less-than lethal Technology (HALT) Technological demonstration project
- Conduct detailed design review and demonstration for potential Military/Civilian users

HIGH VALUE ITEM SECURITY (HVISS) PHASE II (RFID) (0.050 million)

- Prepared/released RFID Broad Area Announcement (BAA) for FY99 award
- Continued Concept Exploration

PLATOON EARLY WARNING DEVICE II (PEWD II) (0.435 million)

- Initiated market investigation
- Evaluated candidate NDI/COTS Systems including Air Force TASS to determine requirement shortfalls

TECHNOLOGY BASE (2.800 million)

- Completed and demonstrated prototype hardware for the Advanced Exterior Sensor project, the Millimeter Wave Data Link (Exterior), and the Wireless and Self-Powering Sensor. In addition, continued work on the improved laser diode, miniaturized radio frequency tag, underwater security vehicle with acoustic guidance, sonic denial systems, and an acoustic detection and classification sensor.

(U) FY 1999 Plans

DELAY-DENIAL (SABER 203) (0.500 million)

- Transition SABER 203 to Hinder Adversaries with less than Lethal Technology (HALT) Eye Safe at the Aperture (ESATA)
- Transition Laser Diode Improvements Program from DTRA to USAF

Exhibit R-2, RDT&E Budget Item Justification

Date:

February 1999

HIGH VALUE ITEM SECURITY SYSTEM (HVISS) PHASE II (RFID) (0.200 million)

- Prepare/release RFID BAA proposal
- Prepare BTA
- Award BAA

ELECTRONIC TRIP FLARE (0.200 million)

- Conduct MS/MI
- Conduct Concept Exploration
- Prepare/release BAA proposal

PLATOON EARLY WARNING DEVICE II (PEWD II) (0.300 million)

- Complete Market Investigation/TASS determination
- Conduct Technical Feasibility Testing
- Develop Program Management Plan

TECHNOLOGY BASE (3.000 million)

- Complete and demonstrate prototype hardware for the improved laser diode, miniaturized radio frequency tags, the underwater security vehicle with acoustic guidance and the acoustic detection and classification sensor systems. In addition, continue the detection on the move project, the millimeter wave data link (interior), the sonic denial project, and the photoneutron probe for the detection of explosives and nuclear material. If funding is available, initiate a project for the fluorescence detection of explosives, a targeting classifying sensor, and develop a force protection sensor selector.

(U) FY 2000 Plans

DELAY-DENIAL (HINDER ADVERSARIES WITH LESS THAN LETHAL TECHNOLOGY [HALT]) (0.775 million)

- Initiate Laser Diode Improvements qualification, demonstration and test program

HIGH-VALUE ITEM SECURITY SYSTEM (HVISS) PHASE II (RFID) (0.260 million)

- Prepare COEA
- Conduct Technical Feasibility Testing

Exhibit R-2, RDT&E Budget Item Justification	Date: February 1999
<p>ELECTRONIC TRIP FLARE (0.850 million)</p> <ul style="list-style-type: none"> • Prepare/release BAA • Develop draft Specification and RFP components for EMD/Production Contract • Conduct Technical Feasibility Testing <p>PLATOON EARLY WARNING DEVICE II (PEWD II) (0.500 million)</p> <ul style="list-style-type: none"> • Complete Concept Formulation Package • Develop logistics concept • Develop RFP • Develop Milestone I/II IPR Package <p>TECHNOLOGY BASE (3.000 million)</p> <ul style="list-style-type: none"> • Continue the fluorescence detection of explosives project, the Intruder Detection System from an external robotics platform and complete the development of a force protection sensor selector. In addition, initiate projects to evaluate the capability to improve the situational awareness of security personnel through coordinated task execution with robotic sensor systems, improve video motion detection for tactical surveillance sensors, a portable vehicle explosion detection system, as well as a remote explosive detection system. <p>(U) <u>FY 2001 Plans</u></p> <p>DELAY-DENIAL (HINDER ADVERSARIES WITH LESS THAN LETHAL TECHNOLOGY [HALT]) (0.600 million)</p> <ul style="list-style-type: none"> • Transition Laser Countermeasures Study from DTRA and establish EMD program <p>HIGH-VALUE ITEM SECURITY SYSTEM (HVISS) PHASE II (RFID) (0.160 million)</p> <ul style="list-style-type: none"> • Conduct Milestone I/II In-Process Review • Release EMD RFP, conduct EMD Source Selection <p>ELECTRONIC TRIP FLARE (0.750 million)</p> <ul style="list-style-type: none"> • Conduct MS I/II In-Process Review • Release EMD RFP, conduct EMD Source Selection • Conduct Technical Feasibility Testing <p>PLATOON EARLY WARNING DEVICE II (PEWD II) (0.500 million)</p> <ul style="list-style-type: none"> • Conduct MS I/II In-Process Review • Release EMD RFP, conduct EMD Source Selection 	

Exhibit R-2, RDT&E Budget Item Justification					Date:			
<ul style="list-style-type: none"> Conduct Technical Feasibility Testing 					February 1999			
TECHNOLOGY BASE (3.000 million)								
<ul style="list-style-type: none"> Continue to manage projects under the Security Concepts Development, Advanced Sensors, Mobile Platforms, Advanced Storage and Transportation and Waterside Security programs as defined by the Services. Evaluate Commercial-off-the-shelf (COTS) equipment, to determine the potential to meet the needs of the Services. 								
B. <u>Program Change Summary</u> (\$ million)								
	<u>FY1998</u>	<u>FY1999</u>	<u>FY2000</u>	<u>FY2001</u>	<u>Total Cost</u>			
Previous President's Budget	17.939	31.792	31.727	30.814	Continuing			
Appropriated Value								
Adjustments to Appropriated Value								
a. Congressionally Directed Appropriation Reduction								
b. Congressionally Directed Undistributed Reduction								
c. OSD Directed Undistributed Reduction	(0.138)	(6.327)	(0.620)	(0.613)				
Current Budget Submit/President's Budget	17.801	25.465	37.107	36.201	Continuing			
Change Summary Explanation:								
Funding:	N/A							
Schedule:	N/A							
Technical:	N/A							
C. <u>Other Program Funding Summary</u>								
	<u>FY1998</u>	<u>FY1999</u>	<u>FY2000</u>	<u>FY2001</u>	<u>FY2002</u>	<u>FY2003</u>	<u>FY2004</u>	<u>Compl</u>
<u>Cost</u>								
Procurement Line P-1 No(s) - USAF	0.300	1.000	1.000	1.000	1.000	1.000	TBD	TBD
Milcon Project No(s) - N/A								
Related RDT&E: - N/A								
D. <u>Acquisition Strategy:</u> Delay-Denial (SABER 203) and Hinder Adversaries with less than Lethal Technology (HALT) will utilize existing DoD or DOE contract vehicles								

Exhibit R-2, RDT&E Budget Item Justification		Date: February 1999			
E. <u>Schedule Profile</u>					
Fiscal Year actual and planned events:					
	FY1998	FY1999	FY2000	FY2001	
Acquisition Milestones					
SABER 203		MS III			
HALT		MS II	MSIII		
HVISS				MSI/II	
PEWD II				MSI/II	
ETF				MSI/II	
Engineering Milestones					
N/A					
T&E Milestones					
SABER 203	IOT&E				
HALT		QT&E			
HVISS			TFT		
PEWD II				TFT	
ETF				TFT	
Contract Milestones					
HVISS		BAA Awd			
ETF			BAA Awd		

UNCLASSIFIED

Exhibit R-2a, RDT&E Project Justification									Date:		
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NAME AND NUMBER					
RDT&E, DEFENSE WIDE, BUDGET ACTIVITY 4			PE 0603228D8Z			FORCE PROTECTION (FP) COTS EQUIPMENT EVALUATION AND INTEGRATION					
Cost (\$ in Millions)	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY2005	Cost to Complete	Total Cost	
FP COTS	1.624	6.065	15.607	14.201					CONT	CONT	
RDT&E Articles Qty											
<p>A. <u>Mission Description and Budget Item Justification.</u> The DoD Force Protection Commercial-Off-The-Shelf (COTS) evaluation and integration project identifies and evaluates commercial systems and equipment that have potential for solving critical Force Protection problems. Equipment is tested in laboratory and operational settings to determine its suitability for a wide range of Force Protection applications. These include applications in nuclear security, aircraft flight lines, personnel facilities and resource protection. Products that are identified as having military value, are made available for use by incorporating them into existing or new programs. Current emphasis is on products that provide day/night all-weather detection/surveillance, sniper location and non-lethal defensive capability. Planned testing will be accomplished at the established DoD Test Facility at Eglin AFB FL.</p> <p>(U) <u>FY 1998 Accomplishments</u></p> <ul style="list-style-type: none"> • Published User's Guide of Commercially available Non Developmental Items for Force Protection uses • Updated methodology and published evaluation and test schedule for FY 1999 <p>(U) <u>FY 1999 Plans</u></p> <ul style="list-style-type: none"> • Perform scheduled FY 1999 test and evaluations of selected COTS equipment/systems • Conduct Force Protection Equipment Demonstration (3-6 May, 1999 at MCB Quantico, VA) • Publish appropriate reports • Update a User's Guide of Commercially available Non Developmental Items for Force Protection uses • Update methodology and publish test and evaluation schedule for FY 2000 <p>(U) <u>FY 2000 Plans</u></p> <ul style="list-style-type: none"> • Perform scheduled FY 2000 test and evaluations of selected COTS equipment/systems • Publish appropriate reports. 											

<p align="center">Exhibit R-2a, RDT&E Project Justification</p>	<p>Date: February 1999</p>					
<ul style="list-style-type: none"> • Update the User's Guide of Commercially available Non Developmental Items for Force Protection uses • Update methodology and publish test and evaluation schedule for FY 2001 <p>(U) <u>FY 2001 Plans</u></p> <ul style="list-style-type: none"> • Perform scheduled FY 2001 test and evaluations of selected COTS equipment/systems • Conduct Force Protection Equipment Demonstration • Publish appropriate reports • Update the User's Guide of Commercially available Non Developmental Items for Force Protection uses • Update methodology and publish test and evaluation schedule for FY 2002 <p>B. Other Program Funding Summary</p> <p>C. Acquisition Strategy: Identify available government contracts or commence action to competitively awarded delivery order contracts.</p> <p>D. Schedule Profile: Fiscal Year actual and planned events:</p> <table border="0" style="margin-left: 200px;"> <tr> <td></td> <td style="text-align: center;">FY 1998</td> <td style="text-align: center;">FY 1999</td> <td style="text-align: center;">FY 2000</td> <td style="text-align: center;">FY2001</td> </tr> </table> <p>Acquisition Milestones</p> <p>Engineering Milestones</p> <p>T&E Milestones</p> <p>Contract Milestones</p>			FY 1998	FY 1999	FY 2000	FY2001
	FY 1998	FY 1999	FY 2000	FY2001		

UNCLASSIFIED

Exhibit R-3 Cost Analysis (page 1)									Date: February 1999			
RDT&E, DEFENSE-WIDE BUDGET ACTIVITY 4			PROGRAM ELEMENT PE 0603228D8Z						FORCE PROTECTION COTS			
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total 1998 Cost	1999 Cost	1999 Award Date	2000 Cost	2000 Award Date	2001 Cost	2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development						2.900		2.900				
Ancillary Hardware Development						0.500		0.500				
Systems Engineering						0.400		0.400				
Licenses												
Tooling												
GFE						0.250		0.250				
Award Fees												
Subtotal Product Development						4.050		4.050		CONT	CONT	
Remarks:												
Development Support						0.250		0.250				
Software Development												
Training Development						0.250		0.250				
Integrated Logistics Support												
Configuration Management						0.050		0.050				
Technical Data						0.150		0.150				
GFE												
Subtotal Support						0.700		0.700		CONT	CONT	
Remarks												

UNCLASSIFIED

Exhibit R-3 Cost Analysis (page 2)										Date: February 1999		
RDT&E, DEFENSE-WIDE BUDGET ACTIVITY 4				PROGRAM ELEMENT PE 0603228D8Z						FORCE PROTECTION COTS		
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total 1998 Cost	1999 Cost	1999 Award Date	2000 Cost	2000 Award Date	2001 Cost	2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation				1.353		1.250		1.250				
Operational Test & Evaluation			1.366	3.500		8.532		7.217				
Tooling												
GFE												
Subtotal T&E			1.366	4.853		9.782		8.467		CONT	CONT	
Remarks												
Contractor Engineering Support			0.158	0.804		0.685		0.616				
Government Engineering Support			0.080	0.348		0.340		0.318				
Program Management Support												
Program Management Personnel												
Travel			0.020	0.060		0.050		0.050				
Labor (Research Personnel)												
Miscellaneous												
Subtotal Management			0.258	1.212		1.075		0.984		CONT	CONT	
Remarks												
Total Cost			1.624	6.065	[1]	15.607	[1]	14.201	[1]			
Remarks [1] On going program to demonstrate and document availability of COTS equipment for force protection missions												

Exhibit R-2a, RDT&E Project Justification									Date:	
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NAME AND NUMBER				
RDT&E, DEFENSE WIDE, BUDGET ACTIVITY 4			PE 0603228D8Z			TACTICAL AUTOMATED SECURITY SYSTEM (TASS)				
Cost (\$ in Millions)	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY2005	Cost to Complete	Total Cost
TASS	1.320	2.300	2.560	1.875					CONT	CONT
RDT&E Articles Qty										
<p>A. <u>Mission Description and Budget Item Justification.</u> The Tactical Automated Security System (TASS) originally an Air Force and now DoD program is an ongoing effort to develop an integrated portable relocatable security system to provide Force Protection capability for personnel, dispersed assets, fixed base facilities and Air Base Ground Defense applications. The system includes remote sensing, alarm monitoring through fiber optic and wireless data communications and remote assessment through the use day/night all weather Thermal Imaging systems. A Common Operational Picture/Common Tactical Picture (COP/CTP) system to support commanders at all levels from a local site or base through to the regional Area Of Responsibility will be developed to provide an expanded command and control capability.</p> <p>(U) <u>FY 1998 Accomplishments</u></p> <ul style="list-style-type: none"> • Prepared System for FOT&E • Completed site surveys for Korean Deployments • Evaluated four new sensors for TASS applications • Developed concept for TASS application for Force Protector/Force Provider Exercise • Briefed TASS program to the Army - issued delivery orders Army (ARCENT Kuwait) equipment <p>(U) <u>FY 1999 Plans</u></p> <ul style="list-style-type: none"> • Perform Technology Enhancement ECP's, investigate and integrate potential Army/Industry chemical biological detectors for TASS • Develop and demonstrate a Common Operation, Common Tactical Picture (COP/CTP) basic capability system integrating mapping and TASS input <p>(U) <u>FY 2000 Plans</u></p>										

Exhibit R-2a, RDT&E Project Justification									Date:		
									February 1999		
<ul style="list-style-type: none"> • Commence DII/COE compliance evaluation for future TASS equipment. • Continue integration of new detection and surveillance equipment. • COP/CTP - Integrate and demonstrate multi-level security investigation and Sensor Guard Intel work station. • Investigate JWARN and Portal Shield interoperability. • Begin Redundant Annunciate Priority A (Nuclear) capability implementation • Investigate Micro-Sensor Technology integration studies • Transition from DTRA and initiate Passive Millimeter Wave Sensor EMD effort 											
(U) <u>FY 2001 Plans</u>											
<ul style="list-style-type: none"> • Begin Micro-Sensor EMD project • COP/CTP - Develop interface with JWARN system. Incorporate analyst support and vulnerability assessment tools and base status cell capability. • Complete Passive Millimeter Wave Sensor (PMWS) EMD effort 											
B. Other Program Funding Summary											
		<u>1998</u>	<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	To <u>Complete</u>	Total <u>Cost</u>
Procurement		11.650	15.500	21.300	20.600	11.700	10.000	8.500	8.500	TBD	TBD
C. Acquisition Strategy: One (1) large, two (2) Small Business competitively awarded contracts with technology enhancement delivery order available.											
D. Schedule Profile:											
Fiscal Year actual and planned events:											
		FY1998	FY1999	FY2000	FY2001						
- FOT&E		■									
- P3I			■								
- COP/CTP (Basic)			■								
- DII/COE Certification				■							
- COP/CTP (Upgrade I)				■							
- Redundant Annunciator Integration				■							
- Micro-Sensor Integration					■						
- COP/CTP (Upgrade II)					■						
- PMWS EMD						■					

Exhibit R-2a, RDT&E Project Justification	Date: February 1999
<p>Acquisition Milestones</p> <p>Engineering Milestones</p> <p>T&E Milestones</p> <p>Contract Milestones</p>	

UNCLASSIFIED

Exhibit R-3 Cost Analysis (page 1)									Date: February 1999			
RDT&E, DEFENSE-WIDE, BUDGET ACTIVITY 4			PROGRAM ELEMENT PE 0603228D8Z						TACTICAL AUTOMATED SECURITY SYSTEM (TASS)			
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total 1998 Cost	1999 Cost	1999 Award Date	2000 Cost	2000 Award Date	2001 Cost	2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development	CPFF	HQ/ESC Hanscom	0.231	0.625	2/99	0.278	12/99	0.268	1/01			
Ancillary Hardware Development	CPFF	HQ/ESC	0.020	0.080	2/99	0.082	12/99	0.027	1/01			
Systems Engineering	CPFF	HQ/ESC	0.254	0.327	[1]	0.408	[1]	0.363	[1]			
Licenses												
Tooling												
GFE												
Award Fees												
Subtotal Product Development			0.505	1.032		0.768		0.658		CONT	CONT	
Remarks: [1] Numerous delivery orders awarded throughout the fiscal year												
Development Support	CPFF	HQ/ESC	0.211	0.235	11/98	0.330	11/99	0.228	11/00			
Software Development	CPFF	HQ/ESC	0.013	0.142	12/98	0.246	12/99	0.159	11/00			
Training Development	CPFF	HQ/ESC	0.026	0.017	1/99	0.033	2/00	0.027	11/00			
Integrated Logistics Support	CPFF	HQ/ESC	0.028	0.024	11/98	0.033	11/99	0.023	11/00			
Configuration Management	CPFF	HQ/ESC	0.022	0.031	11/98	0.040	11/99	0.021	11/00			
Technical Data	CPFF	HQ/ESC	0.013	0.017	11/98	0.022	11/99	0.023	11/00			
GFE												
Subtotal Support			0.313	0.466		0.704		0.481		CONT	CONT	
Remarks												

UNCLASSIFIED

Exhibit R-3 Cost Analysis (page 2)										Date: February 1999		
RDT&E, DEFENSE-WIDE, BUDGET ACTIVITY 4			PROGRAM ELEMENT PE 0603228D8Z							TACTICAL AUTOMATED SECURITY SYSTEM (TASS)		
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total 1998 Cost	1999 Cost	1999 Award Date	2000 Cost	2000 Award Date	2001 Cost	2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	AFMC	Eglin AFB	0.087	0.169	12/98	0.265	12/99	0.245	12/00			
Operational Test & Evaluation	AFTEC	Eglin AFB	0.073	0.081	12/98	0.066	12/99	0.028	12/00			
Tooling												
GFE												
Subtotal T&E			0.160	0.250		0.331		0.273		CONT	CONT	
Remarks												
Contractor Engineering Support	FFP/DO	HQ/ESC	0.185	0.380	[2]	0.536	[2]	0.277	[2]			
Government Engineering Support	MIPR	DOE SNL	0.048	0.046	1/99	0.057	1/00	0.066	1/01			
Program Management Support	PO	HQ/ESC	0.066	0.095	[2]	0.124	[2]	0.089	[2]			
Program Management Personnel												
Travel		HQ/ESC	0.043	0.031	[2]	0.040	[2]	0.031	[2]			
Labor (Research Personnel)												
Miscellaneous												
Subtotal Management			0.342	0.552		0.757		0.463		CONT	CONT	
Remarks [2] Various documents and award dates throughout the year												
Total Cost			1.320	2.300		2.560		1.875				
Remarks												

Exhibit R-2a, RDT&E Project Justification									Date: February 1999	
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT		PROJECT NAME AND NUMBER					
RDT&E, DEFENSE WIDE, BUDGET ACTIVITY 4			PE 0603228D8Z		WEAPONS STORAGE AREA (WSA) UPGRADES					
Cost (\$ in Millions)	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY2005	Cost to Complete	Total Cost
WSA	2.068	2.400	2.665	3.525					CONT	CONT
RDT&E Articles Qty										
<p>A. <u>Mission Description and Budget Item Justification.</u> Develop and deploy, equipment that will provide new capability or upgrade the existing WSA Security mission. This activity will be accomplished through the employment of Advanced Entry Control Systems (AECS) for automatic access control and command and control of WSA intrusion detection and surveillance equipment. Develop the all weather Advanced Exterior Sensor (AES) for a wide area detection and surveillance capability. Integrate and deploy suitable commercial exterior Video Motion Detection (VMD) systems for WSA applications.</p> <p>(U) <u>FY 1998 Accomplishments</u></p> <ul style="list-style-type: none"> • Initiate project to incorporate Video Storage capability into the IDS mission of AECS • Conduct AES proof-of concept demonstration (May 98) • Commence AES Risk Reduction phase planning <p>(U) <u>FY 1999 Plans</u></p> <ul style="list-style-type: none"> • Initiate requirements analysis and market survey for the Base Gate Access Control System (BGACS) • AES - Initiate Risk Reduction Phase • Evaluate commercial systems for wide area detection and surveillance (WADS) • Initiate VMD integration program <p>(U) <u>FY 2000 Plans</u></p> <ul style="list-style-type: none"> • Develop BGACS Architecture, purchase, integrate Demo System • Continue AES Risk Reduction Phase and demonstrate prototype <p>(U) <u>FY 2001 Plans</u></p> <ul style="list-style-type: none"> • BGACS Demonstration and start field trial • Initiate AES EMD Phase 										

Exhibit R-2a, RDT&E Project Justification									Date: February 1999	
(U) <u>FY 2001 Plans</u>										
<ul style="list-style-type: none"> • BGACS Demonstration and start field trial • Initiate AES EMD Phase 										
B. Other Program Funding Summary										
	<u>1998</u>	<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	To Complete	Total Cost
Procurement	1.361	4.900	3.500	4.000	5.100	7.000	6.000	6.000	TBD	TBD
C. Acquisition Strategy: Utilize existing DoD or DoE contract vehicles										
D. Schedule Profile:										
Fiscal Year actual and planned events:										
	FY1998	FY1999	FY2000	FY2001						
- Initiate VMD Eval	■									
- Integrate VMD		■								
- AES Risk Reduction Phase		■	■							
- AES EMD Phase				■	■					
- WADS COTS Evaluation				■	■					
- Design BGACS		■								
- Build and Demo BGACS			■							
- BGACS Field Trial				■	■					
Acquisition Milestones										
Engineering Milestones										
T&E Milestones										
Contract Milestones										

UNCLASSIFIED

Exhibit R-3 Cost Analysis (page 1)										Date: February 1999		
RDT&E, DEFENSE-WIDE, BUDGET ACTIVITY 4			PROGRAM ELEMENT PE 0603228D8Z							WEAPONS STORAGE AREA (WSA)		
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total 1998 Cost	1999 Cost	1999 Award Date	2000 Cost	2000 Award Date	2001 Cost	2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development	CPFF	HQ/ESC Hanscom	0.363	0.382	2/99	0.209	12/99	0.366	1/01			
Ancillary Hardware Development	CPFF	HQ/ESC	0.029	0.105	2/99	0.063	12/99	0.043	1/01			
Systems Engineering	CPFF	HQ/ESC	0.400	0.378	[1]	0.482	[1]	0.493	[1]			
Licenses												
Tooling												
GFE												
Award Fees												
Subtotal Product Development			0.792	0.865		0.754		0.902		CONT	CONT	
Remarks: [1] Numerous delivery orders awarded throughout the fiscal year												
Development Support	CPFF	HQ/ESC	0.330	0.290	11/98	0.246	11/99	0.318	11/00			
Software Development	CPFF	HQ/ESC	0.115	0.164	12/98	0.189	12/99	0.199	11/00			
Training Development	CPFF	HQ/ESC	0.046	0.021	1/99	0.026	2/00	0.043	11/00			
Integrated Logistics Support	CPFF	HQ/ESC	0.039	0.032	11/98	0.026	11/99	0.035	11/00			
Configuration Management	CPFF	HQ/ESC	0.037	0.042	11/98	0.032	11/99	0.026	11/00			
Technical Data	CPFF	HQ/ESC	0.023	0.015	11/98	0.013	11/99	0.035	11/00			
GFE												
Subtotal Support			0.590	0.564		0.532		0.656		CONT	CONT	
Remarks												

UNCLASSIFIED

Exhibit R-3 Cost Analysis (page 2)										Date: February 1999		
RDT&E, DEFENSE-WIDE, BUDGET ACTIVITY 4			PROGRAM ELEMENT PE 0603228D8Z							WEAPONS STORAGE AREA (WSA)		
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total 1998 Cost	1999 Cost	1999 Award Date	2000 Cost	2000 Award Date	2001 Cost	2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	AFMC	Eglin AFB	0.138	0.209	12/98	0.210	12/99	0.324	12/00			
Operational Test & Evaluation	AFTEC	Eglin AFB	0.114	0.145	12/98	0.127	12/99	0.220	12/00			
Tooling												
GFE												
Subtotal T&E			0.252	0.354		0.337		0.544		CONT	CONT	
Remarks												
Contractor Engineering Support	FFP/DO	HQ/ESC	0.295	0.200	[2]	0.391	[2]	0.545	[2]			
Government Engineering Support	MIPR	DOE SNL	0.076	0.250	1/99	0.514	1/00	0.630	1/01			
Program Management Support	PO	HQ/ESC	0.021	0.146	[2]	0.095	[2]	0.195	[2]			
Program Management Personnel												
Travel		HQ/ESC	0.042	0.021	[2]	0.042	[2]	0.053	[2]			
Labor (Research Personnel)												
Miscellaneous												
Subtotal Management			0.434	0.617		1.042		1.423		CONT	CONT	
Remarks [2] Various documents and award dates throughout the year												
Total Cost			2.068	2.400		2.665		3.525				
Remarks												

UNCLASSIFIED

Exhibit R-2a, RDT&E Project Justification									Date:	
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NAME AND NUMBER				
RDT&E, DEFENSE WIDE, BUDGET ACTIVITY 4			PE 0603228D8Z			MOBILE DETECTION ASSESSMENT RESPONSE SYSTEM - EXTERIOR (MDARS-E)				
Cost (\$ in Millions)	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY2005	Cost to Complete	Total Cost
MDARS-E	1.903	5.500	4.890	5.590					CONT	CONT
RDT&E Articles Qty										
<p>A. <u>Mission Description and Budget Item Justification.</u> The Mobile Detection Assessment Response System - Exterior (MDARS-E) is intended to support the physical security of fixed installations including warehouses, large storage facilities and ammunition facilities. In addition to security, the system will also support inventories and track movement or disturbance of critical inventory items.</p> <p>(U) <u>FY 1998 Accomplishments</u></p> <ul style="list-style-type: none"> • Initiated development of Command and Control Capabilities for MDARS-E Vehicle into the MDARS Console (MRHA) • Completed second design iteration and prototype the Integrated Lock Device (ILD) • Install ILD at MDARS-E Final Demonstration <p>(U) <u>FY 1999 Plans</u></p> <ul style="list-style-type: none"> • Prepare Test TFT Plans/Test Procedures • Conduct Developmental Testing • Update MS I/II IPR Documentation • Conduct final demonstration of Broad Area Announcement (BAA) contract MDARS-E system capabilities <p>(U) <u>FY 2000 Plans</u></p> <ul style="list-style-type: none"> • Conduct Technical Feasibility Testing (TFT) • Conduct System Functional Review • Conduct Milestone I/II In-Process Review • Prepare/release EMD RFP • Conduct EMD Source Selection • Prepare/award EMD contract 										

UNCLASSIFIED

Exhibit R-2a, RDT&E Project Justification		Date: February 1999			
(U) <u>FY 2001 Plans</u>					
• Conduct Engineering Development					
• Conduct MS III					
B. Other Program Funding Summary					
C. Acquisition Strategy					
D. Schedule Profile:					
Fiscal Year actual and planned events:					
	FY1998	FY1999	FY2000	FY2001	
Acquisition Milestones					
MDARS-E			MSI/II	MSIII	
Engineering Milestones					
T&E Milestones					
MDARS-E			TFT		
Contract Milestones					

UNCLASSIFIED

Exhibit R-3 Cost Analysis (page 1)									Date: February 1999			
RDT&E, DEFENSE-WIDE, BUDGET ACTIVITY 4			PROGRAM ELEMENT PE 0603228D8Z						MOBILE DETECTION ASSESSMENT RESPONSE SYS - EXTERIOR (MDARS-E)			
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total 1998 Cost	1999 Cost	1999 Award Date	2000 Cost	2000 Award Date	2001 Cost	2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development			0.650	1.509		2.600		2.661				
Ancillary Hardware Development												
Systems Engineering			0.650	0.500		0.600		0.606				
Licenses												
Tooling												
GFE												
Award Fees												
Subtotal Product Development			1.300	2.009	2/3Q	3.200	2/3Q	3.267	2/3Q	CONT	CONT	
Remarks:												
Development Support			0.106	0.611		0.505		0.528				
Software Development			0.263	0.680		0.545		0.423				
Training Development								0.051				
Integrated Logistics Support				0.500		0.090		0.180				
Configuration Management				0.031		0.023		0.045				
Technical Data			0.140	0.464		0.337		0.513				
GFE												
Subtotal Support			0.509	2.286	2/3Q	1.500	2/3Q	1.740	2/3Q	CONT	CONT	
Remarks												

UNCLASSIFIED

Exhibit R-3 Cost Analysis (page 2)									Date: February 1999			
RDT&E, DEFENSE-WIDE, BUDGET ACTIVITY 4				PROGRAM ELEMENT PE 0603228D8Z					MOBILE DETECTION ASSESSMENT RESPONSE SYSTEM - EXTERIOR (MDARS-E)			
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total 1998 Cost	1999 Cost	1999 Award Date	2000 Cost	2000 Award Date	2001 Cost	2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation				0.415		0.100		0.241				
Operational Test & Evaluation								0.161				
Tooling												
GFE												
Subtotal T&E				0.415	2/3Q	0.100		0.402	2/3Q	CONT	CONT	
Remarks												
Contractor Engineering Support				0.300								
Government Engineering Support				0.100				0.092				
Program Management Support			0.004	0.006		0.006		0.007				
Program Management Personnel			0.080	0.272		0.072		0.068				
Travel			0.010	0.112		0.012		0.014				
Labor (Research Personnel)												
Miscellaneous												
Subtotal Management			0.094	0.790	2/3Q	0.090	2/3Q	0.181	2/3Q	CONT	CONT	
Remarks												
Total Cost			1.903	5.500		4.890		5.590				
Remarks												

UNCLASSIFIED

Exhibit R-2a, RDT&E Project Justification									Date: February 1999	
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NAME AND NUMBER				
RDT&E, DEFENSE WIDE, BUDGET ACTIVITY 4			PE 0603228D8Z			WATERSIDE SECURITY SYSTEM (WSS)				
Cost (\$ in Millions)	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY2005	Cost to Complete	Total Cost
WSS	1.800	1.800	1.950	1.650					CONT	CONT
RDT&E Articles Qty										
<p>A. <u>Mission Description and Budget Item Justification.</u> The Space and Naval Warfare Center (SPAWARCEN), San Diego is the Center of Excellence for waterfront security. Responsibilities include fixed and transportable waterside security systems, swimmer detection sonars, and commercial-off-the-shelf (COTS) equipment test and evaluation, which focuses on waterfront force protection.</p> <p>(U) <u>FY 1998 Accomplishments</u></p> <ul style="list-style-type: none"> • Supported three Waterside Security System (WSS) sites: SUBASE Bangor, SUBASE Kings Bay and ASU Bahrain • Upgraded WSS systems to PC based architecture (Kings Bay/Bangor) • Coordinated with US Coast Guard on security technology applications for San Diego Bay • Completed development of new Radar Track Processor • Conducted site survey for the installation of a WSS at Portsmouth Naval Ship Yard • Validated transportable system configuration <p>(U) <u>FY 1999 Plans</u></p> <ul style="list-style-type: none"> • Manage the Waterside Security System and Shipboard Physical Security programs • Support installed WSS hardware at field sites • Transfer the Intrusion Detection Distributed Array (IDDA) from advanced research to the WSS program • Integrate IDDA into the WSS • Establish a website to provide technical information to potential users • Investigate barriers and swimmer nets <p>(U) <u>FY 2000 Plans</u></p> <ul style="list-style-type: none"> • Manage the Waterside Security System and Shipboard Physical Security programs • Test, evaluate and integrate COTS technology, e.g. barriers, underwater cameras 										

Exhibit R-2a, RDT&E Project Justification	Date: February 1999																									
<p>(U) <u>FY 2001 Plans</u></p> <ul style="list-style-type: none">• Test, evaluate COTS technologies for the Waterfront environment• Test an integrated WSS, which includes barriers and underwater assessment of potential targets• Complete the development of a transportable WSS• Manage the Waterside Security System and Shipboard Physical Security programs• Support installed WSS hardware at field sites <p>B. Other Program Funding Summary</p> <p>C. Acquisition Strategy</p> <p>D. Schedule Profile:</p> <p>Fiscal Year actual and planned events:</p> <table><thead><tr><th></th><th>FY1998</th><th>FY1999</th><th>FY2000</th><th>FY2001</th></tr></thead><tbody><tr><td>Acquisition Milestones</td><td></td><td></td><td></td><td></td></tr><tr><td>Engineering Milestones</td><td></td><td></td><td></td><td></td></tr><tr><td>T&E Milestones</td><td></td><td></td><td></td><td></td></tr><tr><td>Contract Milestones</td><td></td><td></td><td></td><td></td></tr></tbody></table>			FY1998	FY1999	FY2000	FY2001	Acquisition Milestones					Engineering Milestones					T&E Milestones					Contract Milestones				
	FY1998	FY1999	FY2000	FY2001																						
Acquisition Milestones																										
Engineering Milestones																										
T&E Milestones																										
Contract Milestones																										

UNCLASSIFIED

Exhibit R-3 Cost Analysis (page 1)								Date: February 1999				
RDT&E, DEFENSE-WIDE, BUDGET ACTIVITY 4			PROGRAM ELEMENT PE 0603228D8Z					WATERSIDE SECURITY SYSTEM (WSS)				
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total 1998 Cost	1999 Cost	1999 Award Date	2000 Cost	2000 Award Date	2001 Cost	2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development			0.400	0.400		0.400		0.353				
Ancillary Hardware Development												
Systems Engineering			0.160	0.160		0.172		0.147				
Licenses												
Tooling												
GFE												
Award Fees												
Subtotal Product Development			0.560	0.560		0.572		0.500		CONT	CONT	
Remarks:												
Development Support			0.060	0.060		0.046		0.029				
Software Development			0.100	0.100		0.114		0.086				
Quality Insurance			0.020	0.020		0.020		0.014				
Integrated Logistics Support			0.050	0.050		0.057		0.046				
Configuration Management			0.085	0.085		0.091		0.070				
Technical Data			0.045	0.045		0.057		0.057				
RAM			0.060	0.060		0.051		0.046				
Subtotal Support			0.420	0.420		0.436		0.348		CONT	CONT	
Remarks												

UNCLASSIFIED

Exhibit R-3 Cost Analysis (page 2)										Date: February 1999		
RDT&E, DEFENSE-WIDE, BUDGET ACTIVITY 4				PROGRAM ELEMENT PE 0603228D8Z						WATERSIDE SECURITY SYSTEM (WSS)		
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total 1998 Cost	1999 Cost	1999 Award Date	2000 Cost	2000 Award Date	2001 Cost	2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation			0.190	0.190		0.230		0.177				
Operational Test & Evaluation			0.200	0.200		0.230		0.236				
Tooling												
GFE												
Subtotal T&E			0.390	0.390		0.460		0.413		CONT	CONT	
Remarks												
Contractor Engineering Support												
Government Engineering Support												
Program Management Support			0.360	0.360		0.401		0.353				
Program Management Personnel												
Travel			0.070	0.070		0.081		0.036				
Labor (Research Personnel)												
Miscellaneous												
Subtotal Management			0.430	0.430		0.482		0.389		CONT	CONT	
Remarks												
Total Cost			1.800	1.800		1.950		1.650				
Remarks												

UNCLASSIFIED

Exhibit R-2a, RDT&E Project Justification									Date:		
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NAME AND NUMBER					
RDTE&E, DEFENSE WIDE, BUDGET ACTIVITY 4			PE 0603228D8Z			EXPLOSIVE DETECTION EQUIPMENT (EDE)					
Cost (\$ in Millions)	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY2005	Cost to Complete	Total Cost	
EDE	0.300	0.900	1.250	1.750					CONT	CONT	
RDT&E Articles Qty											

A. Mission Description and Budget Item Justification. Test and evaluate promising commercial-off-the-shelf technologies.

(U) FY 1998 Accomplishments

- Submitted draft Joint Services Operational Requirement (JSOR)
- Developed recommendations for detecting explosives in concrete trucks
- Conducted evaluation of CDS 2002 Mobile Search, remote-sensing device
- Conducted market survey
- Completed long range plans for explosive detection equipment (EDE)
- Wrote EDE health and safety guidance document

(U) FY 1999 Plans

- Develop guidance for selecting EDE for differing operational environments
- Finalize JSOR
- Complete evaluation of equipment Mobile Search vehicle
- Identify promising technologies unique to EDE
- Set up and maintain an information source for explosive detection equipment

(U) FY 2000 Plans

- Transition a highly sensitive and robust detection system for finding explosives in air and water by biochemical signal amplifications
- Conduct product evaluations, as necessary
- Evaluate remote explosive detection equipment
- Conduct an Explosive Detection Symposium

UNCLASSIFIED

Exhibit R-2a, RDT&E Project Justification	Date: February 1999																									
<p>(U) FY 2001 Plans</p> <ul style="list-style-type: none">• Provide an Ultra Violet Fluorescence Explosive Detection System• Continue product evaluations• Publish technical data sheets, guides and information relating to explosive detection equipment <p>B. Other Program Funding Summary</p> <p>C. Acquisition Strategy</p> <p>D. Schedule Profile:</p> <p>Fiscal Year actual and planned events:</p> <table><thead><tr><th></th><th>FY1998</th><th>FY1999</th><th>FY2000</th><th>FY2001</th></tr></thead><tbody><tr><td>Acquisition Milestones</td><td></td><td></td><td></td><td></td></tr><tr><td>Engineering Milestones</td><td></td><td></td><td></td><td></td></tr><tr><td>T&E Milestones</td><td></td><td></td><td></td><td></td></tr><tr><td>Contract Milestones</td><td></td><td></td><td></td><td></td></tr></tbody></table>			FY1998	FY1999	FY2000	FY2001	Acquisition Milestones					Engineering Milestones					T&E Milestones					Contract Milestones				
	FY1998	FY1999	FY2000	FY2001																						
Acquisition Milestones																										
Engineering Milestones																										
T&E Milestones																										
Contract Milestones																										

UNCLASSIFIED

Exhibit R-3 Cost Analysis (page 1)									Date: February 1999			
RDT&E, DEFENSE-WIDE, BUDGET ACTIVITY 4			PROGRAM ELEMENT PE 0603228D8Z						EXPLOSIVE DETECTION EQUIPMENT (EDE)			
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total 1998 Cost	1999 Cost	1999 Award Date	2000 Cost	2000 Award Date	2001 Cost	2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development				0.130		0.187		0.465				
Ancillary Hardware Development												
Systems Engineering				0.010		0.037		0.037				
Licenses												
Tooling												
GFE												
Award Fees												
Subtotal Product Development				0.140		0.224		0.502		CONT	CONT	
Remarks:												
Development Support				0.020		0.031		0.030				
Software Development												
Quality Insurance				0.015		0.025		0.058				
Integrated Logistics Support				0.040		0.050		0.053				
Configuration Management				0.010		0.025		0.058				
Technical Data				0.050		0.125		0.350				
RAM				0.010		0.019		0.058				
Subtotal Support				0.145		0.275		0.607		CONT	CONT	
Remarks												

UNCLASSIFIED

Exhibit R-3 Cost Analysis (page 2)									Date: February 1999			
RDT&E, DEFENSE-WIDE, BUDGET ACTIVITY 4			PROGRAM ELEMENT PE 0603228D8Z						EXPLOSIVE DETECTION EQUIPMENT (EDE)			
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total 1998 Cost	1999 Cost	1999 Award Date	2000 Cost	2000 Award Date	2001 Cost	2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation				0.200		0.376		0.233				
Operational Test & Evaluation				0.150		0.187		0.175				
Tooling												
GFE												
Subtotal T&E				0.350		0.563		0.408		CONT	CONT	
Remarks												
Contractor Engineering Support												
Government Engineering Support												
Program Management Support			0.100	0.125		0.063		0.059				
Program Management Personnel												
Travel			0.025	0.100		0.094		0.087				
Labor (Research Personnel)												
Miscellaneous			0.175	0.040		0.031		0.087				
Subtotal Management			0.300	0.265		0.188		0.233		CONT	CONT	
Remarks												
Total Cost			0.300	0.900		1.250		1.750				
Remarks												

UNCLASSIFIED

Exhibit R-2a, RDT&E Project Justification									Date:		
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NAME AND NUMBER					
RDT&E, DEFENSE WIDE, BUDGET ACTIVITY 4			PE 0603228D8Z			SHIPBOARD PHYSICAL SECURITY (SPS)					
Cost (\$ in Millions)	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY2005	Cost to Complete	Total Cost	
SPS	0.900	1.200	1.350	1.150					CONT	CONT	
RDT&E Articles Qty											

A. Mission Description and Budget Item Justification. The Shipboard Physical Security (SPS) program consists of integrated detection sensors, alarms, information displays, security force equipment, and procedures to provide defense in-depth against a wide range of external and internal shipboard threats.

(U) FY 1998 Accomplishments

- Completed phase I and II of the Smart Ship integrated security system project installation
- Completed all Smart Ship installation drawings
- Upgraded the Smart Ship security installation to Windows NT
- Continued the upgrade of the Shipboard mock-up facility at Crane, IN
- Defined minimum security system configuration for each class of ship
- Defined the requirements and identified equipment for an Emergency Security Response Force Team
- Tested and evaluated emerging security related technologies and where applicable, such technologies were integrated into the SPS baseline configuration

(U) FY 1999 Plans

- Merge program management of SPS with Waterside Security System (WSS)
- Continue evaluation of COTS technologies for shipboard applications
- Support plans to install an operational test bed at SUBASE San Diego

(U) FY 2000 Plans

- Continue the evaluation of COTS technologies for shipboard applications
- Support the installation of an operational test bed at SUBASE San Diego
- Support plans to install waterfront physical security hardware at NAVSTA Norfolk and/or SUBASE Norfolk

Exhibit R-2a, RDT&E Project Justification	Date: February 1999					
<p>(U) <u>FY 2001 Plans</u></p> <ul style="list-style-type: none">• Continue evaluation of COTS technologies for shipboard applications• Support operational test bed at SUBASE San Diego• Support installation at Norfolk <p>B. Other Program Funding Summary</p> <p>C. Acquisition Strategy</p> <p>D. Schedule Profile:</p> <p>Fiscal Year actual and planned events:</p> <table><thead><tr><th></th><th>FY1998</th><th>FY1999</th><th>FY2000</th><th>FY2001</th></tr></thead></table> <p>Acquisition Milestones</p> <p>Engineering Milestones</p> <p>T&E Milestones</p> <p>Contract Milestones</p>			FY1998	FY1999	FY2000	FY2001
	FY1998	FY1999	FY2000	FY2001		

UNCLASSIFIED

Exhibit R-3 Cost Analysis (page 1)									Date: February 1999			
RDT&E, DEFENSE-WIDE, BUDGET ACTIVITY 4			PROGRAM ELEMENT PE 0603228D8Z						SHIPBOARD PHYSICAL SECURITY (SPS)			
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total 1998 Cost	1999 Cost	1999 Award Date	2000 Cost	2000 Award Date	2001 Cost	2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development			0.165	0.230		0.245		0.211				
Ancillary Hardware Development												
Systems Engineering			0.120	0.150		0.160		0.153				
Licenses												
Tooling												
GFE												
Award Fees												
Subtotal Product Development			0.285	0.380		0.405		0.364		CONT	CONT	
Remarks:												
Development Support			0.040	0.060		0.061		0.051				
Software Development			0.050	0.070		0.092		0.064				
Quality Insurance			0.010	0.015		0.013		0.014				
Integrated Logistics Support			0.030	0.050		0.049		0.038				
Configuration Management			0.030	0.040		0.049		0.038				
Technical Data			0.025	0.030		0.037		0.032				
RAM			0.040	0.060		0.061		0.051				
Subtotal Support			0.225	0.325		0.362		0.288		CONT	CONT	
Remarks												

UNCLASSIFIED

Exhibit R-3 Cost Analysis (page 2)									Date: February 1999			
RDT&E, DEFENSE-WIDE, BUDGET ACTIVITY 4			PROGRAM ELEMENT PE 0603228D8Z						SHIPBOARD PHYSICAL SECURITY (SPS)			
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total 1998 Cost	1999 Cost	1999 Award Date	2000 Cost	2000 Award Date	2001 Cost	2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation			0.130	0.150		0.172		0.165				
Operational Test & Evaluation			0.140	0.160		0.190		0.180				
Tooling												
GFE												
Subtotal T&E			0.270	0.310		0.362		0.345		CONT	CONT	
Remarks												
Contractor Engineering Support												
Government Engineering Support												
Program Management Support			0.120	0.185		0.184		0.153				
Program Management Personnel												
Travel						0.025						
Labor (Research Personnel)												
Miscellaneous						0.012						
Subtotal Management			0.120	0.185		0.221		0.153		CONT	CONT	
Remarks												
Total Cost			0.900	1.200		1.350		1.150				
Remarks												

UNCLASSIFIED

Exhibit R-2a, RDT&E Project Justification									Date: February 1999	
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NAME AND NUMBER				
RDT&E, DEFENSE WIDE, BUDGET ACTIVITY 4			PE 0603228D8Z			DoD LOCKS, SAFES, VAULTS				
Cost (\$ in Millions)	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY2005	Cost to Complete	Total Cost
LOCKS	1.300	1.100	1.450	1.450					CONT	CONT
RDT&E Articles Qty										
<p>A. <u>Mission Description and Budget Item Justification.</u> The DoD Lock Program identifies, tests and evaluates commercial hardware for suitability and compliance with security requirements and tools and technology that may reduce the delay time afforded by present day security systems mandated by current regulations. Develop CD-ROM based security technology information program; test program for security seals; alternative high security locking system for AA&E applications; and entry system for "locked out" high security magazine doors.</p> <p>(U) <u>FY 1998 Accomplishments</u></p> <ul style="list-style-type: none"> • Conducted lightweight concrete forced entry and explosive test • Completed testing of X-ray equipment • Conducted operational and mechanical testing of the Internal Locking Device • Completed the Tamper Resistant Seals Guide • Completed the Federal Specification, FF-S-2738, for Tamper Resistant Seals • Published Beta version of CD-ROM for destruction of National Security Information • Published "Security Facts Newsletter" <p>(U) <u>FY 1999 Plans</u></p> <ul style="list-style-type: none"> • Develop repairable methods of entry for approved equipment • Write guide for storage of controlled substances • Provide engineering and consultation • Continue support for MDARS program • Publish final guidance on destruction of National Security Information • Develop anchoring methods for security equipment aboard ships 										

Exhibit R-2a, RDT&E Project Justification	Date: February 1999										
<p>(U) <u>FY 2000 Plans</u></p> <ul style="list-style-type: none">• Update DoD Lock Program Hotline• Develop AA&E shipping container lock• Publish specification for GS approved key storage container• Update technical data sheets on security hardware <p>(U) <u>FY 2001 Plans</u></p> <ul style="list-style-type: none">• Update or publish guide specifications for security equipment (as needed)• Update existing and publish new repairable methods of entry• Conduct a Security Seals Symposium• Update National Security Information destruction methods and guidance <p>B. Other Program Funding Summary</p> <p>C. Acquisition Strategy</p> <p>D. Schedule Profile:</p> <p>Fiscal Year actual and planned events:</p> <table><thead><tr><th></th><th>FY1998</th><th>FY1999</th><th>FY2000</th><th>FY2001</th></tr></thead><tbody><tr><td></td><td></td><td></td><td></td><td></td></tr></tbody></table> <p>Acquisition Milestones</p> <p>Engineering Milestones</p> <p>T&E Milestones</p> <p>Contract Milestones</p>			FY1998	FY1999	FY2000	FY2001					
	FY1998	FY1999	FY2000	FY2001							

UNCLASSIFIED

Exhibit R-3 Cost Analysis (page 1)									Date: February 1999			
RDT&E, DEFENSE-WIDE, BUDGET ACTIVITY 4			PROGRAM ELEMENT PE 0603228D8Z						DoD LOCKS, SAFES, VAULTS			
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total 1998 Cost	1999 Cost	1999 Award Date	2000 Cost	2000 Award Date	2001 Cost	2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development			0.400	0.393		0.556		0.614				
Ancillary Hardware Development												
Systems Engineering			0.175	0.137		0.217		0.211				
Licenses												
Tooling												
GFE												
Award Fees												
Subtotal Product Development			0.575	0.530		0.773		0.815		CONT	CONT	
Remarks:												
Development Support			0.025	0.025		0.030		0.040				
Software Development			0.060	0.042		0.080		0.082				
Quality Insurance			0.025	0.025		0.030		0.040				
Integrated Logistics Support			0.040	0.034		0.047		0.060				
Configuration Management			0.060	0.042		0.047		0.060				
Technical Data			0.200	0.150		0.118		0.113				
RAM			0.050	0.043		0.059		0.071				
Subtotal Support			0.460	0.361		0.411		0.466		CONT	CONT	
Remarks												

UNCLASSIFIED

Exhibit R-3 Cost Analysis (page 2)										Date: February 1999		
RDT&E, DEFENSE-WIDE, BUDGET ACTIVITY 4				PROGRAM ELEMENT PE 0603228D8Z						DoD LOCKS, SAFES, VAULTS		
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total 1998 Cost	1999 Cost	1999 Award Date	2000 Cost	2000 Award Date	2001 Cost	2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation			0.150	0.116		0.121		0.084				
Operational Test & Evaluation			0.075	0.061		0.121		0.025				
Tooling												
GFE												
Subtotal T&E			0.225	0.177		0.242		0.109		CONT	CONT	
Remarks												
Contractor Engineering Support												
Government Engineering Support												
Program Management Support			0.040	0.032		0.024		0.060				
Program Management Personnel												
Travel												
Labor (Research Personnel)												
Miscellaneous												
Subtotal Management			0.040	0.032		0.024		0.060		CONT	CONT	
Remarks												
Total Cost			1.300	1.100		1.450		1.450				
Remarks												

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification								Date: 02/1999		
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-wide / BA-4					R-1 ITEM NOMENCLATURE Integrated Diagnostics 0603708D8Z					
COST (\$ in Millions)	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to Complete	Total Cost
Total PE Cost	2,742	3,394	0.0	0.0	0.0	0.0	0.0	0.0	0	

A. Mission Description and Budget Item Justification

The program element provided funding for large scale, high leverage demonstrations of the integrated application of existing commercial and DoD technologies, practices, standards and products for order of magnitude weapon system affordability and support improvements. Demonstrations were selected to 1) measure the risks and show the feasibility of payoff from selected technology applications and 2) show novel or unorthodox alternatives to conventional weapon system acquisition and support. Demonstrations showed technology applications which provide a highly integrated and automated set of weapon system support capabilities (built in test, factory, depot, and test equipment, technical information, etc.). The demonstrations were intended to lead to reduced maintenance man-hours, "per weapon system" deployment tails, and weapon system acquisition and ownership costs. The demonstrations examined leveraging industry manufacturing processes and integrated acquisition processes/technology approaches to address systemic weapon system production and support affordability drivers.

The projects have demonstrated the value of incorporating integrated diagnostics approaches for weapon systems support and the methodologies used to acquire and manage diagnostics. After recognizing the value and the low risk of this approach, Service weapon program managers have begun or are planning to incorporate integrated diagnostics in new platforms such as the JSF, F/A-18E/F, surface combatant ships, and missile defense. The program was also instrumental in establishing DoD Automatic Test System policy. This program has achieved its original goal to "seed" these approaches in the acquisition community, therefore the Department concluded this program.

B. Program Change Summary: The Department has concluded this program.

C. Other Program Funding Summary: Not Applicable

D. Acquisition Strategy:

As preconditions to initiating a demonstration, Service managers committed to provide the R&D or procurement investment to transition the products to the selected demonstration field weapon system fleet and to incorporate products and concepts into new weapon systems designs for long-term payoffs.

E. Schedule Profile:

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification												Date: 02/1999				
Fiscal Year events by quarter:	FY1998				FY1999				FY2000				FY2001			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Joint Factory-to-Field Demonstration																
Modify test hardware/software	x															
Complete instrument interface demonstration		x														
Complete test program interface demonstration				x												
Coordinate architecture standards					x											
Trident Launcher Demonstration																
Conduct land-based integration tests			x													
Conduct in-field tests							x									
Complete tests and final report											x					
Diagnostics for Acquisition Demonstration																
Modify test hardware/software				x												
Translate test strategy and rehost on legacy ATS							x									
Complete field demonstration											x					

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification									Date: February 1999	
APPROPRIATION/BUDGET ACTIVITY RESEARCH, DEVELOPMENT, TEST & EVALUATION, DEFENSE-WIDE, BUDGET ACTIVITY 4					R-1 ITEM NOMENCLATURE JOINT ROBOTICS PROGRAM PE 0603709D8Z					
COST (\$ in Millions)	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to Complete	Total Cost
Total PE Cost	26.806	16.013	12.937	10.492	11.470	9.112	9.304	9.498	CONTINUING	CONTINUING
MPRS	0.500	2.200	2.200	2.200						
ROCS	3.200	3.600	3.600	3.600						
TECHNOLOGY BASE	6.721	9.813	6.737	4.292						
<p>A. <u>Mission Description and Budget Item Justification.</u> This program is a budget activity level 4 based on the demonstration/validation activities ongoing within the program. This PE was established in response to Congressional guidance to consolidate DoD robotic programs on unmanned ground systems and related robotic technologies in order to increase focus of the Services' robotic programs on operational requirements. The program will demonstrate maturity of robotics technologies for their application to the formal acquisition process of land systems and subsystems. Emphasis is on the development of robotic technologies that: are amenable to multi-service applications; provide capability in high hazard environments; provide improved battlefield efficiency using supervised autonomous operational capability; reduce or enhance force manpower and support; and are affordable. This PE consolidates the DoD robotics program for unmanned ground vehicles (UGV) into two activities: (1) advancement of UGV concepts into Advanced Development (AD) acquisition projects and (2) the enhancement and exploitation of critical robotic technologies for today's and future UGV acquisition requirements. Categories under this PE are: (1) Man Portable Robotic Systems (MPRS) - consolidated efforts to develop smaller (10-40 lb. Class) UGVs in response to emerging user requirements. Two MPRS programs are underway: the Basic Unexploded Ordnance System (BUGS), which is a joint service effort to locate and dispose of surface UXO; and the Outdoor Miniature Robotic Ground Vehicle (OMRGV), which is a small robotic vehicle for reconnaissance and other hazardous tasks in special operations or light infantry missions; (2) the Robotics Ordnance Clearing System (ROCS) - a USAF effort to develop a robotic/autonomous vehicle capability for area clearance, including active range clearance (ARC). Platforms include the following: All-purpose Robotics Transport System (ARTS), Subsurface Ordnance Characterization System (SOCS), Automated Ordnance Excavator (AOE), and Joint Amphibious Mine Countermine (JAMC). This technology can also be applied to formerly used defense sites for cleanup/disposal; (3) the Technology Enhancement program (DEMO III) is centered upon the enhancement and exploitation of critical robotics technologies for today's and future UGV acquisition requirements. DEMO III, in part a follow-on to the very successful DEMO II program, is a four year effort to further advance semi-autonomous technologies; and (4) the Joint Architecture for Unmanned Ground Systems (JAUGS) which is a software-standards oriented approach to standardizing all aspects of protocols and approaches to the software aspects of all anticipated DoD unmanned systems.</p>										

Exhibit R-2, RDT&E Budget Item Justification	Date: February 1999
---	------------------------

(U) FY 1998 Accomplishments

VEHICLE TELEOPERATION (VT) (11.500 million)

- Obtained favorable MS I/II for entry into combined Program Definition/Risk Reduction (PDRR) /Engineering and Manufacturing Development (EMD) phase
- Awarded Small Business Innovative Research (SBIR) Phase III contract to enter combined PDRR/EMD phase in support of VT acquisition program
- Developed final Performance Specification for MK4 (EMD) VT kits, and initiated configuration control
- Developed, built, and demonstrated Standardized Teleoperation System (STS) kits for M9 Armored Combat Excavator (ACE), D5, and T3 bulldozers
- Completed initial development testing for the STS
- Completed Limited User Testing for STS on the M-1 tank, and the D7G, D5, T3, and M9 ACE bulldozers
- Increased involvement with USMC and USAF
- Started design/development of Robotic Combat Support System (RCSS) for US Army Engineer School (USAES)
- Defined VT requirements for the USAF, USMC, and USN

TACTICAL UNMANNED VEHICLE (TUV) (4.685 million)

- Finalized System Specification for TUV and developed a Draft Request For Proposal (RFP) for EMD
- Continued long-term User Appraisals in support of Evolutionary Acquisition Strategy
- Improved reliability performance in SARGE prototype for participation in Military Operations on Urban Terrain (MOUT) Advanced Concepts Technology Demonstration (ACTD)
- Trained USMC Chemical, Biological Incident Response Force (CBIRF) and integrated robotics into contingency exercise training

JOINT ARCHITECTURE FOR UNMANNED GROUND SYSTEMS (JAUGS) DEVELOPMENT (0.200 million)

- Continued to update JAUGS based on technology improvements, Joint Technical Architecture (JTA) standards established by DoD, and mission requirements
- Coordinated JAUGS activities closely with 4D/RCS and Demo III development efforts
- Began validation process on the JAUGS
- Incorporated JAUGS as a requirement in the TUV contract requirements package
- Incorporated JAUGS into the VT contract
- Commenced planning and coordination for the configuration management of JAUGS

Exhibit R-2, RDT&E Budget Item Justification					Date: February 1999
<p>U) <u>FY 1999 Plans</u> JOINT ARCHITECTURE FOR UNMANNED GROUND SYSTEMS (JAUGS) DEVELOPMENT (0.400 million)</p> <ul style="list-style-type: none"> • Evolve, refine, and update to achieve greater autonomous capability. Inputs will be received primarily from user appraisals, fielded systems feedback, and industry/Tech Base development efforts • Implement JAUGS throughout the Joint Robotics Program • Place JAUGS under configuration control 					
<p>(U) <u>FY 2000 Plans</u> JOINT ARCHITECTURE FOR UNMANNED GROUND SYSTEMS (JAUGS) DEVELOPMENT (0.400 million)</p> <ul style="list-style-type: none"> • Evolve, refine, and update to achieve greater autonomous capability. Inputs will be received primarily from user appraisals, fielded systems feedback, and industry/Tech Base development efforts • Continue configuration management and control 					
<p>(U) <u>FY 2001 Plans</u> JOINT ARCHITECTURE FOR UNMANNED GROUND SYSTEMS (JAUGS) DEVELOPMENT (0.400 million)</p> <ul style="list-style-type: none"> • Evolve, refine, and update to achieve greater autonomous capability. Inputs will be received primarily from user appraisals, fielded systems feedback, and industry/Tech Base development efforts • Continue configuration management and control 					
<p>B. <u>Program Change Summary</u> (\$ million)</p>					
	<u>FY1998</u>	<u>FY1999</u>	<u>FY2000</u>	<u>FY2001</u>	<u>Total Cost</u>
Previous President's Budget	27.085	16.217	13.156	10.681	Continuing
Appropriated Value					
Adjustments to Appropriated Value					
a. Congressionally Directed Appropriation Reduction					
b. Congressionally Directed Undistributed Reduction					
c. Below Threshold Program Reduction	(0.279)	(0.204)	(0.219)	(0.189)	
Current Budget Submit/President's Budget	26.806	16.013	12.937	10.492	Continuing
<p>Change Summary Explanation: Funding: N/A</p>					

Exhibit R-2, RDT&E Budget Item Justification		Date: February 1999			
Schedule: N/A Technical: N/A					
C. <u>Other Program Funding Summary</u>					
D. <u>Acquisition Strategy</u>					
E. <u>Schedule Profile</u>					
Fiscal Year actual and planned events:					
	FY1998	FY1999	FY2000	FY2001	
Acquisition Milestones					
Standardized Teleoperation System (now known as Standardized Robotic System (SRS)		MSI/II			
Engineering Milestones					
T&E Milestones					
Contract Milestones		EMD			

UNCLASSIFIED

Exhibit R-2a, RDT&E Project Justification									Date:		
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NAME AND NUMBER					
RDT&E, DEFENSE WIDE, BUDGET ACTIVITY 4			PE 0603709D8Z			MAN PORTABLE ROBOTIC SYSTEMS (MPRS)					
Cost (\$ in Millions)	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY2005	Cost to Complete	Total Cost	
MPRS	0.500	2.200	2.200	2.200					CONT	CONT	
RDT&E Articles Qty											
<p>A. <u>Mission Description and Budget Item Justification.</u> The MPRS program is a research and development program to provide small, man portable unmanned platforms to support the missions of light and special operations forces. The program meets mission needs in the areas of reconnaissance during Military Operations in Urban Terrain (MOUT), as well as locating and disposing of very sensitive unexploded ordnance. This program has been renamed MPRS to assume a broader application of small, man portable systems. Previously it was only the Basic Unexploded Ordnance Gathering System (BUGS).</p> <p>(U) <u>FY 1998 Accomplishments</u></p> <ul style="list-style-type: none"> • Demonstrated prototype multiple BUG systems • Demonstrated vehicular operation for RECORM autonomous sensor platform • Obtained approval of Operational Requirements Document (ORD) for the Outdoor Miniature Robotic Ground Vehicle (OMRGV) <p>(U) <u>FY 1999 Plans</u></p> <ul style="list-style-type: none"> • Initiate testing of autonomous sensing of UXO in conjunction with reactive, autonomous vehicle control • Initiate sensor platform/small expendable MPRS integration • Initiate OMRGV development efforts <p>(U) <u>FY 2000 Plans</u></p> <ul style="list-style-type: none"> • Continue development of MPRS system prototypes • Conduct developmental testing of MPRS prototypes • Complete OMRGV prototype integration and check-out <p>(U) <u>FY 2001 Plans</u></p> <ul style="list-style-type: none"> • Complete developmental testing of BUGS prototypes • Conduct Analysis of Alternatives (AOA) and obtain Milestone 0 decision 											

Exhibit R-2a, RDT&E Project Justification		Date: February 1999			
B.	Other Program Funding Summary				
C.	Acquisition Strategy				
D.	Schedule Profile				
	Fiscal Year actual and planned events:				
		FY1998	FY1999	FY2000	FY2001
Acquisition					
Milestones					
OMRGV		ORD			
BUGS				MS0	
Engineering Milestones					
T&E Milestones					
Contract Milestones					

UNCLASSIFIED

Exhibit R-3 Cost Analysis (page 1)									Date: February 1999				
RDT&E, DEFENSE-WIDE, BUDGET ACTIVITY 4			PROGRAM ELEMENT PE 0603709D8Z						MAN PORTABLE ROBOTIC SYSTEMS (MPRS)				
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total 1998 Cost	1999 Cost	1999 Award Date	2000 Cost	2000 Award Date	2001 Cost	2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract	
Primary Hardware Development			0.355	0.950		0.600		0.400					
Ancillary Hardware Development													
Systems Engineering			0.100	0.150		0.200		0.300					
Licenses													
Tooling													
GFE													
Award Fees													
Subtotal Product Development			0.455	1.100		0.800		0.700		CONT	CONT		
Remarks: [1] MIPR/CPIF/FPIF/FFP activities													
Development Support													
Software Development				0.530		0.500		0.300					
Training Development													
Integrated Logistics Support				0.050		0.200		0.100					
Configuration Management													
Technical Data													
GFE													
Subtotal Support				0.580		0.700		0.400		CONT	CONT		
Remarks													

UNCLASSIFIED

Exhibit R-3 Cost Analysis (page 2)									Date: February 1999			
RDT&E, DEFENSE-WIDE, BUDGET ACTIVITY 4			PROGRAM ELEMENT PE 0603709D8Z						MAN PORTABLE ROBOTIC SYSTEMS (MPRS)			
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total 1998 Cost	1999 Cost	1999 Award Date	2000 Cost	2000 Award Date	2001 Cost	2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Developmental Testing				0.300		0.500		0.800				
Operational Testing												
Tooling												
GFE												
Subtotal T&E				0.300		0.500		0.800		CONT	CONT	
Remarks												
Contractor Engineering Support												
Government Engineering Support												
Program Management Support			0.025	0.150		0.150		0.250				
Program Management Personnel												
Travel			0.020	0.070		0.050		0.050				
Labor (Research Personnel)												
Miscellaneous												
Subtotal Management			0.045	0.220		0.200		0.300		CONT	CONT	
Remarks												
Total Cost			0.500	2.200		2.200		2.200				
Remarks												

UNCLASSIFIED

Exhibit R-2a, RDT&E Project Justification									Date:	
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NAME AND NUMBER				
RDT&E, DEFENSE WIDE, BUDGET ACTIVITY 4			PE 0603709D8Z			ROBOTIC ORDNANCE CLEARING SYSTEM (ROCS)				
Cost (\$ in Millions)	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY2005	Cost to Complete	Total Cost
ROCS	3.200	3.600	3.600	3.600					CONT	CONT
RDT&E Articles Qty										
<p>A. <u>Mission Description and Budget Item Justification.</u> The Robotics Ordnance Clearing System (ROCS) is a generic examination of Unexploded Ordnance (UXO) clearing applications and assessments. Prototypes are being examined for force protection in Saudi Arabia, range clearance at Nellis AFB, NV, as well as terrain assessments for probability of UXO. The US Air Force has created a Operational Requirements Document (ORD) for both force protection and active range clearance systems, utilizing the All-purpose Remote Transport System (ARTS).</p> <p>(U) <u>FY 1998 Accomplishments</u></p> <ul style="list-style-type: none"> • Built and fielded the 2nd All-purpose Remote Transport System (ARTS) for Active Range Clearance at Nellis Air Force Base (AFB), NV • Secured ARTS Program Objective Memorandum (POM) Funding for FY99-FY02 procurement for 21 systems • Built in-house ARTS for test and evaluation at various demonstrations • Integrated controls for brush-cutting attachment for rapid vegetation removal • Performed vegetation removal on ordnance ranges on Howard AFB, Panama • Demonstrated multi-sensor platform (magnetometers, ground penetrating radar and EM-61) at Yuma Proving Grounds • Built and fielded ARTS for Eglin AFB Explosive Ordnance Disposal (EOD) unit to recover test munitions • Completed and delivered backhoe remote control package with technical transfer documentation to Eglin AFB EOD • Participated with HQ Air Combat Command (ACC) in drafting the ARTS operational requirements document (ORD) • Designed and built a stainless steel version of ARTS platform as tow vehicle for a subsurface detection platform • Develop controller area network interface for autonomous control modules • Completed ARTS technology transfer documentation package (baseline version) • Demonstrated ARTS at the U.S. Marine Corps Commandant's War Fighting Experiment at Camp Lejeune, NC 										

Exhibit R-2a, RDT&E Project Justification	Date: February 1999
<ul style="list-style-type: none"> • Designed and integrated an ARTS surface scrap removal system to remove debris and process for disposal • Integrated UGV/S JPO's fiber optic control capability into the ARTS control system for both RF and fiber control • Provided 2 commercial versions of ARTS for urgent and compelling need for Southwest Asia and validated tech transfer package • Developed and integrated 2 Standardized Teleoperation System onto D-8 Caterpillar bulldozers • Provided and modified 2 protective armor kits for D-8 bulldozer • Designed and modified 9 Israeli mine plows for quick attachment to D-8 bulldozer <p>(U) <u>FY 1999 Plans</u></p> <ul style="list-style-type: none"> • Finalize documentation for the operation and maintenance of the ARTS • Have USAF Chief of Staff sign ORD • Integrate a dual-arm manipulator system for the Eglin AFB EOD ARTS • Develop a semi-autonomous point-to-point travel capability for Nellis range clearance operations • Integrate and demonstrate a lower-cost navigation system using multiple navigation sensors and Kalman filter technology • Deliver remaining 7 ARTS identified for urgent and compelling need for Southwest Asia • Upgrade the 2 Nellis prototypes to ARTS baseline configuration • Transfer and integrate semi-autonomous control functions developed under the subsurface ordnance characterization system (SOCS) to the field prototype Active Range Ordnance Mapping System (AROMS) • Integrate CO2 laser system to the ARTS tele-remote operation • Develop an automated ordnance recognition system for identifying BLU-97 and BLU-63 submunitions • Modify the UGV/S JPO designed mini-flail and integrate into the ARTS platform • Continue evaluation of new subsurface sensors to establish operating parameters and merits • Investigate the utilization of the ARTS for forest fire fighting applications • Conduct explosive testing of the high energy access and disablement device on ARTS • Modify ARTS software to be JAUGS compliant <p>(U) <u>FY 2000 Plans</u></p> <ul style="list-style-type: none"> • Complete integration and testing of CO2 laser system • Develop a vision based ordnance recognition system for BLU-97 and BLU-63 submunitions 	

<p align="center">Exhibit R-2a, RDT&E Project Justification</p>	<p>Date: February 1999</p>					
<ul style="list-style-type: none"> • Continue development of semi-autonomous control for automating the entire range clearance process including <ul style="list-style-type: none"> Multi-vehicle operations for windrowing of submunitions <ul style="list-style-type: none"> - Ordnance removal/disposal - Scrap and debris removal • Develop vision-based thermal recognition system for forest fire fighting • Develop vision-based color recognition system for defoliant applications • Incorporate technology advancements such as obstacle detection and avoidance from Demo III program • Investigate semi-autonomous excavation control utilizing in-bucket sensing capability • Address the integration of ARTS command and control with the UAV "Tactical Control System" <p>(U) <u>FY 2001 Plans</u></p> <ul style="list-style-type: none"> • Develop multi-vehicle control scheme for active range clearance • Investigate advanced navigation technologies including <ul style="list-style-type: none"> - Real-time obstacle avoidance/detection - Generic graphical user interface for robotic vehicle control - Improved command and control for ground based vehicle systems • Explore applications for ground-based robotic systems • Investigate control schemes for advanced navigation using artificial intelligence/neural networks <p>B. Other Program Funding Summary</p> <p>C. Acquisition Strategy</p> <p>D. Schedule Profile</p> <p>Fiscal Year actual and planned events:</p> <table border="0" style="margin-left: 200px;"> <tr> <td></td> <td align="center">FY1998</td> <td align="center">FY1999</td> <td align="center">FY2000</td> <td align="center">FY2001</td> </tr> </table>			FY1998	FY1999	FY2000	FY2001
	FY1998	FY1999	FY2000	FY2001		
<p>Acquisition Milestones</p>						
<p>Engineering Milestones</p>						
<p>T&E Milestones</p>						
<p>Contract Milestones</p>						

UNCLASSIFIED

Exhibit R-3 Cost Analysis (page 1)									Date: February 1999			
RDT&E, DEFENSE-WIDE, BUDGET ACTIVITY 4			PROGRAM ELEMENT PE 0603709D8Z						Robotic Ordnance Clearing System (ROCS)			
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total 1998 Cost	1999 Cost	1999 Award Date	2000 Cost	2000 Award Date	2001 Cost	2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development			0.700	0.800		0.800		0.800				
Ancillary Hardware Development			0.100	0.100		0.100		0.100				
Systems Engineering			0.100	0.100		0.100		0.100				
Licenses												
Tooling												
GFE												
Award Fees												
Subtotal Product Development			0.900	1.000		1.000		1.000		CONT	CONT	
Remarks:												
Development Support			0.350	0.300		0.300		0.300				
Software Development			0.350	0.300		0.300		0.300				
Training Development			0.100	0.100		0.100		0.100				
Integrated Logistics Support			0.050	0.050		0.050		0.050				
Configuration Management			0.050	0.050		0.050		0.050				
Technical Data			0.150	0.150		0.150		0.150				
GFE												
Subtotal Support			1.050	0.950		0.950		0.950		CONT	CONT	
Remarks												

UNCLASSIFIED

UNCLASSIFIED

Exhibit R-3 Cost Analysis (page 2)										Date: February 1999		
RDT&E, DEFENSE-WIDE, BUDGET ACTIVITY 4				PROGRAM ELEMENT PE 0603709D8Z						Robotic Ordnance Clearing System (ROCS)		
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total 1998 Cost	1999 Cost	1999 Award Date	2000 Cost	2000 Award Date	2001 Cost	2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Developmental Testing			0.100	0.200		0.200		0.200				
Operational Testing			0.050	0.100		0.100		0.100				
Tooling												
GFE												
Subtotal T&E			0.150	0.300		0.300		0.300		CONT	CONT	
Remarks												
Contractor Engineering Support			0.450	0.600		0.600		0.600				
Government Engineering Support			0.100	0.100		0.100		0.100				
Program Management Support			0.150	0.150		0.150		0.150				
Program Management Personnel			0.100	0.100		0.100		0.100				
Travel			0.100	0.100		0.100		0.100				
Labor (Research Personnel)			0.100	0.200		0.200		0.200				
Miscellaneous			0.100	0.100		0.100		0.100				
Subtotal Management			1.100	1.350		1.350		1.350		CONT	CONT	
Remarks												
Total Cost			3.200	3.600		3.600		3.600				
Remarks												

UNCLASSIFIED

Exhibit R-2a, RDT&E Project Justification									Date: February 1999	
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NAME AND NUMBER				
RDT&E, DEFENSE WIDE, BUDGET ACTIVITY 4			PE 0603709D8Z			TECHNOLOGY BASE				
Cost (\$ in Millions)	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY2005	Cost to Complete	Total Cost
TECHNOLOGY BASE	6.721	9.813	6.737	4.292					CONT	CONT
RDT&E Articles Qty										
<p>A. <u>Mission Description and Budget Item Justification.</u> The Demo III Unmanned Ground Vehicle (UGV) Program is designed to advance and demonstrate the technology required to develop future unmanned ground combat vehicles through three major thrusts: (1) concerted technology development; (2) modeling, simulation and experimentation; and (3) technology integration and evaluation with users. Demo III focuses on demonstration of technology that will enable the development of small, highly agile, unmanned vehicles capable of off-road, semi-autonomous operation at speeds of up to 32 km/hr during daylight and 16 km/hr at night by 4Q FY 2001. Demo III supports development of two emerging ORDs at the U.S. Army Armor School for a robotic scout system and a robotic leader-follower system. Technologies for these systems are applicable to a wide array of Army programs.</p> <p>(U) <u>FY1998 Accomplishments:</u></p> <ul style="list-style-type: none"> • <u>Concerted Technology Development:</u> The technology development community, drawn primarily from government laboratories such as NIST, the Jet Propulsion Laboratory (JPL), and ARL, has organized itself into a series of working groups to address six technology areas deemed critical to the success of the program. The primary focus of the effort has centered on the development of perception for autonomous mobility; algorithms for local planning and autonomous behaviors; an intelligent software architecture and a small, highly capable control interface that can be integrated into standard display units. A development plan that will provide the critical elements of technology required to advance technology and meet performance goals specified for Demo III has been charted, initial steps towards implementing the plan have been executed and first demonstrations of incremental advancement have been completed. The working groups have also completed detailed trade studies of required technologies. • <u>Modeling, Simulation and Experimentation:</u> A modeling, simulation and experimentation effort conducted by the MMBL, with assistance from ARL, has been running in parallel with the technology development program. The program has the twin goals of utilizing simulations to estimate the operational effectiveness of differing technological solutions and hardware/software configurations and developing TTPs required to employ this technology effectively. An important outcome of this 										

Exhibit R-2a, RDT&E Project Justification	Date: February 1999
<ul style="list-style-type: none"> • effort will be the technical support package (TSP) that will be required to support the second generation Tactical Unmanned Vehicle (TUV) user appraisal currently scheduled for FY 2002. The second of four constructive simulations and the first virtual simulation investigating alternative chassis configurations with differing size, weight, and mobility characteristics, together with a series of reconnaissance, surveillance and target acquisition (RSTA) mission packages of varying capability using Modular Semi-Automated Forces (ModSAF) simulations at the MMBL has been completed. Here, the Demo III XUVs were employed together with manned systems to form notional battalion and brigade scout forces engaged in both offensive and defensive operations as part of a mechanized combined arms force. Measures of effectiveness, such as loss exchange ratio were obtained for a limited number of experiments employing accepted, standard operational scenarios. • The technology integration effort represents the third thrust of the Demo III effort. This final component of the program will integrate technology on-board a testbed vehicle and demonstrate autonomous mobility required to conduct the military scout mission under tactical conditions. Unlike the other program elements, this program element was designed to be conducted by an industrial contractor chosen through a competitive procurement process that is being managed by the U.S. Army Tank -automotive Research, Development, and Engineering Center (TARDEC). In January 1998, TARDEC awarded a contract to a contractor team lead by Robotic Systems Technology (RST), teaming with Science Applications International Corporation (SAIC) Center for Intelligent Systems (CIS) and Sarnoff Corporation. A Preliminary Design Review (PDR) was conducted in late July by the technology integration contractor team who presented their initial design and integration plans - the result of an extensive series of trade studies and analyses conducted over the past five months - for review, analysis and constructive criticism by the government participants, and for further refinement prior to the Critical Design Review (CDR). <p>(U) <u>FY 1999 Plans</u></p> <ul style="list-style-type: none"> • Conduct Critical Design Review (CDR) of Demo III XUV with contractor team • Complete the second Constructive Simulation • Fabricate first two (2) XUV platforms and integrate system architecture and sensors to meet Demo III Alpha (A) performance goals • Fabricate the first of two Operator Control Units to be available by Demo III A • Conduct Demo III A consisting of an Engineering Evaluation Test and a Battle Lab Warfighting Experiment (BLWE) <p>(U) <u>FY 2000 Plans:</u></p> <ul style="list-style-type: none"> • Fabricate the second two (2) XUV platforms with integrated architecture and sensors to meet Demo III 	

Exhibit R-2a, RDT&E Project Justification				Date:					
<p>Bravo performance goals</p> <ul style="list-style-type: none"> • Fabricate the second Operator Control Unit • Complete the second Virtual Simulation • Initiate the third Virtual Simulation • Initiate the third and fourth Constructive Simulations • Complete Demo III Bravo (B) consisting of an Engineering Evaluation Test and a Battle Lab Warfighting Experiment (BLWE) <p>(U) <u>FY 2001 Plans:</u></p> <ul style="list-style-type: none"> • Conduct Demo III consisting of an Engineering Evaluation Test and a Battle Lab Warfighting Experiment (BLWE) with troops demonstrating four XUV platforms performing autonomous operation over rugged terrain as part of a mixed military force containing both manned and unmanned vehicles <p>B. Other Program Funding Summary</p> <p>C. Acquisition Strategy</p> <p>D. Schedule Profile</p> <p>Fiscal Year actual and planned events:</p> <table border="0"> <tr> <td></td> <td>FY1998</td> <td>FY1999</td> <td>FY2000</td> <td>FY2001</td> </tr> </table>						FY1998	FY1999	FY2000	FY2001
	FY1998	FY1999	FY2000	FY2001					
Acquisition Milestones									
Engineering Milestones									
T&E Milestones		DEMOIIIA	DEMOIIIB	DEMOIII					
Contract Milestones		Integration							
		Contract							

UNCLASSIFIED

Exhibit R-3 Cost Analysis (page 1)									Date: February 1999			
RDT&E, DEFENSE-WIDE, BUDGET ACTIVITY 4			PROGRAM ELEMENT PE 0603709D8Z						Technology Base			
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total 1998 Cost	1999 Cost	1999 Award Date	2000 Cost	2000 Award Date	2001 Cost	2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development	CPAF	RST, MD	1.983	2.250		1.250		1.000				
Ancillary Hardware Development	CPAF	RST, MD		1.425		0.725						
Systems Engineering	CPAF	RST, MD	0.708	0.900		0.400						
Licenses												
Tooling												
GFE												
Award Fees												
Subtotal Product Development			2.691	4.575		2.375		1.000		CONT	CONT	
Remarks: RST, Westminster, Maryland												
Development Support												
Software Development			1.445	0.775		0.750		0.650				
Software Development	CPAF	RST, MD	1.430	1.125		0.900		0.350				
Training Development				0.067				0.542				
Integrated Logistics Support								0.250				
Configuration Management												
Technical Data				1.271		0.712						
GFE												
Subtotal Support			2.875	3.238		2.362		1.792		CONT	CONT	
Remarks: RST, Westminster, Maryland												

UNCLASSIFIED

Exhibit R-3 Cost Analysis (page 2)										Date: February 1999		
RDT&E, DEFENSE-WIDE, BUDGET ACTIVITY 4				PROGRAM ELEMENT PE 0603709D8Z						Technology Base		
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total 1998 Cost	1999 Cost	1999 Award Date	2000 Cost	2000 Award Date	2001 Cost	2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Developmental Testing				1.000		1.000		1.000				
Operational Testing												
Tooling												
GFE												
Subtotal T&E				1.000		1.000		1.000		CONT	CONT	
Remarks												
Contractor Engineering Support			0.400									
Government Engineering Support			0.368									
Program Management Support			0.200	0.750		0.750		0.250				
Program Management Personnel												
Travel			0.187	0.250		0.250		0.250				
Labor (Research Personnel)												
Miscellaneous												
Subtotal Management			1.155	1.000		1.000		0.500		CONT	CONT	
Remarks												
Total Cost			6.721	9.813		6.737		4.292				
Remarks												

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification									DATE FEBRUARY 1999	
APPROPRIATION/BUDGET ACTIVITY RDT&E,DW/BA 4					R-1 ITEM NOMENCLATURE Program Element (PE) Name and No. ADVANCED SENSOR APPLICATIONS PROGRAM PE 0603714D8Z					
COST(\$In Millions)	FY1998	FY1999	FY2000	FY2001	FY2002	FY2003	FY2004	FY2005	Cost to Complete	Total Cost
Total PE Cost	14.279	17.918	15.345	15.646	15.814	16.143	16.481	16.828	Continuing	Continuing
Project Name/No. and Subtotal Cost ASAP/P714	14.279	17.918	15.345	15.646	15.814	16.143	16.481	16.828	Continuing	Continuing
Quantity of RDT&E Articles	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		

A. Mission Description and Budget Item Justification

Brief Description of Element: The program focuses on continued development of domestic and foreign non-acoustic technology that has demonstrated potential for improvements in U.S. capabilities. Through joint international programs, unique and innovative approaches and technologies to expanding the performance envelopes of existing systems are examined for potential enhancements to U.S. abilities to detect and locate potential threats to U.S. National Security. **This program supports military and intelligence requirements identified in Joint Vision 2010, the Defense Science and Technology Strategy, Full Spectrum Dominance and the Joint Warfighting Capability Objectives.**

In FY 1998, Congress added funding for the High Frequency Active Auroral Research Program (HAARP). This program examines the utility of the ionospheric modification facility developed under HAARP for military, intelligence, counterproliferation, counterterrorism and counternarcotics missions. This program supports military and

UNCLASSIFIED

UNCLASSIFIED

Exhibit R2, RDT&E Budget Item Justification		DATE FEBRUARY 1999
APPROPRIATION/BUDGET ACTIVITY RDT&E,DW/BA 4	R-1 ITEM NOMENCLATURE Program Element (PE) PE 0603714D8Z ADVANCED SENSOR APPLICATIONS PROGRAM	

intelligence requirements identified in the Joint Vision 2010, Defense Science and Technology Strategy, Full Spectrum Dominance and the Joint Warfighting Capability Objectives.

Program Accomplishments and Plans:

FY 1998 Accomplishments:

- Defined specific environmental parameters relevant to littoral and open ocean defense priorities (5.500 Million)
- Completed procurement of testbed hardware to be tested first quarter FY 2000 (3.400 Million)
- Completed joint evaluation of technology and moved understanding of radar scattering into phase II (4.119 Million)
- Completed refurbishment of on-board strategic array and computer programming upgrade (1.000 Million)
- Assisted in defining conventional signal generation and system propagation (0.260 Million)

FY 1999 Plans:

- Continue data collections for environmental applications relevant to military/intelligence applications (5.500 Million)
- Begin data collections with new system to evaluate mechanisms at low angles(4.618 Million)
- Complete testbed and bench testing in preparation for full scale evaluation(3.400 Million)

UNCLASSIFIED

UNCLASSIFIED

Exhibit R2, RDT&E Budget Item Justification		DATE FEBRUARY 1999
APPROPRIATION/BUDGET ACTIVITY RDT&E,DW/BA 4	R-1 ITEM NOMENCLATURE Program Element (PE) PE 0603714D8Z ADVANCED SENSOR APPLICATIONS PROGRAM	

- Transition the sensor project to acquisition (1.000 Million)
- Collect and evaluate data (0.400 Million)
- Initiate exploration and demonstrate potential for high priority military applications for HAARP (2.000 Million)
- Assess initial capabilities of Stochastic Resonance Technology (1.000 Million)

FY 2000 Plans:

- Define specific sensor parameters relevant to environmental technologies(5.700 Million)
- Continue data collections with system to evaluate false alarm statistics(4.745 Million)
- Establish requirements for foreign cooperative technology evaluation projects(2.000 Million)
- Complete performance evaluation for military and intelligence applications(1.900 Million)
- Define performance characteristics(1.000 Million)

FY 2001 Plans:

- Complete systems evaluation of environmental technologies for Defense applications (4.500 Million)
- Continue data collections and evaluation for modeling validation for sensor systems, expand applications(4.846 Million)
- Define priorities for foreign technology evaluations and establish test program(3.200 Million)
- Establish false alarm rates for final systems and define detailed performance envelopes (1.400 Million)

UNCLASSIFIED

UNCLASSIFIED

Exhibit R2, RDT&E Budget Item Justification		DATE FEBRUARY 1999
APPROPRIATION/BUDGET ACTIVITY RDT&E,DW/BA 4	R-1 ITEM NOMENCLATURE Program Element (PE) PE 0603714D8Z ADVANCED SENSOR APPLICATIONS PROGRAM	

- Continue definition of space-based system requirements and capabilities for systems (1.700 Million)

B. <u>Program Change Summary</u>	<u>FY1998</u>	<u>FY1999</u>	<u>FY2000</u>	<u>FY2001</u>	Total Cost
Previous President's Budget	17.655	15.147	15.602	15.928	Continuing
a. Congressional Add		+3.000			
Appropriated Value	17.655	18.147	15.602	15.928	
Adjustments to Appropriated Value					
a. DoD Internal Reprogramming	-3.000				
b. Undistributed Congressional Reduction	-.069				
c. OSD Adjustments	-.307				
d. Inflation Adjustment		-.229	-.257	-.282	
Amended Budget Estimate	14.279	17.918	15.345	15.646	Continuing

Change Summary Explanation: N/A

UNCLASSIFIED

Exhibit R2, RDT&E Budget Item Justification		DATE FEBRUARY 1999
APPROPRIATION/BUDGET ACTIVITY RDT&E,DW/BA 4	R-1 ITEM NOMENCLATURE Program Element (PE) PE 0603714D8Z ADVANCED SENSOR APPLICATIONS PROGRAM	

C. Other Program Funding Summary: None

UNCLASSIFIED

Exhibit R2a RDT&E Project Justification									DATE FEBRUARY 1999	
APPROPRIATION/BUDGET ACTIVITY RDT&E,DW/BA 4					R-1 ITEM NOMENCLATURE Program Element (PE) Name and No. ADVANCED SENSOR APPLICATIONS PROGRAM PE 0603714D8Z					
COST (\$ In Millions)	FY1998	FY1999	FY2000	FY2001	FY2002	FY2003	FY2004	FY2005	Cost to Complete	Total Cost
Project Cost	14.279	17.918	15.345	15.646	15.814	16.143	16.481	16.828	Continuing	Continuing
RDT&E Articles Qty										

A. Mission Description and Budget Item Justification:

The program focuses on continued development of domestic and foreign non-acoustic technology that has demonstrated potential for improvements in U.S. capabilities. Through joint international programs, unique and innovative approaches and technologies to expanding the performance envelopes of existing systems are examined for potential enhancements to U.S. abilities to detect and locate potential threats to U.S. National Security. **This program supports military and intelligence requirements identified in Joint Vision 2010, the Defense Science and Technology Strategy, Full Spectrum Dominance and the Joint Warfighting Capability Objectives.**

In FY 1998, Congress added funding for the High Frequency Active Auroral Research Program (HAARP). The program examines the utility of the ionospheric modification facility developed under HAARP for military, intelligence, counterproliferation, counterterrorism and counternarcotics missions. This program supports military and intelligence requirements identified in the Joint Vision 2010, Defense Science and Technology Strategy, Full Spectrum Dominance and the Joint Warfighting Capability Objectives.

UNCLASSIFIED

UNCLASSIFIED

B. Other Program Funding Summary: N/A

C. Acquisition Strategy:

The program plans to continue the support of major contractors through ISSO contracting office. As activities transfer to the Office of Special Technology, contracts supporting those efforts will transfer with them. As required by the DFAR and DoD acquisition reform policies, all initiatives will meet appropriate regulations and requirements. The acquisition strategy is reviewed bi-annually to identify possible improvements in customer support and enhancements to program efficiency.

D. Schedule Profile:

Fiscal Year actual and planned events by quarter:

- Define parameters 2QFY98
- Define priority military/intelligence activities for HAARP 4QFY98
- Complete procurement of hardware 4QFY98
- Define priority military/intelligence activities for HAARP 4QFY98
- Initiate U.S. activities 1QFY99
- Transition joint activities 1QFY99
- Complete refurbished array 2QFY99
- Begin exploration and demonstration of HAARP Capabilities 1QFY99
- Assess initial capabilities of Stochastic Resonance for Defense/intelligence applications 1QFY99
- Continue data collections for environmental activities 3QFY99
- Data collection with new system 3QFY99
- Complete testbed 4QFY99
- Transition array activities 4QFY99
- Define parameters 1QFY00
- Continue joint data collections 2QFY00

UNCLASSIFIED

UNCLASSIFIED

- Define requirements for foreign cooperative evaluations 2QFY00
- Complete evaluation 3QFY00
- Define system parameters 4QFY00
- Complete sensor system evaluation technology 4QFY00
- Define environmental parameters 1QFY01
- Continue data collections for applications 2QFY01
- Continue evaluations for foreign cooperative technology tests 3QFY01
- Establish false alarm statistics for operational concepts 3QFY01
- Evaluate space-based benefits for applications 4QFY01
- Continue data collections for model validation 1QFY02
- Continue evaluation of foreign technology for military/intelligence Applications 1QFY02
- Establish baseline technology capabilities for critical military Requirements 2QFY02
- Define vulnerabilities 3QFY02
- Evaluate system enhancements for upgrades to foreign technologies 4QFY02
- Evaluate foreign technology capability 4QFY02
- Continue data collections to verify technology capabilities 1QFY03
- Collect data for model validation and verification 2QFY03
- Define vulnerabilities 3QFY03
- Evaluate mechanisms for detection under all environmental conditions 4QFY03
- Establish system performance parameters 1QFY04
- Collect data on sensors for false alarm and enhanced performance evaluations for foreign technologies 2QFY04
- Verify models for enhanced system performance 3QFY04
- Validate models and theory for technology capabilities 4QFY04
- Define new processing techniques for enhanced system capability 4QFY04

UNCLASSIFIED

UNCLASSIFIED

Exhibit R-3, Project Cost Analysis

Exhibit R-3 Cost Analysis (page 2)								Date: February 1999				
APPROPRIATION/BUDGET ACTIVITY RDT&E,DW/BA 4			PROGRAM ELEMENT PE0603714D8Z				PROJECT NAME AND NUMBER ASAP/P714					
Cost Categories (Tailor to WBS, or System /Item Requirements)	Contract Method & Type	Performing Activity Location	Total PYS Cost	CY Cost	CY Award Date	BY1 Cost	BY1 Award Date	BY2 Cost	BY2 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Development Test & Evaluation	Multiple	Various	49.098	5.177	4/99	5.578	4/00	5.686	4/01	Con't	Con't	
Operational Test & Evaluation												
Tooling												
GFE												
Subtotal T&E			49.098	5.177		5.578		5.686				
Remarks												
Contractor Engineering Support	multiple	Various	28.398	6.179	4/99	3.411	4/00	3.481	4/01	Con't	Con't	
Government Engineering Support	Multiple	Various	53.495	5.457	4/99	5.882	4/00	5.374	4/01	Con't	Con't	
Program Management Support												
Program Management Personnel												
Travel			1.304	.005	4/99	.005	4/00	.005	4/01	Con't.	Con't	
Labor (Research Personnel)												
Overhead	multiple	Various	11.491	1.100	4/99	.469	4/00	1.100	4/01	Con't	Con't	
Subtotal Management			94.688	12.741		9.767		9.960				
Remarks												

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification								Date: February 1999		
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/Budget Activity 4					R-1 ITEM NOMENCLATURE CALs, The Strategy, PE 0603736D8Z					
COST (\$ in Millions)	1998	1999	2000	2001	2002	2003	2004	2005	Cost to Complete	Total Cost
Total PE Cost	6,172	7,765	1,652	1,623	1,650	1,685	1,720	1,756	Continuing	Continuin
Project A Name/No. & subtotal cost										
Project B Name/No. & subtotal cost										
Project C Name/No. & subtotal cost										
Quantity of RDT&E Articles										

A. Mission Description and Budget Item Justification

(U) **Brief description of element:** CALS is an international core strategy to share integrated digital product data through a set of standards to achieve efficiencies in business and operational mission areas. DoD’s overarching goal in CALS is to develop a seamless defense enterprise in which the knowledge products of the acquisition process are immediately and rapidly accessible to all authorized users while maintaining near immediate currency and quality of information. This desired state is referred to as the “Integrated Data Environment (IDE)”. The IDE (immediate access to quality information) drives many defense-wide and functional-specific reforms and business process improvements. The rapid sharing of information is an implied requisite of Integrated Product and Process Teams, a fundamental process for implementing concurrent engineering and streamlining project management. Digitized information frees logistics support and operator personnel from the burden of cumbersome document or file formats for information processing or presentation – enabling new methods for the performance of maintenance and training tasks based on interactive electronic technologies. This program element is to (1) assess and transition evolving automation technologies into the CALS strategy; (2) develop, maintain and apply to weapon system program office operations an executable business model for the application of CALS and related technologies; (3) integrate technical and functional requirements into a Shared Information Framework of the standards, protocols, procedures, and network management conventions required to achieve compatible implementation of the IDE throughout the international defense enterprise.

(U) **Program Accomplishments and Plans:**

(U) **FY 1998 Accomplishments:**

- Supported Joint Service initiatives for Business Process Improvements (BPI) using CALS technology. Areas of focus were on identifying opportunities for and implementing BPI concepts to establish the Integrated Data Environment (\$1.000 Million)
- Supported a Weapon System Program’s development of an IDE (\$1.147 Million)
- Continued development and update of analytic tools and methods to support the IDE implementations (\$.025 Million)
- Completed Integrated Weapon System Database (IWSDB) technology (\$4.000 Million)

(U) **FY 1999 Plans:**

- Complete Tri-Service IETM architecture (\$4.125 Million)
- Reengineer logistics processes based on CALS technologies (\$1.000 Million)
- Assess integration of CALS technologies with dynamic product models (\$.368 Million)
- Complete development of CALS-based Navy “Telogistics” prototype (\$.120 Million)
- Complete integration of maintenance prognostics and IETM architecture (\$2.152 Million)

(U) FY 2000 Plans:

- Continue to reengineer logistics processes based on CALS technologies (\$.895 Million)
- Employ CALS in developing architectures to govern the modernization of integrated supply chain information systems (\$.757 Million)

(U) FY 2001 Plans:

- Continue to reengineer logistics processes based on CALS technologies (\$.925 Million)
- Continue to employ CALS in developing architectures to govern the modernization of integrated supply chain information systems (\$.698 Million)

(U) B. Program Change Summary:	<u>FY1998</u>	<u>FY1999</u>	<u>FY2000</u>	<u>FY2001</u>	<u>Total Cost</u>
Previous President's Budget	1.916	1.899	1.652	1.623	Continuing
Appropriated Value	9.916	5.866			
Adjustments to Appropriated Value:					
Other (DoD Program Changes)	(3.744)	1.899			
Current Budget Submit/President's Budget	6.172	7.765	1.652	1.623	Continuing

(U) Change Summary Explanation:

(U) Funding: The changes in FYs 1998 and 1999 are due to below threshold program adjustments.

(U) Schedule: Not Applicable

(U) Technical: Not Applicable

(U) **C. Other Program Funding Summary:** Not Applicable

(U) **D. Acquisition Strategy:** Not Applicable

(U) **E. Schedule Profile:** Not Applicable

UNCLASSIFIED

Exhibit R-3 Cost Analysis (page 1)									Date: February 1999			
APPROPRIATION/BUDGET ACTIVITY 4			PROGRAM ELEMENT 0603736D8Z						CALs, The Strategy			
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total 1998 Cost	1999 Cost	1999 Award Date	2000 Cost	2000 Award Date	2001 Cost	2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development												
Ancillary Hardware Development												
Systems Engineering												
Licenses												
Tooling												
GFE												
Award Fees												
Subtotal Product Development												
Remarks:												
Development Support			4.725	6.645		1.652		1,623		Continuing		
Software Development												
Training Development			.515									
Integrated Logistics Support			.465									
Configuration Management			.467									
Technical Data				.120								
Business Process Improvements				1.000								
Subtotal Support			6.172	7.765		1.652		1,623		Continuing		
Remarks												

UNCLASSIFIED

Exhibit R-3 Cost Analysis (page 2)										Date: February 1999		
APPROPRIATION/BUDGET ACTIVITY 4				PROGRAM ELEMENT 0603736D8Z						CALs, The Strategy		
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total 1998 Cost	1999 Cost	1999 Award Date	2000 Cost	2000 Award Date	2001 Cost	2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation												
Operational Test & Evaluation												
Tooling												
GFE												
Subtotal T&E												
Remarks												
Contractor Engineering Support												
Government Engineering Support												
Program Management Support												
Program Management Personnel												
Travel												
Labor (Research Personnel)												
Overhead												
Subtotal Management												
Remarks												
Total Cost			6.172	7.765		1.652		1.623		Continuing		
Remarks												

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									Date: (MONTH/YEAR) February 1999	
APPROPRIATION/BUDGET ACTIVITY					R-1 ITEM NOMENCLATURE					
RDT&E, Defense-wide/ Budget Activity 4					Environmental Security Technology Certification Program (ESTCP) PE 0603851D8Z					
<i>Cost (In Millions)</i>	FY 1998	FY 1999	FY 2000	FY 2001	FY2002	FY2003	FY2004	FY2005	Cost to Complete	Total Cost
Total PE 0603851D Cost	14.500	16.836	23.260	27.601	27.726	27.947	26.316	25.676	Continuing	Continuing
ESTCP/P514 Cost	14.500	16.836	23.260	27.601	27.726	27.947	26.316	25.676	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program demonstrates and validates the most promising innovative environmental technologies that target DoD's most urgent environmental needs and are projected to pay back the investment within five years through cost savings and improved efficiencies. It responds to: (1) congressional concern over the slow pace of remediation of environmentally polluted sites on military installations, (2) congressional direction to conduct demonstrations specifically focused on emerging new technologies, (3) Executive Order 12856 which requires Federal agencies to place a high priority on obtaining funding and resources needed for the development of innovative pollution prevention programs and technologies for installations and in acquisitions, and (4) the need to improve defense readiness by reducing the drain on the Department's operation and maintenance dollars caused by real world commitments such as environmental restoration and waste management. Preference for demonstrations are given to technologies that respond to Environmental Security objectives, have successfully completed all necessary research and development objectives, and address the highest priority DoD environmental requirements. Project funding supports the following categories for each year.

Exhibit R-2, RDT&E Budget Item Justification
(Exhibit R-2, page 1 of 5)

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		Date: (MONTH/YEAR) February 1999
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-wide/ Budget Activity 4	R-1 ITEM NOMENCLATURE Environmental Security Technology Certification Program (ESTCP) PE 0603851D8Z	

FY 1998 Accomplishments:

- Reviewed and selected technologies for demonstration.
- Reviewed and selected sites for demonstration of remediation technologies.
- Prepared site-specific implementation plans (\$0.500 million).
- Prepared sites and secure regulatory permitting (\$2.700 million).
- Demonstration and evaluation of selected technologies (\$11.300 million).

FY 1999 Plans:

- Review and select technologies for demonstration.
- Review and select sites for demonstration of technologies.
- Prepare site-specific implementation plans (\$0.610 million).
- Prepare sites and secure regulatory permitting (\$2.770million).
- Award demonstration testing and evaluation for selected technologies (\$13.456 million).

The FY99 funds are invested in projects which address priority DoD environmental requirements. The funds are programmed in the areas of:

- Cleanup: To demonstrate and validate innovative technologies to restore DoD facilities contaminated with toxic, explosive, or hazardous waste. (\$8.848 Million)
- Compliance: To demonstrate and validate innovative technologies to ensure DoD complies with our federal, state, and local environmental laws. (\$2.953 Million)
- Pollution Prevention: To demonstrate validate innovative technologies to reduce the use of hazardous materials, and curb emissions of pollutants in military operations as well as weapons systems manufacturing, operations, and maintenance. (\$5.035 Million)

Exhibit R-2, RDT&E Budget Item Justification
(Exhibit R-2, page 2 of 5)

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		Date: (MONTH/YEAR) February 1999
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-wide/ Budget Activity 4	R-1 ITEM NOMENCLATURE Environmental Security Technology Certification Program (ESTCP) PE 0603851D8Z	

FY 2000 Plans:

- Review and select technologies for demonstration.
- Review and select sites for demonstration of technologies.
- Prepare site-specific implementation plans (\$0.700 million).
- Prepare sites and secure regulatory permitting (\$2.800 million).
- Award demonstration testing and evaluation for selected technologies (\$19.760 million).

FY 2001-05 Plans: The ESTCP will continue to program and budget for the most promising innovative environmental technologies that target DoD's most urgent environmental needs and are projected to pay back the investment within five years.

Exhibit R-2, RDT&E Budget Item Justification
(Exhibit R-2, page 3 of 5)

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		Date: (MONTH/YEAR) February 1999
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-wide/ Budget Activity 4	R-1 ITEM NOMENCLATURE Environmental Security Technology Certification Program (ESTCP) PE 0603851D8Z	

Justification for Budget Activity Assignment: To conform to the defined DoD acquisition milestones sequence, this program element is categorized under Budget Activity 4, Demonstration and Validation (Dem/Val).

Acquisition Strategy: When demonstration and validation of a particular technology is completed, and if the technology is found to be effective and affordable by users, regulators and other stakeholders, a user data package will be developed and distributed, e.g., specification, procurement package, etc., providing details to users on the technologies validated cost and performance and on how to acquire and implement the technology. When this step is completed, the demonstration will be considered successful.

B. Program Change Summary

	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY2000</u>	<u>Total Cost</u>
Previous President's Budget	15.164	17.051	16.650	Continuing
Appropriated Value	15.164	17.051		
Adjustments to Appropriated Value				
a. Undistributed reduction	(.301)			
b. SBIR	(.363)	(.215)		
Current Budget Submit/ President's Budget	14.500	16.836	23.260	Continuing

Change Summary Explanation: FY 1998 changes are due to congressional undistributed reductions. FY 1999 changes are below threshold program adjustments. FY00 -05 reflect changes due to increased requirements.

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		Date: (MONTH/YEAR) February 1999
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-wide/ Budget Activity 4	R-1 ITEM NOMENCLATURE Environmental Security Technology Certification Program (ESTCP) PE 0603851D8Z	

C. Other Program Funding Summary Not applicable.

D. Acquisition Strategy ESTCP projects are individually managed by the designated Service leads. Contracting is performed by the Service organization with responsibility for leading the validation effort for the technology being demonstrated.

E. Schedule Profile (Fiscal Year actual and planned events by quarter)

	<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>				<u>FY 2001</u>			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Acquisition Milestones																
- Select technology				X												
- Select site					X											
Engineering Milestones																
- Complete site prep and regulatory permitting							X									
T&E Milestones																
- Complete T&E											X					
Contract Milestones																
Other Program Events																
- Obtain user, regulator and other stakeholder approvals														X		
- Develop and distribute user data packages															X	

This program continues from FY 2001 through FY 2005. The above milestones reflect the average life cycle of a typical, successful remediation demonstration utilizing FY 1999 funding. A similar pattern is expected for FY 2001 and outyear funding.

Exhibit R-2, RDT&E Budget Item Justification
(Exhibit R-2, page 5 of 5)

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE : (MONTH/YEAR) February 1999
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE PE NUMBER/PROJECT NUMBER	
RDT&E, Defense-wide/Budget Activity 4	Environmental Security Technology Certification Program (ESTCP) PE 0603851D8Z	

	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002
Project Cost Categories					
Cost Categories:					
a. Demonstration & Validation	13,750	16,103	22,410	26,651	26,776
b. Program Management Support	750	733	850	950	950
TOTAL	14,500	16,836	23,260	27,601	27,726

(Exhibit R-3, page 1 of 2)

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE : (MONTH/YEAR) February 1999
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE PE NUMBER/PROJECT NUMBER	
RDT&E, Defense-wide/Budget Activity 4	Environmental Security Technology Certification Program (ESTCP) PE 0603851D8Z	

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1998	Budget FY 1998	Budget FY 1999	Budget FY 2000	Budget FY2001	Budget to Complete	Total Program
DoD	C	-	-	-	89.389	14.500	16.836	23.260	27.601	Continuing	Continuing
Actual or Budget Value (\$ in millions)											

Government Furnished Property

Item Description	Contract Method/Type or Funding Vehicle	Award or obligation Date	Delivery Date	Total Prior to FY1997	Budget 1997	Budget 1998	Budget 1999	Budget to Complete	Total Program
------------------	---	--------------------------	---------------	-----------------------	-------------	-------------	-------------	--------------------	---------------

Product Development Property (list each item separately) N/A
 Support and Management Property (list each item separately) N/A
 Test and Evaluation Property (list each item separately) N/A
 Subtotal Product and Development
 Subtotal Support and Management
 Subtotal Test and Evaluation

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										Date: (MONTH/YEAR)		
APPROPRIATION/BUDGET ACTIVITY										R-1 ITEM NOMENCLATURE		
RDT&E, Defense-wide/ Budget Activity 4										Tactical Anti-Satellite Program Development - PE 0603892D		
Cost (In Millions)	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Cost
Total PE 0603892D Cost	37.5	0	0	0	0	0	0	0	0	0	Continuing	Continuing
Kinetic Energy anti-satellite Cost	37.5	0	0	0	0	0	0	0	0	0	Continuing	Continuing

A. Mission Description and Budget Item Justification

(U) **BRIEF DESCRIPTION OF ELEMENT:** The U.S. military has become dependent on satellites as a primary source of information in virtually all of its operations and then looking at the world-wide proliferation of technology which is making this type capability readily available to virtually any country. Today, national defense planners and strategists have to operate with the knowledge that future adversaries will have access to satellite derived intelligence, warning, communications, navigation, weather and other information that can significantly enhance their war-fighting capability and increase the risk to U.S. and allied forces

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		Date: (MONTH/YEAR) FEB 99
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-wide/ Budget Activity 4	R-1 ITEM NOMENCLATURE Tactical Anti-Satellite Program Development - PE 0603892D	

(U) In 1989 the Department of Defense initiated a program to develop a ground-launched, kinetic energy (i.e., hit-to-kill) anti-satellite (KE ASAT) weapon system which would leverage off technologies developed by the U.S. Army Space and Strategic Defense Command in support of the (then) Strategic Defense Initiative Organization. Following a Milestone I Defense Acquisition Board Review in December of 1989, the Army was given responsibility for development of the weapon elements of the system (booster, kill vehicle, launch and ground support systems, and the mission and battery control centers.) The Air Force was given responsibility for development of the command and control elements that would have allowed the Commander-in-Chief, U.S. Space Command (USCINCSpace) to plan and control ASAT engagements.

(U) With the end of the cold war the perceived need for this capability, as well as support for continued funding diminished steadily and the program was restructured several times. The National Defense Authorization Act for fiscal year 1994 (FY 1994) directed that the program be converted to a Tactical ASAT Technology Program as opposed to an acquisition program with a low funding level. Under this current program, the KE ASAT was test fired in September 1994, successfully meeting all requirements. This 94-pound kill vehicle is the critical component of a KE ASAT. The following was accomplished in FY 1998:

- KE Hover Test Completed at National Hover Test Facility, Edwards Air Force Base
- Weapon Control Subsystem (WCS) Demonstrator Software Upgraded and W5 Test Completed
- Graphical Display System (GDS) Added to WCS Screens
- KV Divert and Attitude Control System (DACS) Design Upgraded and Components Fabricated
- KV Flight Software Developed and Testing Initiated on Software Testbed
- KV Avionics Components Fabricated
- KV Digital Flyout Simulation Completed
- Seeker and GN&C Processors Upgraded

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		Date: (MONTH/YEAR) FEB 99
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-wide/ Budget Activity 4	R-1 ITEM NOMENCLATURE Tactical Anti-Satellite Program Development - PE 0603892D	

FY98/99 Plans

INTERCEPTOR COMPONENT	
DEVELOPMENT, INTEGRATION AND TESTING	\$6,750K
INTEGRATED COMMAND AND CONTROL SUBSYSTEM	\$5,500K
KV SYSTEM INTEGRATION AND TESTING	\$6,750K
KILL MECHANISM TECHNOLOGY DEVELOPMENT	\$8,250K
HWIL FACILITY PREPARATION AND TESTING	\$4,000K
PROGRAM MANAGEMENT	\$2,250K
TECHNICAL SIMULATION & SUPPORT (SBIR)	\$4,000K

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		Date: (MONTH/YEAR) FEB 99
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-wide/ Budget Activity 4	R-1 ITEM NOMENCLATURE Tactical Anti-Satellite Program Development - PE 0603892D	

(U) FY 1998 Plans:

- The Senate Armed Services Committee has authorized \$37.5 million for KE ASAT in the FY 1998 Authorization Bill. The Senate Appropriation bill also included \$37.5 million for KE ASAT. The Joint Authorization (Senate & House) has agreed on \$37.5 million for KE ASAT. The following will be accomplished with FY 1998 funds:
- Complete KV HW/SW Integration
- KV Hardware-In-Loop testing
- Integrated Command and Control Subsystem Integration
- Kill Mechanism Technology Development
- Digital simulations

**Work will not include booster procurement, laser development or space surveillance efforts.

(U) B. Program Change Summary

	<u>FY1998</u>	<u>FY1999</u>	<u>FY2000</u>	<u>Total Cost</u>
Previous President's Budget	0	0	0	0
Appropriated Value	37500K	0	0	
Adjustments to Appropriated Value *	0	0	0	0
Current Budget Submit/President's Budget	37500K	0	0	0

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		Date: (MONTH/YEAR) FEB 99
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-wide/ Budget Activity 4	R-1 ITEM NOMENCLATURE Tactical Anti-Satellite Program Development - PE 0603892D	

(U) C. Other Program Funding Summary:

The original PE0603392A was established in 1989. By FY1996 Congressional action, this PE was transferred to OSD under PE0603392D. Then, later in 1996, the PE was changed to PE0603892D for more appropriate execution (Budget Activity 4). This is a continuation of the same Anti-Satellite program.

(U) D. Acquisition Strategy

The prime contract was awarded on a competitive basis in 1990 to Rockwell International. FY96 and FY97 funds were obligated on the existing contract. A technical analysis contract was awarded on a competitive basis as a SBIR to DESE Research. Other major activities will be performed in-house and by OGA. Streamline acquisition strategy has been adopted based on DOD 5000.2. Also, an integrated product team approach has been implemented. Commercial specifications have been adopted, and MIL-SPECS are used an exception basis only for acquisition.

(U) E. Schedule Profile

Fiscal year actual and planned events by quarter

<u>Project Milestones</u>	<u>FY 1998</u>				<u>FY 1999</u>			
	1	2	3	4	1	2	3	4
• Kill Mechanism Development					X	X	X	X
• KV Integration							X	X
• Hardware-in-Loop Facility prep						X	X	X
• Digital Simulations					X	X		
• Command & Control integration & Upgrades					X	X	X	X

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE : (MONTH/YEAR) FEB 99
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE PE NUMBER/PROJECT NUMBER	
RDT&E, Defense-wide/Budget Activity 4	Tactical Anti-Satellite Program Development PE 0603892D -	

A. Project Cost Breakdown (\$ in thousands)

	FY 1998	FY 1999	FY 2000	FY 2001
Project Cost Categories				
Cost Categories:				
a. Demonstration & Validation	35,250			
b. Program Management Support	2,250			
TOTAL	37,500			

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE : (MONTH/YEAR) FEB 99
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-wide/Budget Activity 4	R-1 ITEM NOMENCLATURE PE NUMBER/PROJECT NUMBER Tactical Anti-Satellite Program Development - PE 0603892D	

B. Budget Acquisition History and Planning Information

Performing Organizations

<u>Contractor or Government Performing Activity</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Performing Activity EAC</u>	<u>Project Office EAC</u>	<u>Total Prior to FY 1998</u>	<u>Budget FY 1998</u>	<u>Budget FY 1999</u>	<u>Budget FY 2000</u>	<u>Budget FY2001</u>	<u>Budget to Complete</u>	<u>Total Program</u>
DoD (USASMDC) Prime Contractor Technical Analysis(SBIR) In-House effort (including OGA) Tech Sim/Support	C	Sep 90	-	-	325000	37500 23250 4000 8250 2000				Continuing	Continuing

Government Furnished Property

<u>Item Description</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or obligation Date</u>	<u>Delivery Date</u>	<u>Total Prior to FY1998</u>	<u>Budget 1998</u>	<u>Budget 1999</u>	<u>Budget 2000</u>	<u>Budget to Complete</u>	<u>Total Program</u>
-------------------------	--	---------------------------------	----------------------	------------------------------	--------------------	--------------------	--------------------	---------------------------	----------------------

Product Development Property (list each item separately) N/A
 Support and Management Property (list each item separately) N/A
 Test and Evaluation Property (list each item separately) N/A

Subtotal Product and Development
 Subtotal Support and Management
 Subtotal Test and Evaluation

UNCLASSIFIED

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1999		
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/BA 4							R-1 ITEM NOMENCLATURE Humanitarian Demining PE 0603920D8Z			
<i>COST(In Millions)</i>	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to Complete	Total Cost
Total Program Element (PE) Cost	0	18.498	15.847	14.819	18.480	14.921	15.234	15.554	Continuing	Continuing
Humanitarian Demining/P920t	0	18.498	15.847	14.819	18.480	14.921	15.234	15.554	Continuing	Continuing

(U) A. Mission Description and Budget Item Justification

(U) BRIEF DESCRIPTION OF ELEMENT

(U) BRIEF DESCRIPTION OF ELEMENTS:

(U) This Humanitarian Demining R&D program element focuses on the testing, demonstration and validation of equipment suitable for immediate use in various international humanitarian demining missions and environments. The goal is to provide the equipment to the international demining community so that they may assess the equipment’s capabilities in actual demining conditions. This program focuses on R&D technology development that reduces the time and cost associated with demining while improving the overall safety of the operator. This is accomplished through the adaptation of commercial-off-the-shelf equipment, the integration of mature technologies and the leveraging from past and current R&D project activity in U.S. and foreign countermining, as well as civilian unexploded ordnance clearance mission areas. The primary objectives this program aims to achieve in technological development are to improve existing mine detection technologies, overcome the heavy vegetation problems in specific environments and provide improved protection for deminers. These areas of emphasis have been adopted as a direct result of the feedback received at the Humanitarian Demining Workshop held January 20-22, 1998 and the Washington Conference on Global Demining held May 20-22, 1998. A corollary benefit from this program is that many of the technologies pursued have very high potential for satisfying requirements in other DoD mission areas, such as military area clearance. Additional technologies identified in these workshops will also be addressed. These include technologies that: detect individual mines/minifields; detect explosives in buried mines (biosensors); confirm the presence of mines (verification); mark and map mines/minifields; improve current wide area survey equipment; clear large areas faster and more efficiently with improved mechanical clearance equipment; improve post clearance QA equipment; train deminers in mine awareness, and improve deminer hand tools.

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE February 1999	
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/BA 4									R-1 ITEM NOMENCLATURE Humanitarian Demining PE 0603920D8Z	

<i>COST(In Millions)</i>	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to Complete	Total Cost
Total Program Element (PE) Cost	0	18.498	15.847	14.819	18.480	14.921	15.234	15.554	Continuing	Continuing
Humanitarian Demining/P920t	0	18.498	15.847	14.819	18.480	14.921	15.234	15.554	Continuing	Continuing

(U) **Project Number and Title: P920t Humanitarian Demining**

(U) **PROGRAM ACCOMPLISHMENTS AND PLANS**

(U) **FY1999 Plans:**

(U) This program aims to initiate and/or continue development and demonstration of demining technologies while maintaining focus on the three primary areas of emphasis that include: improving current mine detection technologies, overcoming heavy vegetation problems in specific environments and providing improved protection for deminers. These primary areas of focus were defined by the various non-governmental organizations (NGOs) present at the Humanitarian Demining Workshop held in January 1998 and the various donor governments, international organizations and NGOs that participated in the May 1998 Washington Conference on Global Demining. This program will also continue development of: large mechanical clearing devices for agricultural areas and QA operations ; new alternatives for in-situ neutralization devices that are simple to use, affordable and expendable; simple, safe, robust and affordable technologies for detecting, discriminating and identifying landmines; and mine/minefield marking and mapping systems. A new area of development will be in improved large area survey equipment used for demining mission planning. Finally, the program will continue to concentrate on operational fielding of mature technologies suitable for demining.(\$ 18.498 Million)

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/BA 4	R-1 ITEM NOMENCLATURE Humanitarian Demining PE 0603920D8Z	

(U) **FY2000 Plans:**

(U) Complete development and demonstrations on the improvements of existing mine detection technologies to include detection to a depth of 27cm and a publication containing a “Consumer Report” type approach for outlining the results of the R&D findings on currently available and near term detection technologies. Complete development and demonstration of vegetation clearing devices and improved in-situ neutralization devices. Continue to develop and demonstrate improved protective equipment for deminer protection and comfort by focusing on the human factor issues in mine protective gear. Continue to leverage existing technology from the tactical countermine area to develop and demonstrate detection technologies used for discrimination and verification. Continue to develop mechanical clearance equipment suitable for large area reduction and QA operations. Continue to develop mine/minefield marking and mapping systems and large area survey equipment. Continue to develop and demonstrate mine awareness and training technologies to help the deminers in future priority countries.(\$ 15.847 Million)

(U) **FY2001 Plans:**

(U) Continue to leverage existing technology from the tactical countermine area to develop and demonstrate detection technologies used for discrimination and verification. Continue to develop mechanical clearance equipment suitable for large area reduction and QA operations. Continue to develop mine/minefield marking and mapping systems and large area survey equipment. Continue to develop and demonstrate mine awareness and training technologies to help the deminers in future priority countries.(\$ 14.819 Million)

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/BA 4		R-1 ITEM NOMENCLATURE Humanitarian Demining PE 0603920D8Z

(U) B. <u>Program Change Summary</u>	<u>FY1998</u>	<u>FY1999</u>	<u>FY2000</u>	<u>FY2001</u>	<u>Total Cost</u>
Previous Presidents Budget	0	17.234	16.113	15.086	Continuing
Appropriated Value	0	0	0	0	Continuing
Adjustments to Appropriated Value					
a. Congressionally Directed Undistributed Reduction	0	0	0	0	
b. Rescission/Below-threshold Reprogramming, Inflation Adjustment	0	0	0-.266	-.267	
c. Other	0	1.264	0	0	
Current Presidents Budget	0	18.498	15.847	14.819	Continuing

Change Summary Explanation: Funding changes are due to congressional undistributed reductions and inflation adjustments.

(U) **Funding:** No funds were appropriated for this line in FY 1998. FY 1999 through FY 2003 program reflects a realignment of funding from PE 0603120D.

(U) **Schedule:** N/A

(U) **Technical:** No funds were appropriated for this line in FY 1998. FY 1999 through FY 2003 program reflects a realignment of funding from PE 0603120D.

(U) **C. OTHER PROGRAM FUNDING SUMMARY COST:** N/A

(U) **D. ACQUISITION STRATEGY:** N/A

(U) **E. SCHEDULE PROFILE:** N/A

UNCLASSIFIED

RDT&E BUDGET ELEMENT/PROJECT COST BREAKDOWN (R-3 Exhibit)		DATE: February 1999
APPROPRIATION/BUDGET ACTIVITY: RDT&E, Defense Wide / BA 4	R-1 ITEM NOMENCLATURE: Humanitarian Demining PE 0603920D	

A. Project Cost Breakdown (\$ in thousands)

	FY 1998	FY 1999	FY 2000	FY 2001
Project Cost Categories:				
Cost Categories				
a. Demonstrations & Validation	0	17.523	14.813	13.691
b. Program Management Support	0	.975	1.034	1.128
TOTAL	0	18.498	15.847	14.819

B. Budget Acquisition History and Planning Information:

Funding Revisions

FY 1998 President's Budget	0	0	9.944	9.935
FY 1999 President's Budget	0	17.234	16.113	15.086

No Funds were appropriated for this line in FY 1998. FY 1999 through FY 2001 reflect a realignment of funding from PE 0603120D. The current FY 1999 reflects a Congressional adjustment of \$1.5 million. The FY 2000 and FY 2001 amounts reflect inflation adjustments.

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or <u>Obligation Date</u>	Performing <u>Activity/EAC</u>	Project Office <u>EAC</u>	Total Prior to <u>FY 1998</u>	Budget <u>FY 1998</u>	Budget <u>FY 1999</u>	Budget <u>FY 2000</u>	Budget <u>FY 2001</u>	Budget to <u>Complete</u>	Total <u>Program</u>
Miscellaneous					0	0	18.498	15.847	14.819	Continuing	Continuing
TOTAL PROJECT					0	0	18.498	15.847	14.819	Continuing	Continuing

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									Date: (MONTH/YEAR) February 1999	
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-wide/ Budget Activity 4						R-1 ITEM NOMENCLATURE Coalition Warfare 0603923D8Z				
<i>Cost (In Millions)</i>	FY 1998	FY 1999	FY 2000	FY 2001	FY2002	FY2003	FY2004	FY2005	Cost to Complete	Total Cost
Total 0603923D Cost	0	0	12.781	12.124	13.334	12.827	13.075	13.409	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program element funds management and execution of international cooperative programs designed to maximize DoD's capability to engage in coalition warfare. Global geopolitical milieu mandates coalition operations to confront conventional and asymmetrical threats. Coalitions are preferred way to address international crises of the 21st century; coalitions lend political legitimacy to an effort and provide a broad base of support; and coalitions provide resources that mitigate the need for the U.S. to shoulder the total financial and military force burden. Furthermore, coalition doctrine, tactics and procedures must accommodate Joint Vision 2010 (JV 2010) technologies relating to information dominance, precision strike, C3I interoperability and focused logistics.

The scope of the cooperative program includes the full spectrum of coalition operations, ranging from peace keeping, through tension and crisis to theater war. This program funding will leverage DoD's investment strategy to ensure DoD programs and JV2010 technologies operate in the coalition environment. The program will focus on: Integrating

Exhibit R-2, RDT&E Budget Item Justification
(Exhibit R-2, page 1 of 4)

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		Date: (MONTH/YEAR) February 1999
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-wide/ Budget Activity 4	R-1 ITEM NOMENCLATURE Coalition Warfare 0603923D8Z	

JV2010 technologies in coalition doctrine, tactics and procedures; pre-feasibility studies and technology integration to support leadership initiatives arising from international fora such as the Four Powers, the Conference of National Armaments Directors and the U.S./Japan Science and Technology Forum; expanding the scope of U.S. sponsored Advanced Concept Technology Demonstrations (ACTDs) to accommodate allied participation; U.S. participation in allied technology demonstrations; and enhancing interoperability in a coalition environment.

FY 1998 Accomplishments:
N/A

FY 1999 Plans:
N/A

FY 2000 Plans:

- Integration of JV 2010 technologies in coalition doctrine, tactics and procedures; \$2M
- Pre-feasibility studies and technology integration to support the Four Power's agreed programs; \$3M
- Integrating allied technologies in U.S. sponsored Advanced Concept Technology Demonstrations (ACTDs); \$2M
- Expansion of U.S. technology assessments through participation in allied technology demonstrations; \$2M
- Allied interoperability for coalition warfare. \$3.8 M

Exhibit R-2, RDT&E Budget Item Justification
(Exhibit R-2, page 2 of 4)

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		Date: (MONTH/YEAR) February 1999
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-wide/ Budget Activity 4	R-1 ITEM NOMENCLATURE Coalition Warfare 0603923D8Z	

FY 2001 Plans:

- Integration of JV 2010 technologies in coalition doctrine, tactics and procedures; \$2M
- Pre-feasibility studies and technology integration to support the Four Power's agreed programs; \$3M
- Integrating allied technologies in U.S. sponsored Advanced Concept Technology Demonstrations (ACTDs); \$2M
- Expansion of U.S. technology assessments through participation in allied technology demonstrations; \$2M
- Allied interoperability for coalition warfare. \$3.1 M

B. Program Change Summary

	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY2000</u>	<u>Total Cost</u>
Previous President's Budget Appropriated Value			12.781	Continuing
Adjustments to Appropriated Value				
a. Undistributed reduction				
b. SBIR				
Current Budget Submit/ President's Budget			12.781	Continuing

Change Summary Explanation: N/A This program is a new start for FY 2000.

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		Date: (MONTH/YEAR)
		February 1999
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	
RDT&E, Defense-wide/ Budget Activity 4	Coalition Warfare 0603923D8Z	

C. Other Program Funding Summary: Not applicable.

D. Acquisition Strategy: This program will fund armaments cooperation with friendly nations and will be conducted in accordance with 10 U.S.C 2350a.

E. Schedule Profile (Fiscal Year actual and planned events by quarter)

	<u>FY 1998</u>				<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Agree on Coalition Warfare Programs						X				X					X	
Out reach Program to allies							X				X					X
Negotiate Memoranda of Understanding								X				X				X

Exhibit R-2, RDT&E Budget Item Justification
(Exhibit R-2, page 4 of 4)

UNCLASSIFIED

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification									Date: February 1999	
APPROPRIATION/BUDGET ACTIVITY					R-1 ITEM NOMENCLATURE					
ENGINEERING AND MANUFACTURING DEVELOPMENT, DEFENSE-WIDE, BUDGET ACTIVITY 5					JOINT ROBOTICS PROGRAM PE 0604709D8Z					
COST (\$ in Millions)	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to Complete	Total Cost
Total PE Cost	N/A	15.115	12.004	11.742	13.357	13.860	14.150	14.448	CONTINUING	CONTINUING
SRS		10.000	8.504	2.000						
RCSS		2.000	2.000	6.200						
TUV				2.042						
MDARS-I		3.115	1.500	1.500						

A. Mission Description and Budget Item Justification

(U) BRIEF DESCRIPTION OF ELEMENT: This program is a budget activity level 5 based on the successful transition of robotic technologies from demonstration/validation activities to Engineering, Manufacturing and Development (EMD) as part of an Evolutionary Strategy. This PE was established by FY 1998 PBD 202, in response to OSD and Service agreement at the April 1997 Joint Robotics Program General Officer Steering Committee (GOSC) to have OSD retain consolidation of DoD robotics programs on unmanned ground systems through EMD. Individual Services are responsible for requirements generation and procurement funding. The JRP demonstration/validation efforts have demonstrated maturity of robotics technologies for their application to the formal acquisition process of land systems and subsystems. Emphasis is on the development of robotics technologies that: are amenable to multi-service applications; provide capability in high hazard environments; provide improved battlefield efficiency using supervised autonomous operational capability; reduce or enhance force manpower and support; and are affordable. Success has been achieved in three programs to justify EMD at this time. This PE establishes the consolidated DoD robotics program for unmanned ground vehicles (UGV) which advances the UGV concepts into EMD acquisition projects for (1) the Standardized Robotic System (SRS) - a generic, modular set of kits that can be used to retrofit several different types of currently fielded vehicles to allow remote teleoperation capabilities, like obstacle breaching operations (minefields, earthworks, bunkers, etc.), that have supported Operations Joint Endeavor and Joint Guard in Bosnia; and (2) the Robotic Combat Support System (RCSS) - a light version, RCSS-L will be developed for limited anti-personnel (AP) landmine/scattermine and unexploded ordnance (UXO) proofing for the light, rapid deployment forces, while a medium version, RCSS-M will be designed for AP landmine/scattermine, UXO and wire obstacle clearing, and bucket and fork capabilities to support operations by heavy force divisions and corps engineers in all terrain conditions; and (3) the Tactical Unmanned Vehicle (TUV) - a joint Army/USMC effort to develop a robotic UGV for the Reconnaissance, Surveillance and Target Acquisition (RSTA) mission; and (4) the Mobile Detection Assessment Response System, Interior (MDARS-I) - is intended to support the physical security of fixed installations, protection of critical inventory items, and tracking movement of items in warehouses.

Exhibit R-2, RDT&E Budget Item Justification					Date: February 1999
<p>(U) <u>FY 1998 Accomplishments</u> TACTICAL UNMANNED VEHICLE (TUV)</p> <ul style="list-style-type: none"> • No EMD Funding during this fiscal year 					
<p>(U) <u>FY 1999 Plans</u> TACTICAL UNMANNED VEHICLE (TUV)</p> <ul style="list-style-type: none"> • No EMD Funding during this fiscal year 					
<p>(U) <u>FY 2000 Plans</u> TACTICAL UNMANNED VEHICLE (TUV)</p> <ul style="list-style-type: none"> • No EMD Funding during this fiscal year 					
<p>(U) <u>FY 2001 Plans</u> TACTICAL UNMANNED VEHICLE (TUV) (2.042 million)</p> <ul style="list-style-type: none"> • TUV EMD effort for the design, manufacture and delivery of engineering prototypes • Engineering and program management support for the TUV development 					
<p>B. <u>Program Change Summary</u> (\$ million)</p>					
	<u>FY1998</u>	<u>FY1999</u>	<u>FY2000</u>	<u>FY2001</u>	<u>Total Cost</u>
Previous President's Budget	N/A	11.307	12.190	11.954	Continuing
Appropriated Value		15.307			
Adjustments to Appropriated Value					
a. Congressionally Directed Appropriation Reduction					
b. Congressionally Directed Undistributed Reduction					
c. OSD Directed Undistributed Reduction		(0.192)	(0.186)	(0.212)	
Current Budget Submit/President's Budget	N/A	15.115	12.004	11.742	Continuing
<p>Change Summary Explanation:</p> <p style="padding-left: 20px;">Funding: N/A</p> <p style="padding-left: 20px;">Schedule: N/A</p>					

Exhibit R-2, RDT&E Budget Item Justification				Date:
Technical: N/A				
C. <u>Other Program Funding Summary</u>				
D. <u>Acquisition Strategy</u>				
E. <u>Schedule Profile</u>				
Fiscal Year actual and planned events:				
	FY 1998	FY 1999	FY2000	FY2001
Acquisition Milestones				MSII
Engineering Milestones				
T&E Milestones				
Contract Milestones				

UNCLASSIFIED

Exhibit R-2a, RDT&E Project Justification									Date: February 1999	
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NAME AND NUMBER				
EMD, DEFENSE WIDE, BUDGET ACTIVITY 5			PE 0604709D8Z			STANDARDIZED ROBOTIC SYSTEM (SRS)				
Cost (\$ in Millions)	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY2005	Cost to Complete	Total Cost
SRS	N/A	10.000	8.504	2.000					20.504	20.504
RDT&E Articles Qty										

A. Mission Description and Budget Item Justification. The Standardized Robotic System (SRS) program is a generic, modular set of kits that can be used to retrofit several different types of currently fielded engineer vehicles to allow remote teleoperation capabilities to accomplish obstacle breaching operations (minefields, earthworks, bunkers, etc.) Prototypes have been used in support of Operation Joint Endeavor and Joint Guard in Bosnia. The US Army has an approved Operational Requirements Document (ORD).

(U) FY 1998 Accomplishments

- No EMD funding during this fiscal year

(U) FY 1999 Plans

- SRS EMD contract effort for the design, manufacture and delivery of engineering prototypes (D7G, M9 Armored Combat Excavator [ACE], T3 Dozer, Deuce) for Developmental Testing (DT) and Operational Testing (OT)
- DT and OT for the D7G and M9 SRS kit applications
- Engineering management for the SRS kit development
- Program management support for SRS kit development

(U) FY 2000 Plans

- Continue SRS EMD effort for the design, manufacture and delivery of engineering prototypes
- DT and OT completion for the M9 ACE and performance of the T3 and Deuce SRS kit applications
- Engineering and program management support for the SRS kit development

(U) FY 2001 PLANS

- Continue SRS EMD effort for the design, manufacture, and delivery of engineering prototypes
- Complete DT and OT for the T3 and OT for the M9 and Deuce
- Engineering and program management support for the SRS kit development

B. Other Program Funding Summary

UNCLASSIFIED

Exhibit R-2a, RDT&E Project Justification		Date: February 1999			
<p>C. Acquisition Strategy</p> <p>The SRS kit development effort is contracted under a Small Business Innovative Research (SBIR) effort. The EMD contract was awarded 4th Quarter FY 1998 to Omnitech Robotics Incorporated. The contract will be incrementally funded in FY 1999 and FY 2000. The SRS Milestone III production decision is scheduled for 3d Quarter FY 2000, based on the D7G kit development.</p>					
<p>D. Schedule Profile</p> <p>Fiscal Year actual and planned events:</p>					
	FY1998	FY1999	FY2000	FY2001	
Acquisition Milestones					
SRS (D7G)			MSIII		
(M9 ACE/Deuce)					IPR
(T3)					IPR
Engineering Milestones					
T&E Milestones					
SRS (D7G)		DT	OT		
(M9 ACE/Deuce)			DT	OT	
(T3)				DT/OT	
Contract Milestones		EMD			

UNCLASSIFIED

Exhibit R-3 Cost Analysis (page 1)										Date: February 1999		
EMD, DEFENSE-WIDE BUDGET ACTIVITY 5,				PROGRAM ELEMENT PE 0604709D8Z				STANDARDIZED ROBOTIC SYSTEM (SRS)				
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total 1998 Cost	1999 Cost	1999 Award Date	2000 Cost	2000 Award Date	2001 Cost	2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development	CPIF	OmniTech		8.000		4.744		1.500			12.744	15.250
Ancillary Hardware Development												
Systems Engineering												
Licenses												
Tooling												
GFE												
Award Fees												
Subtotal Product Development				8.000		4.744		1.500			12.744	15.250
Remarks: Omnitech Robotics, Inc., Englewood, CO												
Development Support												
Software Development								0.200				
Training Development												
Integrated Logistics Support								0.100				
Configuration Management												
Technical Data												
GFE												
Subtotal Support								0.300			CONT	CONT
Remarks												

UNCLASSIFIED

Exhibit R-3 Cost Analysis (page 2)									Date: February 1999			
EMD, DEFENSE-WIDE, BUDGET ACTIVITY 5			PROGRAM ELEMENT PE 0604709D8Z				STANDARDIZED ROBOTIC SYSTEM (SRS)					
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total 1998 Cost	1999 Cost	1999 Award Date	2000 Cost	2000 Award Date	2001 Cost	2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test D7G	MIPR	APG, MD		0.650		0.300		0.100				
IOT&E D7G	MIPR	T&E CMD		0.650		0.170		0.100				
DT M9 ACE	MIPR	APG, MD				0.350						
IOT&E M9 ACE	MIPR	T&E CMD				0.650						
DT DEUCE	MIPR	APG, MD				0.400						
IOT&E DEUCE	MIPR	T&E CMD				0.550						
DT T3	MIPR	APG, MD				0.175						
IOT&E T3	MIPR	T&E CMD				0.305						
Subtotal T&E				1.300		2.900		0.200		CONT	CONT	
Remarks DT - Developmental Test IOT&E - Initial Operational Test & Evaluation APG, MD - Aberdeen Proving Ground, Maryland T&E CMD - Test and Evaluation Command												
Contractor Engineering Support												
Government Engineering Support												
Program Management Support		US AMCOM		0.700		0.860						
Program Management Personnel												
Travel												
Labor (Research Personnel)												
Miscellaneous												
Subtotal Management				0.700		0.860				CONT	CONT	
Remarks												
Total Cost				10.000		8.504		2.000				
Remarks												

Exhibit R-2a, RDT&E Project Justification									Date: February 1999	
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NAME AND NUMBER				
EMD, DEFENSE WIDE, BUDGET ACTIVITY 5			PE 0604709D8Z			ROBOTIC COMBAT SUPPORT SYSTEM (RCSS)				
Cost (\$ in Millions)	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY2005	Cost to Complete	Total Cost
RCSS	N/A	2.000	2.000	6.200					CONT	CONT
RDT&E Articles Qty										
<p>A. <u>Mission Description and Budget Item Justification.</u> The Robotic Combat Support System (RCSS) will consist of light and medium weight versions. A lightweight prototype has been supporting Operation Joint Endeavor and Joint Guard in Bosnia. The lightweight system will be developed for limited anti-personnel (AP) landmine/scattermine and unexploded ordnance (UXO) proofing for light, rapid deployment forces. A medium version will be designed for AP landmine/scattermine proofing, UXO and wire obstacle clearing, and bucket and fork capabilities to support operations by heavy force divisions and corps engineers in all terrain conditions. A Mission Need Statement has been developed and a draft Operational Requirements Document (ORD) is being staffed.</p> <p>(U) <u>FY 1998 Accomplishments</u></p> <ul style="list-style-type: none"> • No EMD Funding available during this fiscal year <p>(U) <u>FY 1999 Plans</u></p> <ul style="list-style-type: none"> • RCSS-L Program Definition and Risk Reduction (PDRR) effort for the design, manufacture and delivery of engineering prototypes <p>(U) <u>FY 2000 Plans</u></p> <ul style="list-style-type: none"> • RCSS-L EMD effort for the design, manufacture and delivery of engineering prototypes • DT for the RCSS-L development • Engineering and program management support for the RCSS-L development <p>(U) <u>FY 2001 Plans</u></p> <ul style="list-style-type: none"> • Continue RCSS-L EMD effort for the design, manufacture and delivery of engineering prototypes • OT for the RCSS-L development 										

Exhibit R-2a, RDT&E Project Justification					Date:
• Engineering and program management support for the RCSS-L/M development					
B. Other Program Funding Summary					
C. Acquisition Strategy The RCSS-L contract will be awarded under full and open competition in FY 2000.					
D. Schedule Profile					
Fiscal Year actual and planned events:					
	FY1998	FY1999	FY2000	FY2001	
Acquisition					
Milestones					
RCSS-L		MSI	MSII		
Engineering Milestones					
T&E Milestones					
RCSS-L			DT		
Contract Milestones			EMD		

UNCLASSIFIED

Exhibit R-3 Cost Analysis (page 1)								Date: February 1999				
EMD, DEFENSE-WIDE, BUDGET ACTIVITY 5			PROGRAM ELEMENT PE 0604709D8Z					Robotic Combat Support System (RCSS)				
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total 1998 Cost	1999 Cost	1999 Award Date	2000 Cost	2000 Award Date	2001 Cost	2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development	CPIF	TBD		1.000		1.500		4.375				
Ancillary Hardware Development												
Systems Engineering				0.750				1.000				
Licenses												
Tooling												
GFE												
Award Fees												
Subtotal Product Development				1.750		1.500		5.375		CONT	CONT	
Remarks:												
Development Support						0.250						
Software Development				0.250		0.250		0.500				
Training Development												
Integrated Logistics Support												
Configuration Management												
Technical Data												
GFE												
Subtotal Support				0.250		0.500		0.500		CONT	CONT	
Remarks												

UNCLASSIFIED

Exhibit R-3 Cost Analysis (page 2)									Date: February 1999			
EMD, DEFENSE-WIDE, BUDGET ACTIVITY 5			PROGRAM ELEMENT PE 0604709D8Z						Robotic Combat Support System (RCSS)			
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total 1998 Cost	1999 Cost	1999 Award Date	2000 Cost	2000 Award Date	2001 Cost	2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
DT								0.200				
IOT&E												
DT												
IOT&E												
Subtotal T&E								0.200		CONT	CONT	
Remarks												
Contractor Engineering Support												
Government Engineering Support												
Program Management Support								0.125				
Program Management Personnel												
Travel												
Labor (Research Personnel)												
Miscellaneous												
Subtotal Management								0.125		CONT	CONT	
Remarks												
Total Cost				2.000		2.000		6.200				
Remarks												

UNCLASSIFIED

Exhibit R-2a, RDT&E Project Justification								Date:		
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT		PROJECT NAME AND NUMBER					
EMD, DEFENSE WIDE, BUDGET ACTIVITY 5			PE 0604709D8Z		MOBILE DETECTION ASSESSMENT RESPONSE SYSTEM - INTERIOR (MDARS-I)					
Cost (\$ in Millions)	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY2005	Cost to Complete	Total Cost
MDARS-I	N/A	3.115	1.500	1.500					CONT	CONT
RDT&E Articles Qty										
<p>A. <u>Mission Description and Budget Item Justification.</u> The Mobile Detection Assessment Response System - Interior (MDARS-I) is intended to support the physical security of fixed installations including warehouses and large storage facilities. In addition to security, the system will also support inventories and track movement or disturbance of critical inventory items.</p> <p>(U) <u>FY 1998 Accomplishments</u></p> <ul style="list-style-type: none"> No EMD Funding during this fiscal year <p>(U) <u>FY 1999 Plans</u></p> <ul style="list-style-type: none"> Award Engineering Manufacturing Development (EMD) contract Design/fabricate pre-production prototype system <p>(U) <u>FY 2000 Plans</u></p> <ul style="list-style-type: none"> Conduct Developmental and Operational Tests (DT/OT) <p>(U) <u>FY 2001 Plans</u></p> <ul style="list-style-type: none"> Initiate Pre-Planned Product Improvement effort Engineering and program management support for the MDARS-E program Obtain MSIII decision <p>B. Other Program Funding Summary</p> <p>C. Acquisition Strategy</p> <p>D. Schedule Profile</p>										

UNCLASSIFIED

Exhibit R-2a, RDT&E Project Justification		Date: February 1999			
Fiscal Year actual and planned events:					
	FY1998	FY1999	FY2000	FY2001	
Acquisition Milestones					
MDARS-I		MSI/II		MSIII	
Engineering Milestones					
T&E Milestones					
MDARS-I		TFT		DT/OT	
Contract Milestones			EMD		

UNCLASSIFIED

Exhibit R-3 Cost Analysis (page 1)									Date: February 1999			
EMD, DEFENSE-WIDE, BUDGET ACTIVITY 5			PROGRAM ELEMENT PE 0604709D8Z						MOBILE DETECTION ASSESSMENT RESPONSE SYSTEM - INTERIOR (MDARS-I)			
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total 1998 Cost	1999 Cost	1999 Award Date	2000 Cost	2000 Award Date	2001 Cost	2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development	CPIF	TBD		1.750		1.000		1.000				
Ancillary Hardware Development												
Systems Engineering				0.200		0.150		0.150				
Licenses												
Tooling												
GFE												
Award Fees												
Subtotal Product Development				1.950		1.150		1.150		CONT	CONT	
Remarks:												
Development Support												
Software Development				0.500		0.150		0.150				
Training Development				0.200								
Integrated Logistics Support						0.100		0.100				
Configuration Management				0.100								
Technical Data												
GFE												
Subtotal Support				0.800		0.250		0.250		CONT	CONT	
Remarks												

UNCLASSIFIED

Exhibit R-3 Cost Analysis (page 2)									Date: February 1999			
EMD, DEFENSE-WIDE, BUDGET ACTIVITY 5			PROGRAM ELEMENT PE 0604709D8Z						MOBILE DETECTION ASSESSMENT RESPONSE SYSTEM - INTERIOR (MDARS-I)			
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total 1998 Cost	1999 Cost	1999 Award Date	2000 Cost	2000 Award Date	2001 Cost	2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test				0.165		0.100						
Operational Test												
Tooling												
GFE												
Award Fees												
Subtotal T&E				0.165		0.100				CONT	CONT	
Remarks												
Contractor Engineering Support												
Government Engineering Support												
Program Management Support				0.200				0.100				
Program Management Personnel												
Travel												
Labor (Research Personnel)												
Miscellaneous												
Subtotal Management				0.200				0.100		CONT	CONT	
Remarks												
Total Cost				3.115		1.500		1.500				
Remarks												

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1999
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/BA-5	R-1 ITEM NOMENCLATURE Joint Tactical Information Distribution System (JTIDS) 0604771D8Z/P771/P773

COST (In Millions)	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Total Cost
Total Program Element (PE) Cost	50,312	30,125	29,382	16,401	16,654	17,000	17,356	17,722	Cont.
LINK-16 - P771	5,146	2,711	4,304	4,085	9,067	10,128	17,356	17,722	Cont.
Multifunctional Information Distribution System-Low Volume Terminal (MIDS-LVT) - P773	45,166	27,414	25,078	12,316	7,587	6,872	0	0	Cont.

A. Mission Description and Budget Item Justification

The program element funds ongoing system level engineering of the existing LINK-16 system and the development of the next generation LINK 16 system, the Multifunctional Information Distribution System (MIDS) which is a joint and international cooperative program involving U.S., France, Italy, Germany, and Spain. The MIDS-LVT will make LINK 16 affordable for a much larger population of U.S. platforms and systems and will be interoperable with previously developed and produced LINK 16 equipment, JTIDS Class 1 and 2. This element also supports the expanded application of LINK 16 to U.S. forces, including LINK 16, spectrum certification and investigation of operational enhancements.

This program is funded under BA-5, Engineering and Manufacturing Development, because it encompasses engineering and manufacturing development of new end-items prior to production approval decision.

B. Program Change Summary - See individual project R-2 pages

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1999
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/BA-5	R-1 ITEM NOMENCLATURE Joint Tactical Information Distribution System (JTIDS) 0604771D8Z/P771

COST (In Millions)		FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Total Cost
LINK-16 - P771		5,146	2,711	4,304	4,085	9,067	10,128	17,356	17,722	Cont.

A. Mission Description and Budget Item Justification

This element funds the expanded application of LINK-16 to U.S. forces, including LINK 16, spectrum certification and investigation of operational enhancements.

PROGRAM ACCOMPLISHMENTS AND PLANS

1. FY 1998 ACCOMPLISHMENTS:

- Continued LINK-16 (\$5,146 Million)
- Provided technical support and Link-16 support for international users
- Continued efforts, including testing, associated with receiving and maintaining frequency certification
- Continued development/analysis for increased operational requirements

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/BA-5	R-1 ITEM NOMENCLATURE Joint Tactical Information Distribution System (JTIDS) 0604771D8Z/P771	

2. FY 1999 PLANS:

- Continue LINK-16 (\$2,711 Million)
- Provide technical support and Link-16 support for international users
- Continue efforts, including testing, associated with receiving and maintaining frequency certification
- Continue development/analysis for increased operational requirements

3. FY 2000 PLANS:

- Continue LINK-16 (\$4,304 Million)
- Provide technical support and Link-16 support for international users
- Continue efforts, including testing, associated with receiving and maintaining frequency certification
- Continue development/analysis for increased operational requirements

4. FY 2001 PLANS

- Continue LINK-16 (\$4,085 Million)
- Provide technical support and Link-16 support for international users
- Continue efforts, including testing, associated with receiving and maintaining frequency certification
- Continue development/analysis for increased operational requirements

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1999
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/BA-5	R-1 ITEM NOMENCLATURE Joint Tactical Information Distribution System (JTIDS) 0604771D8Z/P771

B. Program Change Summary

	FY 1998	FY 1999	FY 2000	FY 2001
Previous Budget Submit FY 00/01 BES Appropriated Value	5,412	2,793	4,327	4,153
Adjustments to Appropriated Value				
a. Below threshold program adjustments	(.266)	(.082)	(.023)	(.068)
Current President's Budget FY 00/01	5,146	2,711	4,304	4,085

Change Summary Explanation:

Funding:

Schedule: N/A

Technical: N/A

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/BA-5	R-1 ITEM NOMENCLATURE Joint Tactical Information Distribution System (JTIDS) 0604771D8Z/P771	

C. Other Program Funding Summary

Not Applicable

D. Schedule Profile

Not Applicable

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1999
---	-----------------------

APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/BA-5	R-1 ITEM NOMENCLATURE Joint Tactical Information Distribution System (JTIDS) 0604771D8Z/P773
---	--

COST (In Millions)		FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Total Cost
MIDS - P773		45,166	27,414	25,078	12,316	7,587	6,872	0	0	Cont.

A. Mission Description and Budget Item Justification

The Multifunctional Information Distribution System (MIDS) Low-Volume Terminal (LVT) is a U.S. joint and international (U.S., France, Germany, Italy, and Spain) cooperative program to develop and produce the next generation LINK 16 system. Designed for tactical combat applications and environments, MIDS will provide a highly jam-resistant, secure, digital (voice and data) information distribution system, enabling rapid integrated communications, navigation, and identification among tactical and command and control warfare elements. Affordability is being achieved through the implementation of open and commercial architecture standards and parts which will allow the tailoring of production configurations to the minimum needs of different U.S. platforms and missions. MIDS-LVT will be interoperable with the earlier generations of LINK 16 equipment, JTIDS Class 1 and 2. This Program Element will fund the U.S. cost share of development, fabrication and test of EMD terminals, and terminal level pre-operational support for U.S. platforms which are implementing MIDS. This element also funds preparations for competitive production. This element does not include the qualification and procurement of a MIDS variant for the F-15 which is called Fighter Data Link (FDL); the FDL is funded as an F-15 program element.

PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 1998 ACCOMPLISHMENTS:

- Continued MIDS EMD (\$45,166 Million)
 - Continued Supplement 3 negotiations
 - Initiated delivery of MIDS terminals
 - Continued delivery of MIDS Interface Simulators (MIS) Version 1
 - Continued MIDS-LVT CDT&E testing (including Army Variant)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE
---	------

UNCLASSIFIED

UNCLASSIFIED

		February 1999
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/BA-5	R-1 ITEM NOMENCLATURE Joint Tactical Information Distribution System (JTIDS) 0604771D8Z/P773	

FY 1998 ACCOMPLISHMENTS (continued):

- Continued studies related to proliferation of MIDS in U.S platforms
- Initiated government laboratory testing
- Initiated pre-operational support of MIDS On Ship, F/A-18, F/A-16, and Army integration and testing
- Initiated government developmental testing/operation and testing of various MIDS platforms
- Continued corrective action for problems discovered in testing (contractor and government)
- Continued Production Readiness Other Transaction Agreements (OTA's) efforts
- Initiated production decision preparation and process
- Extended MIDS EMD Contract by nine months, to December 1999
- Continued management support in the International Program Office

2. FY 1999 PLANS:

- Continue MIDS EMD (\$27,414 Million)
 - Extend Production Readiness Agreements
 - Conclude Supplement 3 negotiations
 - Extend MIDS EMD contract six months to June 00 for interim support
 - Plan for Software Support Activity capability
 - Continue management support in the International Program Office
 - Perform Award Fees Boards
 - Establish Technical Data Support Organization
 - First EMD F/A-18 flight
 - Initiate Developmental Test & Evaluation of Army MIDS Configuration
 - Provide terminal support for initiation of Independent Operational Test & Evaluation of F/A-18
 - Continue delivery of MIDS terminals
 - Continue pre-operational support
 - Continue corrective action for problems discovered in testing (contractor and government)
 - Deliver MIDS Interface Simulators (MIS) Version 2
 - Initiate delivery of MIDS Interface Simulator (MIS) Version 3
 - Continue government developmental testing/operational testing of various MIDS platforms

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE
---	------

UNCLASSIFIED

UNCLASSIFIED

		February 1999
APPROPRIATION/BUDGET ACTIVITY RDT&E, DEFENSE-Wide/BA-5	R-1 ITEM NOMENCLATURE Joint Tactical Information Distribution System (JTIDS) 0604771D8Z/P773	

3. FY 2000 PLANS:

- Continue MIDS EMD (\$25.078 Million)
 - Complete MIDS EMD Contract
 - Continue F/A-18 Independent Operational Test & Evaluation terminal support
 - Achieve MIDS Milestone III Decision
 - Establish software support activity capability
 - Continue F/A-18 flight testing
 - Continue management support in the International Program Office
 - Complete Pre-Operational Support under MIDSCO Contract
 - Initiate correction of deficiencies resulting from operational testing

4. FY 2001 PLANS:

- Continue EMD MIDS (\$12,316 Million)
 - Initiate F/A-18 MIDS Technical Evaluation and Operational Evaluation
 - Achieve Ship Initial Operational Capability for LVT
 - Achieve Army Initial Operational Capability for LVT-2
 - Continue correction of deficiencies resulting from operational testing
 - First article qualification testing for new contractors
 - Interchangeability testing of various configurations
 - Initiate Developmental testing-II for A-4 and A-6
 - Initiate submarine Technical Evaluation and Operational Evaluation

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1999
APPROPRIATION/BUDGET ACTIVITY RDT&E, DEFENSE-Wide/BA-5	R-1 ITEM NOMENCLATURE Joint Tactical Information Distribution System (JTIDS) 0604771D8Z/P773

B. Program Change Summary

	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>
Previous Budget Submit FY 00/01 BES Appropriated Value	47,854	27,719	12,314	12,521
Adjustments to Appropriated Value				
a. Revisions to program requirements and inflation estimates	(2,688)	(.305)	12,764	.205
Current President Budget Submit FY 00/01	45,166	27,414	25,078	12,316

Change Summary Explanation:

Funding:

Schedule: N/A

Technical: N/A

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1999
APPROPRIATION/BUDGET ACTIVITY RDT&E, DEFENSE-Wide/BA-5	R-1 ITEM NOMENCLATURE Joint Tactical Information Distribution System (JTIDS) 0604771D8Z/P773

C. Other Program Funding Summary

	<u>FY1998</u>	<u>FY1999</u>	<u>FY2000</u>	<u>FY2001</u>	<u>FY2002</u>	<u>FY2003</u>	<u>FY2004</u>	<u>FY2005</u>	<u>Total Cost</u>
Procurement:									
APN									
ICN 310525000	.000	47,100	.000	34,100	37,600	43,200	39,300	36,500	
OPN									
ICN 343130000	.000	.000	.000	1,898	3,952	3,953	4,340	5,918	
ICN 342614000	.000	.000	2,400	2,000	4,300	10,900	24,700	22,900	
AP,AF									
PE0207134F/PE0207130F	31,800	40,760	31,980	13,453	.000	.000	15,900	.000	
PE0207133F	.000	.000	.000	26,910	49,592	53,558	29,373	29,994	
OPA									
PE02008864C	.000	15,100	.000	.000	.000	.000	.000	.000	
Related RDT&E									
PE0603713A	1,000	6,300	0.000	.100	.100	.100	.100	.100	
PE0205604N	37,415	44,730	42,452	18,407	13,346	17,003	.000	.000	
PE0604503N	1,399	2,882	1,423	.000	.000	.000	.000	.000	
PE0207134F	7,600	.000	.000	.000	.000	.000	.000	.000	
PE0207133F	0.000	2,240	1,090	.000	.000	.000	.000	.000	

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1999
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/BA-5	R-1 ITEM NOMENCLATURE Joint Tactical Information Distribution System (JTIDS) 0604771D8Z/P773

D. Acquisition Strategy

A Defense Acquisition Board for a Milestone III decision is planned in April 00 to support production contract award in June 00. A competitive acquisition strategy will be executed with potential for award to more than one qualified bidder. Initial contract award will include first article qualification test units and production units for Navy, Air Force and Army requirements.

E. Schedule Profile

Fiscal Year actual and planned events by quarter

	FY 1998				FY 1999				FY 2000				FY 2001			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
Supplement	> _____ *															
3 Negotiations																
EMD Contract																
MIS Deliveries	_____ *V1 >V2 ___>V3 *V3															
MIDS Navy Terminals	> _____ *															
Army Terminals	> _____ *															
Pre-Operational Support	> _____ *															

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE
---	------

UNCLASSIFIED

UNCLASSIFIED

EXHIBIT R-3, FY 2000/2001 RDT&E, DW PROJECT COST ANALYSIS

DATE: FEBRUARY 1999

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604771D8Z

PROJECT NUMBER: P771

PROJECT TITLE: COMMON JOINT TACTICAL INFORMATION

Exhibit R-3 Cost Analysis (page 1)								Date: February 1999				
APPROPRIATION: RDT&E,N BUDGET ACTIVITY : 5				PROGRAM ELEMENT: 0604771D8Z				COMMON JOINT TACTICAL INFORMATION				
Cost Categories	Contract Method & Type	Performing Activity & Location	Total Pys Cost	FY 99 Cost	FY 99 Award Date	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	Cost To Complete	Total Cost	Target Value of Contract
LINK-16 Engineering Support		Various	2.464									
LINK-16 Spectrum Support		Various	4.693	2.343	Dec 99	2.488	Dec 00	2.562	Dec 01	Cont.	Cont.	Cont.
Misc Contracts		Various	2.778	.368		1.816		1.523		Cont.	Cont.	Cont.
Misc Labs		Various	.635									
Subtotal Product Development			10.570	2.711		4.304		4.085		Cont.	Cont.	Cont.
Remarks:												
Total Cost			10.570	2.711		4.304		4.085		Cont.	Cont.	Cont.

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE February 1999	
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-wide/BA 5						R-1 ITEM NOMENCLATURE COMMERCIAL O & S SAVINGS INITIATIVE PE 0604805D8Z				
<i>COST (In Millions)</i>	FY1998	FY1999	FY2000	FY2001	FY2002	FY2003	FY2004	FY2005	Cost to Complete	Total Cost
Total Program Element (PE) Commercial O&S Savings Initiative	0	7.901	16.976	15.129	16.102	16.519	16.867	17.221	Continuing	Continuing

(U) A. Mission Description and Budget Item Justification

(U) BRIEF DESCRIPTION OF ELEMENT: The purpose of the Commercial Operations and Support Savings Initiative (COSSI) is to reduce weapon system life cycle costs, especially operating and support (O&S) costs, by inserting commercial products and processes into military systems. COSSI is a crucial element in DoD's strategy to reduce the operations and support (O&S) costs of fielded equipment. As legacy systems age, O&S costs increase, and COSSI is an effective way to lower these costs. Reducing O&S costs can make more funds available for procurement. In addition, COSSI allows DoD to capitalize on the commercial innovation cycle so equipment can be modernized faster. Adapting commercial technologies for use in military equipment often requires non-recurring engineering, testing and qualification. COSSI shares the costs of these efforts between the contractor and the Government. If the testing is successful and the cost savings validated, the items are purchased as retrofits. All COSSI projects must have an endorsement by a military customer and be linked to an existing military system. The benefits include: improved mean time between failure, improved logistics support by reducing parts obsolescence, reduced software reprogramming time and costs, improved performance, and the promotion of open system designs making future upgrades easier and less costly. COSSI uses Other Transactions rather than FAR procurement contracts so companies that do not normally do business with DOD are given the opportunity to provide cost saving ideas that would otherwise go unnoticed. OSD funding incentivizes the Services to structure joint projects with pervasive impact across weapon systems, and to institutionalize the use of Other Transaction Agreements. This program was previously been managed by DARPA. In FY1999, funding and management responsibility were transferred to the Services and OSD.

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/BA 3	R-1 ITEM NOMENCLATURE COMMERCIAL O & S SAVINGS INITIATIVE PE 0604805D8Z	

COST (<i>In Millions</i>)	FY1998	FY1999	FY2000	FY2001	FY2002	FY2003	FY2004	FY2005	Cost to Complete	Total Cost
Total Program Element (PE) Commercial O&S Savings Initiative	0	7.901	16.976	15.129	16.102	16.519	16.867	17.221	Continuing	Continuing

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

(U) FY 1998 Accomplishments:

In FY 1998, COSSI was managed and funded by DARPA (PE 603805E). COSSI funds were used to complete 30 projects started in FY 1997. These projects are: composite rotor and blades for the Apache helicopter (\$11,500,000), Composite 12-ton semitrailer van (\$900,000), eyesafe laser rangefinder for the OH58 helicopter (\$2,947,000), computer replacement for the Guardrail Sensor System (\$4,026,000), night vision heads-up displays (\$764,000), polymeric serving container for operational rations (\$515,000), satellite tracking system for materiel (\$1,635,000), Advanced flight control computer for the UH-60 helicopter (\$3,123,000), composite main rotor blade for the UH-60 helicopter (\$4,486,000), low cost computer encryption card (\$414,000), ultrasonic testing of pressure vessels aboard ships (\$294,000), lithium ion batteries for underwater vehicles (\$3,450,000), portable engine test cell for the H-53 helicopter (\$359,000), communications gateway for intelligence systems interoperability (\$1,865,000), integrated usage and monitoring system for the H-53 helicopter (\$9,021,000), integrated system management tools for software (\$2,058,000), reconfigurable electronic modules for the AN/SPS-67 radar (\$1,128,000), light weight aircraft battery (\$262,000), laser cladding process for corrosion resistance (\$323,000), COTS hardware and open system software for the AN/BQR-22 system (\$3,105,000), information transfer using "push" software (\$180,000), inspection kit for composite propeller blades (\$200,000), commercially based processing for F/A18 C/D avionics (\$13,957,000), data capture and analysis system for shipboard logistics (\$5,228,000), VME standard components for the MILSTAR antenna positioning control unit (\$158,000), discontinuous reinforced aluminum sheet for the F16 (\$2,170,000), commercially based processing for the F15 avionics (\$10,361,000), VME standard bus for the mini-mutes system (\$1,485,000), data distribution kits for mobile command centers (\$4,011,000), exhaust nozzle for the F110 engine (\$6,640,000).

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/BA 3	R-1 ITEM NOMENCLATURE COMMERCIAL O & S SAVINGS INITIATIVE PE 0604805D8Z	

(U) **FY 1999 Plans:**

Funding and management responsibility for COSSI was transferred to the Services and OSD in FY1999. A solicitation was issued for COSSI proposals in December, 1998. Twenty-eight proposals were received and approximately ten more are expected. Many of the proposals involve the use of commercial computers, electronics, and interfaces to reduce O&S costs on legacy aircraft, system redesigns for improved fuel efficiency and improved test equipment. The proposed projects have the potential to substantially reduce O&S costs. The proposals are being evaluated by the Services and the best ones will be provided funding.

(U) **FY 2000 Plans:**

DoD will again issue a joint solicitation for the FY2000 program. Lessons learned during previous rounds of COSSI will be used to further refine the program. DoD will use the OSD line to incentivize joint projects. Based on previous experience, most cost saving projects are expected to pertain to upgrading electronics and computers on legacy aircraft.

(U) **FY 2001 Plans:**

DoD will issue a joint solicitation for the FY2001 program. Lessons learned during previous rounds of COSSI will be used to further refine the program. DoD will use the OSD line to incentivize joint projects.

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/BA 3	R-1 ITEM NOMENCLATURE COMMERCIAL O & S SAVINGS INITIATIVE PE 0604805D8Z	

<u>(U) B. Program Change Summary</u>	<u>FY1998</u>	<u>FY1999</u>	<u>FY2000</u>	<u>FY2001</u>	<u>To Complete</u>	<u>Total Cost</u>
Previous President's Budget	0	13.410	17.243	15.384	Continuing	Continuing
Appropriated Value	0	8.000				
Adjustments to Appropriated Value	0					
a. Congressionally-directed undistributed reduction						
b. Below threshold reprogramming		(-.099)	-.267	-.255		
c. Other						
Current Budget Submit/President's Budget		7.901	16.976	15.129	Continuing	Continuing

Change Summary Explanation:

- (U) **Funding:** Reductions due to Congressional adjustments as well as programmatic changes and revised inflation estimates.
- (U) **Schedule:** Not Applicable
- (U) **Technical:** Not Applicable
- (U) **C. Other Program Funding Summary Cost:** Not applicable
- (U) **D. Schedule Profile:** Not Applicable
- (U) **E. Acquisition Strategy:** Not Applicable

UNCLASSIFIED

UNCLASSIFIED

Exhibit R-1, RDT&E Programs

Department of Defense

Appropriation: RDT&E, Defense Wide

Date: January 26, 1999

<u>R-1 Line Item No</u>	<u>Program Element Number</u>	<u>Item</u>	<u>Budget Activity</u>	<u>Past Year Cost</u>	<u>TOA, \$ in Millions</u>		
					<u>Current Year Cost</u>	<u>FY99 Cost</u>	<u>FY00 Cost</u>
	0603858D8Z	Unexploded Ordnance	BA6	0	0	1.259	1.226

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification									Date: February 1999	
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/Budget Activity 6					R-1 ITEM NOMENCLATURE Unexploded Ordnance Detection & Clearance - PE 0603858D8Z					
COST (\$ in millions)	FY PY	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	FY 04	Cost to Complete	Total Cost
Total PE Cost	0	0	1.259	1.226	1.221	1.215	0	0	Continuing	Continuing
Project A Name/No. & subtotal cost										
Project B Name/No. & subtotal cost										
Project C Name/No. & subtotal cost										
Quantity of RDT&E Articles										

A. Mission Description and Budget Item Justification

Brief Description of Element

This program element funds the Joint Unexploded Ordnance Coordinating Office (JUXOCO) of the Unexploded Ordnance Center of Excellence (UXOCOE) to develop policy and provide oversight in coordinating requirements and technology in detection and clearance of unexploded ordnance (UXO) within the Department of Defense (DoD), as well as with other United States and international agencies, academia, and industry; to establish and maintain standards for testing, modeling, and the evaluation of unexploded ordnance detection and clearance technology; and to establish, gather, and maintain a database of the results of these efforts.

In response to a request from the House National Security Committee (HNSC) and concerns of the General Accounting Office (GAO), the Department of Defense submitted a plan in March 1997, "Report to Congress: Unexploded Ordnance Clearance: A Coordinated Approach to Requirements and Technology Development." This report was developed by a joint, inter-agency task force comprised of the proponents of the unexploded ordnance (UXO) clearance mission areas (active range clearance, demining, countermines, explosive ordnance disposal, and environmental remediation). The report defined research and development priorities, program management, and cooperative activities for technology applicable to area ordnance clearance, also known as UXO clearance. The report also described a plan to maintain visibility over and leverage technology efforts within DoD, at other government agencies, and in private industry for the detection, neutralization, and disposal of UXO. In May 1997, the Under Secretary of Defense for Acquisition and Technology directed the establishment of the UXO Center of Excellence (UXOCOE) to implement this plan, and in October 1997, the Department established the operational arm of the UXOCOE, the Joint UXO Coordination Office (JUXOCO), which is collocated with the Night Vision Electronic Sensors Directorate at Ft. Belvoir, VA.

Program Accomplishments and Plans:

(U) **FY 1998 Accomplishments:**

- Stood-up the Joint UXO Coordination Office (JUXOCO) at Ft. Belvoir, VA.
- Focused the expertise, capabilities and technologies of the government, academia and industry to improve the detection and clearance of UXO nationally and internationally. Developed a MOU between DOE and DOD for the conduct of Cooperative R&D programs for UXO/Mine Detection and Neutralization (Not Applicable)
- Assessed current technology capabilities against mission requirements and developed investment strategies. This involved conducting a requirements workshop, a resource managers workshop, and technology workshops in aided target recognition, magnetometry, radar, chemical sensors, active electromagnetics, electro-optics, robotics, large area clearance, and render safe/neutralization. (Not Applicable)
- Updated and maintained the UXO clearance/detection database and computer website to promote active interaction and sharing of information, concepts and technology within DoD and with other US and international agencies, academia, and industry. See www.denix.osd.mil/UXOCOE. (Not Applicable)
- Developed standardized target UXO, benchmarks, metrics, milestones and deliverables. Established a pilot site at Ft. A.P. Hill, VA to demonstrate test protocols. (Not Applicable)
- Drafted a report for review in preparation for submission to the EXCOM and Congress. (Not Applicable)

(U) **FY 1999 Plans:**

- Preparation of updated report for submission to Congress. (\$ 0.100 million)
- Continue to function as the focal point for UXO detection and clearance expertise. (\$ 0.159 million)
- Promote international cooperation and forge coordinated working research efforts in promising technologies. (\$ 0.100 million)
- Continue development of standards, test sites, test targets and test protocols. Select and establish common test sites, data formats, and metrics. (\$ 0.780 million)
- Update and maintain the UXO clearance/detection database and computer website to promote interaction and sharing of information, concepts and technology within DoD and with other US and international agencies, academia, and industry. (0.120 million)

(U) **FY 2000 Plans:**

- Fully integrate industry requirements for UXO clearance equipment into UXO requirements process. (\$0.100 million)
 - Establish protocols for evaluation of foreign UXO detection sensor data. (\$0.100 million)
- Collocate two UXO experimental areas with existing UXO testing areas. Conduct scientific experiments to gather data on the performance of detection sensors at these locations. (\$.926 million)

UNCLASSIFIED

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification								Date: February 1999	
<ul style="list-style-type: none"> Update and maintain the UXO clearance/detection database and computer website to promote interaction and sharing of information, concepts and technology within DoD and with other US and international agencies, academia, and industry. (0.100 million) 									
(U) FY2001 Plans:									
<ul style="list-style-type: none"> Conduct requirements and technology workshops to update the technological thrusts for UXO RDT&E. (\$0.100 million) Integrate international and industrial research and equipment into a computerized database of UXO RDT&E to enhance information sharing. (\$0.100 million) Collocate one UXO experimental area with an existing UXO testing area in a geologically unique local. Conduct scientific experiments to gather data on the performance of detection sensors at this location and previously established areas. (\$1.021 million) 									
B. Program Change Summary: Not Applicable									
C. Other Program Funding Summary: PE 0602712A									
<u>PY</u>	<u>FY98</u>	<u>FY 99</u>	<u>FY 00</u>	<u>FY 01</u>	<u>FY 02</u>	<u>FY 03</u>	<u>FY 04</u>	<u>To</u>	<u>Total</u>
0	1.5	0.5	0.5	0.5	0.5	0.5	0	Continuing	Continuing
D. Acquisition Strategy: Not Applicable									
E. Schedule Profile: Not Applicable									

UNCLASSIFIED

Exhibit R-2a, RDT&E Project Justification									Date: February 1999	
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NAME AND NUMBER				
RDT&E, Defense Wide Budget Activity 6			PE 0603858D8Z			Unexploded Ordnance Detection and Clearance				
COST (\$ in millions)	FY PY	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	FY 04	Cost to Complete	Total Cost
Total PE Cost	0	0	1.259	1.226	1.221	1.215	0	0	Continuing	Continuing
RDT&E Articles Qty										

A. Mission Description and Budget Item Justification

Brief Description of Element

This program element funds the Joint Unexploded Ordnance Coordinating Office (JUXOCO) of the Unexploded Ordnance Center of Excellence (UXOCOE) to develop policy and provide oversight in coordinating requirements and technology in detection and clearance of unexploded ordnance (UXO) within the Department of Defense (DoD), as well as with other United States and international agencies, academia, and industry; to establish and maintain standards for testing, modeling, and the evaluation of unexploded ordnance detection and clearance technology; and to establish, gather, and maintain a database of the results of these efforts.

In response to a request from the House National Security Committee (HNSC) and concerns of the General Accounting Office (GAO), the Department of Defense submitted a plan in March 1997, "Report to Congress: Unexploded Ordnance Clearance: A Coordinated Approach to Requirements and Technology Development." This report was developed by a joint, inter-agency task force comprised of the proponents of the unexploded ordnance (UXO) clearance mission areas (active range clearance, demining, countermines, explosive ordnance disposal, and environmental remediation). The report defined research and development priorities, program management, and cooperative activities for technology applicable to area ordnance clearance, also known as UXO clearance. The report also described a plan to maintain visibility over and leverage technology efforts within DoD, at other government agencies, and in private industry for the detection, neutralization, and disposal of UXO. In May 1997, the Under Secretary of Defense for Acquisition and Technology directed the establishment of the UXO Center of Excellence (UXOCOE) to implement this plan, and in October 1997, the Department established the operational arm of the UXOCOE, the Joint UXO Coordination Office (JUXOCO), which is collocated with the Night Vision Electronic Sensors Directorate at Ft. Belvoir, VA.

Program Accomplishments and Plans:

(U) FY 1998 Accomplishments:

- Stood-up the Joint UXO Coordination Office (JUXOCO) at Ft. Belvoir, VA.
- Focused the expertise, capabilities and technologies of the government, academia and industry to improve the detection and clearance of UXO nationally and internationally. Developed a MOU between DOE and DOD for the conduct of Cooperative R&D programs for UXO/Mine Detection and Neutralization (Not Applicable)
- Assessed current technology capabilities against mission requirements and developed investment strategies. This involved conducting a requirements workshop, a resource managers workshop, and technology workshops in aided target recognition, magnetometry, radar, chemical sensors, active electromagnetics, electro-optics, robotics, large area clearance, and render safe/neutralization. (Not Applicable)
- Updated and maintained the UXO clearance/detection database and computer website to promote active interaction and sharing of information, concepts and technology within DoD and with other US and international agencies, academia, and industry. See www.denix.osd.mil/UXOCOE. (Not Applicable)
- Developed standardized target UXO, benchmarks, metrics, milestones and deliverables. Established a pilot site at Ft. A.P. Hill, VA to demonstrate test protocols. (Not Applicable)
- Drafted a report for review in preparation for submission to the EXCOM and Congress. (Not Applicable)

(U) FY 1999 Plans:

- Preparation of updated report for submission to Congress. (\$ 0.100 million)
- Continue to function as the focal point for UXO detection and clearance expertise. (\$ 0.159 million)
- Promote international cooperation and forge coordinated working research efforts in promising technologies. (\$ 0.100 million)
- Continue development of standards, test sites, test targets and test protocols. Select and establish common test sites, data formats, and metrics. (\$ 0.780 million)
- Update and maintain the UXO clearance/detection database and computer website to promote interaction and sharing of information, concepts and technology within DoD and with other US and international agencies, academia, and industry. (0.120 million)

(U) FY 2000 Plans:

- Fully integrate industry requirements for UXO clearance equipment into UXO requirements process. (\$0.100 million)
- Establish protocols for evaluation of foreign UXO detection sensor data. (\$0.100 million)
- Collocate two UXO experimental areas with existing UXO testing areas. Conduct scientific experiments to gather data on the performance of detection sensors at these locations. (\$.926 million)
- Update and maintain the UXO clearance/detection database and computer website to promote interaction and sharing of information, concepts and technology within DoD and with other US and international agencies, academia, and industry. (0.100 million)

(U) FY2001 Plans:

- Conduct requirements and technology workshops to update the technological thrusts for UXO RDT&E. (\$0.100 million)
- Integrate international and industrial research and equipment into a computerized database of UXO RDT&E to enhance information sharing. (\$0.100 million)

UNCLASSIFIED

UNCLASSIFIED

Exhibit R-2a, RDT&E Project Justification								Date: February 1999	
<ul style="list-style-type: none"> Collocate one UXO experimental area with an existing UXO testing area in a geologically unique local. Conduct scientific experiments to gather data on the performance of detection sensors at this location and previously established areas. (\$1.021 million) 									
B. Other Program Funding Summary: PE 0602712A									
<u>PY</u>	<u>FY98</u>	<u>FY 99</u>	<u>FY 00</u>	<u>FY 01</u>	<u>FY 02</u>	<u>FY 03</u>	<u>FY 04</u>	<u>To</u>	<u>Total</u>
0	1.5	0.5	0.5	0.5	0.5	0.5	0	Continuing	Continuing
C. Acquisition Strategy: Not Applicable									
D. Schedule Profile: Not Applicable									

UNCLASSIFIED

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification								Date: February 1999		
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/Budget Activity 6					R-1 ITEM NOMENCLATURE Unexploded Ordnance Detection & Clearance - PE 0603858D8Z					
COST (\$ in millions)	FY PY	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	FY 04	Cost to Complete	Total Cost
Total PE Cost	0	0	1.259	1.226	1.221	1.215	0	0	Continuing	Continuing
Project A Name/No. & subtotal cost										
Project B Name/No. & subtotal cost										
Project C Name/No. & subtotal cost										
Quantity of RDT&E Articles										

A. Mission Description and Budget Item Justification

Brief Description of Element

This program element funds the Joint Unexploded Ordnance Coordinating Office (JUXOCO) of the Unexploded Ordnance Center of Excellence (UXOCOE) to develop policy and provide oversight in coordinating requirements and technology in detection and clearance of unexploded ordnance (UXO) within the Department of Defense (DoD), as well as with other United States and international agencies, academia, and industry; to establish and maintain standards for testing, modeling, and the evaluation of unexploded ordnance detection and clearance technology; and to establish, gather, and maintain a database of the results of these efforts.

In response to a request from the House National Security Committee (HNSC) and concerns of the General Accounting Office (GAO), the Department of Defense submitted a plan in March 1997, "Report to Congress: Unexploded Ordnance Clearance: A Coordinated Approach to Requirements and Technology Development." This report was developed by a joint, inter-agency task force comprised of the proponents of the unexploded ordnance (UXO) clearance mission areas (active range clearance, demining, countermines, explosive ordnance disposal, and environmental remediation). The report defined research and development priorities, program management, and cooperative activities for technology applicable to area ordnance clearance, also known as UXO clearance. The report also described a plan to maintain visibility over and leverage technology efforts within DoD, at other government agencies, and in private industry for the detection, neutralization, and disposal of UXO. In May 1997, the Under Secretary of Defense for Acquisition and Technology directed the establishment of the UXO Center of Excellence (UXOCOE) to implement this plan, and in October 1997, the Department established the operational arm of the UXOCOE, the Joint UXO Coordination Office (JUXOCO), which is collocated with the Night Vision Electronic Sensors Directorate at Ft. Belvoir, VA.

Program Accomplishments and Plans:

(U) FY 1998 Accomplishments:

- Stood-up the Joint UXO Coordination Office (JUXOCO) at Ft. Belvoir, VA.
- Focused the expertise, capabilities and technologies of the government, academia and industry to improve the detection and clearance of UXO nationally and internationally. Developed a MOU between DOE and DOD for the conduct of Cooperative R&D programs for UXO/Mine Detection and Neutralization (Not Applicable)
- Assessed current technology capabilities against mission requirements and developed investment strategies. This involved conducting a requirements workshop, a resource managers workshop, and technology workshops in aided target recognition, magnetometry, radar, chemical sensors, active electromagnetics, electro-optics, robotics, large area clearance, and render safe/neutralization. (Not Applicable)
- Updated and maintained the UXO clearance/detection database and computer website to promote active interaction and sharing of information, concepts and technology within DoD and with other US and international agencies, academia, and industry. See www.denix.osd.mil/UXOCOE. (Not Applicable)
- Developed standardized target UXO, benchmarks, metrics, milestones and deliverables. Established a pilot site at Ft. A.P. Hill, VA to demonstrate test protocols. (Not Applicable)
- Drafted a report for review in preparation for submission to the EXCOM and Congress. (Not Applicable)

(U) FY 1999 Plans:

- Preparation of updated report for submission to Congress. (\$ 0.100 million)
- Continue to function as the focal point for UXO detection and clearance expertise. (\$ 0.159 million)
- Promote international cooperation and forge coordinated working research efforts in promising technologies. (\$ 0.100 million)
- Continue development of standards, test sites, test targets and test protocols. Select and establish common test sites, data formats, and metrics. (\$ 0.780 million)
- Update and maintain the UXO clearance/detection database and computer website to promote interaction and sharing of information, concepts and technology within DoD and with other US and international agencies, academia, and industry. (0.120 million)

(U) FY 2000 Plans:

- Fully integrate industry requirements for UXO clearance equipment into UXO requirements process. (\$0.100 million)
 - Establish protocols for evaluation of foreign UXO detection sensor data. (\$0.100 million)
- Collocate two UXO experimental areas with existing UXO testing areas. Conduct scientific experiments to gather data on the performance of detection sensors at these locations. (\$.926 million)

UNCLASSIFIED

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification								Date: February 1999	
<ul style="list-style-type: none"> Update and maintain the UXO clearance/detection database and computer website to promote interaction and sharing of information, concepts and technology within DoD and with other US and international agencies, academia, and industry. (0.100 million) 									
(U) FY2001 Plans:									
<ul style="list-style-type: none"> Conduct requirements and technology workshops to update the technological thrusts for UXO RDT&E. (\$0.100 million) Integrate international and industrial research and equipment into a computerized database of UXO RDT&E to enhance information sharing. (\$0.100 million) Collocate one UXO experimental area with an existing UXO testing area in a geologically unique local. Conduct scientific experiments to gather data on the performance of detection sensors at this location and previously established areas. (\$1.021 million) 									
B. Program Change Summary: Not Applicable									
C. Other Program Funding Summary: PE 0602712A									
<u>PY</u>	<u>FY98</u>	<u>FY 99</u>	<u>FY 00</u>	<u>FY 01</u>	<u>FY 02</u>	<u>FY 03</u>	<u>FY 04</u>	<u>To</u>	<u>Total</u>
0	1.5	0.5	0.5	0.5	0.5	0.5	0	Continuing	Continuing
D. Acquisition Strategy: Not Applicable									
E. Schedule Profile: Not Applicable									

UNCLASSIFIED

Exhibit R-2a, RDT&E Project Justification									Date: February 1999	
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide Budget Activity 6			PROGRAM ELEMENT PE 0603858D8Z			PROJECT NAME AND NUMBER Unexploded Ordnance Detection and Clearance				
COST (\$ in millions)	FY PY	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	FY 04	Cost to Complete	Total Cost
Total PE Cost	0	0	1.259	1.226	1.221	1.215	0	0	Continuing	Continuing
RDT&E Articles Qty										

A. Mission Description and Budget Item Justification

Brief Description of Element

This program element funds the Joint Unexploded Ordnance Coordinating Office (JUXOCO) of the Unexploded Ordnance Center of Excellence (UXOCOE) to develop policy and provide oversight in coordinating requirements and technology in detection and clearance of unexploded ordnance (UXO) within the Department of Defense (DoD), as well as with other United States and international agencies, academia, and industry; to establish and maintain standards for testing, modeling, and the evaluation of unexploded ordnance detection and clearance technology; and to establish, gather, and maintain a database of the results of these efforts.

In response to a request from the House National Security Committee (HNSC) and concerns of the General Accounting Office (GAO), the Department of Defense submitted a plan in March 1997, "Report to Congress: Unexploded Ordnance Clearance: A Coordinated Approach to Requirements and Technology Development." This report was developed by a joint, inter-agency task force comprised of the proponents of the unexploded ordnance (UXO) clearance mission areas (active range clearance, demining, countermine, explosive ordnance disposal, and environmental remediation). The report defined research and development priorities, program management, and cooperative activities for technology applicable to area ordnance clearance, also known as UXO clearance. The report also described a plan to maintain visibility over and leverage technology efforts within DoD, at other government agencies, and in private industry for the detection, neutralization, and disposal of UXO. In May 1997, the Under Secretary of Defense for Acquisition and Technology directed the establishment of the UXO Center of Excellence (UXOCOE) to implement this plan, and in October 1997, the Department established the operational arm of the UXOCOE, the Joint UXO Coordination Office (JUXOCO), which is collocated with the Night Vision Electronic Sensors Directorate at Ft. Belvoir, VA.

Program Accomplishments and Plans:

(U) FY 1998 Accomplishments:

- Stood-up the Joint UXO Coordination Office (JUXOCO) at Ft. Belvoir, VA.
- Focused the expertise, capabilities and technologies of the government, academia and industry to improve the detection and clearance of UXO nationally and internationally. Developed a MOU between DOE and DOD for the conduct of Cooperative R&D programs for UXO/Mine Detection and Neutralization (Not Applicable)
- Assessed current technology capabilities against mission requirements and developed investment strategies. This involved conducting a requirements workshop, a resource managers workshop, and technology workshops in aided target recognition, magnetometry, radar, chemical sensors, active electromagnetics, electro-optics, robotics, large area clearance, and render safe/neutralization. (Not Applicable)
- Updated and maintained the UXO clearance/detection database and computer website to promote active interaction and sharing of information, concepts and technology within DoD and with other US and international agencies, academia, and industry. See www.denix.osd.mil/UXOCOE. (Not Applicable)
- Developed standardized target UXO, benchmarks, metrics, milestones and deliverables. Established a pilot site at Ft. A.P. Hill, VA to demonstrate test protocols. (Not Applicable)
- Drafted a report for review in preparation for submission to the EXCOM and Congress. (Not Applicable)

(U) FY 1999 Plans:

- Preparation of updated report for submission to Congress. (\$ 0.100 million)
- Continue to function as the focal point for UXO detection and clearance expertise. (\$ 0.159 million)
- Promote international cooperation and forge coordinated working research efforts in promising technologies. (\$ 0.100 million)
- Continue development of standards, test sites, test targets and test protocols. Select and establish common test sites, data formats, and metrics. (\$ 0.780 million)
- Update and maintain the UXO clearance/detection database and computer website to promote interaction and sharing of information, concepts and technology within DoD and with other US and international agencies, academia, and industry. (0.120 million)

(U) FY 2000 Plans:

- Fully integrate industry requirements for UXO clearance equipment into UXO requirements process. (\$0.100 million)
- Establish protocols for evaluation of foreign UXO detection sensor data. (\$0.100 million)
- Collocate two UXO experimental areas with existing UXO testing areas. Conduct scientific experiments to gather data on the performance of detection sensors at these locations. (\$.926 million)
- Update and maintain the UXO clearance/detection database and computer website to promote interaction and sharing of information, concepts and technology within DoD and with other US and international agencies, academia, and industry. (0.100 million)

(U) FY2001 Plans:

- Conduct requirements and technology workshops to update the technological thrusts for UXO RDT&E. (\$0.100 million)
- Integrate international and industrial research and equipment into a computerized database of UXO RDT&E to enhance information sharing. (\$0.100 million)

UNCLASSIFIED

UNCLASSIFIED

Exhibit R-2a, RDT&E Project Justification								Date: February 1999	
<ul style="list-style-type: none"> Collocate one UXO experimental area with an existing UXO testing area in a geologically unique local. Conduct scientific experiments to gather data on the performance of detection sensors at this location and previously established areas. (\$1.021 million) 									
B. Other Program Funding Summary: PE 0602712A									
<u>PY</u>	<u>FY98</u>	<u>FY 99</u>	<u>FY 00</u>	<u>FY 01</u>	<u>FY 02</u>	<u>FY 03</u>	<u>FY 04</u>	<u>To</u>	<u>Total</u>
0	1.5	0.5	0.5	0.5	0.5	0.5	0	Continuing	Continuing
C. Acquisition Strategy: Not Applicable									
D. Schedule Profile: Not Applicable									

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification								Date: February 1999		
APPROPRIATION/BUDGET ACTIVITY RDT&E – Defense Wide/Budget Activity: 6					R-1 ITEM NOMENCLATURE Assessments and Evaluations – PE: 0604942D8Z					
COST (\$ In Millions)	FY1998	FY1999	FY2000	FY2001	FY2002	FY2003	FY2004	FY2005	Cost to Complete	Total Cost
Total Program Element (PE) Cost	4.655*	3.868**	4.900	5.000	5.100	5.200	5.300	5.400	Continuing	Continuing
National Assessment Group Project Code: 842	4.655*	3.868**	4.900	5.000	5.100	5.200	5.300	5.400	Continuing	Continuing

(U) A. Mission Description and Budget Item Justification

(U) BRIEF DESCRIPTION OF ELEMENT: The National Assessment Group (NAG) charter mandates the organization to continue providing low cost, responsive, evaluations of National Level programs belonging to Department of Defense. The NAG shall continue to encompass the provisions for comprehensive evaluations support, instrumentation, open sources integrated research and analyses, technical engineering, operations security, risk management, logistics support, rapid assessments, and integration of technology prototypes, and their applications for DOD programs. In addition, the NAG will continue an emphasis on quick reaction to current warfighter requirements. *The FY 1998 DoD Appropriations Conference Report directed the transfer of \$4.655 thousand from DT&E to RDT&E, Defense Wide, Assessment and Evaluation Program Element. The actual transfer did not occur until FY-99. The NAG was funded from DT&E for FY 1998.

PROGRAM ACCOMPLISHMENTS AND PLANS:

(U) FY 1998 Accomplishments:

- Provided evaluation support, instrumentation, open source integrated research and analysis and technical engineering in support of DOD programs. (\$1.500 Million)
- Provided integration of technology prototypes and their application for DOD programs, projects and operations. (\$.300 Million)
- Infrastructure support of the NAG ensuring ability to provide quick reaction to current warfighter requirements. (\$2.855 Million)

UNCLASSIFIED

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification	Date: February 1999
APPROPRIATION/BUDGET ACTIVITY RDT&E – Defense Wide/Budget Activity: 6	R-1 ITEM NOMENCLATURE Assessments and Evaluations – PE: 0604942D8Z

PROGRAM ACCOMPLISHMENTS AND PLANS: (Continued)

(U) FY 1999 Plans:

- Continue to provide evaluation support, instrumentation, open source integrated research and analysis and technical engineering in support of DOD programs. (\$1.168 Million)
- Provided integration of technology prototypes and their application for DOD programs, projects and operations. (\$.255 Million)
- Continuation of infrastructure support of the NAG ensuring ability to provide quick reaction to current warfighter requirements. (\$2.340 Million)
- Purchase and maintenance of instrumentation equipment in support of DOD programs. (\$.105 Million)

(U) FY 2000 Plans:

- Continue to provide evaluation support, instrumentation, open source integrated research and analysis and technical engineering in support of DOD programs. (\$1.568 Million)
- Continue to provide integration of technology prototypes and their application for DOD programs, projects and operations. (\$.343 Million)
- Continuation of infrastructure support of the NAG ensuring ability to provide quick reaction to current warfighter requirements. (\$2.842 Million)
- Purchase and maintenance of instrumentation equipment in support of DOD programs. (\$.147 Million)

(U) FY 2001 Plans:

- Continue to provide evaluation support, instrumentation, open source integrated research and analysis and technical engineering in support of DOD programs. (\$1.600 Million)
- Continue to provide integration of technology prototypes and their application for DOD programs, projects and operations. (\$.350 Million)

UNCLASSIFIED

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification		Date: February 1999
APPROPRIATION/BUDGET ACTIVITY RDT&E – Defense Wide/Budget Activity: 6	R-1 ITEM NOMENCLATURE Assessments and Evaluations – PE: 0604942D8Z	

PROGRAM ACCOMPLISHMENTS AND PLANS: (Continued)

- Continuation of infrastructure support of the NAG ensuring ability to provide quick reaction to current warfighter requirements. (\$2.900 Million)
- Purchase and maintenance of instrumentation equipment in support of DOD programs. (\$.150 Million)

(U) B. <u>Program Change Summary</u>	<u>FY1998</u>	<u>FY1999</u>	<u>FY2000</u>	<u>FY2001</u>	<u>Total Cost</u>
Previous President's Budget	4.655	3.916	0	0	Continuing

Appropriated Value

Congressional Directed Transfer (From DT&E 0450; PE65804D)	4.655	3.916			
---	-------	-------	--	--	--

Adjustments to Appropriated
Value/Transferred Amount

- | | | | | | |
|--|--|--------|--|--|--|
| a. Congressionally-directed
undistributed reduction | | (.132) | | | |
| b. Other | | | | | |

Current Budget Submit/President's Budget	4.655*	3.868**	4.900	5.000	Continuing
---	--------	---------	-------	-------	------------

(U) Funding: The change in FY 1999 is due to Congressional undistributed reductions.

(U) Schedule: Not Applicable

(U) Technical: Not Applicable

(U) C. Other Program Funding Summary Not Applicable

(U) D. Acquisition Strategy: Not Applicable

(U) E. Schedule Profile: Not Applicable

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE February 1999		
APPROPRIATION/BUDGET ACTIVITY Research, Development, Test & Evaluation, Defense-wide					R-1 ITEM NOMENCLATURE Technical Studies, Support & Analysis PE 0605104D				
COST (In Millions)	FY1998	FY1999	FY2000	FY2001	FY2002	FY2003	FY2004	FY2005	
Total Program Element (PE) Cost	30.592	29.641	29.506	30.016	30.459	30.870	31.517	32.180	
P421 Tech Studies, Support & Analysis	30.592	29.641	29.506	30.016	30.459	30.870	31.517	32.180	

A. Mission Description and Budget Item Justification

BRIEF DESCRIPTION OF ELEMENT: This program element is classified in Budget Activity 6 because it is the primary source of funding for the Office of the Secretary of Defense and the Joint Staff for studies, analyses, management, and technical support efforts to improve and support policy development, decision-making, management and administration of DoD programs and activities. Specific projects address a variety of complex issues and dynamic problems facing the Under Secretary of Defense for Acquisition and Technology [USD(A&T)], Under Secretary of Defense for Policy [USD(P)], Under Secretary of Defense for Personnel and Readiness [USD(P&R)], Assistant Secretary of Defense for Command, Control, Communications and Intelligence [ASD(C3I)], Director for Program Analysis and Evaluation (DPA&E), the Joint Staff and Unified Command Commanders. Studies and analyses will examine the implications and consequences of current and alternative policies, plans, operations, strategies and budgets, and are essential for understanding and gaining insight into the complex multifaceted international, political, technological, economic, military, and acquisition environments in which defense decisions and opportunities take place. With the defense budget declining and our need to better understand and cope with the threats and uncertainties facing the Nation in the current economic environment, the need for objective analyses and forward-looking planning for the immediate through the long-range becomes greater.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY Research, Development, Test & Evaluation, Defense-wide	R-1 ITEM NOMENCLATURE Technical Studies, Support & Analysis PE0605104D8Z	

PROGRAM ACCOMPLISHMENTS AND PLANS:**General Support for USD(ACQUISITION & TECHNOLOGY):****FY1998 Accomplishments**

- Developed prototype training tool to advance Program Manager's knowledge of PPBS and programmers' and budgeters' knowledge of the acquisition system
- Developed lessons learned regarding processes used in first Quadrennial Defense Review (QDR), offered options for improving such processes in future reviews of this kind, and provided initial proposals for acquiring assessment capabilities that benefit DoD in the next QDR.
- Supported National Partnership for Reinventing Government (NPR) goal of providing visibility into weapon systems life cycle cost by providing a basis for estimating costs of future systems.
- Supported National Performance Review goal of defining requirements and establishing a cost accounting system that provides routine visibility into weapon system life-cycle costs through activity based costing and management.
- Spin-off research required after the cost and operational effectiveness assessments of deep attack weapons mix
- Analyses of technical issues affecting the relative performance of ballistic and cruise missile defense systems.
- Independent assessment of the Navy's Surface Ship Torpedo Defense program at the request of Congress.
- Analysis and planning for clearance of anti-personnel land mines and unexploded ordnance
- Assessments of schedule and technical risks associated with tactical aircraft and missile programs in preparation for acquisition milestone meetings.
- Analysis of cost and schedule impacts of applying stealth technology to tactical aircraft and other systems.
- Developed automated Purchase Request, as a prototype initiative for Paperless Contracting
- Benchmarking, analysis and modeling of private and public sector career development, continuing education, and professional certification programs to support the design of a comprehensive continuous learning policy and program for the defense acquisition workforce.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	
Research, Development, Test & Evaluation, Defense-wide	Technical Studies, Support & Analysis PE0605104D8Z	

- Development and application of an analytical model and resulting recommendations for determining Defense Acquisition University core requirements and faculty structure for policy-level application and decision-making.
- Currently updating the Congressional mandated Joint Warfighting Science and Technology Plan for year 1999 and the companion science and technology planning documents.
- Currently conducting affordability activities with industry.
- Development of acquisition workforce decision support system specifications, including a data model, function flow diagrams, and prototype screen designs.
- Collected and conformed DoD-wide position and organization data to algorithm developed for analysis of individual position designations.
- Assessed feasibility of using recent technology advances in browser-based information technology to improve OUSD (A&T) information access and management.
- Determined environmental costs associated with weapon systems' life cycles.
- Reviewed and recommended a process for scrapping marine vessels in an environmentally prudent manner.
- Performed analysis of European Industrial Strategies, Cooperative Programs and Possible U.S. responses/ICOG
- Initiated the development and maintenance of International MOU Data Base for use by OSD, all Services and Components
- Support for the International Cooperative Research and Development (Nunn) process
- Developed Defense Modeling and Simulation Initiative with the Republic of Korea
- Developed Integrated Product and Process (IPPD) handbook and training, risk and software policy in DoD 5000.2-R, and risk and software practices in the Acquisition Deskbook.

FY 1999 Program

- Program Schedule and Cost Risk Assessment for the Assembled Chemical Weapons Assessment (ACWA)
- Examining the Implications of Transatlantic Industrial Cooperation
- Examining Leasing and Other Alternative Uses of Non-Excess Military Property

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	
Research, Development, Test & Evaluation, Defense-wide	Technical Studies, Support & Analysis PE0605104D8Z	

- Laboratory Restructuring & Consolidation: an independent analysis of functions and costs at all Defense labs, toward possible re-engineering
- Cost Benefit Analysis of Raising Micro Purchase Card Threshold, especially as it impacts small and minority-owned businesses
- Attack Submarine Force Structure Study
- Working Capital Funds Reform
- Property, Plant and Equipment Accountability - Analysis and Scope of New Mission
- Co-sponsor a multi-Federal Agency effort, underwriting an initiative to assess the European air transport industry
- Design, develop, and apply optimization technology techniques for improving long range planning of defense acquisitions in areas found most promising.
- Improve the overall management of Defense contracts by integrating earned value management with technical accomplishments. Determine key technical performance parameters for a contract, map them to the Work Breakdown Structure elements, and assess cost and schedule.
- Support the Deputy Secretary's goal of paperless operations by obtaining the planning and analysis needed to support paperless processing of FY00 Program Objective Memorandum.
- Support National Partnership for Reinventing Government (NPR) goal of reducing cycle time by 25 percent.
- Advance acquisition workforce staff understanding of PPBS by developing simulation/game teaching tools
- Continue analysis of cost-effectiveness of incorporating stealth technologies into aircraft, unmanned systems, and certain classes of weapons.
- Analyses of Theater and National Missile Defense requirements, including technology and system performance issues related to development and use of laser systems for missile defense
- Address issues affecting relative performance of deep attack systems, including modeling system survivability at low altitudes.
- Respond to Congressional direction to analyze requirements for reactive armor tiles.
- Update the Congressional mandated Joint Warfighting Science and Technology Plan for year 2000
- Planning affordability activities with industry
- Recruit, develop, reward and retain technology leaders

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	
Research, Development, Test & Evaluation, Defense-wide	Technical Studies, Support & Analysis PE0605104D8Z	

- Conduct strategic planning and implementation support for cross-service restructuring of laboratories
- Provide senior consultant to laboratory legislative issues
- Implement metrics for dual use science & technology programs
- Continue refinement of prototype design, methodology, and analytical plan to validate the business necessity of academic degrees for acquisition professionals by career field clusters.
- Full deployment of an acquisition workforce decision support system which integrates all military and civilian personnel, position, and organization data for convenient, desk-top use by acquisition functional managers and department leaders.
- Completion of a system of metrics linking career program features, as well as education and training, to functional (performance) outcomes to support workforce management and program design decisions.
- Identification of additional education and training requirements resulting from re-identification of acquisition workforce under the refined Packard model, and develop alternative implementation strategies.
- Develop Web-based automated Purchase Request, in support of Paperless Contracting goals
- Conduct two Program Executive Officer/System Commander Conferences
- Develop a methodology to reduce military impacts on the environment through implementation of the International Standards Organization (ISO) 14000 "Environmental Management Programs" standard.
- Develop strategy for military-to-military environmental cooperation with the People's Liberation Army of China.
- C4SI Interoperability between US and Republic of Korea (ROK)
- Russian/Former Soviet Union Cooperative Efforts Analysis
- Document the International Cooperative Research and Development process
- Support for the International Cooperative Research and Development (Nunn) process
- Analytic Support: International Armaments Cooperative Programmatic, Industrial and Politico-Military Initiatives
- Analytic Support for International Cooperative Opportunities (ICOG) Development

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	
Research, Development, Test & Evaluation, Defense-wide	Technical Studies, Support & Analysis PE0605104D8Z	

- Development and maintenance of International MOU Data Base for use by OSD, all Services and Components
- Continue development and implementation of systems engineering, simulation, software policy, best practices, and procedures as initiatives assigned by the Defense Systems Affordability Council to the Systems Engineering Steering Group.
- Integrate the Software, Systems Engineering and Integrated Product/Process Development (IPPD) Capability Maturity Models.

FY2000 Plans

- Remain cognizant of latest management techniques that could be applied to DoD's weapons systems process and determine best way to apply them.
- Find or develop tools to support the paperless office initiative, to protect the information infrastructure, to simplify using the PPBS, and to optimize resource allocation.
- Analyze weapon systems performance, cost, and schedule issues to support acquisition milestone decisions and DoD planning, programming, and budgeting activities.
- Respond to Congressional direction to evaluate weapon systems requirements and acquisition issues, and to submit master planning documents for key defense mission areas.
- Continue implementation, tracking, and metrics of acquisition reform initiatives-the heart of Revolution in Business Affairs needed to help pay for Revolution in Military Affairs.
- Finalize a strategy to minimize DoD's greenhouse gas emissions to minimize global climate change.
- Finalize a plan to incorporate environmental justice into DoD programs, policies, and activities.
- Initiatives from the Defense Systems Affordability Council in Systems Engineering functional areas.
- Annual update of the Congressional mandated Joint Warfighting Science and Technology Plan for 2000 and the companion science and technology planning documents.
- Depending on annual funding for the above list, the remainder will stay active until completion.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY Research, Development, Test & Evaluation, Defense-wide	R-1 ITEM NOMENCLATURE Technical Studies, Support & Analysis PE0605104D8Z	

FY2001 Plans

- Analyze weapon systems performance, cost, and schedule issues in support of acquisition milestone decisions and DoD planning, programming, and budgeting activities.
- Respond to Congressional direction to evaluate weapon systems requirements and acquisition issues, and to submit master planning documents for key defense mission areas.
- Continue implementation, tracking, and metrics of acquisition reform initiatives - the heart of the Revolution in Business Affairs needed to help pay for the Revolution in Military Affairs.
- Finalize unexploded ordnance detection and neutralization strategies.
- Finalize environmental security modeling and simulation of operational and technological systems.

General Support for USD (POLICY)**FY 1998 Accomplishments:**

- Analyzed operational and strategic implications of specific issues related to the use of biological weapons and the threats they pose in a variety of regional contingencies
- Analyzed specific dimensions of the threats posed by the use of weapons of mass destruction, and how best to deter that threat.
- Analyzed threat from radiological dispersion devices, how those weapons might be used against U.S. forces, and how the U.S. might best respond
- Analyzed threat from biological terrorism, helped develop appropriate response mechanisms
- Identify and assess novel options that may be exploited by regional states for delivery of nuclear, chemical, and biological weapons.
- Analyzed nuclear weapon employment, supporting force/operational issues, and U.S. missile defense. Analyzed the relationships between missile defense, deterrence policy and counterproliferation efforts.
- Continued the development of analytical tools to better understand theater, component, and operational suppression of enemy air defense systems and battlefield operations.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	
Research, Development, Test & Evaluation, Defense-wide	Technical Studies, Support & Analysis PE0605104D8Z	

- Develop and assess alternative approaches to conducting major theater wars
- Continued development of computer gaming capability based on warfare simulation methodology designed to model effects of modern forces in nontraditional engagements.
- Initiated the development of a comprehensive net assessment of space capabilities.
- Developed plans for the OSD continuity of operations program. Conducted a series of exercises, which focused on specific problem areas. Developed a plan of action for improving continuity of operations policy and planning
- Continued development of indicators/methodologies to help assess US/allied capabilities and US/allied performance toward meeting force improvement objectives. Analyzed selected burden-sharing indicators between NATO allies and others worldwide
- Analyzed U.S. policy in the Balkans with a view toward identifying ways the U.S. could, in concert with its allies, promote greater regional stability and cooperation, as well as strengthen defense cooperation.
- Initiated analysis of logistics requirements needed to support new NATO missions and force structures

FY 1999 Plans:

- Continue the development of an African Center for Security Studies
- Analyze options for a sustainable long-term presence in the Asia Pacific region
- Develop a better understanding of Taiwan's evolving defense requirements in accordance with the Taiwan Relations Act
- Identify and evaluate priority measures that the US could take to maintain Alliance military effectiveness, with emphasis on interoperability and defense cooperation
- Develop long-term strategic framework in which force plans of new Allies can be evaluated and programs of military assistance can be prioritized
- Continue the analysis of logistics requirements needed to support new NATO missions and force structures

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	
Research, Development, Test & Evaluation, Defense-wide	Technical Studies, Support & Analysis PE0605104D8Z	

- Identify ways to encourage the development of civilian defense expertise in Latin America and the Caribbean
- Continue work on biological terrorism and the role of the DoD in crisis response and consequence management
- Continue work on threats to military operations in chemical/biological environment
- Continue work on the joint suppression of enemy air defense (JSEAD)
- Explore alternative approaches and concepts for engaging Russia.
- Analyze a range of compellant strategies, with particular but not exclusive attention to the military dimension, drawing implications for U.S. strategy and force posture
- Conclude study of effectiveness of humanitarian airdrops initiated in FY 1998
- Analyze and explain DoD's strategy for countering terrorism, including the use of weapons of mass destruction on U.S. soil.
- Continue the implementation of the Interagency Terrorism Response Awareness Program to enhance our approaches for dealing with terrorism.
- Provide quick turnaround analyses in response to regional contingencies and emerging international crises

FY 2000 Plans

- Continue to conduct regionally-focused studies on critical issues of concern to the department at that time. For example, China's continued growth as a regional military power raises issues concerning appropriate U.S. approaches and responses
- Continue to collect, analyze, and update statistics on a wide range of macroeconomic and defense indicators used for responsibility sharing comparisons among NATO nations, Japan and the Republic of Korea
- Analyze the threat posed by the proliferation of weapons of mass destruction and the impact on U.S. force structure, acquisition, logistics, training, and doctrine
- Continue assessments of the implications of the Revolution in Military Affairs and how new and emerging technologies might best be exploited to enhance combat effectiveness.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	
Research, Development, Test & Evaluation, Defense-wide	Technical Studies, Support & Analysis PE0605104D8Z	

- Continue development of a comprehensive net assessment of space capabilities.
- Assess implementation of nuclear employment policy guidance and examine critical policy issues involved with national and theater ballistic missile defense
- Continue investigating new operational concepts that existing US forces might use in conjunction with active and passive defense measures to mitigate the threat from enemy "anti-access" capabilities.
- Continue efforts in the area of modeling and simulation of future warfare in support of the QDR (Quadrennial Defense Review).
- Continue the assessment of asymmetric threats to U.S. security interests and help develop alternative U.S. strategies in accordance with the QDR.
- Examine alternate force structures, budget and strategy in support of the next (QDR).

FY 2001 Plans:

- Continue analysis of nuclear weapon employment policy and the relationship between missile defense, counterproliferation policy and counterproliferation policy.
- Continue to analyze the threat posed by proliferation of weapons of mass destruction and the impact on U.S. force structure, acquisition, logistics, training, and doctrine
- Continue assessments of the implications of the Revolution in Military Affairs and how new and emerging technologies might best be exploited to enhance combat effectiveness.
- Continue work on asymmetric threats and challenges and related follow-on issues raised by the QDR
- Continue the development of ideas and concepts for "transforming the force," as determined by the Quadrennial Defense Review. The goal would be a force structure better organized and equipped to deal with emerging threats and challenges.
- Continue work on development of anti-access approaches and methodologies as determined by the Quadrennial Defense Review

General Support for the USD (Personnel & Readiness)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	
Research, Development, Test & Evaluation, Defense-wide	Technical Studies, Support & Analysis PE0605104D8Z	

FY 1998 Accomplishments:Military Personnel Policy

- Congressional mandate: Investigated aviation pay authorities, explored alternative means of compensation and retention of aviators, and currently developing legislative recommendations.
- Congressional mandate: Examined effects of occupation consolidation and elimination (used to generate savings during the drawdown) on skill shortages/overall readiness.
- Evaluated the effectiveness of civilian-contracted telemarketing as a "tool" to enhance recruiting, and continue to examine the cost effectiveness of alternative mixes of national and local advertising.
- Developed innovative strategies to explore new markets to enhance recruiting: attracting college-bound youth into the military.
- Completed evaluation of JROTC Career Academy Program, which provides special military instruction and academic/ vocational training for "at-risk" high school students.
- Demonstrated importance of personnel support programs for military service members and families.
- Determined the impact of alternative retirement plans on civilian manpower supply.

FY 1999 Plans:Military Personnel Policy

- Continue to develop analytic tools to examine ways in which the military pay system and non-pecuniary factors (quality of life, promotion policies, etc.) affect overall recruiting and retention, and determine the most cost-effective mix of compensation and personnel policies to meet force strength objectives.
- Develop a model of recruiting for the Selected Reserves.
- Determine the impact of special duty assignment pay on difficult-to-fill and critical occupational specialties.
- Evaluate privatization of military recruiting.

Personnel and Family Support

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	
Research, Development, Test & Evaluation, Defense-wide	Technical Studies, Support & Analysis PE0605104D8Z	

- Continue to assess the impact of MWR and other quality of life programs on military families, with special emphasis on the effects of major QoL programs on retention, satisfaction with military life, and spouse employment.
- Continue to devise a cost-effective DoD civilian manpower plan in the drawdown, as budgets are constrained and military force levels decline.
Reserve Force Utilization
- Continue to develop and evaluate alternative policies to foster more effective Active/Reserve Force integration.
- Continue to examine individual skill qualifications within the Reserve Component.
- Prepare to conduct a Reserve Component survey on readiness, Quality of Life, family issues, and attitudes of Service members and spouses toward military life.
Military Health Policy
- Examine the future of the Military Health System in terms of its competitiveness with civilian benefits.
- Develop a methodology to determine the value of the medical health benefit.
Equal Opportunity Policy
- Congressional mandate: Develop a survey that identifies and tracks sexual harassment in the military.

FY 2000-2001 Plans:

- Explore new concepts and develop analytical tools to measure personnel and unit readiness for Active and Reserve Components.
- Develop methods to improve the determination of total force requirements for manpower.
- Improve the technological capability of personnel systems to acquire, distribute, train, and utilize qualified personnel for Active and Reserve forces
- Evaluate alternatives for managing total force manpower.
- Monitor quality of life, equal opportunity and diversity of the force.
- Address congressional mandates and directives.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	
Research, Development, Test & Evaluation, Defense-wide	Technical Studies, Support & Analysis PE0605104D8Z	

General Support to Director, Program Analysis & Evaluation

FY 1998 Accomplishments:

Part I. Current Agenda Issues:

Infrastructure

- Examined steps needed to reap planned savings and whether expected savings will continue over time.
- Reviewed distribution and location of DoD family housing, and categorized housing based on availability and cost of private sector housing.
- Evaluated types of training for which organizational and procedural changes, such as outsourcing, appear most promising.
- Developed method and model to estimate size of theater stockpile: resupply ammunition.

Implementing QDR Strategy

- Analyzed AF and Navy tactical aircraft and weapons modernization.
- Reexamined amphibious lift requirements in context of 2 MTW requirements and impact of other factors of lift.
- Analyzed key international resource issues--NATO enlargement and allied burden sharing.
- Developed analytic foundation for examining opportunities and challenges from operating with non-U.S. military organizations in future SSCs.
- Refined cost methodologies and data for use in updating initial DoD cost of NATO enlargement.
- Developed methodologies for estimating marginal costs of contingencies and options for managing those resources.

Personnel, Readiness, and Quality of Life

- Assessed balance between Army structure and manning. Assessed readiness and warfighting impacts of personnel turmoil.
- Developed methodologies for estimating marginal costs of contingencies and options for managing those resources.

Supporting QDR Modernization Approach

- Expanded models for tracking aging of equipment.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	
Research, Development, Test & Evaluation, Defense-wide	Technical Studies, Support & Analysis PE0605104D8Z	

- Assessed capabilities and limitations of potential replacement interdiction aircraft.
- Analyzed impact of Army "digitization."
- Upgraded SSADM model to reflect future joint "netted" air defense operations.
- Analyzed cost-effectiveness of ICH program. Focused on predicted O&S cost savings.
- Explored cost-effectiveness of service life extension options for F-16 and A-10.
- Performed independent assessments of technical concepts and designs for satellite, reconnaissance, theater missile defense, and national missile defense systems.
- Determined overall cost-effectiveness of SOCOM naval craft modernization program.

Part II. Development of Analytic Capabilities

Cost Analysis Research & Tools

- Implemented FSC system for use as a cost-estimating tool for evaluating proposed changes to forces and the support infrastructure.
- Developed cost estimating tools relevant to attributes of next generation tactical aircraft including low observable advanced materials, integrated avionics, and unique propulsion designs.
- Reviewed best practices in estimating costs for large-scale product developments.
- Expanded personnel model to include warrant officers, integrate with officer and enlisted models, and assessed implications of inventory changes.
- Updated SARs database and addressed current policy issues.
- Developed understanding of implications of advanced materials/processes.
- Developed cost estimating relationships for streamlined manufacturing environment.
- Improved reporting of actual costs incurred in development of software for advanced weapon systems.
- Reexamined how DoD cost community estimates support labor costs.
- Developed parametric estimates based on historical engine components and experience from current technology.
- Updated database of overhead costs of defense contractors.
- Quantified cost savings of product initiatives from acquisition reform.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	
Research, Development, Test & Evaluation, Defense-wide	Technical Studies, Support & Analysis PE0605104D8Z	

- Supported economic analysis for major automated information systems.
- Improved ability to assess feasibility and risk of information program assumptions on which estimates of lifecycle costs and benefits are based.
- Developed methodologies for estimating marginal costs of contingencies and options for managing those resources.

Effectiveness Analytical Capabilities & Tools

- Developed capital stock and capabilities metrics to support DPP.
- Provided insights on ways to mitigate problems.
- Examined full spectrum of air defense operations involving aircraft, cruise missiles, and TMD threats.
- Continued improvements to JICM.
- Developed representations of C4ISR and WMD in JWARS.
- Developed recommendations regarding warfare representations using expertise from other theater-level simulations.
- Supported defense analysis professional forum.
- Continued preparations for the next QDR.

FY 1999 Plans:

Part I. Current Agenda Issues:

Infrastructure

- Maintain AIS EA database and continue development "Cost Pro" relational data base model. Train and assist DoD components, and provide analytical support for the assessment of AIS program benefit/cost risk.
- Improve ability to evaluate program assumptions in areas related to software. Improve ability to evaluate costs and benefits of software development programs and strategies.

Implementing QDR Strategy

- Examine the relationship between airfield infrastructure and airlift throughput; identify and rank infrastructure investments for several lift scenarios.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	
Research, Development, Test & Evaluation, Defense-wide	Technical Studies, Support & Analysis PE0605104D8Z	

- Continued development of a comprehensive set of capabilities metrics for incorporation into the DPP materials used to provide DoD senior leadership with an overview of the long term trends and "health" of the defense program.
- Conduct systematic study across most Army munitions of requirements, approved acquisition objectives, approved procurement objectives, wartime expenditures, training requirements, inventories, and budgets since the Cold War. This will compliment a PRG-directed study on Army's CBMR process and results.
- Update and extend past efforts to increase understanding and ability to program medical program resources as effectively as possible.
Personnel, Readiness, and Quality of Life
- Analyze both requirement and adequacy of funding for non-major procurement items particularly those contributing to individual soldier support and correlation to enhanced readiness, quality of life, retention, and recruitment. Determine whether focus on major procurement has shortchanged non-major procurement.
Supporting QDR Modernization Approach
- Continue development of an existing fast running model of the Army Internet, provide a necessary parametric tool, and apply it to project messaging rates and other basic figures of merit expected of the future Army tactical internet.
- Review radar technologies to meet future shipboard air defense needs. Develop transition plan for implementing acquisition for next generation radars. Analyze radar configurations of ship classes, alternatives to shipboard radars, and adequacy of the navy's acquisition plans for next-generation shipboard air defense radars.
- Develop a methodology for combining different means of enhancing aircraft survivability through common measures of performance and effectiveness. Expand current aircraft survivability methodology to include a more detailed treatment of lethal SEAD and air-to-air engagements.
- Develop additional infrastructure cost modules to Force and Support Cost (FSC) System.
- Provide analytical foundation for a cost-effective allocation of resources among space, missile defense, and reconnaissance systems.
Congressional Mandates

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	
Research, Development, Test & Evaluation, Defense-wide	Technical Studies, Support & Analysis PE0605104D8Z	

- Provide senior leaders with key analyses to aid in resource allocation decisions and enhance defense planners ability to make most effective use of scarce collective defense resources. *A number of reports are mandated each year by the Congress, for which PA&E have responsibility for preparation, including the annual responsibility sharing report.*

Part II. Development of Analytic Capabilities

Cost Analysis Research & Tools

- Improve quality/scope of VAMOSC data to capture life cycle costs of major weapon systems.
- Develop metrics to better measure outputs of various business areas in the Defense Working Capital Funds.
- Provide complete database of all DoD-sponsored cost-related research.
- Improve reporting of actual costs for software projects associated with major weapon systems.
- Develop DoD "Best Practices" for estimating costs of new development programs in key product sectors.
- Modernize and improve efficiency of the Department's cost estimating process to support PPBS and acquisition process for major defense acquisition programs.
- Provide necessary data to address policy issues related to the magnitude, sources, and characteristics of cost growth and schedule growth.
- Improve cost models and estimating methodologies by exploring new ways of constructing learning curves (or cost improvement curves) to forecast expected cost of new systems.
- Improve PA&E's ability to evaluate program assumptions in areas related to software. Improve ability to evaluate costs and benefits of software development programs and strategies.
- Provide ready access to expert up-to-date research and consultative services in the areas of information technology and information assurance.

Effectiveness Analysis Tools

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	
Research, Development, Test & Evaluation, Defense-wide	Technical Studies, Support & Analysis PE0605104D8Z	

- Analyze Army's non-TBMD ground based air defense structure in light of actual threats faced in post Cold War environment. Develop and evaluate possible changes in force structure, force component, and acquisition strategies.
- Enhance the functionality, utility, and credibility of JWARS theater-level warfare simulation, which is to be used in the upcoming QDR.
- Examine and develop selected critical air defense factors including sensor resource management, sensor data quality, data fusion, and information latency. Derive proper translation of the impact of these factors into the existing SSADM model. Examine contribution/added-value of new systems and concepts (AADC and JCTN) to the outcome of ship AAW defense engagements.
- Analyze the DWCF programming process for ordering goods and services and the accounting system for those expenditures.
 - Planning, Programming, and Budgeting System (PPBS)
- Support defense analysis professional forum.
- Improve the FYDP to enhance its value to DoD decision-makers.
 - Other Analytic Support Activities
- Reestimate translator vectors to improve accuracy of Defense Employment and Purchases Projection System (DEPPS) projections of DoD spending.
- Sponsor symposium for DoD cost research activities among OSD, the military services, and defense agencies.
 - Anticipating Future Analytic Requirements
- Provide basic handbook for use by DoD cost analysis and acquisition communities for consideration of cost reduction initiatives undertaken by defense contractors.
- Collect, analyze, exploit latest available information to develop databases and methods for estimating development/production costs of next generation tactical aircraft.
- Provide a detailed assessment of defense aircraft industry in accordance with "lean" manufacturing concepts and processes.
- Develop a methodology for identifying military forces needed for a variety of smaller scale contingencies (SSCs) and alternatives to the use of U.S. military units in SSCs.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	
Research, Development, Test & Evaluation, Defense-wide	Technical Studies, Support & Analysis PE0605104D8Z	

Part III. Anticipating Future Analytic Issues

- Continue preparations for the next QDR.

FY 2000/2001 Plans: Evaluate readiness, quality of life, modernization, and infrastructure issues, critical in a downsized military, and, as related to the Quadrennial Defense Review, outsourcing, lean logistics, and maintaining forces (active and reserve). Study long-term investment requirements, equipment aging trends, and the revolution in military affairs. Examine future security challenges, regional assessments, weapons proliferation, and global defense threats in view of the changing world scene. Build/capitalize upon effectiveness tools such as theater models or other capability analyses to look at incremental costs, effectiveness, and relative contribution of planned acquisitions. Continue FYDP reform efforts. Provide tools essential for analyzing and supporting the acquisition process; continue cost analyses of the military medical delivery system; conduct independent cost and operational effectiveness of planned weapons systems; and improve techniques to better understand and project DoD infrastructure and requirements. Continue Congressionally mandated efforts. FY2000 is a critically important period for preparing data, analyses, and tools for supporting the next QDR 2001, which will require significant analyses in all of the above areas.

General Support for ASD (C3I)

FY 1998 Accomplishments:

- Planned and conducted IW exercise with the British in June 98.
- Provided technical advice and consultation to Director, C-E Division and Defense Advisor, U.S. Mission to NATO on NATO Information Systems, NATO C3 Architecture and Implementation Plan, Partnership for Peace initiatives and other selected program areas
- Represented the U.S./participated in a broad range of NATO C3 policy, architecture planning, standardization and implementation activities in various NATO C3 fora and associated technical working groups

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	
Research, Development, Test & Evaluation, Defense-wide	Technical Studies, Support & Analysis PE0605104D8Z	

- Contributed as the U.S. technical expert to the multi-national ADP working group dealing with technical review of NATO funded Automated Information Systems (AIS) and MIS projects, as well as the O&M support to existing AIS infrastructure
- Contributed as a U.S. technical expert to European Atlantic Partnership Council (EAPC) activities regarding C3 Matters Foreign Cooperation Analysis and Assessment
- MOU on Launch Site Operations
- DoD/NASA Cooperation Initiative
- GPS Resource Analysis and Track
- Developed a framework for CI and related areas of security that ties together: (1) the primary protection missions (2) Core functional capabilities within CI and security (3) resources associated with the security functions.
- Updated previous estimates of security resources for the years FY 1991-2003 consistent with Defense programming and budgeting structures and OMB Circular A-11.
- Developed proposals for reflecting the resource implications of potential security policy changes in the area of Force Protection and Antiterrorism.
- Proposed a methodology that can be used by the Defense components to conduct mission area analyses of their CI and security functions using the prescribed framework

FY1999 Plans:

- GPS NAVWAR Technical Assessment
- Extensive Space Control Analysis and Assessment
- Space Launch Infrastructure Assessment
- Commercial Space Launch Services Analysis and Assessment
- Satellite Control Architecture Assessment
- Commercial Spaceport Assessment and Coordination
- Analysis and Assessment of FAA Flight Vehicle Certification Cases
- Support to Civil and Commercial Cooperation Initiatives
- Support to Space Systems Acquisition and Review

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	
Research, Development, Test & Evaluation, Defense-wide	Technical Studies, Support & Analysis PE0605104D8Z	

- Support to GPS Systems and Resources Issues
- Work NATO Enlargement technical issues, with particular focus on new accession Nations: Poland, Hungary, Czech Republic
- Provide technical support for the development of the NATO C3 Common Operating Environment (COE)
- Provide technical support for the NATO ACE ACCIS Implementation Plan
- Provide technical support for the Rolling Interoperability Program (RIP)
- Provide technical guidance on development of the NC3 Technical Architecture
- Participate in Working Group of National Technical Experts-ADP
- Participate in the NATO Open Standards Working Group (NOSWG)
- Update the current estimate of DoD security resources for FY 1997-FY 2005,
- Develop a conceptual framework for security and counterintelligence to structure management decisions to reduce risk in the areas of force protection, classified and sensitive information protection, and critical infrastructure protection.

FY2000 Plans:

- GPS Modernization and NAVWAR Technical Support
- Extensive Space Control Analysis and Assessment
- Space Launch Infrastructure Assessment
- Commercial Space Launch Services Analysis and Assessment
- Satellite Control Architecture and Systems Assessment
- Commercial Spaceport Assessment and Coordination
- Analysis and Assessment of FAA Flight Vehicle Certification Cases
- Support to Civil and Commercial Cooperation Initiatives
- Support to Space Systems Acquisition and Review
- Support to GPS Systems and Resources Issues
- Provide technical support for the Rolling Interoperability Program (RIP)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	
Research, Development, Test & Evaluation, Defense-wide	Technical Studies, Support & Analysis PE0605104D8Z	

- Provide technical guidance on development of the NC3 Technical Architecture
- Participate in Working Group of National Technical Experts-ADP
- Participate in the NATO Open Standards Working Group (NOSWG)
- Update Security/CI resource estimates used to validate Component inputs

FY2001 Plans:

- GPS Modernization and NAVWAR Technical Support
- Extensive Space Control Analysis and Assessment
- Space Launch Infrastructure Assessment
- Commercial Space Launch Services Analysis and Assessment
- Satellite Control Architecture and Systems Assessment
- Commercial Spaceport Assessment and Coordination
- Analysis and Assessment of FAA Flight Vehicle Certification Cases
- Support to Civil and Commercial Cooperation Initiatives
- Support to Space and GPS Systems Acquisition and Review and resource issues
- Provide technical support for the Rolling Interoperability Program (RIP)
- Provide technical guidance on development of the NC3 Technical Architecture
- Update Security/CI resource estimates used to validate Component inputs

General Support for the Joint Staff

FY 1998 Accomplishments:

- Improved representation of logistics in warfare modeling and simulation tools.
- Provided Chairman, JCS with recommendations for a unified command structure by 2010, part of a long-range plan to be implemented by regular two-year cycles.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	
Research, Development, Test & Evaluation, Defense-wide	Technical Studies, Support & Analysis PE0605104D8Z	

- Provided overall strategy to coordinate, manage, and facilitate implementation of deployment process improvement initiatives to support the warfighter from identification of requirements (planning) through final consumption in an Area of Operations (execution), including predeployment, deployment, reception, onward movement, and integration, sustainment and redeployment.
- Provided a refined analytical framework that encompasses the application of enhanced visualization techniques, increased efficiency and effectiveness through meta-analysis (compound analysis) and the ability to better anticipate the decision maker's analytical needs.
- Developed a decision support model and feasible alternatives for a joint CID (Combat Identification) investment strategy directly supporting the JS Short Term CID.

FY 1999 PLANS:

- Provide more efficient method to build domain specific architectures/components for DOD application/software systems, advanced modeling and simulation tools, and a repeatable process for fielding Global Command and Control System components.
- Pursue a focused modernization effort that maintains US qualitative superiority in key warfighting capabilities, exploits the Revolution in Military Affairs, and supports the joint operational concepts delineated in Joint Vision 2010.
- Streamline the joint deployment planning and execution process and save current and life cycle support funding.
- Provide strategic and inter-theater guidance for coherent sustainment and resupply operations, to include the roles and functions of the Services, Defense Logistics Agency, and third party logistics.
- Identify critical joint logistics requirements, and then translate those requirements into Joint Simulation System (JSIMS) capabilities to support existing and future training, mission rehearsals, and other areas.
- Develop independent, unbiased recommendations for potential changes in the assignment of functions (or roles and missions) to the armed forces, as the Chairman considers necessary to achieve maximum effectiveness of the armed forces.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	
Research, Development, Test & Evaluation, Defense-wide	Technical Studies, Support & Analysis PE0605104D8Z	

- Assess existing capabilities in the context of negotiating options development. Decision support tools, e.g., data bases and information management systems, briefing materials and supporting documentation describing required doctrine, plans, read-ahead packages and post-event reports and CINCs' Nuclear Arms Control operational and administrative requirements, shortfalls, and options.
- Monitor events that would drive changes to the Master Navigation Plan (MNP) from the previously issued version revise the MNP
- Publish a handbook on the proliferant Electromagnetic Pulse (EMP) threat environment, as well as establishing nuclear power tactical EMP capabilities.
- Survey the basic processes necessary to make Network-centric Warfare (NCW) work and assess the probabilities that these organizational methods or processes could be adopted in DOD, the Joint Staff, and CINCs/Services/Agencies.
- Identify and define all the functions and associated tasks required to perform the J6 C4I Interoperability and C4ISP Assessment Certification Process of Mission Needs Statements, Operational Requirements Documents (ORDs) and Capstone Requirement Documents (CRD). Propose measures to provide the J-6 staff adequate time to perform all the functions associated with the J6 C4I Interoperability and C4ISP Assessment Certification of MNS, ORDs, and CRDs at current staffing levels.
- Produce a primer that will explain how each Service uses the 14 Joint Standard Air Operations Software applications specified in CJCSI 6271.01A.
- Identify opportunities for further study, experimentation, or development of alternative operational concepts, advanced technologies, organizational architectures, and doctrine required for joint interdiction.
- Technical support to ensure quick-turn analysis tools for evaluation of high value Strike precision platforms.
- Develop and implement a coherent, actionable near-and mid-term Joint investment strategy for CID programs - in effect, progress in CID.
- Optimize available resources through analysis of the Reserve Component contribution in support of the National Military Strategy.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	
Research, Development, Test & Evaluation, Defense-wide	Technical Studies, Support & Analysis PE0605104D8Z	

FY 2000 Plans:

- "Quick-turnaround" assessments directed by Chairman of the Joint Chiefs of Staff
- JV2010 implementation--careful analysis in organization dynamics and structuring.
- Develop and maintain joint doctrine for the employment of the Armed Forces.
- QDR--Assess the CINCs' Theater-Engagement.
- QDR--Follow-on Reserve Component study to identify and evaluate alternative concepts for employing Reserves

FY 2001 PLANS:

- Continue to provide responsive wargaming, analysis and assessment capabilities to support future Chairman of the Joint Chiefs of Staff requirements
- Provide Joint Modeling and Simulation to the Joint Staff and CINCs
- Assess Joint Warfighting Capabilities
- Continue to use collaborative analysis process to exploit the existing analytic expertise in the Services and to help in the assessment of complex joint issues.
- QDR--Develop total force employment database for peacetime requirements/tempo analysis
- QDR--Warfighting impact changes spawned from MRS 05

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	
Research, Development, Test & Evaluation, Defense-wide	Technical Studies, Support & Analysis PE0605104D8Z	

B. Program Change Summary

	<u>FY 1998</u>	<u>FY1999</u>	<u>FY2000</u>	<u>FY2001</u>	<u>TOTAL COST</u>
Previous President's Budget	29.178	30.021	30.519	31.058	N/A
Appropriated Value	30.376	30.021	N/A	N/A	
Adjust to Appropriated Value/President's Budget	0.216	(0.380)	(1.013)	(1.042)	
Congressional Distributed and Undistributed Reductions	2.260	1.312	N/A	N/A	
Current Budget Submit/President's Budget	30.592	29.641	29.506	30.016	
Below Threshold Reprogramming	2.400	.948			

Funding: FY1999 adjustment to former President's Budget due to Appropriations Conference Report.

Schedule: N/A

Technical: N/A

C. Other Program Funding Summary Cost N/A

D. Schedule Profile N/A

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1999		
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-wide/ BA: 6					R-1 ITEM NOMENCLATURE USD(A&T)-Critical Technology Support PE 0605110D8Z					
COST (In Millions)	FY1998	FY1999	FY2000	FY2001	FY2002	FY2003	FY2004	FY2005	FY2006	
Total Program Element (PE) Cost	2.487	0*	0*	0*	0*	0*	0*	0*	Cont.	
Critical Technologies Program P204	2.487	0*	0*	0*	0*	0*	0*	0*	Cont.	

*These funds previously contained in PE0605110D8Z were transferred to PE0605110T for FY1999 and then to PE0605110BR for FY2000 and beyond. PE0605110BR reflects an administrative transfer to accommodate recommendations of the Defense Reform Initiative (DRI).

A. (U)Mission Description and Budget Item Justification

A1. (U)BRIEF OVERVIEW DESCRIPTION OF TOTAL PROGRAM:

(U)This program element supports development and publication of the Congressionally mandated Militarily Critical Technologies List (MCTL). The MCTL is the fundamental source document for identification of leading edge and current technologies which must be monitored and assessed world-wide for national security and nonproliferation control of weapons of mass destruction and advanced conventional weapons. Funds continuous technical support to interdepartmental and international processes which develop multinational control agreements on technologies of concern to DOD. Provides foreign technology assessments for the MCTL and other critical technologies efforts. Identifies and

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-wide/ BA: 6	R-1 ITEM NOMENCLATURE USD(A&T)-Critical Technology Support PE 0605110D8Z	

A1. (U) BRIEF OVERVIEW DESCRIPTION OF TOTAL PROGRAM: (Continued)

determines technical parameters for proposals for international control of weapons of mass destruction. Provides technical assessments to support treaty compliance inspections and decisions on foreign ownership of US industrial assets. Identifies foreign technologies of interest to the DOD and develops opportunities for international cooperative research and development. Includes funding for travel by OSD personnel in support of the management and technical objectives. This program element is responsive to time critical requirements established in interdepartmental and international processes required to meet Congressional mandates to identify, control, transfer and develop militarily critical technologies.

A2. (U) FY 1998 ACCOMPLISHMENTS:

(U) In concert with Department of State provided leadership and technical support in the development of United States Government (USG) proposals for multinational negotiations at the Wassenaar Arrangement (successor to CoCom) to ensure continued control of technologies critical to US military and economic security. Analyzed and documented the US and International participation on the Wassenaar Arrangement. Developed proposals for Missile Technology, Nuclear and BW/CW export control regimes. (\$.050 Million)

(U) Developed and published the MCTL-Part II Weapons of Mass Destruction Technologies. Updated and published MCTL part I Weapons Systems Technologies on the Internet and on CD-ROMs. (\$1.487 Million)

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-wide/ BA: 6	R-1 ITEM NOMENCLATURE USD(A&T)-Critical Technology Support PE 0605110D8Z	

A2. (U) FY 1998 ACCOMPLISHMENTS: (Continued)

(U) Provided on site support at international technology negotiations and analyzed and documented US and International Participation. (\$.100 Million)

(U) In concert with industry, Government and academia conducted worldwide technical assessments of dual use technologies related to Theater Missile Defense and Defense Technology Planning to determine the militarily critical technology parameters. The assessments clearly highlight critical technologies and provided technical rationale for export control changes. (\$.800 Million)

(U) Identified Developing Critical Technologies and Commercial Technologies which are candidates for application in US weapons systems. (\$.050 Million)

A3. (U) FY 1999 PLANS: *These funds previously contained in PE0605110D8Z were transferred to PE0605110T. PE0605110T reflects an administrative transfer to accommodate recommendations of the Defense Reform Initiative (DRI).

A4. (U) FY 2000 PLANS: *These funds previously contained in PE0605110BR were transferred to PE0605110T. PE0605110T reflects an administrative transfer to accommodate recommendations of the Defense Reform Initiative (DRI).

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-wide/ BA: 6	R-1 ITEM NOMENCLATURE USD(A&T)-Critical Technology Support PE 0605110D8Z	

A5. (U) FY 2001 PLANS: *These funds previously contained in PE0605110BR were transferred to PE0605110T. PE0605110T reflects an administrative transfer to accommodate recommendations of the Defense Reform Initiative (DRI).

A6. (U) JUSTIFICATION FOR BUDGET ACTIVITY ASSIGNMENT FOR THE PROGRAM ELEMENT:

(U) The program element is correctly classified in Budget Activity 6 because it provides operational technical support for the Office of the Under Secretary for Acquisition and Technology by identifying and assessing militarily critical technologies DOD assesses as critical to maintaining superior US military capabilities. Some technologies may require protection under one of the multinational control regimes. Other technologies may be eligible for use in multinational technology programs.

A7. (U) ACQUISITION STRATEGY:

(U) The completion of the task detailed in this program element requires technical analyses across a broad spectrum of technologies which are deemed critical to continuing US military superiority. These analyses provide the basis for: the Militarily Critical Technologies List (required by the Export Administration Act); economic and national security assessments of controls in specified technology areas; foreign technology assessments to support economic and national security policy decisions; development of export control proposals for negotiations at the Wassenaar Arrangement and multinational

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-wide/ BA: 6	R-1 ITEM NOMENCLATURE USD(A&T)-Critical Technology Support PE 0605110D8Z	

control regimes and the identification of international cooperation opportunities. The USD(A&T) provides the technical management and oversight but does not have the broad technical expertise required to accomplish these tasks. This breadth of technical knowledge can only be obtained from Government, industry and the academic community.

A7. (U) ACQUISITION STRATEGY: (Continued)

(U) These tasks are best performed by a Federally Funded Research and Development Center (FFRDC). An FFRDC can produce independent and objective analyses of multinational programs which require access to the proprietary technical data of US and foreign defense industries, the existence and nature of which must be kept secret from potential competitors. The required access to sensitive US Government policies, and decision-making procedures concerning multinational defense critical technology programs, and the close collaboration with Government agencies required to perform these tasks, would give a contractor the marketing intelligence necessary to position itself unfairly in future multinational technology markets.

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-wide/ BA: 6	R-1 ITEM NOMENCLATURE USD(A&T)-Critical Technology Support PE 0605110D8Z	

B. (U) Program Change Summary:

	<u>FY1998</u>	<u>FY1999</u>	<u>FY2000</u>	<u>FY2001</u>	<u>Total Cost</u>
Previous President's Budget	2.690	N/A*	N/A*	N/A*	Cont.
Appropriated Value	2.690	N/A*	N/A*	N/A*	
Adjustments to Appropriated Value/ Presidents Budget					
Closed Account Adjustments	N/A	N/A	N/A	N/A	
SBIR	N/A	N/A	N/A	N/A	
Undistributed Congressional Adjustments	-.203	N/A	N/A	N/A	
Current Budget Submit	2.487	N/A*	N/A*	N/A*	Cont.

*These funds previously contained in PE0605110D8Z were transferred to PE0605110T for FY1999 and then to PE0605110BR for FY2000 and beyond. PE0605110BR reflects an administrative transfer to accommodate recommendations of the Defense Reform Initiative (DRI).

C. (U) Other Program Funding Summary: N/A

D. (U) Schedule Profile: N/A

UNCLASSIFIED

Exhibit R-2, RDT&E BUDGET ITEM JUSTIFICATION		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY		R-1 ITEM NOMENCLATURE
RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7		ISR/Space Systems Support to C3I (PE 0605116D8Z)

COST (IN MILLIONS)	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to Complete	Total Cost
Total PE Cost	*	*	2.000	2.000	2.000	2.000	2.000	2.000		
Total Project Cost/No. and Subtotal Cost Support to C3I	*	*	2.000	2.000	2.000	2.000	2.000	2.000		

* This PE has been reactivated IAW PBD 172 which transferred the funding to OASD C3I beginning with FY 00.

Mission Description and Budget Item Justification

Brief Description of Element: Funding is provided for technical and analytical support to the OASD (C3I) to improve the management, collection, presentation, tracking, and oversight of DoD space resources and acquisition actions for existing and planned National Security Space Programs. It provides analysis supporting the development, drafting, coordination, review, publishing, and promulgation of DoD space policy. As a result of the Defense Reform Initiative, DUSD (Space) was dissolved and the studies and analysis funds were transferred to OASD (C3I).

Programs Accomplishments and Plans: (\$ in millions)

FY 2000 Plans: (\$2.000)

- Continue efforts on the Integrated Capstone Strategic Plan (ICSP)
- Provide studies and analysis support for the development, coordination, review, and promulgation of DoD space policy

B. Program Change Summary

	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>
--	-----------------------	-----------------------	-----------------------	-----------------------	--------------------------

UNCLASSIFIED

Exhibit R-2, RDT&E BUDGET ITEM JUSTIFICATION		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	
RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7	ISR/Space Systems Support to C3I (PE 0605116D8Z)	

Previous President's Budget	*	*	*	*
Net Change			2.000	2.000
President's Budget Request	*	*	2.000	2.000

Change Summary Explanation:

Funding: *Mid 1998 the Deputy Secretary of Defense reorganized space and C3 functions within OSD. DUSD Space ceased to exist as a separate organization most of the functions being integrated into ASD(C3I). There is no longer a need for a separate budget for contractor support for space functions. Accordingly, the alternative estimate transfers 2 million per year from DSRP (0305159I) to OASD(C3I) beginning in FY 2000.

Schedule: N/A

Technical: N/A

C. Other Program Funding Summary Cost

N/A

D. Schedule Profile

Fiscal Year actual and planned events by quarter

	<u>FY 1998</u>				<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Integrated Capstone Strategic Plan																
Publish Plan											X					
Studies and Analysis Support										X	—————→					

UNCLASSIFIED

Exhibit R-2, RDT&E BUDGET ITEM JUSTIFICATION		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7	R-1 ITEM NOMENCLATURE ISR/Space Systems Support to C3I (PE 0605116D8Z)	

UNCLASSIFIED

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification									DATE: FEBRUARY 1999	
APPROPRIATION/BUDGET ACTIVITY RDT&E,DW/BA 6					R-1 ITEM NOMENCLATURE Program Element (PE) Name and No. Foreign Material Acquisition and Exploitation PE 0605117D8Z					
COST(\$In Millions)	FY1998	FY1999	FY2000	FY2001	FY2002	FY2003	FY2004	FY2005	Cost to Complete	Total Cost
Total PE Cost	34.782	34.591	34.937	35.458	36.078	36.765	37.534	38.327	Continuing	Continuing
Project Name/No. and Subtotal Cost FMA&E/P411	34.782	34.591	34.937	35.458	36.078	36.765	37.534	38.327	Continuing	Continuing
Quantity of RDT&E Articles	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		

A. Mission Description and Budget Item Justification

Brief Description of Element: This program is involved in the acquisition and exploitation of foreign military equipment and military technology.

Program Accomplishments and Plans: The DoD Foreign Material Program acquires and exploits foreign materiel systems, subsystems, components, commercial items and military applications, and technologies, as well as related technical and operational documents. The FY 1998 and outyear program is a classified activity about which information is available to properly cleared authorized government personnel. The Foreign Material Program Review Board (FMPRB) approves Foreign Material Acquisition (FMA) lists that target high-priority foreign materiel that is potentially available.

UNCLASSIFIED

UNCLASSIFIED

Exhibit R2, RDT&E Budget Item Justification		DATE FEBRUARY 1999
APPROPRIATION/BUDGET ACTIVITY RDT&E,DW/BA 6	R-1 ITEM NOMENCLATURE Program Element (PE) PE 0605117D8Z FOREIGN MATERIAL ACQUISITION AND EXPLOITATION	

B. Program Change Summary

	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>
Previous President's Budget	35.996	35.035	35.547	36.092	Continuing
Appropriated Value					
Adjustments to Appropriated Value					
a. DoD PBD Realignment	-.600				
b. Undistributed Congressional Reduction	-.142				
c. Below Threshold Program	-.472				
d. Inflation Adjustment		-.444	-.610	-.634	
Amended Budget Estimate Submission	34.782	34.591	34.937	35.458	Continuing

Change Summary Explanation: None

UNCLASSIFIED

Exhibit R2, RDT&E Budget Item Justification		DATE FEBRUARY 1999
APPROPRIATION/BUDGET ACTIVITY RDT&E,DW/BA 6	R-1 ITEM NOMENCLATURE Program Element (PE) PE 0605117D8Z FOREIGN MATERIAL ACQUISITION AND EXPLOITATION	

C. Other Program Funding Summary: None

D. Acquisition Strategy: N/A

APPROPRIATION/BUDGET ACTIVITY
RDT&E, Defense-wide / BA 6

R-1 ITEM NOMENCLATURE

Industrial Capabilities Assessments PE 0605122D8Z

COST (\$ in Millions)	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to Complete	Total Cost
Total PE Cost	0	0	3,299	3,373	3,446	3,525	3,605	3,688	Cont.	Cont

A. Mission Description and Budget Item Justification

This program provides funding for analytical research across economic, financial, and technical areas related to the industrial capabilities necessary to meet Defense needs. The program will support critical industrial analysis to support acquisition and investment decision-making. The program objective is to ensure the Department will have access to a competitive and innovative industry capable of meeting Defense requirements when needed. Results and analytical findings will support the development and improvement of Defense policies, practices, and resource allocations to ensure availability of adequate, competitive industrial capabilities. The research agenda will initially address concerns of prime and subtier competitiveness from the system to the commodity levels.

Research projects address sector consolidation, capacity issues, prime and subtier contractor capabilities, government-owned industrial and technological facilities, and system/component availability. Projects will examine supplier relationships in and between the traditional domestic Defense industry, commercial industry, and the global marketplace. Projects will identify potential competitive and capability retention issues to improve the Department's insight of sector, supplier, and system/component areas for key defense product and technology requirements. Industrial capability benchmarks, analysis tools, and educational modules are developed to improve DoD managers' understanding of acquisition decision impacts on industrial resource availability and competitiveness.

B. Program Change Summary: Not Applicable

C. Other Program Funding Summary: Not Applicable

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1999		
BUDGET ACTIVITY 6 - Management Support				PE NUMBER AND TITLE 0605160D8Z Counterproliferation Management Support						
<i>COST (In Thousands)</i>	FY 1998 Actual	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	6310	0	0	0	0	0	0	0	0	6310
P542 CP Architecture Studies and Mgt/ Oversight	5042	0	0	0	0	0	0	0	0	5042
P545 Nuclear Matters	1268	0	0	0	0	0	0	0	0	1268
<u>Mission Description and Budget Item Justification:</u>										
<p>In August 1994, DoD established the Counterproliferation Support Program specifically to address the DoD shortfalls in counterproliferation operational capabilities documented in the May 1994 Report to Congress titled <i>Report on Nonproliferation and Counterproliferation Activities and Programs</i>. Counterproliferation Support Program funds are used to leverage DoD acquisition programs to meet the counterproliferation priorities of the Commanders-in-Chief (CINCs) of the Combatant Commands and accelerate the deployment of enhanced capabilities to the field. Specifically, the goal of the Counterproliferation Support Program is to improve specific military counterproliferation capabilities by (1) building on ongoing programs in the Services, DoD agencies, Department of Energy and U.S. Intelligence; (2) focusing on the most critical counterproliferation shortfalls to address major gaps in deployed capabilities (as reflected in the CINCs' priorities and the Counterproliferation Review Committee's (CPRC) prioritized list of counterproliferation Areas for Capability Enhancements); (3) leveraging existing program funding to more rapidly field capabilities by accelerating the deliverables of DoD programs; (4) identifying and enhancing the development of high payoff technologies to accelerate capabilities to the warfighter; (5) identifying and promoting key non-materiel initiatives that complement technological advances; and (6) transitioning Counterproliferation Support Program projects to the Services as soon as practicable.</p> <p>The FY 1998 Defense Reform Initiative (DRI) directed the establishment of the Defense Threat Reduction Agency (DTRA) effective 1 October 1998. The DTRA will be formed through the consolidation of three existing agencies: the Defense Special Weapons Agency (DSWA), the On-Site Inspection Agency (OSIA), and the Defense Technology Security Administration (DTSA). In addition, several functions from the Office of the Secretary of Defense (OSD) and Washington Headquarters Services (WHS) currently involved in the management of associated programs will transfer to DTRA as well. The DTRA will also carry out programs to counter proliferation and reduce threats posed by weapons of mass destruction and provide nuclear weapon stockpile and related support.</p> <p>As part of this budget submission, Counterproliferation Support Program funding and manpower resources programmed for FY 1999 and out are transferred to the DTRA. A five-percent military and civilian personnel savings associated with the DTRA consolidation has already been applied and is reflected in the funding and personnel transfers to DTRA.</p>										
Exhibit R-2 (PE 0605160D8Z)										

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1999		
BUDGET ACTIVITY 6 - Management Support				PE NUMBER AND TITLE 0605160D8Z Counterproliferation Management Support					PROJECT P542	
COST <i>(In Thousands)</i>	FY 1998 Actual	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
P542 CP Architecture Studies and Mgt/ Oversight	5042	0	0	0	0	0	0	0	0	5042
A. <u>Mission Description and Budget Item Justification</u>										
<p><u>Project P542 - Counterproliferation Architecture Studies and Management/Oversight:</u> The Assistant to the Secretary of Defense for Nuclear and Chemical and Biological Defense Programs (ATSD(NCB)) was designated by the Secretary of Defense as the OSD focal point for Counterproliferation (CP) activities within the DoD. The ATSD(NCB) assigned management responsibilities for the CP Support Program to the Deputy for Counterproliferation (DATSD(NCB) (CP/CBD)). This project provides essential technical, architectural, and integration support to the CP Support Program. The project will (1) conduct analyses and planning activities necessary for program development, project prioritization and management oversight; (2) prepare required program deliverables such as the annual CP Report to Congress and internal DoD and interagency documents; and (3) provide technical and analytical support to the established CP review groups, including the congressionally mandated Counterproliferation Program Review Committee (CPRC). This project provides the critical manpower necessary to support the DATSD(NCB) (CP/CBD) in conducting the day-to-day operations of the CP Support Program and in providing the required OSD management oversight as described in the CP Support Program's Program Management Plan.</p>										
<u>Acquisition Strategy:</u>										
FY 1998 Accomplishments:										
<ul style="list-style-type: none"> • 2650 Systems Engineering and Technical Analysis • Continued CP program management, programmatic and technical planning support • Continued CP technical analyses support and technical program oversight support • Continued CP interagency program coordination and integration activities (CPRC, Nonproliferation and Arms Control Technology Working Group) • Continued CPRC Annual Report to Congress • Continued support to PA&E and Joint Staff analysis for WMD effects analysis • 2276 CP architectural studies and assessments • Continued trade-off analyses of contributions of selected DoD acquisition efforts to DoD counterproliferation capabilities <ul style="list-style-type: none"> assessed impact of adversarial use of WMD on US campaign plans; provide support to Osprey Daisy Program assessed alternatives to improve campaign operations in a WMD environment completed evaluation of hyper/multi/ultra spectral analysis for counterproliferation applications assessed merits of candidate hard target kill technologies against WMD targets • 116 SBIR/STTR 										
Project P542						Exhibit R-2 (PE 0605160D8Z)				

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE February 1999			
BUDGET ACTIVITY	PE NUMBER AND TITLE					PROJECT				
6 - Management Support	0605160D8Z Counterproliferation Management Support					P542				
Total	5042									
FY 1999 Planned Program										
Total	0 Funds and activities transferred to PE 0605160BR. P542									
FY 2000 Planned Program										
Total	0 Funds and activities transferred to PE 0605160BR. P542									
FY 2001 Planned Program										
Total	0 Funds and activities transferred to PE 0605160BR. P542									
B. <u>Project Change Summary</u>										
	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>					
Previous President's Budget	5133	0	0	0	Continuing					
Appropriated Value	5133	N/A	N/A	N/A	N/A					
Adjustments to Appropriated Value	91	N/A	N/A	N/A	N/A					
Current Budget Submit/President's Budget	5042	0	0	0	Continuing					
C. <u>Other Program Funding Summary</u>										
	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>To</u>	<u>Total</u>
0605160BR Counterproliferation Management Support	0	9307	5315	4629	4848	5082	5210	5433	<u>Compl</u> Cont	Cont Cont
0603160D8Z Counterproliferation Advance Development	74196	0	0	0	0	0	0	0	Cont	Cont
0603160BR Counterproliferation Advance Development	0	52951	81245	74841	74654	75955	77681	79264	Cont	Cont
Project P542										
Exhibit R-2 (PE 0605160D8Z)										

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1999
--	------------------------------

BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605160D8Z Counterproliferation Management Support	PROJECT P542
---	---	-------------------------------

D. Schedule Profile

	FY 1998				FY 1999				FY 2000				FY 2001			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
• Systems Engineering and Technical Analysis	X	X	X	X												
• CP Architectural studies and assessments		X		X												

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1999		
BUDGET ACTIVITY 6 - Management Support				PE NUMBER AND TITLE 0605160D8Z Counterproliferation Management Support					PROJECT P545	
COST <i>(In Thousands)</i>	FY 1998 Actual	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
P545 Nuclear Matters	1268	0	0	0	0	0	0	0	0	1268
<p>A. <u>Mission Description and Budget Item Justification</u></p> <p><u>Project P545 - Nuclear Matters:</u> In accordance with the Defense Reform Initiative (DRI), the Nuclear Matters (NM) office is in the process of being realigned. Budget justification and missions descriptions reflect the transition of the NM office to the new staff structure. Nuclear weapons receive special consideration within the Office of the Secretary of Defense (OSD) because of their political and military importance, destructive power and the potential consequences of an accident or unauthorized act. Consequently, nuclear weapons issues must receive senior level attention, action and support. NM provides technical policy guidance to senior OSD leadership on complex and demanding issues pertaining to nuclear stockpile sustainment. The office works closely with OSD Policy, the Department of Energy (DOE), Congress, and foreign governments to provide policy guidance for – and oversight of – a wide variety of nuclear weapons activities. In support of these activities, Project 545 provides for analysis and assessments of issues associated with the reliability, safety, security, transportation, command and control, maintenance, storage and sustainability of the enduring stockpile.</p> <p><u>Acquisition Strategy:</u></p> <p><u>FY 1998 Accomplishments:</u></p> <ul style="list-style-type: none"> • 495 Recurring Obligations and Requirements Development: Produced analyses in preparation of the annual Nuclear Weapons Deployment Request to the President and support activities for senior level groups such as the Joint Advisory Committee on Nuclear Weapons Surety. Conducted analyses and assessments which provided guidance for preparation of the annual Nuclear Weapons Stockpile Memorandum, Long Range Planning Assessment to the President, the Nuclear Weapons Council (NWC) Chairman’s Annual Report to Congress, and NWC Standing and Safety Committee actions. Products provided basis for technical policy recommendations to the President, Secretary of Defense, and NWC Chairman. • 400 Nuclear Weapons Council (NWC) Support: Provided support to the NWC staff and members via products on technical issues concerning the evolution of the nuclear weapons complex and infrastructure. Analyses supported development of agenda items for the NWC. • 200 Maintaining the Deterrent Infrastructure: Provided analyses on sustaining nuclear weapons safety, use control, survivability, certification, transportation, and reliability. These efforts supported DoD oversight of such DOE stockpile stewardship activities as: nuclear weapon sustainment and revalidation, development of an assured tritium supply, life extension programs, and stockpile stewardship and maintenance. • 152 Policy Support and Guidance for International Obligations: Provided oversight and guidance to activities and organizations such as the North Atlantic Treaty Organization (NATO) Senior Level Weapons Protection Group, the Joint Theater Surety Management Group, and congressionally approved technical exchanges with foreign nations. 										
Project P545						Exhibit R-2 (PE 0605160D8Z)				

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1999																																																			
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605160D8Z Counterproliferation Management Support	PROJECT P545																																																			
<ul style="list-style-type: none"> • 21 SBIR/STTR Total 1268 <p>FY 1999 Planned Program Total 0 Funds and activities transferred to PE 0605160BR. P545</p> <p>FY 2000 Planned Program Total 0 Funds and activities transferred to PE 0605160D8Z. P545</p> <p>FY 2001 Planned Program Total 0 Funds and activities transferred to PE 0605160D8Z. P545</p>																																																					
<p>B. <u>Project Change Summary</u></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 35%;"></th> <th style="text-align: center;"><u>FY 1998</u></th> <th style="text-align: center;"><u>FY 1999</u></th> <th style="text-align: center;"><u>FY 2000</u></th> <th style="text-align: center;"><u>FY 2001</u></th> <th style="text-align: center;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>Previous President's Budget</td> <td style="text-align: center;">1914</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">Continuing</td> </tr> <tr> <td>Appropriated Value</td> <td style="text-align: center;">1914</td> <td style="text-align: center;">N/A</td> <td style="text-align: center;">N/A</td> <td style="text-align: center;">N/A</td> <td style="text-align: center;">N/A</td> </tr> <tr> <td>Adjustments to Appropriated Value</td> <td style="text-align: center;">-646</td> <td style="text-align: center;">N/A</td> <td style="text-align: center;">N/A</td> <td style="text-align: center;">N/A</td> <td style="text-align: center;">N/A</td> </tr> <tr> <td>Current Budget Submit/President's Budget</td> <td style="text-align: center;">1268</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">Continuing</td> </tr> </tbody> </table>				<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>	Previous President's Budget	1914	0	0	0	Continuing	Appropriated Value	1914	N/A	N/A	N/A	N/A	Adjustments to Appropriated Value	-646	N/A	N/A	N/A	N/A	Current Budget Submit/President's Budget	1268	0	0	0	Continuing																					
	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>																																																
Previous President's Budget	1914	0	0	0	Continuing																																																
Appropriated Value	1914	N/A	N/A	N/A	N/A																																																
Adjustments to Appropriated Value	-646	N/A	N/A	N/A	N/A																																																
Current Budget Submit/President's Budget	1268	0	0	0	Continuing																																																
<p>C. <u>Other Program Funding Summary</u> Not Applicable</p>																																																					
<p>D. <u>Schedule Profile</u></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 25%;"></th> <th colspan="4" style="text-align: center;"><u>FY 1998</u></th> <th colspan="4" style="text-align: center;"><u>FY 1999</u></th> <th colspan="4" style="text-align: center;"><u>FY 2000</u></th> <th colspan="4" style="text-align: center;"><u>FY 2001</u></th> </tr> <tr> <th></th> <th>1</th><th>2</th><th>3</th><th>4</th> <th>1</th><th>2</th><th>3</th><th>4</th> <th>1</th><th>2</th><th>3</th><th>4</th> <th>1</th><th>2</th><th>3</th><th>4</th> </tr> </thead> <tbody> <tr> <td>• Analysis and Support Activities</td> <td style="text-align: center;">X</td><td style="text-align: center;">X</td><td style="text-align: center;">X</td><td style="text-align: center;">X</td> <td></td><td></td><td></td><td></td> <td></td><td></td><td></td><td></td> <td></td><td></td><td></td><td></td> </tr> </tbody> </table>				<u>FY 1998</u>				<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>					1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	• Analysis and Support Activities	X	X	X	X												
	<u>FY 1998</u>				<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>																																								
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4																																					
• Analysis and Support Activities	X	X	X	X																																																	
Project P545		Exhibit R-2 (PE 0605160D8Z)																																																			

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE February 1999	
APPROPRIATION/BUDGET ACTIVITY RESEARCH, DEVELOPMENT, TEST & EVALUATION, DEFENSE-WIDE, BUDGET ACTIVITY 6					R-1 ITEM NOMENCLATURE SBIR PE 0605502D8Z					
COST (In Millions)	FY1998	FY1999	FY2000	FY2001	FY2002	FY2003	FY2004	FY2005	Cost to Complete	Total Cost
Total Program Element (PE) Cost	31.858	*	*	*	*	*	*	*	continuing	cont.
SBIR Administration No. P-518	31.858	*	*	*	*	*	*	*	continuing	cont.

*2.5 percent of extramural RDT&E funds appropriated to the Office of the Secretary of Defense (OSD)

A. Mission Description and Budget Item Justification

BRIEF DESCRIPTION OF ELEMENT: In accordance with US Code Title 15, the Small Business Innovation Research (SBIR) program is required to allocate 2.5 percent of their extramural RDT&E budgets in FY 1997 and thereafter, to fund mission-oriented R&D projects at small technology companies. Congress recently reauthorized the SBIR program with broad bipartisan backing, based on DoD's finding that the program makes a significant contribution to the technological strength of our armed forces, as well as highly favorable reviews of the program by the GAO, the National Academy of Sciences, and other federal agencies. In addition, a DoD report to Congress in May 1996 found that "SBIR-developed technologies have resulted in significant improvements in U.S. military capabilities and major savings to the taxpayer."

This program element funds OSD's portion of the DoD SBIR program. It represents 2.5 percent of the extramural RDT&E funds appropriated to OSD, and it funds R&D projects recommended and executed by the Service laboratories, with overall management oversight by OSD.

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY RESEARCH, DEVELOPMENT, TEST & EVALUATION, DEFENSE-WIDE, BUDGET ACTIVITY 6	R-1 ITEM NOMENCLATURE SBIR PE 0605502D8Z	

PROGRAM ACCOMPLISHMENT AND PLANS:

FY 1998-2005: This program element funds early-stage R&D projects at small technology companies, in accord with the requirements of Public Law 102-564. The FY98 technology areas are: Army Human Systems Technology, Navy Theatre Air Defense and Aging Aircraft Technologies and Air Force Defense Air Reconnaissance. The research areas planned for FY99 are: Special Operations Biomedical, Sensors & Information Technology, and Materials Technology; Army Medical Research biomedical research technology; Naval Systems Materials Process Technology.

B. Program Change Summary

FY 1998 funding for this program element was \$ 31.858 million, which represents 2.5 percent of extramural RDT&E funds appropriated to OSD in FY 1997. Funding for FY 1999 through FY 2005 will be 2.5 percent of extramural RDT&E, in accord with Public Law 102-564.

C. Other Program Funding Summary: N/A

D. Schedule Profile N/A

UNCLASSIFIED

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification									DATE FEBRUARY 1999	
APPROPRIATION/BUDGET ACTIVITY RDT&E,DW/BA 6						R-1 ITEM NOMENCLATURE Program Element (PE) Name and No. CLASSIFIED PROGRAMS C3I PE 0605710D8Z				
COST(\$In Millions)	FY1998	FY1999	FY2000	FY2001	FY2002	FY2003	FY2004	FY2005	Cost to Complete	Total Cost
Total PE Cost	.929	6.359	.627	.645	.655	.667	.681	.695	Continuing	Continuing
Project Name/No. and Subtotal Cost Classified Programs C3I/P711	.929	6.359	.627	.645	.655	.667	.681	.695	Continuing	Continuing
Quantity of RDT&E Articles	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		

A. Mission Description and Budget Item Justification

Brief Description of Element: Funding provides for accomplishment of studies, assessments and technical evaluations of C4I programs and activities. Resources are used to support efforts including the integration of C4 and intelligence programs and activities, the identification and resolution of national and tactical interoperability issues and fostering Defense-wide and joint support to military forces.

Program Accomplishments and Plans:

FY 1998 Accomplishments:

- Implement the Joint Personnel Adjudication System (JPAS) (0.929 Million)

UNCLASSIFIED

Exhibit R2, RDT&E Budget Item Justification		DATE FEBRUARY 1999
APPROPRIATION/BUDGET ACTIVITY RDT&E,DW/BA 6	R-1 ITEM NOMENCLATURE Program Element (PE) PE 0605710D8Z CLASSIFIED PROGRAMS C3I	

FY 1999 Plans:

- Perform special studies directed to determine future concepts and future mixes of C4I capabilities to support the environment anticipated into the next century(0.434 Million)
- Conduct classified activity (5.925 Million)

FY 2000 Plans:

- Perform special studies directed to determine future concepts and future mixes of C4I capabilities to support the environment anticipated into the next century (0.627 Million)

FY 2001 Plans:

- Perform studies and assessments of intelligence customer requirements. (0.645 Million)

B. Program Change Summary

FY1998

FY1999

FY2000

FY2001

Total

UNCLASSIFIED

Exhibit R2, RDT&E Budget Item Justification		DATE FEBRUARY 1999
APPROPRIATION/BUDGET ACTIVITY RDT&E,DW/BA 6	R-1 ITEM NOMENCLATURE Program Element (PE) PE 0605710D8Z CLASSIFIED PROGRAMS C3I	

					Cost
Previous President's Budget	.343	.439	.637	.656	Continuing
a. Congressional Transfer		+6.000			
Appropriated Value	.343	6.439	.637	.656	Continuing
Adjustments to Appropriated Value					
a. Below threshold program Adjustment	+.600				
b. Undistributed Congressional Reduction	-.002				
c. Below threshold program Adjustments	-.012				
d. Inflation Adjustment		-.080	-.010	-.011	
Amended Budget Estimate Submission	.929	6.359	.627	.645	Continuing

Change Summary Explanation: None

C. Other Program Funding Summary: None

UNCLASSIFIED

Exhibit R2, RDT&E Budget Item Justification		DATE FEBRUARY 1999
APPROPRIATION/BUDGET ACTIVITY RDT&E,DW/BA 6	R-1 ITEM NOMENCLATURE Program Element (PE) PE 0605710D8Z CLASSIFIED PROGRAMS C3I	

D. Acquisition Strategy: N/A

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE February 1999	
APPROPRIATION/BUDGET ACTIVITY RESEARCH, DEVELOPMENT, TEST & EVALUATION, DEFENSE-WIDE, BUDGET ACTIVITY 6					R-1 ITEM NOMENCLATURE SBIR Administration PE 0605790D8Z					
COST (In Millions)	FY1998	FY1999	FY2000	FY2001	FY2002	FY2003	FY2004	FY2005	Cost to Complete	Total Cost
Total Program Element (PE) Cost	1.609	1.799	1.713	1.757	1.786	1.822	1.862	1.900	Continue	Continue
SBIR Administration No. P-518	1.609	1.799	1.713	1.757	1.786	1.822	1.862	1.900	Continue	Continue

A. Mission Description and Budget Item Justification

BRIEF DESCRIPTION OF ELEMENT: Under the Small Business Innovation Research (SBIR) program, DoD funds approximately \$550 million annually in mission-oriented R&D projects at small technology companies. The program has broad bipartisan backing in Congress, based on DoD's recent finding that "SBIR-developed technologies have resulted in significant improvements in U.S. military capabilities and major savings to the taxpayer," as well as favorable independent evaluations by the GAO, National Academy of Sciences, National Bureau of Economic Research at Harvard, and others.

PE 0605790D8Z is the only source of funds for the coordinated administration of the component SBIR programs within DoD, because the 1992 SBIR Act provided that "a Federal agency shall not use any of its SBIR budget...for the purpose of funding administrative costs of the program." PE 0605790D8Z funds central elements of SBIR program administration that are required by law and have been a standard part of the program since it was initiated at DoD in 1983, including:

- **Coordination, publication, and distribution of SBIR R&D solicitations**, as required by 15 U.S.C. 638(g)(2);
- **Monitoring of DoD-wide SBIR program expenditures**, to meet Congressionally-mandated reporting requirements in 15 U.S.C. 638(g)(8), (j)(2)(F), and (l)(2);
- **Sponsorship of national SBIR conferences**, which are the only existing forum for small technology companies to interact directly with DoD program and technical personnel, and thereby learn how to prepare research proposals that serve DoD's needs.

UNCLASSIFIED

UNCLASSIFIED

This program element also funds recent USD(A&T) initiatives to develop and implement program improvements, including performance-based metrics of the program's effectiveness in spawning new products/technologies of benefit to DoD.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY RESEARCH, DEVELOPMENT, TEST & EVALUATION, DEFENSE-WIDE, BUDGET ACTIVITY 6	R-1 ITEM NOMENCLATURE SBIR Administration PE 0605790D8Z	

PROGRAM ACCOMPLISHMENT AND PLANS:

FY 1998 Accomplishments: This budget item funded the coordination and publication of three SBIR/STTR research solicitations, as well as their distribution to over 30,000 potential applicants. The solicitations are the means, prescribed by statute, through which DoD describes its research needs and solicits research proposals from small technology companies. This budget item also funded the monitoring of DoD-wide SBIR program expenditures, as required by law, as well as DoD's annual reporting to Congress and the Small Business Administration on the operation of DoD's SBIR program. And this budget item funded two national SBIR conferences each attracting 800-1000 companies, in which the companies met directly with DoD scientists, contracting officers, and program managers, and learned how to prepare SBIR proposals and design research projects that will serve the DoD mission. In addition, this budget item funded USD(A&T) initiatives to streamline the SBIR process and facilitate participation in the program by companies not used to doing business with the government. Such initiatives included the creation and distribution of an SBIR desk reference for DoD contracting officers and technical personnel, the operation of an SBIR Help Desk (800/382-4634) for program participants, the operation of an SBIR Home Page, and other projects. Lastly, it funded the first stage of a USD(A&T)-directed evaluation of DoD's new SBIR "Fast Track" policy, under which small businesses that attract matching funds from outside investors receive a significantly higher probability of SBIR award. (\$1.609 Million)

FY 1999 Plans: This budget item continues to fund the core administrative functions discussed above - coordination, publication, and distribution of the solicitations; monitoring and reporting on the DoD-wide operation of the program; and sponsorship of the national SBIR conferences. It also continues to fund the USD(A&T) initiatives to streamline the SBIR process (SBIR Desk Reference, SBIR Help Desk, SBIR Home Page). It will also fund the second stage of the Fast Track evaluation (see FY 1998 discussion). Finally, it will fund a new initiative launched by the USD(A&T) in February 1998 to: (1) develop and implement quantifiable, performance-based metrics of the SBIR program's effectiveness in spawning viable new products

UNCLASSIFIED

UNCLASSIFIED

sold to DoD and others; and (2) systematically monitor the track record of multiple award winners in developing successful new products, and to use that track record in the SBIR proposal evaluation process. This program element includes funding for travel, including invitational travel, in support of the above activities. (\$1.799 Million)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY RESEARCH, DEVELOPMENT, TEST & EVALUATION, DEFENSE-WIDE, BUDGET ACTIVITY 6	R-1 ITEM NOMENCLATURE SBIR Administration PE 0605790D8Z	

FY 2000 Plans: This budget item will continue to fund the core administrative functions and USD(A&T) initiatives to streamline the SBIR process, facilitate participation by new companies, track performance-based metrics of the SBIR program's effectiveness, and systematically monitor the track record of multiple award winners for use in the proposal evaluation process. It will also provide support for a new initiative, included in the FY 1999 Defense Authorization Act, to accelerate the transition of SBIR R&D into DoD acquisition programs. (\$1.713 Million)

FY 2001 - 2004: This budget item will continue to fund the core administrative functions (solicitations, monitoring of program expenditures and operations, national conferences), as well as initiatives, such as those discussed above, to streamline the SBIR process, facilitate participation by new companies, track metrics of the program's effectiveness, and increase the program's success in converting SBIR research into affordable, high-performance new products of benefit to DoD.

B. Program Change Summary

	<u>FY1998</u>	<u>FY1999</u>	<u>FY2000</u>	<u>Total</u> <u>Cost</u>
Previous President's Budget	1.738	1.820	1.713	Continuing
Appropriated Value	1.738	1.820		
Adj. to Approp. Value/President's Budget	(.129)	(.021)		
Current Budget Submit	1.609	1.799	1.713	Continuing

Change Summary Explanation:

UNCLASSIFIED

Funding: The change in funding in FY1998 and FY 1999 is the result of undistributed Congressional reductions.

Schedule: N/A

Technical: N/A

C. Other Program Funding Summary: N/A

D. Acquisition Strategy: N/A

E. Schedule Profile N/A

UNCLASSIFIED

UNCLASSIFIED

R-2 Exhibit RDT&E Budget Item Justification									DATE FEBRUARY 1999	
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/BA7					R-1 ITEM NOMENCLATURE Program Element (PE) Name and No. C3I INTELLIGENCE PROGRAMS PE 0305190D8Z					
COST (\$ In Millions)	FY1998	FY1999	FY2000	FY2001	FY2002	FY2003	FY2004	FY2005	Cost to Complete	Total Cost
Total PE Cost	8.827	9.551	9.480	10.332	11.384	12.500	12.760	13.027	Continuing	Continuing
Project Name/No. and Subcost C3I Intelligence Programs/P481	8.827	9.551	9.480	10.332	11.384	12.500	12.760	13.027	Continuing	Continuing
Quantity of RDT&E Articles	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		

A Mission Description and Budget Item Justification

Brief Description and Budget Item Justification: PE includes all resources and manpower in support of projects managed by the Intelligence Systems Support Office (ISSO) as directed by the ASD(C3I). ISSO provides oversight and technical support to DoD activities and initiatives requiring assistance in technology areas ranging from concept development through demonstration of full operational capability. The primary focus is on development, integration and assessment of systems or applications in support of non-traditional and contingency warfare. ISSO currently provides:

- ISSO Oversight & Administration
- Battlefield Information Collection and Exploitation System (BICES) Developmental Efforts
- Open House Program (OH)

UNCLASSIFIED

- National Drug Intelligence Center (NDIC) for DoD -See Descriptive Summary in NFIP for program details.
- Advanced Sensor Applications Program (ASAP) - See ASAP RDT&E Descriptive Summary for program details.
- Throttle Car (TC)- See Descriptive Summary in the Counterdrug submission for program details.
- Gulf States Initiative (GSI)- See Descriptive Summary in the Counterdrug submission for program details
- Strategic Technical Assessment Program (STAP)
- Battle Damage Assessment Technology (BDAT)
- Technology Transfer Program for Office of Narcotics and Drug Control Program (ONDCP)
- Other Classified Programs

Beginning in FY 1999, the Integrated Information Architecture Development (IIAD) funds were moved to this program element from the Defense Intelligence Agency as a result of the Defense Reform Initiative. The IIAD supports the analysis, management, and technical efforts to improve the development, coordination and integration of the DoD Information Technology Architecture required by the Information Technology Management Reform Act (ITMRA). Existing architecture initiatives, such as the Joint Technical Architecture, C4ISR Architecture Framework and individual operational and systems architectures, require integration and synchronization to usefully serve as coherent and executable guidance for DoD Information Management (IM) activities. These efforts will assist the DoD with the strategic direction and management of information technology programs and investments.

Program Accomplishments and Plans:

FY 1998 Accomplishments:

- Salaries for Program and Financial Managers and Administrative Staff (1.677 Million)
- Facility leased space (0.250 Million)
- Logistical Support (0.410) Million)
- System Engineering and Technical Support (SETA) (0.700 Million)
- Program and Technical Support to the DoD/Library of Congress OPEN HOUSE Initiative (0.450 Million)
- Technology Integration and Systems Development (0.200 Million)
- Program Oversight and Technical Support to BICES (2.030 Million)
- Developed and Tested STAP Methodology in support of USFK IO Planning Requirements(0.20 Million)
- Developed and tested on-line vulnerability methodology for SAF/AA (0.050 Million)

UNCLASSIFIED

UNCLASSIFIED

- Definitized Technology Demonstration (0.050 Million)
- Developed Battle Damage Assessment Technology (BDAT) (0.050 Million)
- Explored database development for Foreign Military Acquisition Community (0.010 Million)
- Initiated program planning arrangement with ONDCP technology transfer projects (0.010 Million)
- Supported Air Force continued upgrade of HAARP (2.000 Million)
- Defined high priority applications for HAARP (0.330 Million)
- Defined modeling and experimental design for detection (0.410 Million)

FY 1999 Plans:

- Salaries for Program and Financial Managers and Administrative Staff (1.800 Million)
- Facility leased space (0.250 Million)
- Logistical Support (0.400 Million)
- System Engineering and Technical Support (SETA) (0.670 Million)
- Program and Technical Support to the DoD/Library of Congress OPEN HOUSE Initiative (0.450 Million)
- Technology Integration and Systems Development (0.223 Million)
- Program Management and Technical Support to BICES (1.850 Million)
- Continue Technology Demonstration (0.100 Million)
- Explore Battle Damage Assessment Technology (BDAT) (0.100 Million)
- Continued support to Strategic Technology Assessment Technology Program (STAP)(0.100 Million)
- Continued support to ONDCP (0.010 Million)
- Support the development of an enterprise level information network and information management architecture to address the needs of forces for relevant and timely information (0.740 Million)
- Analyze Defense-wide, cross command and coalition issues relating to defense information Infrastructure in support of the Unified Commands and coalition partners. (0.613 Million)
- Support the development of a technical plan to migrate legacy C3 systems into compliance with the Defense Information Infrastructure. (0.500 Million)
- Support classified intelligence operations program research at the Services and Commands (1.745 Million)

FY 2000 Plans:

- Salaries for Program and Financial Managers and Administrative Staff (2.220 Million)
- Facility leased space (0.250 Million)

UNCLASSIFIED

UNCLASSIFIED

- Logistical Support (0.330 Million)
- System Engineering and Technical Support (SETA) (0.500 Million)
- Program and Technical Support to the DoD/Library of Congress OPEN HOUSE Initiative (0.400 Million).
- Technology Integration and Systems Development (0.100 Million)
- Program Management and Technical Support to BICES (1.850 Million)
- Continue Battle Damage Assessment Technology (BDAT) (0.100 Million)
- Continued support to STAP (0.100 Million)
- Support the insertion of the DoD Architecture Framework into DoD information Technology efforts to ensure consistency of architecture developments. (0.493 Million)
- Continue to analyze Defense-wide, cross-command, and coalition issues relating to Defense Information Infrastructure in Support of the Unified Command and coalition partners. (1.275 Million)
- Support classified intelligence operations program research at the Services and Commands (1.862 Million)

FY 2001 Plans:

- Salaries for Program and Financial Managers and Administrative Staff (2.300 Million)
- Facility leased space (0.250 Million)
- Logistical Support (0.340 Million)
- System Engineering and Technical Support (SETA) (0.500 Million)
- Technology Integration and Systems Development (0.2340 Million)
- Program Management and Technical Support to BICES (1.850 Million)
- Continue Battle Damage Assessment Technology (BDAT) (0.100 Million)
- Continue support to STAP (0.100 Million)
- Continue to assess the information superiority capabilities of the Unified Commands and coalition partners. (1.246 Million)
- Continue to explore evolving technology to ensure compliance with Defense Information Infrastructure. (0.550 Million)
- Support classified intelligence operations program research at the Services and Commands (2.862 Million)

C3I Intelligence Programs is in Budget Activity 7, Operational Systems Development because it is consistent with established DoD definitions for BA 7.

B. Program Change Summary

Total

UNCLASSIFIED

	UNCLASSIFIED			
	<u>FY1998</u>	<u>FY1999</u>	<u>FY2000</u>	<u>FY2001</u> Cost
Previous President's Budget	5.978	9.672	9.658	10.517 Continuing
Appropriated Value				
Adjustments to Appropriated Value				
a. Internal Reprogramming	+3.000			
b. Below threshold program Adjustments	-.151			
c. Inflation Adjustment		-.121	-.178	-.185
Amended Budget Estimate	8.827	9.551	9.480	10.332 Continuing

Change Summary Explanation: N/A

C. Other Program Funding Summary: N/A

D. Acquisition Strategy: N/A

E. Schedule Profile: N/A

UNCLASSIFIED

UNCLASSIFIED

Exhibit R2a RDT&E Project Justification									DATE FEBRUARY 1999	
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/BA7					R-1 ITEM NOMENCLATURE Program Element (PE) Name and No. C3I INTELLIGENCE PROGRAMS PE 0305190D8Z					
COST (<i>In Millions</i>)	FY1998	FY1999	FY2000	FY2001	FY2002	FY2003	FY2004	FY2005	Cost to Complete	Total Cost
Project Cost	8.827	9.551	9.480	10.332	11.384	12.500	12.760	13.027	Continuing	Continuing
RDT&E Articles Qty									Continuing	Continuing

A. Mission Description and Budget Item Justification:

The C3I Intelligence Programs project includes funding for:

ISSO: resources and manpower in support of projects managed by the Intelligence Systems Support Office (ISSO) as directed by the ASD(C3I). ISSO provides a full spectrum of Program Oversight and support to DoD activities and initiatives requiring assistance in technology areas ranging from concept development through demonstration of full operational capability. The primary focus is on development, integration and assessment of systems or applications in support of non-traditional and contingency warfare.

IIAD: The Integrated Information Architecture Development supports the analysis, management, and technical efforts to improve the development, coordination and integration of the DoD Information Technology Architecture required by the Information Technology Management Reform Act (ITMRA). Existing architecture initiatives, such as the Joint Technical Architecture, C4ISR Architecture Framework and individual operational and systems architectures, require integration and synchronization to usefully serve as coherent and executable guidance for DoD Information Management (IM) activities. These efforts will assist the DoD with the strategic direction and management of information technology programs and investments. Note: Funding was moved to this PE beginning in FY99 from DIA (CISA) as part of the OSD (C3I) reorganization under the Defense Reform Initiative.

B. Other Program Funding Summary: None

C. Acquisition Strategy: N/A

D. Schedule Profile

Fiscal Year actual and planned events by quarter.

ISSO:

- Initiated contractor sponsored C4ISR Independent Research & Development (IRAD)activities 1QFY98
- Explored Battle Damage Assessment Technology 3QFY98
- Assessed DoD Vulnerability on the Internet Study 3QFY98
- Developed Transnational Threat Program Concept 4QFY98
- Pursue Industrial Base Alliances 2QFY99
- Develop International Interoperability Architecture 4QFY99

OPEN HOUSE:

- Continued site operations activities at all sites 1QFY98
- Site activation in Bulgaria investigated and declined 1QFY98
- Investigated expanding program to Russian Military archives in Moscow 1QFY98
- Film processing site established in Moscow 3QFY98
- New site established at Russian Academy of Sciences Library, St. Petersburg 3QFY98
- State Public Historical Library added to Moscow participation 3QFY98
- Investigated activation of a site at the Slovakian Military Archives 3QFY98
- Investigated activation of a site at the Russian State Library, Moscow 4QFY98
- Complete Activation of Slovakian Military Archives 2QFY99
- Continue site operations activities at all sites 1QFY00
- Prepare for transfer or close of OPEN HOUSE Program 1QFY00

BICES:

- Implemented Global Switching capability for US BICES Connectivity 1QFY98
- Implemented DIA Proliferation and MIPS Database on BICES 2QFY98
- Completed initial development of US Gateway Web access software 2QFY98

UNCLASSIFIED

- Developed/tested/evaluated Security Voice capability for BICES Network (Voice over IP technology) 3QFY98
- Developed and implemented X.500 Directory Services for BICES Backbone Network 3QFY98
- Developed and tested improved integrated BICES communications architecture (Improved bandwidth sharing) 4QFY98
- Design, Develop and integrated BICES Interpersonal Services into the US BICES components 1QFY99
- Integrate and test US BICES Gateway National Contribution database migration to web technology access for Target Architecture Version.2 2QFY99
- Initiate development to extend US Gateway to Invited Nations 3QFY99
- Migrate GCCS and the DII/COE to BICES 4QFY99
- Develop and Integrate US Gateway/NCD into USEUCOM theater intelligence architecture to include NATO Four Domains architecture 4QFY99
- Integrate intelligence products into US National Contribution Database 2QFY00
- Expand TAV 2.0 to Lower National Levels 3QFY00
- Expand US Gateway/NCD to Support Invited Nations to NATO 4QFY00
- Migrate US portion of BICES Backbone Network to NATO communications Circuits 1QFY01
- Develop BICES C4ISR TAV 3.0 hardware/software baseline and implement Lower National Levels 2QFY01
- Integrate BICES TAV 3.0 C4ISR functions with NATO 3QFY01
- Develop and integrate Multinational information intranets and regional fusion centers 4QFY01

STAP:

- Provided initial assessment for Joint Staff requirements 4QFY98
- Define target criteria 1QFY99
- Assess joint agency support requirements 3QFY99
- Assess critical foreign technologies for evaluation 3QFY99
- Define emerging country infrastructures 4QFY99
- Evaluate technology trends and impacts 4QFY99

UNCLASSIFIED

UNCLASSIFIED

- Provide joint staff technology updates 2QFY00
- Provide specific technology evaluation for target countries 4QFY00
- Continue updates and system enhancements 2QFY01
- Evaluate specific technologies for foreign acquisition 4QFY01

BDAT:

- Defined system requirements 2QFY98
- Established operational concepts 4QFY98
- Pursue Organizational Alliances 3QFY99
- Defined target characterizations 4QFY99
- Establish signal processing improvements 2QFY00
- Define platform parameters 3QFY00
- Optimize UAV requirements 4QFY00
- Complete UAV platform evaluation 2QFY01
- Provide airborne testbed 3QFY01
- Evaluate technology enhancements 4QFY01

ONDCP:

- Defined system specifications 4QFY98
- Completed project reviews 3QFY99
- Evaluate Defense technologies 4QFY99
- Provide system recommendations 4QFY99

IIAD:

- Completed JPAS Software Development 3QFY98
- Developed prototype Personnel Recovery C4ISR architectures 3QFY98
- Completed initial development of integrated C4ISR architectures 4QFY98
- Complete technical plan to migrate C3 systems 4QFY99
- Support development of enterprise level network & information management architecture 4QFY99
- Analyze department-wide defense information issues 4QFY99

UNCLASSIFIED

UNCLASSIFIED

- Evaluate DoD Information Technology efforts 3QFY00
- Analyze department-wide defense information issues 4QFY00
- Assess information superiority capabilities of commands 4QFY01
- Evaluate evolving technology impacting Defense Information Infrastructure 4QFY01

HAARP:

- Support Air Force HAARP enhancements 2QFY98
- Define HAARP system parameters 2QFY98
- Support Air force HAARP requirements 2QFY98

UNCLASSIFIED

UNCLASSIFIED

Exhibit R-3 Cost Analysis										Date: February 1999		
APPROPRIATION/BUDGET ACTIVITY RDT&E,DW/BA7			PROGRAM ELEMENT PE0305190D8Z			PROJECT NAME AND NUMBER C3I Intel Programs/481						
Cost Categories (Tailor to WBS, or System /Item Requirements)	Contract Method & Type	Performing Activity Location	Total PYs Cost	CY Cost	CY Award Date	BY1 Cost	BY1 Award Date	BY2 Cost	BY2 Award Date	Cost To Complete	Total Cost	Target Value Contract
Development Test & Evaluation	multiple	various	26.086	1.767	4/99	1.949	4/00	2.913	4/01	Cont.	Cont.	
Operational Test & Evaluation												
Tooling												
GFE												
Subtotal T&E			26.086	1.767		1.949		2.913				
Remarks												
C3I Intelligence Programs includes the development of Systems and Technology. When the project reaches Full Operating Capacity (FOC) they may be transferred to the appropriate service of agency for sustainment.												
Contractor Engineering Support	multiple	various	13.470	1.986	4/99	1.947	4/00	1.319	4/01	Con't	Con't	
Government Engineering Support	Multiple	various	1.199	.500	4/99	.500	4/00	.500	4/01	Con't	Con't	
Program Management Support			1.389	.190	4/99	.190	4/00	.190	4/01	Con't	Con't	
Program Management Personnel												
Travel			1.430	.230	4/99	.230	4/00	.230	4/01	Con't.	Con't	
Labor (Research Personnel)				1.170		1.126	4/00	1.262	4/01	Con't.	Con't	
Overhead	multiple	various	26.843	3.708	4/99	3.538	4/00	3.918	4/01	Con't	Con't	
Subtotal Management			44.331	7.784		7.531		7.419				
Remarks												

UNCLASSIFIED

UNCLASSIFIED

Total Cost			70.417	9.551		9.480		10.332			
Remarks											

(Exhibit R-3, Page 2 of 4)

UNCLASSIFIED

Exhibit R-2, RDT&E BUDGET ITEM JUSTIFICATION								DATE February 1999	
APPROPRIATION/BUDGET ACTIVITY						R-1 ITEM NOMENCLATURE			
RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7						Tactical Unmanned Aerial Vehicles (TUAV) PE 0305204D8Z			

COST (IN MILLIONS)	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to Complete	Total Cost
Total PE Cost	53.871	*	*	*	*	*	*	*	*	*
Total Project Cost/No. and Subtotal Cost Tactical Control System (TCS)/P802	42.013	*	*	*	*	*	*	*	*	*
Total Project Cost/No. and Subtotal Cost Common Systems Development (CSD)/P803	11.858	*	*	*	*	*	*	*	*	*
Quantity of RDT&E Articles										

* Per FY 1999 Appropriations Act, the funds for FY 99 were transferred to the Services/Defense Agencies in various PEs; per the Program Decision Memorandum (PDM), the TUAV funds for FY00-05 were transferred to the Navy (PE 0305204N).

A. Mission Description and Budget Item Justification

Brief Description of Element: The non-lethal tactical UAV systems for DoD provide warfighters with a dedicated capability for day/night aerial reconnaissance, surveillance and target acquisition (RSTA); intelligence; communications/data relay; electronic warfare; weather data collection to support combat operations; minefield detection; and nuclear, biological and chemical reconnaissance in limited adverse weather. Tactical UAVs provide ground and naval commanders with near-real-time reconnaissance capability for sustained, deep RSTA support, and combat assessment (CA). UAV support to the maneuver battalions and brigades incorporates downsized, portable equipment that is capable of rapid deployment, easy to operate and maintain with minimum manpower and training requirements, and capable of launch and recovery in a constrained operating environment. The shipboard capability supports the Naval Task Forces. UAVs are intended for deployment in environments where immediate feedback is necessary and manned aircraft are unavailable or excessive risk makes the use of manned aircraft undesirable. Current Hunter UAV assets support training and UAV commonality and interoperability efforts. Scaleability requirements are captured in the Tactical Control System (TCS) to meet users' operational needs at multiple echelons. The Outrider Tactical UAV (TUAV) Advanced Concept Technology Demonstration (ACTD) provided a single UAV that moves towards meeting Joint Services tactical UAV requirements. The TUAV endurance objective is to provide four hours flying time on station at a distance of up to 200 kilometers. The baseline

UNCLASSIFIED

Exhibit R-2, RDT&E BUDGET ITEM JUSTIFICATION		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	
RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7	Tactical Unmanned Aerial Vehicles (TUAV) PE 0305204D8Z	

payload is electro-optical/infra-red (EO/IR). Growth payloads will expand TUAV RSTA capabilities. The basic ACTD includes risk mitigation efforts of a UAV Common Automatic Recovery System (UCARS).

The Outrider ACTD program demonstrated Joint Services (Army, Navy, and Marine Corps) tactical UAV requirements culminating in each Service's Military Utility Assessment. Low Rate Initial Production (LRIP) and Operational Test and Evaluation (OT&E) addresses the ground based and shipboard operations of tactical UAVs. In addition, efforts are underway to develop a common TCS to provide an interoperable capability for control of the spectrum of present and future tactical UAV air vehicles and payloads utilized by the military services for RSTA and CA. TCS will interface with the High Altitude Endurance (HAE) UAV systems and multiple C4I systems. TCS is structured to develop concepts of operation in conjunction with warfighters, to transform the operational concepts into a technical architecture with technical performance parameters, to demonstrate key capabilities through a rapid prototyping and demonstration effort, and to conduct supporting analyses, simulations, and trade studies leading to production in FY99. The Systems Integration Laboratory (SIL) is an integral part of the TCS development. The SIL allows the integration and simulation of air vehicles, payloads, and system upgrades prior to actual flight. Integration of software and hardware within this controlled laboratory environment reduces the cost of test and evaluation and the risks associated with actual flight test. The Common Systems Development (CSD) provides for system interoperability and commonality among UAVs. Efforts such as open architecture, payload development, joint logistics, and simulation and modeling continue to ensure reduced life cycle costs, improved supportability, and the exploitation of technological advancement having UAV application. This program is categorized as Budget Activity 7 because it provides for development of technologies and capabilities in support of operational system development.

UNCLASSIFIED

Exhibit R-2, RDT&E BUDGET ITEM JUSTIFICATION								DATE February 1999		
APPROPRIATION/BUDGET ACTIVITY						R-1 ITEM NOMENCLATURE				
RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7						Tactical Unmanned Aerial Vehicles (TUAV) PE 0305204D8Z				

COST (IN MILLIONS)	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to Complete	Total Cost
Total PE Cost	53.871	*	*	*	*	*	*	*	*	*
Total Project Cost/No. and Subtotal Cost Tactical Control System (TCS)/P802	42.013	*	*	*	*	*	*	*	*	*
Quantity of RDT&E Articles										

* Per FY 1999 Appropriations Act, the funds for FY 99 were transferred to the Services/Defense Agencies in various PEs; per the Program Decision Memorandum (PDM), the TUAV funds for FY00-05 were transferred to the Navy (PE 0305204N).

A. Mission Description and Budget Item Justification

Brief Description of Element: The Tactical Control System (TCS) provides interoperability and commonality for mission planning, command, control, communications, and data dissemination for the current and future family of tactical and Medium Altitude Endurance (MAE) Unmanned Aerial Vehicles (UAVs). It provides a full range of scaleable UAV capability from passive receipt of air vehicle and payload data to full air vehicle command and control. TCS functionality supports the joint warfighter with a common core operation environment to receive, process, and disseminate UAV air vehicle and payload data from two or more different UAV types for reconnaissance, surveillance, and combat assessment. TCS also has an objective capability to receive and disseminate payload information from the Global Hawk and DarkStar endurance UAVs. TCS supports seamless integration into the existing C4I architecture and interfaces with other manned and unmanned reconnaissance platforms and intelligence systems providing information superiority through cross cueing. TCS maximizes the use of Commercial and Government off-the-shelf (COTs and GOTs) hardware and software whenever possible. TCS software will be interoperable and operate on existing service computer platforms and compliant with the ASD(C3I) Joint Technical Architecture (JTA), Distributed Common Ground System (DCGS), Common Imagery Ground/Surface Station (CIGSS), and the United States Imagery Standards, and Defense Information Infrastructure/Common Operating Environment (DII-COE). The UAV Joint Technology Center and Systems Integration Laboratory (JTC/SIL) supports the assessment of system integration readiness prior to actual flight testing. The JTC/SIL provides for hardware-in-the-loop tests of payloads, air vehicles (A/V), ground system components, and joint interoperable interface and UAV Concept of Operations (CONOPS) evaluations using the Multiple UAV Simulation Environment (MUSE) in Advanced Warfighting Exercises (AWEs). The NATO Industrial

UNCLASSIFIED

Exhibit R-2, RDT&E BUDGET ITEM JUSTIFICATION		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	
RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7	Tactical Unmanned Aerial Vehicles (TUAV) PE 0305204D8Z	

Advisory Group, Project 35, has undertaken a study to define a common interoperable NATO UAV ground control system architecture. Current plans include an interoperable demonstration with a German UAV.

Programs Accomplishments and Plans: (\$ in millions)

FY 1998 Accomplishments: (\$42.013)

- Continued prototype demonstrations of land and sea-based TCS including mission planning, air vehicle, and payload control of Predator and TUAV (\$8.373)
- Continued TCS evolutionary development, engineering and integration efforts to include demonstration of scalability, portability, mission planning and C4I integration, and select a Systems Integration contractor (\$15.620)
- Continued documentation of system requirements (\$2.120)
- Continued JTC/SIL rapid prototyping, simulation and modeling, systems integration and interoperability and test including establishment of a development baseline (\$6.000)
- Continued participation in joint warfighting experiments and Service exercises for refinement of CONOPS: FLTEX 98, Division XXI experiments, etc. (Contingent on funding from Services: \$0.000)
- Acquired Predator AV and additional supporting assets (\$8.000)
- Selected Logicon Corporation for Flight Route and Payload Planning Software for integration into TCS (\$0.900)
- Awarded LRIP System Design, Test and Integration (SDTI) contract (\$1.000)
- Conducted MS II review

*** Per FY 1999 Appropriations Act, the funds for FY 99 were transferred to the Services/Defense Agencies in various PEs; per the Program Decision Memorandum (PDM), the TUAV funds for FY00-05 were transferred to the Navy (PE 0305204N).**

Acquisition Strategy: The TCS design and development effort completed its Program Definition and Risk Reduction phase (Phase I) at the end of FY98; Engineering and Manufacturing Development (EMD) phase (Phase II) begins in September 1998. A major effort during the EMD phase will be the integration of government furnished TCS hardware and software components by a Systems Design, Test and Integration (SDTI) contractor for four Low Rate Initial Production (LRIP) systems. The SDTI contract will be a full and open competitive procurement

UNCLASSIFIED

Exhibit R-2, RDT&E BUDGET ITEM JUSTIFICATION		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	
RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7	Tactical Unmanned Aerial Vehicles (TUAV) PE 0305204D8Z	

with a planned award date of 4Q FY98. Options for Full Rate Production (Phase III) of additional TCS systems will be included in the basic SDTI contract. The scheduled Initial Operational Capability (IOC) of the TCS is 2Q FY00; Full Operational Capability (FOC) is 2Q FY01. IOC will be achieved after each service has fielded one production representative system with interim Integrated Logistics Support (ILS) (training, spares, technical publications, support equipment) in place and testing (developmental and operational) completed. FOC will be achieved when full attainment of capability is provided by in-place maintenance and repair support, software support, test equipment and spares and systems are effectively employed and operated by the service's hosting unit or force.

B. Program Change Summary

	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>
Previous President's Budget	40.7	*	*	*	*
Net Change	<u>1.3</u>				
President's Budget Request	42.0	*	*	*	*

* Per FY 1999 Appropriations Act, the funds for FY 99 were transferred to the Services/Defense Agencies in various PEs; per the Program Decision Memorandum (PDM), the TUAV funds for FY00-05 were transferred to the Navy (PE 0305204N).

Change Summary Explanation:

- Funding: The change in funding is a result of internal realignments within the DARP.
- Schedule: N/A
- Technical: N/A

C. Other Program Funding Summary Cost

N/A

UNCLASSIFIED

Exhibit R-2, RDT&E BUDGET ITEM JUSTIFICATION		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	
RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7	Tactical Unmanned Aerial Vehicles (TUAV) PE 0305204D8Z	

D. Schedule Profile

Fiscal Year actual and planned events by quarter

	<u>FY 1998</u>				<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Acquisition Milestones																
MS II				X												
Engineering Milestones																
SIL (System Integration/Test)	_____															
MAE/TUAV Interoperability	_____															
Other Program Events																
TCS Capability for Predator/Outrider																
Receive Payload Data	X	X														
Mission Plan		X	_____	X												
<u>Tactical Control System (TCS)</u>																
AV Control		X	_____	X												
C4I Integration	X	_____														
Demos	X	_____							X							

* Per FY 1999 Appropriations Act, the funds for FY 99 were transferred to the Services/Defense Agencies in various PEs; per the Program Decision Memorandum (PDM), the TUAV funds for FY00-05 were transferred to the Navy (PE 0305204N).

UNCLASSIFIED

Exhibit R-2, RDT&E BUDGET ITEM JUSTIFICATION								DATE February 1999	
APPROPRIATION/BUDGET ACTIVITY						R-1 ITEM NOMENCLATURE			
RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7						Tactical Unmanned Aerial Vehicles (TUAV) PE 0305204D8Z			

COST (IN MILLIONS)	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to Complete	Total Cost
Total PE Cost	53.871	*	*	*	*	*	*	*	*	*
Total Project Cost/No. and Subtotal Cost CSD/P803	11.858	*	*	*	*	*	*	*	*	*
Quantity of RDT&E Articles										

* Per FY 1999 Appropriations Act, the funds for FY 99 were transferred to the Services/Defense Agencies in various PEs; per the Program Decision Memorandum (PDM), the TUAV funds for FY00-05 were transferred to the Navy (PE 0305204N).

Brief Description of Element: Common Systems Development (CSD) pursues the RDT&E and production of systems common to the tactical family of UAVs (Pioneer, Outrider, Predator), including growth payloads and subsystems; performs user demonstrations of emerging UAV technologies; manages UAV joint international programs; and provides cross-functional support in the areas of logistics, simulation, test, and operations research. CSD supports testing, common system integration, and subsystems development for UAVs, including the UAV Common Automatic Recovery System (UCARS) and Modular Integrated Avionics Group (MIAG); and supports initiatives to reduce life cycle costs, improve supportability, and exploit commercial and Non Developmental Item (NDI) technology having UAV applications. CSD also provides user demonstration, integration, test, and qualification of JROC-prioritized growth payloads such as communication/data relay, electronic warfare, laser designator, and chemical/biological reconnaissance; demonstrates alternative UAV technologies and concepts, including Vertical Take Off and Landing (VTOL) and Multifunction Self-Aligned Gate (MIAG) active array antennas; provides small UAV capabilities in response to unique warfighter requirements. CSD's International program efforts include cooperation R&D arrangements with major NATO and non-NATO allies, and providing day-to-day management and policy oversight regarding UAV export control and foreign military sales.

Programs Accomplishments and Plans: (\$ in millions)

FY 1998 Accomplishments: (\$11.858)

- Conducted Congressionally-directed research of Multi-function Self-Aligned Gate (MSAG) active array antenna (\$3.795)
- Continued Congressionally directed flight demonstration of VTOL UAV technology (\$1.921)

UNCLASSIFIED

Exhibit R-2, RDT&E BUDGET ITEM JUSTIFICATION		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	
RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7	Tactical Unmanned Aerial Vehicles (TUAV) PE 0305204D8Z	

- Initiated Congressionally directed Stopped-Rotor/Reaction Drive/High Speed VTOL UAV Concept Technology Demonstration (\$6.142)

*** Per FY 1999 Appropriations Act, the funds for FY 99 were transferred to the Services/Defense Agencies in various PEs; per the Program Decision Memorandum (PDM), the TUAV funds for FY00-05 were transferred to the Navy (PE 0305204N).**

Acquisition Strategy:

The CSD promotes the maximum use of common and interoperable hardware, software, and non-developmental items (NDI) technology in an effort to support Joint Service UAV operations, streamline maintenance/support, and reduce life cycle cost. It exploits technology advancements that have UAV application through integration and demonstrations.

B. <u>Program Change Summary</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>
Previous President's Budget	11.5	*	*	*	*
Net Change	<u>.4</u>				
President's Budget Request	11.9	*	*	*	*

* Per FY 1999 Appropriations Act, the funds for FY 99 were transferred to the Services/Defense Agencies in various PEs; per the Program Decision Memorandum (PDM), the TUAV funds for FY00-05 were transferred to the Navy (PE 0305204N).

Change Summary Explanation:

- Funding: The change from previous funding is a result of internal realignments within the DARP.
- Schedule: N/A
- Technical: N/A

UNCLASSIFIED

Exhibit R-2, RDT&E BUDGET ITEM JUSTIFICATION		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	
RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7	Tactical Unmanned Aerial Vehicles (TUAV) PE 0305204D8Z	

C. Other Program Funding Summary Cost

N/A

* Per FY 1999 Appropriations Act, the funds for FY 99 were transferred to the Services/Defense Agencies in various PEs; per the Program Decision Memorandum (PDM), the TUAV funds for FY00-05 were transferred to the Navy (PE 0305204N).

D. Schedule Profile

Fiscal Year actual and planned events by quarter

	<u>FY 1998</u>				<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Engineering Milestones																
UCARS Baselined				X												
T&E Milestones																
UCARS Systems Qualification				X												
VTOL Flight Test				X-X												
Pioneer/ MIAG Demonstration				X												
MIAG Production Qualification				X	-----	X										
MSAG Active Array Antenna Flight Demo				X												
Contract Milestones																
VTOL Demonstration Contract Awards				X			X									
VTOL Advanced Technology Contract Award				X												
- UCARS/MIAG Upgrade Award																

* Per FY 1999 Appropriations Act, the funds for FY 99 were transferred to the Services/Defense Agencies in various PEs; per the Program Decision Memorandum (PDM), the TUAV funds for FY00-05 were transferred to the Navy (PE 0305204N).

UNCLASSIFIED

Exhibit R-2, RDT&E BUDGET ITEM JUSTIFICATION		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7	R-1 ITEM NOMENCLATURE Tactical Unmanned Aerial Vehicles (TUAV) PE 0305204D8Z	

UNCLASSIFIED

UNCLASSIFIED

Exhibit R-3 Cost Analysis (page 1)										DATE February 1999		
APPROPRIATION/BUDGET ACTIVITY				PROGRAM ELEMENT						PROJECT NAME AND NUMBER		
RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7				PE 0305204D8Z						Tactical Unmanned Aerial Vehicles (TUAV)/P802		
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY Cost	1999 Cost*	1999 Award Date	2000 Cost *	2000 Award Date	2001 Cost *	2001 Award Date	Cost to Complete *	Total Cost *	Target Value of Contract
Primary Hardware Development			3.378									
Ancillary Hardware Development			4.593									
Systems Engineering			3.736									
Licenses												
Tooling												
GFE												
Award Fees												
Subtotal Product Development			11.707									
Remarks												
Ancillary Hardware Development includes C4I and Data Link Interfaces.												
Development Support												
Software Development			4.563									
Training/Integrated Logistics Support			1.159									
Technical Data/Configuration Management			.751									
GFE												
Subtotal Support			6.473									
Remarks												

Exhibit R-3, Project Cost Analysis
(Exhibit R-3, page 1 of 2)

UNCLASSIFIED

Exhibit R-3 Cost Analysis (page 2)										DATE February 1999		
APPROPRIATION/BUDGET ACTIVITY				PROGRAM ELEMENT						PROJECT NAME AND NUMBER		
RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7				PE 0305204D8Z						Tactical Unmanned Aerial Vehicles (TUAV)/P802		
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY Cost	1999 Cost*	1999 Award Date	2000 Cost *	2000 Award Date	2001 Cost *	2001 Award Date	Cost to Complete *	Total Cost *	Target Value of Contract
Development Test & Evaluation			4.970									
Operational Test & Evaluation												
Subtotal T&E			4.970									
Remarks												
Contractor Engineering Support												
Systems Integrator	CPAF		.500									
Alliant Techsystems	CPFF	Hopkins, MN										
Labor			.959									
Material			.191									
Award Fees			.123									
General Atomics	CPFF	San Diego, CA										
Labor			2.016									
Material			.075									
Award Fee			.151									
Logicon	CPFF	San Pedro, CA										
Labor			.300									
Program Management Personnel			4.195									
Travel			.825									
Overhead			1.193									
Other			8.335									
Subtotal Management			18.863									
Remarks Overhead includes PEO CU support. Other includes early UAV development efforts and MUSE support.												
Total Cost			42.013									
Remarks * Per FY 1999 Appropriations Act, the funds for FY 99 were transferred to the Services/Defense Agencies in various PEs; per the Program Decision Memorandum (PDM), the TUAV funds for FY00-05 were transferred to the Navy (PE 0305204N).												

(Exhibit R-3, page 2 of 2)

UNCLASSIFIED

UNCLASSIFIED

UNCLASSIFIED

Exhibit R-2, RDT&E BUDGET ITEM JUSTIFICATION								DATE February 1999	
APPROPRIATION/BUDGET ACTIVITY RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7						R-1 ITEM NOMENCLATURE Endurance Unmanned Aerial Vehicles (EUAV) PE 0305205D8Z			

COST (IN MILLIONS)	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to Complete	Total Cost
Total PE Cost	181.165	*	*	*	*	*	*	*	*	*
Project Name/No. and Subtotal Cost Global Hawk (CONV HAE)/P804	93.509	*	*	*	*	*	*	*	*	*
Project Name/No. and Subtotal Cost DarkStar (LO-HAE)/P805	41.898	*	*	*	*	*	*	*	*	*
Project Name/No. and Subtotal Cost HAE Common Ground Segment/P807	45.758	*	*	*	*	*	*	*	*	*
Quantity of RDT&E Articles										

* Per the FY 1999 Appropriations Act, the funds for FY 99 were transferred to the Services/Defense Agencies in various PEs; per the Program Decision Memorandum (PDM), the EUAV Program funds for FY00-05 were transferred to the Air Force (PE 0305205F).

A. Mission Description and Budget Item Justification

Brief Description of Element: This program includes the Medium Altitude Endurance (MAE) - Conventional High Altitude Endurance (CONV HAE) - Global Hawk; Low Observable High Altitude Endurance (LO HAE) - DarkStar; HAE UAV Common Ground Segment (CGS) and associated support items. These systems will provide all-weather, day/night, reconnaissance and surveillance in direct support of the Joint Forces Commander. They integrate existing airborne reconnaissance architectures for mission planning, data processing, exploitation and dissemination.

COST (IN MILLIONS)	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to Complete	Total Cost
---------------------------	----------------	----------------	----------------	----------------	----------------	----------------	----------------	----------------	-------------------------	-------------------

UNCLASSIFIED

Exhibit R-2, RDT&E BUDGET ITEM JUSTIFICATION								DATE February 1999		
APPROPRIATION/BUDGET ACTIVITY						R-1 ITEM NOMENCLATURE				
RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7						Endurance Unmanned Aerial Vehicles (EUAV) PE 0305205D8Z				

Total PE Cost	181.165	*	*	*	*	*	*	*	*	*
Total Project Cost/No. and Subtotal Cost	93.509	*	*	*	*	*	*	*	*	*
Global Hawk (CONV HAE)/P804										
Quantity of RDT&E Articles										

* Per the FY 1999 Appropriations Act, the funds for FY 99 were transferred to the Services/Defense Agencies in various PEs; per the Program Decision Memorandum (PDM), the Global Hawk funds for FY00-05 were transferred to the Air Force (PE 0305205F).

A. Mission Description and Budget Item Justification

Brief Description of Element: The High Altitude Endurance (HAE) UAV Advanced Concept Technology Demonstration (ACTD) program consists of two types of air vehicles, the Conventional HAE (CONV HAE) - Global Hawk and a Low Observable HAE (LO HAE) - DarkStar, and a Common Ground Segment (CGS), common and interoperable with both types of air vehicles (A/Vs). The DarkStar and HAE UAV Common Ground Segment projects are documented separately. The objective of the program is to place the assets in the hands of the warfighter as quickly as possible to assess the utility of the system in the context of military exercises with other service/theater systems. The execution of the Global Hawk project is dependent on funding of the HAE UAV Common Ground Segment project which contains the ground segment RDT&E, and government developmental and demonstration support funding for both Global Hawk and DarkStar A/Vs. The Global Hawk will provide continuous, all-weather, day/night, wide area reconnaissance and surveillance in direct support of the Joint Forces Commander. The system consists of aircraft, sensors, communications and interfaces to theater systems to support tactical warfighters at various levels of command. The Global Hawk will be a fully automatic, high altitude, long endurance unmanned aircraft that is directly responsive to Theater force tasking. The Global Hawk will integrate with the existing tactical airborne reconnaissance architectures for mission planning, data processing, exploitation, and dissemination. It will provide both wide area search radar and Electro Optical (EO) or Infrared Radar (IR) imagery (40,000 sq nm per mission) at 1m resolution and up to 1900 spot images per mission at 0.3m resolution, and will support targeting accuracy of at least 20m CEP. The Global Hawk is the primary “workhorse” of the HAE UAV ACTD system and will be capable of supporting an estimated

UNCLASSIFIED

Exhibit R-2, RDT&E BUDGET ITEM JUSTIFICATION		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	
RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7	Endurance Unmanned Aerial Vehicles (EUAV) PE 0305205D8Z	

80 percent of all military HAE UAV operational reconnaissance needs. It will be designed for long endurance, high altitude, standoff, image collection capabilities. The Global Hawk will operate in low-to-moderate air defense threat environments with the ability to fly above, standoff, and look into high threat areas. This project is categorized as Budget Activity 7 because it provides for technologies and capabilities in support of Operational System Development.

Program Accomplishments and Plans: (\$ in millions)

FY 1998 Accomplishments: (\$93.509)

- Continued development and integrate design updates (\$24.598)
- Continued fabrication and integration of the demonstration A/Vs (#3, #4, #5) (\$38.319)
- Provided contractor participation in planning for test and evaluation of military utility (\$10.043)
- Provided contractor fabrication, demonstration and evaluation support (\$20.549)

*** Per the FY 1999 Appropriations Act, the funds for FY 99 were transferred to the Services/Defense Agencies in various PEs; per the Program Decision Memorandum (PDM), the Global Hawk funds for FY00-05 were transferred to the Air Force (PE 0305205F).**

Acquisition Strategy: The HAE system will be procured as a design-to-cost program to acquire maximum reconnaissance capability for a firm unit flyaway price (UFP) of \$10M (FY94\$) per vehicle (including payload). Global Hawk was selected at the end of a competition involving multiple contractor teams. Streamlined procurement, using DARPA's Other Transaction Authority, is being used to delete all non value-added tasks and documentation from the program. Under the Developmental Phase agreement, the contractor is responsible for building and testing two Global Hawk air vehicles. As part of this agreement, the contractor will also build a developmental ground segment. During the Demonstration Phase, program management responsibility will transition to the Air Force. Funding for the ACTD program ends in the first quarter of FY2000. Funding for the post ACTD RDT&E and production begins in FY2001.

B. Program Change Summary

Total

UNCLASSIFIED

Exhibit R-2, RDT&E BUDGET ITEM JUSTIFICATION		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	
RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7	Endurance Unmanned Aerial Vehicles (EUAV) PE 0305205D8Z	

	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Cost</u>
Previous President's Budget	95.2	*	*	*	*
Net Change	(1.7)	*	*	*	*
President's Budget Request	93.5	*	*	*	*

* Per the FY 1999 Appropriations Act, the funds for FY 99 were transferred to the Services/Defense Agencies in various PEs; per the Program Decision Memorandum (PDM), the Global Hawk funds for FY00-05 were transferred to the Air Force (PE 0305205F).

Change Summary Explanation:

Funding: The change in funding is a result of internal realignments within the DARP.

Schedule: N/A

Technical: N/A

C. Other Program Funding Summary Cost

	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>To Complete</u>	<u>Total Cost</u>
HAE CGS, RDT&E, DW	45.758	*	*	*	*	*	*	*	*	*
DarkStar, RDT&E, DW	41.898	*	*	*	*	*	*	*	*	*

* Per the FY 1999 Appropriations Act, the funds for FY 99 were transferred to the Services/Defense Agencies in various PEs; per the Program Decision Memorandum (PDM), the Global Hawk funds for FY00-05 were transferred to the Air Force (PE 0305205F).

D. Schedule Profile

UNCLASSIFIED

Exhibit R-2, RDT&E BUDGET ITEM JUSTIFICATION		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	
RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7	Endurance Unmanned Aerial Vehicles (EUAV) PE 0305205D8Z	

Fiscal Year actual and planned events by quarter

	<u>FY 1998</u>				<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Test & Evaluation Milestones																
Flight Readiness Review		→	X													
Start Developmental Flight Tests			X													
Contract Milestones																
Demonstration Support Award								X								
Other Program Events																
Fabricate Demonstration Air Vehicles																X

* Per the FY 1999 Appropriations Act, the funds for FY 99 were transferred to the Services/Defense Agencies in various PEs; per the Program Decision Memorandum (PDM), the Global Hawk funds for FY00-05 were transferred to the Air Force (PE 0305205F).

UNCLASSIFIED

Exhibit R-2, RDT&E BUDGET ITEM JUSTIFICATION		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7		R-1 ITEM NOMENCLATURE Endurance Unmanned Aerial Vehicles (EUAV) PE 0305205D8Z

COST (IN MILLIONS)	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to Complete	Total Cost
Total PE Cost	181.165	*	*	*	*	*	*	*	*	*
Total Project Cost/No. and Subtotal Cost DarkStar (LO-HAE)/P805	41.898	*	*	*	*	*	*	*	*	*
Quantity of RDT&E Articles										

* Per the FY 1999 Appropriations Act, the funds for FY 99 were transferred to the Services/Defense Agencies in various PEs; per the Program Decision Memorandum (PDM), the DarkStar funds for FY00-05 were transferred to the Air Force (PE 0305205F).

A. Mission Description and Budget Item Justification

Brief Description of Element: The High Altitude Endurance (HAE) UAV Advanced Concept Technology Demonstration (ACTD) program consists of two types of air vehicles, the Conventional HAE (CONV HAE) - Global Hawk and a Low Observable HAE (LO HAE) - DarkStar, and a Common Ground Segment (CGS), common and interoperable with both types of air vehicles. The Global Hawk and the HAE UAV Common Ground Segment projects are documented separately. The objective of this program is to place the assets in the hands of the warfighter as quickly as possible to assess the utility of the system via military exercises with other service/theater systems. The execution of the DarkStar project is dependent on funding of the HAE UAV Common Ground Segment project which contains the ground segment RDT&E and government developmental and demonstration support funding for both DarkStar and Global Hawk A/Vs. The DarkStar will provide continuous, all-weather, day/night, wide area reconnaissance and surveillance in direct support of the Joint Forces Commander. The system consists of aircraft, sensors, communications and interfaces to theater systems to support tactical warfighters at various levels of command. The DarkStar will integrate with the existing tactical airborne reconnaissance architectures for mission planning, data processing, exploitation, and dissemination. The DarkStar will provide wide area search, over 15,000 sq nm per mission, with either the Electro Optical (EO) or Synthetic Aperture Radar (SAR) sensors at 1m resolution. In addition, the DarkStar is capable of 600 spot images per mission with either sensor at 0.3m resolution. The search and spot modes can be interleaved with attendant reductions in the overall coverage. The system will support a targeting accuracy of at least 20m CEP. The stealth capabilities of the DarkStar allow the system to operate in high threat environments before

UNCLASSIFIED

Exhibit R-2, RDT&E BUDGET ITEM JUSTIFICATION		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	
RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7	Endurance Unmanned Aerial Vehicles (EUAV) PE 0305205D8Z	

suppression of enemy air defenses (SEAD) where manned reconnaissance and the Global Hawk are not viable options. The optimization of this UAV for survivability means the UAV is less capable than the Global Hawk in terms of total endurance and payload capability. This project is categorized as Budget Activity 7 because it provides for technologies and capabilities in support of Operational System Development.

Program Accomplishments and Plans: (\$ in millions)

FY 1998 Accomplishments: (\$41.898)

- Continued fabrication of DarkStar demonstration A/Vs (#3, #4) (\$10.085)
- Completed rebuild and checkout of DarkStar A/V #2 (\$14.845)
- Completed development of DarkStar to include qualification of an operational configuration air data system (\$0.829)
- Provided contractor participation in planning for test and evaluation of military utility (\$7.759)
- Provided fabrication, demonstration and evaluation support (\$8.380)

* Per the FY 1999 Appropriations Act, the funds for FY 99 were transferred to the Services/Defense Agencies in various PEs; per the Program Decision Memorandum (PDM), the DarkStar funds for FY00-05 were transferred to the Air Force (PE 0305205F).

Acquisition Strategy: The LO HAE system will be procured as a design-to-cost program to acquire the most reconnaissance capability for a firm unit flyaway price of \$10 million (FY94\$) per air vehicle (including payload). DarkStar was a sole-source award that leveraged substantial previous government investment in low-observable technology. Streamlined procurement using DARPA's Other Transaction Authority is being used to delete all non value-added tasks and documentation from the program. During the Demonstration Phase (previously referred to as Phase III), program management responsibility will transition to the Air Force. Funding for the ACTD program ends in the first quarter of FY2000. Funding for post ACTD and production begins in FY 2001.

B. Program Change Summary

Total

UNCLASSIFIED

Exhibit R-2, RDT&E BUDGET ITEM JUSTIFICATION		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	
RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7	Endurance Unmanned Aerial Vehicles (EUAV) PE 0305205D8Z	

	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Cost</u>
Previous President's Budget	42.6	*	*	*	*
Net Change	<u>(.7)</u>				
President's Budget Request	41.9	*	*	*	*

* Per the FY 1999 Appropriations Act, the funds for FY 99 were transferred to the Services/Defense Agencies in various PEs; per the Program Decision Memorandum (PDM), the DarkStar funds for FY00-05 were transferred to the Air Force (PE 0305205F).

Change Summary Explanation:

Funding: The change in funding is a result of internal realignments within the DARP.

Schedule: N/A

Technical: N/A

C. Other Program Funding Summary Cost

	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>To Complete</u>	<u>Total Cost</u>
Global Hawk, RDT&E, DW	93.509	*	*	*	*	*	*	*	*	*
HAE CGS, RDT&E, DW	45.758	*	*	*	*	*	*	*	*	*

* Per the FY 1999 Appropriations Act, the funds for FY 99 were transferred to the Services/Defense Agencies in various PEs; per the Program Decision Memorandum (PDM), the DarkStar funds for FY00-05 were transferred to the Air Force (PE 0305205F).

D. Schedule Profile

UNCLASSIFIED

Exhibit R-2, RDT&E BUDGET ITEM JUSTIFICATION		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	
RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7	Endurance Unmanned Aerial Vehicles (EUAV) PE 0305205D8Z	

Fiscal Year actual and planned events by quarter

	<u>FY 1998</u>				<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>				
	1	2	3	4													
Test & Evaluation Milestones																	
Resume Developmental Flight Tests				X													
Contract Milestones																	
Demonstration Support Agreement Award								X									
Other Program Events																	
Fabricate Demonstration Air Vehicles					_____				X								

* Per the FY 1999 Appropriations Act, the funds for FY 99 were transferred to the Services/Defense Agencies in various PEs; per the Program Decision Memorandum (PDM), the DarkStar funds for FY00-05 were transferred to the Air Force (PE 0305205F).

UNCLASSIFIED

Exhibit R-3, RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN		DATE September 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7	R-1 ITEM NOMENCLATURE Endurance Unmanned Aerial Vehicles (EUAV) PE 0305205D8Z/P806	

UNCLASSIFIED

UNCLASSIFIED

Exhibit R-2, RDT&E BUDGET ITEM JUSTIFICATION								DATE February 1999	
APPROPRIATION/BUDGET ACTIVITY						R-1 ITEM NOMENCLATURE			
RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7						Endurance Unmanned Aerial Vehicles (EUAV) PE 0305205D8Z			

COST (IN MILLIONS)	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to Complete	Total Cost
Total PE Cost	181.165	*	*	*	*	*	*	*	*	*
Total Project Cost/No. Subtotal Cost	45.758	*	*	*	*	*	*	*	*	*
HAE Common Ground Segment/P807										
Quantity of RDT&E Articles										

* Per the FY 1999 Appropriations Act, the funds for FY 99 were transferred to the Services/Defense Agencies in various PEs; per the Program Decision Memorandum (PDM), the CGS funds for FY00-05 were transferred to the Air Force (PE 0305205F).

A. Mission Description and Budget Item Justification

Brief Description of Element: The High Altitude Endurance (HAE) UAV Advanced Concept Technology Demonstration (ACTD) program consists of two types of air vehicles, the Conventional HAE (CONV HAE) - Global Hawk and a Low Observable HAE (LO HAE) - DarkStar, and a Common Ground Segment (CGS) which is interoperable with both types of air vehicles. The HAE UAV CGS is comprised of a Launch and Recovery Element (LRE), a Mission Control Element (MCE), and associated logistics support activities. The HAE UAV Common Ground Segment integrates many technologies for communications between the Global Hawk, DarkStar, and exploitation centers/users. Without the HAE UAV Common Ground Segment project, the Global Hawk and DarkStar projects cannot be executed. The LRE prepares, launches, and recovers the air vehicles. The MCE plans and executes the mission; dynamically re-tasks the air vehicles, including the sensors; and processes, stores and/or disseminates the data as required. The CGS supports tactical warfighters at various levels of command with digital, near real-time, high quality imagery in exploitable form. Prior to fielding of an integrated CGS, an Interim Ground Segment (IGS) composed of the Global Hawk LRE #1/MCE #1, and the DarkStar Launch Control Recovery System (LCRS) and Data Processing Element (DPE) will be used to conduct flight test and CGS development. The HAE UAV CGS project also funds government support and studies, GFE, and field demonstration support for both the Global Hawk and DarkStar systems. This Project is categorized as Budget Activity 7 because it provides funds for technologies and capabilities in support of Operational System Development.

Program Accomplishments and Plans: (\$ in millions)

UNCLASSIFIED

Exhibit R-2, RDT&E BUDGET ITEM JUSTIFICATION		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	
RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7	Endurance Unmanned Aerial Vehicles (EUAV) PE 0305205D8Z	

FY 1998 Accomplishments: (\$45.758)

- Completed development, integration and testing of developmental CGS (IGS) and performance testing with DarkStar A/V (\$11.103)
- Continued development of enhanced planning capability for Global Hawk and DarkStar to support military utility evaluation (\$4.337)
- Continued development and test of demonstration CGS (\$10.822)
- Provided contractor participation in planning for test and evaluation of military utility (\$1.641)
- Provided government test and evaluation support (\$5.949)
- Conducted service exploitation system interface development for integration and test (\$1.270)
- Performed CGS, Global Hawk, and DarkStar government support, studies, and related tasks (\$9.867)
- Conducted assessment of Y2K impact on HAE UAV system (\$0.769)

* Per the FY 1999 Appropriations Act, the funds for FY 99 were transferred to the Services/Defense Agencies in various PEs; per the Program Decision Memorandum (PDM), the CGS funds for FY00-05 were transferred to the Air Force (PE 0305205F).

Acquisition Strategy: The HAE UAV Common program provides the ground segment and support items common to the Global Hawk and DarkStar demonstrations. During the development phase, the ground segment originally designed for Global Hawk will be modified to include the capability to; 1) launch and recover; 2) command and control; and 3) receive, process, and disseminate DarkStar sensor data. Addition of this capability defines the Common Ground Segment (CGS) configuration. One (1) developmental and one (1) demonstration CGS are planned to be fabricated during the ACTD. Streamlined procurement, using DARPA's Other Transaction Authority, is being used to delete all non value-added tasks and documentation from the program. During the Demonstration Phase, program management responsibility will transition to the Air Force. Funding for the ACTD program ends in the first quarter of FY 2000. Funding for post ACTD RDT&E begins in FY2001.

B. <u>Program Change Summary</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>
---	-----------------------	-----------------------	-----------------------	-----------------------	--------------------------

UNCLASSIFIED

Exhibit R-2, RDT&E BUDGET ITEM JUSTIFICATION		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	
RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7	Endurance Unmanned Aerial Vehicles (EUAV) PE 0305205D8Z	

Previous President's Budget	46.6	*	*	*	*
Net Change	<u>(.8)</u>				
President's Budget Request	45.8	*	*	*	*

* Per the FY 1999 Appropriations Act, the funds for FY 99 were transferred to the Services/Defense Agencies in various PEs; per the Program Decision Memorandum (PDM), the CGS funds for FY00-05 were transferred to the Air Force (PE 0305205F).

Change Summary Explanation:

Funding: The change in funding is a result of internal realignments within the DARP.
 Schedule: N/A
 Technical: N/A

C. Other Program Funding Summary Cost

	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	To <u>Complete</u>	Total <u>Cost</u>
Global Hawk, RDT&E, DW	93.509	*	*	*	*	*	*	*	*	*
DarkStar, RDT&E, DW	41.898	*	*	*	*	*	*	*	*	*

Related Activities. The Global Hawk program cannot be executed without the complementary HAE UAV Common Ground Segment project. This project also supports the DarkStar project.

* Per the FY 1999 Appropriations Act, the funds for FY 99 were transferred to the Services/Defense Agencies in various PEs; per the Program Decision Memorandum (PDM), the CGS funds for FY 00-05 were transferred to the Air Force (PE 0305205F).

D. Schedule Profile

UNCLASSIFIED

Exhibit R-2, RDT&E BUDGET ITEM JUSTIFICATION		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	
RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7	Endurance Unmanned Aerial Vehicles (EUAV) PE 0305205D8Z	

Fiscal Year actual and planned events by quarter.

	<u>FY 1998</u>				<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Test & Evaluation Milestones																
Flight Readiness Review					—	X										
Start Developmental Flight Test with Global Hawk						X										
Contract Milestones																
Demonstration Support Agreement Award								X								
Other Program Events																
Fabricate Demonstration Common Ground Segment (CGS)					—	—	—	—	X							

* Per the FY 1999 Appropriations Act, the funds for FY 99 were transferred to the Services/Defense Agencies in various PEs; per the Program Decision Memorandum (PDM), the CGS funds for FY00-05 were transferred to the Air Force (PE 0305205F).

UNCLASSIFIED

UNCLASSIFIED

UNCLASSIFIED

Exhibit R-3 Cost Analysis (page 1)									DATE February 1999			
APPROPRIATION/BUDGET ACTIVITY				PROGRAM ELEMENT					PROJECT NAME AND NUMBER			
RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7				PE 0305205D8Z					Endurance Unmanned Aerial Vehicles (EUAV)/P804			
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY Cost	1999 Cost*	1999 Award Date	2000 Cost *	2000 Award Date	2001 Cost *	2001 Award Date	Cost to Complete *	Total Cost *	Target Value of Contract
AV 3-5 Fabrication	C/CPFF/IF/AF	Teledyne Ryan Aeronautical (TRA)	12.846									
Development & Test/AV 1&2 Fabric.	C/CPFF/IF	TRA	69.970									
Award Fee for AV 3-5 Fabrication	AF	San Diego, CA	2.108									
Contractor Acquired Property	C/CPFF	TRA	1.514									
Miscellaneous			1.025									
Subtotal Product Development			87.463									
Remarks												
Development Support												
Software Development												
Training Development												
Integrated Logistics Support												
Configuration Management												
Technical Data												
GFE												
Subtotal Support												
Remarks												

Exhibit R-3, Project Cost Analysis
(Exhibit R-3, page 1 of 2)

UNCLASSIFIED

Exhibit R-3 Cost Analysis (page 2)										DATE February 1999		
APPROPRIATION/BUDGET ACTIVITY					PROGRAM ELEMENT					PROJECT NAME AND NUMBER		
RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7					PE 0305205D8Z					Endurance Unmanned Aerial Vehicles (EUAV)/P804		
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY Cost	1999 Cost*	1999 Award Date	2000 Cost *	2000 Award Date	2001 Cost *	2001 Award Date	Cost to Complete *	Total Cost *	Target Value of Contract
Demonstration & Evaluation Support	C/CPFF/IF	TRA	3.139									
Integrated Logistics Support	C/CPFF	TRA	3.907									
Tooling												
GFE												
Subtotal T&E			6.046									
Remarks												
Contractor Engineering Support												
Government Engineering Support												
Program Management Support												
Program Management Personnel												
Travel												
Labor (Research Personnel)												
Overhead												
Subtotal Management												
Remarks												
Total Cost			93.509									
Remarks												
* Per the FY 1999 Appropriations Act, the funds for FY 99 were transferred to the Services/Defense Agencies in various PEs; per the Program Decision Memorandum (PDM), the Global Hawk funds for FY00-05 were transferred to the Air Force (PE 0305205F).												

UNCLASSIFIED

Exhibit R-3 Cost Analysis (page 1)										DATE February 1999		
APPROPRIATION/BUDGET ACTIVITY				PROGRAM ELEMENT						PROJECT NAME AND NUMBER		
RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7				PE 0305205D8Z						Endurance Unmanned Aerial Vehicles (EUAV)/P805		
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY Cost	1999 Cost*	1999 Award Date	2000 Cost *	2000 Award Date	2001 Cost *	2001 Award Date	Cost to Complete *	Total Cost *	Target Value of Contract
Air Vehicle (AV) 3-4 Fabrication	SS/CPIF	Lockheed Martin	6.146									
Design, Develop and Fabricate AV 1-2	SS/CPIF	Palmdale, CA	27.994									
Miscellaneous												
GFE												
Award Fees												
Subtotal Product Development			34.140									
Remarks												
Development Support												
Software Development												
Training Development												
Integrated Logistics Support												
Configuration Management												
Technical Data												
GFE												
Subtotal Support												
Remarks												

UNCLASSIFIED

Exhibit R-3 Cost Analysis (page 2)										DATE February 1999		
APPROPRIATION/BUDGET ACTIVITY					PROGRAM ELEMENT					PROJECT NAME AND NUMBER		
RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7					PE 0305205D8Z					Endurance Unmanned Aerial Vehicles (EUAV)/P805		
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY Cost	1999 Cost*	1999 Award Date	2000 Cost *	2000 Award Date	2001 Cost *	2001 Award Date	Cost to Complete *	Total Cost *	Target Value of Contract
Demonstration and Evaluation Support	SS/CPIF	LMSW	7.758									
Subtotal T&E			7.758									
Remarks												
Contractor Engineering Support												
Government Engineering Support												
Program Management Support												
Program Management Personnel												
Travel												
Labor (Research Personnel)												
Overhead												
Subtotal Management												
Remarks												
Total Cost			41.898									
Remarks												
* Per the FY 1999 Appropriations Act, the funds for FY 99 were transferred to the Services/Defense Agencies in various PEs; per the Program Decision Memorandum (PDM), the DarkStar funds for FY00-05 were transferred to the Air Force (PE 0305205F).												

(Exhibit R-3, page 2 of 2)

UNCLASSIFIED

Exhibit R-3 Cost Analysis (page 1)										DATE February 1999		
APPROPRIATION/BUDGET ACTIVITY				PROGRAM ELEMENT						PROJECT NAME AND NUMBER		
RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7				PE 0305205D8Z						Endurance Unmanned Aerial Vehicles (EUAV)/P807		
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY Cost	1999 Cost*	1999 Award Date	2000 Cost *	2000 Award Date	2001 Cost *	2001 Award Date	Cost to Complete *	Total Cost *	Target Value of Contract
Fabricate Demonstration CGS	C/CPAF/IF	Raytheon Systems Group (RSG), Falls Church, VA	12.956									
Fabricate Developmental CGS	C/CPAF	RSG	24.240									
User Recommended Improvements	C/CPAF		3.343									
Common Imagery Processor	C/CPAF	ESC, Hanscom AFB	1.255									
Miscellaneous												
Subtotal Product Development			41.794									
Remarks												
Development Support												
Software Development												
Training Development												
Integrated Logistics Support												
Configuration Management												
Technical Data												
Miscellaneous												
Subtotal Support												
Remarks												

Exhibit R-3, Project Cost Analysis
(Exhibit R-3, page 1 of 2)

UNCLASSIFIED

Exhibit R-3 Cost Analysis (page 2)										DATE February 1999		
APPROPRIATION/BUDGET ACTIVITY				PROGRAM ELEMENT						PROJECT NAME AND NUMBER		
RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7				PE 0305205D8Z						Endurance Unmanned Aerial Vehicles (EUAV)/P807		
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY Cost	1999 Cost*	1999 Award Date	2000 Cost *	2000 Award Date	2001 Cost *	2001 Award Date	Cost to Complete *	Total Cost *	Target Value of Contract
Government Support	Allot	AFFTC/Edwards AFB	1.333									
Government Support	Allot	AFOTEC/Kirtland AFB	.867									
Government Support	Allot	NAWC-AD/Pax River	.726									
CGS Spares	C/CPFF	RSG	.938									
Repair Support												
CGS Demonstration Support	C/CPFF	RSG	0.100									
Miscellaneous												
Subtotal T&E			3.964									
Remarks												
Contractor Engineering Support												
Government Engineering Support												
Program Support												
Miscellaneous												
Travel												
Labor (Research Personnel)												
Overhead												
Subtotal Management												
Remarks												
Total Cost			45.758									
Remarks												
* Per the FY 1999 Appropriations Act, the funds for FY 99 were transferred to the Services/Defense Agencies in various PEs; per the Program Decision Memorandum (PDM), the HAE CGS funds for FY00-05 were transferred to the Air Force (PE 0305205F).												

UNCLASSIFIED

Exhibit R-2, RDT&E BUDGET ITEM JUSTIFICATION								DATE: February 1999	
APPROPRIATION/BUDGET ACTIVITY						R-1 ITEM NOMENCLATURE			
RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7						Airborne Reconnaissance Advanced Development (ARAD) PE 0305206D8Z			

COST (IN MILLIONS)	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to Complete	Total Cost
Total PE Cost	186.090	*	*	*	*	*	*	*	*	*
Total Project Cost/No. Subtotal Cost Airborne Reconnaissance Common Data Link (CDL)/P810	42.889	*	*	*	*	*	*	*	*	*
Quantity of RDT&E Articles										

* Per the FY 1999 Appropriations Act, the funds for FY 99 were transferred to the Services/Defense Agencies in various PEs; per the Program Decision Memorandum (PDM), the CDL funds for FY00-05 were transferred to the Air Force (PE 0305206F).

A. Mission Description and Budget Item Justification

Brief Description of Element: The objective of the CDL effort within the DARP is to define an interoperable command, control and communications capability for intelligence and reconnaissance assets to include both manned and unmanned platforms. CDL will achieve interoperable communications paths by employing an architecture based on developed hardware, software, and waveforms to promote commonality among the Services. The CDL program will maintain design configuration commonality resulting in lower life-cycle costs. The CDL design will permit existing and future reconnaissance assets to operate worldwide, providing sensor data directly to ground sites or via satellite or air-to-air relay when the asset and ground site are not within line-of-sight. This effort will integrate commercial satellite communications into the available satellite relay options to ensure sufficient wideband data relay capability. The system will have sufficient bandwidth to accommodate numerous sensors collecting SIGINT, IMINT and Multi-spectral data. Modular design allows for future technology insertion. The commonality of modular components reduces non-recurring engineering and life cycle costs to the DoD user. Interoperability provides for the exchange of data across service or agency boundaries. This program is categorized as Budget Activity 7 because it provides for development of technologies and capabilities in support of Operational System Development.

UNCLASSIFIED

Exhibit R-2, RDT&E BUDGET ITEM JUSTIFICATION		DATE: February 1999
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	
RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7	Airborne Reconnaissance Advanced Development (ARAD) PE 0305206D8Z	

Program Accomplishments and Plans: The CDL program supports development of advanced communications capabilities which offer common, interoperable, and modular attributes to future warfighters under all circumstances, situations, or force structures. The CDL funds are expended for the initial development and demonstration of new data link capabilities and functions. In addition, these funds are leveraged with other Service/Agency funds to provide data link capabilities that are applicable to multiple programs. Specific initiatives include the continuation of design, development, test and demonstration activities associated with common/interoperable communications and control capabilities for airborne reconnaissance platforms and sensors.

Program Plans and Accomplishments: (\$ in millions)

FY1998 Accomplishments: (\$42.889)

- Continued configuration control of CDL architecture, specifications and modules (\$2.918)
- Continued development of CDL interface on additional platforms (\$2.920)
- Continued to access development of commercial network interface standards and incorporated commercial technologies where practical to the CDL interface (\$1.062)
- Continued engineering and integration of commercial satellite communications network to support airborne reconnaissance platform relay requirements (\$12.959)
- Continued covert waveform development/miniaturization/air-to-air link under the ABIT program and integration engineering of ABIT in ISR platforms (\$12.200)
- Continued SATCOM interoperability enhancements (\$0.450)
- Continued development of Tactical CDL demonstration hardware and flight demonstration, and continued to develop design for operational suitability on ISR platforms (\$10.380)

*** Per the FY 1999 Appropriations Act, the funds for FY 99 were transferred to the Services/Defense Agencies in various PEs; per the Program Decision Memorandum (PDM), the CDL funds for FY00-05 were transferred to the Air Force (PE 0305206F).**

Acquisition Strategy: The CDL involves a multitude of technology projects which will provide for a common, interoperable wideband data link standard that has been mandated by ASD/C3I policy. Program funds are leveraged with the Service program funds to satisfy project objectives.

UNCLASSIFIED

Exhibit R-2, RDT&E BUDGET ITEM JUSTIFICATION		DATE: February 1999
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	
RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7	Airborne Reconnaissance Advanced Development (ARAD) PE 0305206D8Z	

Funds are provided to various government laboratories and program offices to fund on-going technology efforts. The individual Services use Engineering Change Proposals (ECPs) and modify existing contracts that have been awarded both competitively and on a sole source basis to implement various technology efforts.

B. Program Change Summary

	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>
Previous President's Budget	43.4	*	*	*	*
Net Change	(.5)				
President's Budget Request	42.9	*	*	*	*

* Per the FY 1999 Appropriations Act, the funds for FY 99 were transferred to the Services/Defense Agencies in various PEs; per the Program Decision Memorandum (PDM), the CDL funds for FY00-05 were transferred to the Air Force (PE 0305206F).

Change Summary Explanation:

Funding: The change from previous funding is a result of internal realignments within the DARP.

Schedule: N/A

Technical: N/A

C. Other Program Funding Summary Cost

N/A

* Per the FY 1999 Appropriations Act, the funds for FY 99 were transferred to the Services/Defense Agencies in various PEs; per the Program Decision Memorandum (PDM), the EUAV Program funds for FY00-05 were transferred to the Air Force (PE 0305205F).

D. Schedule Profile

UNCLASSIFIED

Exhibit R-2, RDT&E BUDGET ITEM JUSTIFICATION		DATE: February 1999
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	
RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7	Airborne Reconnaissance Advanced Development (ARAD) PE 0305206D8Z	

Fiscal Year actual and planned events by quarter

	<u>FY 1998</u>				<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Other Program Events																
Start Tactical CDL Phase 2 Detail Design/ CDL Interoperability Testing		X														
U-2 ABIT Prototype Delivery			X													
SATCOM Interoperability Study Complete				X												
Start ARL/CDL SATCOM Design		X														
Complete ARL/CDL SATCOM Design			X													
ARL SATCOM Testing				X												

UNCLASSIFIED

UNCLASSIFIED

Exhibit R-2, RDT&E BUDGET ITEM JUSTIFICATION								DATE February 1999	
APPROPRIATION/BUDGET ACTIVITY						R-1 ITEM NOMENCLATURE			
RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7						Airborne Reconnaissance Advanced Development PE 0305206D8Z			

COST (IN MILLIONS)	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to Complete	Total Cost
Total PE Cost	186.090	*	*	*	*	*	*	*	*	*
Project Name/No. and Subtotal Cost Advanced Sensors/P808	104.066	*	*	*	*	*	*	*	*	*
Project Name/No. and Subtotal Cost Airborne Reconnaissance Advanced Technology Development Program, P809	39.135	*	*	*	*	*	*	*	*	*
Project Name/No. and Subtotal Cost Common Data Link (CDL)/P810	42.889	*	*	*	*	*	*	*	*	*
Quantity of RDT&E Articles										

* Per the FY 1999 Appropriations Act, the funds for FY 99 were transferred to the Services/Defense Agencies in various PEs; per the Program Decision Memorandum (PDM), the Adv Sensor funds for FY00-05 were transferred to the Air Force (PE 0305206F), NSA (PE 0305206G), Navy (PE 0305206N).

A. Mission Description and Budget Item Justification

Brief Description of Element: This program funds and coordinates the development of advanced defense airborne reconnaissance technologies to ensure systems satisfy strategies and architectures to assure U.S. ability to support warfighter intelligence needs in the face of rapidly developing threat technology, proliferation of advanced weaponry, and uncertain political alignments. This program funds the development of the technologies that respond to evolving threats by emphasizing multi-service utility, interoperability among existing and planned complementary systems (i.e., sensors, ground systems, data links, and manned and unmanned platforms), and timely dissemination of intelligence information to operational forces. It also funds the architecture and master planning activities that will provide the overall guidance for airborne reconnaissance SIGINT and IMINT, and manned/unmanned airborne reconnaissance systems. This program is categorized as Budget Activity 7 because it provides for development of technologies and capabilities in support of operational system development.

UNCLASSIFIED

Exhibit R-2, RDT&E BUDGET ITEM JUSTIFICATION								DATE February 1999	
APPROPRIATION/BUDGET ACTIVITY						R-1 ITEM NOMENCLATURE			
RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7						Airborne Reconnaissance Advanced Development PE 0305206D8Z			

COST (IN MILLIONS)	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to Complete	Total Cost
Total PE Cost	186.090	*	*	*	*	*	*	*	*	*
Total Project Cost/No. Subtotal Cost Advanced Sensors/P808	104.066	*	*	*	*	*	*	*	*	*
Quantity of RDT&E Articles										

* Per the FY 1999 Appropriations Act, the funds for FY 99 were transferred to the Services/Defense Agencies in various PEs; per the Program Decision Memorandum (PDM), the Adv Sensor funds for FY00-05 were transferred to the Air Force (PE 0305206F), NSA (PE 0305206G), Navy (PE 0305206N).

A. Mission Description and Budget Item Justification

Brief Description of Element: Provides funds for the development of sensor systems to improve present airborne reconnaissance capabilities. The developments are driven by evolving collection requirements and modern technology advances. The developments allow for the necessary changes required to meet an integrated, objective airborne reconnaissance architecture as defined in the Integrated Airborne Reconnaissance Strategy (IARS) and amplified in the Airborne Reconnaissance Information Technical Architecture (ARITA). Particular emphasis is placed on multi-platform interoperability. The Advanced Sensors Development Program implements successful proof-of-concept efforts accomplished in the Advanced Technology Program, other Service/Agency developments, and Congressionally-funded initiatives leading to producible sensor systems for airborne platforms. Upon successful sensor prototype demonstration, technology sensor developments are turned over to the Services for procurement and platform integration. The advanced sensor program includes technical analyses, systems engineering assessments, planning, and development for advanced airborne sensor systems. This effort focuses on developments which support sensor system interoperability and standardization of multi-Service and multi-platform applications. The advanced sensor developments will provide the technology transition modules for operational use necessary for the overall migration of the airborne fleet (manned and unmanned) to a Joint Airborne SIGINT Architecture (JASA) (i.e., sensors, ground systems, data links, and platforms), and provide the mechanism required for timely dissemination of intelligence information to operational forces. The development and modification of the lead integration aircraft (EP-3E) for the initial JASA modules will provide a mechanism to begin development and operational assessment of the Joint SIGINT Avionics Family (JSAF) components. Coordinated and complementary airborne sensor development across the military Services and the Defense and Intelligence

UNCLASSIFIED

Exhibit R-2, RDT&E BUDGET ITEM JUSTIFICATION		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	
RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7	Airborne Reconnaissance Advanced Development PE 0305206D8Z	

Agencies are being established for inclusion into the JASA. This sub-project also includes funding for U-2 sensor upgrades and multispectral imaging (MSI) developments. This program is categorized as Budget Activity 7 because it provides for the development of technologies and capabilities in support of Operational Systems Development.

Programs Plans and Accomplishments: (\$ in millions)

FY 1998 Accomplishments: (\$104.066)

JASA (\$93.659)

- Developed JSAF components (\$92.182)
 - Completed High band Prototype (HBP) Flight Testing (\$10.400)
 - Continued Low-Band Sub-Systems (LBSS) development (\$33.000)
 - Awarded and started High-Band Sub-Systems (HBSS) development (\$12.300)
 - Continued platform development for JSAF integration and testing (\$36.092)
 - ARL (\$5.700)
 - RIVET JOINT (\$10.400)
 - EP-3 (\$9.700)
 - AF Special (\$10.292)
- Continued development and refinement of JASA Air and Ground standards (\$1.867)

Advanced Developments (\$10.407)

- Continued Signal Recognition (Story Series development) (\$ 3.072)
 - Completed Story Book fusion software development (\$.872)
 - Completed Story Book Programmable Interface Processor (PID) (\$0.700)
 - Initiated Story Finder AOITF modifications (\$1.500)
- Continued COMPASS BRIGHT (advanced technologies supporting JSAF development) (\$2.451)
 - Began NexGen wide-band digital receiver development through Air Force Research Labs – Sensors Division (\$1.551)
 - Began advanced SIGINT development at Air Force Research Labs – Information Systems Division (\$0.900)
- Initiated COMBAT SENT wideband system development (\$1.866)

UNCLASSIFIED

UNCLASSIFIED

Exhibit R-2, RDT&E BUDGET ITEM JUSTIFICATION		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	
RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7	Airborne Reconnaissance Advanced Development PE 0305206D8Z	

- Initiated component design and simulation
- Other (\$3.018)

***Per the FY 1999 Appropriations Act, the funds for FY 99 were transferred to the Services/Defense Agencies in various PEs; per the Program Decision Memorandum (PDM), the Adv Sensor funds for FY00-05 were transferred to the Air Force (PE 0305206F), NSA (PE 0305206G), Navy (PE 0305206N).**

Acquisition Strategy: The Advanced Sensors line funds virtually all airborne advanced sensor developments necessary to collect against an increasingly sophisticated and rapidly evolving collection threat. It consists of one large SIGINT program (JASA) and several smaller programs - SIGINT, IMINT, & MASINT. The DoD placed increased emphasis in making the numerous SIGINT systems flying on Service platforms more interoperable and common. A Joint SIGINT Avionics Family is being developed to achieve this goal. In the interim, collection capability must be sustained in existing manned reconnaissance aircraft until more enhanced, capable JASA systems become available. This line also funds IMINT and MASINT developments and upgrades such as the MSI H/SIP and SYERS upgrades and the imagery sensor development to be flown on the Predator UAV.

B. Program Change Summary

	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>
Previous President's Budget	105.4	*	*	*	*
Net Change	<u>(1.3)</u>	*			
President's Budget Request	104.1	*	*	*	*

* Per the FY 1999 Appropriations Act, the funds for FY 99 were transferred to the Services/Defense Agencies in various PEs; per the Program Decision Memorandum (PDM), the Adv Sensor funds for FY00-05 were transferred to the Air Force (PE 0305206F), NSA (PE 0305206G), Navy (PE 0305206N).

Change Summary Explanation:

Funding: The change in funding is a result of internal realignments within the DARP.
 Schedule: N/A

UNCLASSIFIED

Exhibit R-2, RDT&E BUDGET ITEM JUSTIFICATION		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	
RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7	Airborne Reconnaissance Advanced Development PE 0305206D8Z	

Technical: N/A

C. Other Program Funding Summary

N/A

* Per the FY 1999 Appropriations Act, the funds for FY 99 were transferred to the Services/Defense Agencies in various PEs; per the Program Decision Memorandum (PDM), the Adv Sensor funds for FY00-05 were transferred to the Air Force (PE 0305206F), NSA (PE 0305206G), Navy (PE 0305206N).

D. Schedule Profile

Fiscal Year actual and planned events by quarter

	<u>FY 1998</u>				<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Engineering Milestones	_____															
Standards Development	_____															
High Band Prototype (HBP)	— X															
System Development	_____															
EP-3 HBP Integration	X															
HBP Flight Test	X — X															
High-Band Sub-System (HBSS) Develop.	_____ X															
Low-Band Sub-System (LBSS) Develop.	X _____ X															

UNCLASSIFIED

Exhibit R-2, RDT&E BUDGET ITEM JUSTIFICATION		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	
RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7	Airborne Reconnaissance Advanced Development PE 0305206D8Z	

D. Schedule Profile

Fiscal Year actual and planned events by quarter

	<u>FY 1998</u>				<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
SB Fusion Software				X												
SB Programmable Interface Processor (PIP)			X													
NexGen Digital Receiver Development	X															
COMBAT SENT Wideband System Dev																
Contract Milestones	X			X												
JSH Updates Published	X		X													
HBP Ground/Flight Tests				X												
HBP Complete	X															
LBSS PDR			X													
LBSS CDR	X															
HBSS Contract Award		X														
HBSS SRR				X												
HBSS PDR	X															
Story Finder Architecture Requirements Begun				X												
Story Finder Flight Test				X												
Story Finder AOITF CDR			X													
SYERS P3I/U-2 MSI System First Delivery				X												
NexGen Digital Receiver (CDR-Unit 1)																

* Per the FY 1999 Appropriations Act, the funds for FY 99 were transferred to the Services/Defense Agencies in various PEs; per the Program Decision Memorandum (PDM), the Adv Sensor funds for FY00-05 were transferred to the Air Force (PE 0305206F), NSA (PE 0305206G), Navy (PE 0305206N).

UNCLASSIFIED

UNCLASSIFIED

Exhibit R-2, RDT&E BUDGET ITEM JUSTIFICATION								DATE February 1999	
APPROPRIATION/BUDGET ACTIVITY						R-1 ITEM NOMENCLATURE			
RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7						Airborne Reconnaissance Advanced Development (ARAD) PE 0305206D8Z			

COST (IN MILLIONS)	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to Complete	Total Cost
Total PE Cost	186.090	*	*	*	*	*	*	*	*	*
Total Project Cost/No. Subtotal Cost Airborne Reconnaissance Advanced Technology Development Program,P809	39.135	*	*	*	*	*	*	*	*	*
Quantity of RDT&E Articles										

* Per the FY 1999 Appropriations Act, the funds for FY 99 were transferred to the Services/Defense Agencies in various PEs; per the Program Decision Memorandum (PDM), the Adv Tech funds for FY00-05 were transferred to the Air Force (PE 0305206F), NSA (PE 0305206G), Navy (PE 0305206N), Army (PE 0305206A).

A. Mission Description and Budget Item Justification

Brief Description of Element: There are two primary objectives for the Advanced Technology funding: (1) to evaluate the utility and maturity of technology for airborne reconnaissance applications; and (2) to reduce the risk of employing emerging technologies in system upgrades, new system acquisitions, or Advanced Concept Technology Demonstrations (ACTDs), by integrating and exercising them in developmental and operational tests. Once technologies are matured under this project, they often feed into Advanced Sensor projects for further development prior to being transitioned to the Services for procurement. These technologies help satisfy the requirements of the objective architecture set forth in the Integrated Airborne Reconnaissance Strategy (IARS). These technology investments are also identified in the Airborne Reconnaissance Technology Program Plan (ARTPP), published in November 1994. They were carefully selected from a broad range of technologies to provide utility to the warfighter at acceptable levels of cost and risk. This project continues technology transition programs in the critical areas identified in the ARTPP. Included are: exigent target detection; advanced exploitation, geolocation; communications, advanced digital reconnaissance, and advanced signals intelligence (SIGINT). This is not a prioritized listing. A new category, technology initiatives, includes technology transition programs including those designated by Congress. This program is categorized as Budget Activity 7 because it provides for the development of technologies and capabilities in support of operational system development.

Program Accomplishments and Plans: (\$ in millions)

UNCLASSIFIED

Exhibit R-2, RDT&E BUDGET ITEM JUSTIFICATION		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	
RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7	Airborne Reconnaissance Advanced Development (ARAD) PE 0305206D8Z	

FY 1998 Accomplishments: (\$39.135)

- Exigent Target Detection (Adaptive Spectral Reconnaissance Program (ASRP), Multi-Sensor Exploitation Testbed (MSET), Reconnaissance Infrared Surveillance & Targeting Acquisition System (RISTA II)) (\$5.322)
 - Initiated development of Predator-version hyperspectral imager and conduct demonstration on a manned surrogate in cooperation with DARPA as part of the ASRP (\$3.700)
 - Demonstrated near-real-time target detection and cueing, second phase exploitation, and integration tools in the laboratory (MSET) (\$0.927)
 - Performed demonstration of RISTA II long wave infrared sensor on Altus unmanned aerial vehicle (\$0.695)
- Advanced Exploitation (Moving Target Exploitation (MTE), Advanced Common Processor (ACP), Intelligence Bandwidth Compression (IBC)) (\$4.727)
 - Demonstrated Moving Target Exploitation functionality in virtual testbed (\$2.780)
 - Completed and demonstrated real-time Intelligent Bandwidth Compression applicable to the U-2 and Global hawk (\$0.927)
 - Continued development of a common airborne/satellite processing capability (\$1.020)
- Geolocation (Precision Geolocation – SIGINT, Interferometric Synthetic Aperture Radar (IFSAR), Geolocation, Radar Tags) (\$9.122)
 - Modified aircraft for cooperative SIGINT geolocation capabilities (\$4.006)
 - Initiated development of interferometric SAR to provide DTED V single pass data from high altitude platforms (\$3.711)
 - Initiated development of coregistration of imagery on SAR generated maps (\$0.278)
 - Completed development of radar tags in cooperation with DARPA (\$1.127)
- Communications (Data terminal, laser Air-to-Air) (\$2.921)
 - Initiated concept phase for development of high-data-rate communications and begin design (Classified Program) (\$0.927)
 - Completed terminal fabrication and instrument test aircraft (\$1.994)
- Advanced Digital reconnaissance (Framing reconnaissance Cameras) (\$9.278)
 - Complete development of 4-Megapixel IR framing camera and test (\$3.450)
 - Begin development of high-performance, IR cameras (25 megapixels/second) (\$5.828)
- Technology Initiatives (\$7.764)

UNCLASSIFIED

UNCLASSIFIED

Exhibit R-2, RDT&E BUDGET ITEM JUSTIFICATION		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	
RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7	Airborne Reconnaissance Advanced Development (ARAD) PE 0305206D8Z	

* Per the FY 1999 Appropriations Act, the funds for FY 99 were transferred to the Services/Defense Agencies in various PEs; per the Program Decision Memorandum (PDM), the Adv Tech funds for FY00-05 were transferred to the Air Force (PE 0305206F), NSA (PE 0305206G), Navy (PE 0305206N), Army (PE 0305206A).

Acquisition Strategy: A variety of acquisition strategies are being incorporated depending on the specific advanced technology in question and the organization developing the technology.

B. Program Change Summary

	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>
Previous President's Budget	39.6	*	*	*	*
Net Change	(.5)				
President's Budget Request	39.1	*	*	*	*

* Per the FY 1999 Appropriations Act, the funds for FY 99 were transferred to the Services/Defense Agencies in various PEs; per the Program Decision Memorandum (PDM), the Adv Tech funds for FY00-05 were transferred to the Air Force (PE 0305206F), NSA (PE 0305206G), Navy (PE 0305206N), Army (PE 0305206A).

Change Summary Explanation:

- Funding: The change in funding is a result of internal realignments within the DARP.
- Schedule: N/A
- Technical: N/A

C. Other Program Funding Summary Cost

N/A

UNCLASSIFIED

Exhibit R-2, RDT&E BUDGET ITEM JUSTIFICATION		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	
RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7	Airborne Reconnaissance Advanced Development (ARAD) PE 0305206D8Z	

D. Schedule Profile

Fiscal Year actual and planned events by quarter

	<u>FY 1998</u>				<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<u>Exigent Target Detection</u>																
Demonstrate real-time TD/C in lab (MSET)				X												
<u>Advanced Exploitation</u>																
Demonstrate Moving Target Exploitation Functionality in Virtual Testbed				X												
Complete Demonstrate Single-Scale Intelligent Bandwidth Compression (IBC) in Real-Time				X												
<u>Communications</u>																
Begin Data Terminal Concept Phase		X														
Begin Design/Modification Phase				X												
Crosslink Test Aircraft and Terminal Delivery		X														
<u>Advanced Digital Reconnaissance</u>																
Initiate 100 Megapixel FPA Tech Demo		X														
Test 4 Megapixel IR Framing Camera		X														
<u>Advanced SIGINT</u>																
NexGen Digital Receiver (CDR-Unit 1)				X												

*Per the FY 1999 Appropriations Act, the funds for FY 99 were transferred to the Services/Defense Agencies in various PEs; per the Program Decision Memorandum (PDM), the Adv Tech funds for FY00-05 were transferred to the Air Force (PE 0305206F), NSA (PE 0305206G), Navy (PE 0305206N), Army (PE 0305206A).

UNCLASSIFIED

Exhibit R-3 Cost Analysis (page 1)									DATE February 1999			
APPROPRIATION/BUDGET ACTIVITY				PROGRAM ELEMENT					PROJECT NAME AND NUMBER			
RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7				PE 0305206D8Z					Airborne Reconnaissance Advanced Development (ARAD)/P809			
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY Cost	1999 Cost*	1999 Award Date	2000 Cost *	2000 Award Date	2001 Cost *	2001 Award Date	Cost to Complete *	Total Cost *	Target Value of Contract
Product Development			39.135									
Subtotal Product Development			39.135									
Remarks Advanced Technology consists of various projects which, while being supportive of the development of the airborne reconnaissance architecture, are not necessarily managed by the same agencies or Services.												
Development Support												
Software Development												
Training Development												
Integrated Logistics Support												
Configuration Management												
Technical Data												
GFE												
Subtotal Support												
Remarks												

Exhibit R-3, Project Cost Analysis
(Exhibit R-3, page 1 of 2)

UNCLASSIFIED

Exhibit R-3 Cost Analysis (page 2)										DATE February 1999		
APPROPRIATION/BUDGET ACTIVITY RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7				PROGRAM ELEMENT PE 0305206D8Z						PROJECT NAME AND NUMBER Airborne Reconnaissance Advanced Development (ARAD)/P809		
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY Cost	1999 Cost*	1999 Award Date	2000 Cost *	2000 Award Date	2001 Cost *	2001 Award Date	Cost to Complete *	Total Cost *	Target Value of Contract
Development Test & Evaluation												
Operational Test & Evaluation												
Tooling												
GFE												
Subtotal T&E												
Remarks												
Contractor Engineering Support												
Government Engineering Support												
Program Management Support												
Program Management Personnel												
Travel												
Labor (Research Personnel)												
Overhead												
Subtotal Management												
Remarks												
Total Cost			39.135									
Remarks												
* Per the FY 1999 Appropriations Act, the funds for FY 99 were transferred to the Services/Defense Agencies in various PEs; per the Program Decision Memorandum (PDM), the Advanced Technology funds for FY00-05 were transferred to the Air Force (PE 0305206F), Army (PE 0305206A), Navy (PE 0305206N), and the NSA (PE 0305206G).												

UNCLASSIFIED

Exhibit R-3 Cost Analysis (page 1)									DATE February 1999			
APPROPRIATION/BUDGET ACTIVITY				PROGRAM ELEMENT					PROJECT NAME AND NUMBER			
RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7				PE 0305206D8Z					Airborne Reconnaissance Advanced Development (ARAD)/P808			
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY Cost	1999 Cost*	1999 Award Date	2000 Cost *	2000 Award Date	2001 Cost *	2001 Award Date	Cost to Complete *	Total Cost *	Target Value of Contract
Product Development			104.066									
Product Development												
Product Development												
Subtotal Product Development			104.066									
Remarks												
Advanced Sensors consists of various projects which, while being supportive of the airborne reconnaissance architecture, are not managed by the same agencies or Services.												
Development Support												
Software Development												
Training Development												
Integrated Logistics Support												
Configuration Management												
Technical Data												
GFE												
Subtotal Support												
Remarks												

Exhibit R-3, Project Cost Analysis
(Exhibit R-3, page 1 of 2)

UNCLASSIFIED

Exhibit R-3 Cost Analysis (page 2)										DATE February 1999		
APPROPRIATION/BUDGET ACTIVITY RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7				PROGRAM ELEMENT PE 0305206D8Z					PROJECT NAME AND NUMBER Airborne Reconnaissance Advanced Development (ARAD)/P808			
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY Cost	1999 Cost*	1999 Award Date	2000 Cost *	2000 Award Date	2001 Cost *	2001 Award Date	Cost to Complete *	Total Cost *	Target Value of Contract
Development Test & Evaluation												
Operational Test & Evaluation												
Tooling												
GFE												
Subtotal T&E												
Remarks												
Contractor Engineering Support												
Government Engineering Support												
Program Management Support												
Program Management Personnel												
Travel												
Labor (Research Personnel)												
Overhead												
Subtotal Management												
Remarks												
Total Cost			104.066									
Remarks												
* Per the FY 1999 Appropriations Act, the funds for FY 99 were transferred to the Services/Defense Agencies in various PEs; per the Program Decision Memorandum (PDM), the Advanced Sensors funds for FY00-05 were transferred to the Air Force (PE 0305206F), Navy (PE 0305206N), and the NSA (PE 0305206G).												

UNCLASSIFIED

Exhibit R-3 Cost Analysis (page 1)										DATE February 1999		
APPROPRIATION/BUDGET ACTIVITY				PROGRAM ELEMENT						PROJECT NAME AND NUMBER		
RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7				PE 0305206D8Z						Airborne Reconnaissance Advanced Development (ARAD)/P810		
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY Cost	1999 Cost*	1999 Award Date	2000 Cost *	2000 Award Date	2001 Cost *	2001 Award Date	Cost to Complete *	Total Cost *	Target Value of Contract
Product Development			42.889									
Subtotal Product Development			42.889									
Remarks												
Remarks												

Exhibit R-3, Project Cost Analysis
(Exhibit R-3, page 1 of 2)

UNCLASSIFIED

Exhibit R-2, RDT&E BUDGET ITEM JUSTIFICATION								DATE February 1999	
APPROPRIATION/BUDGET ACTIVITY RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7						R-1 ITEM NOMENCLATURE Manned Reconnaissance Systems PE 0305207D			

COST (IN MILLIONS)	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to Complete	Total Cost
Total PE Cost	26.402	*	*	*	*	*	*	*	*	*
Project Name/No. and Subtotal Cost Manned Reconnaissance Systems U-2/P811	26.402	*	*	*	*	*	*	*	*	*
Quantity of RDT&E Articles										

* Per the FY 1999 Appropriations Act, the funds for FY 99 were transferred to the Services/Defense Agencies in various PEs: per the Program Decision Memorandum (PDM), the Manned Reconnaissance Systems funds for FY 00-05 were transferred to PE 0305207F and PE 0305207G.

A. Mission Description and Budget Item Justification

Brief Description of Element: Manned reconnaissance programs provide for a wide variety of reconnaissance tasks in support of the entire range of users from the tactical level to the national command authorities. Signals Intelligence, Imagery, Measurement and Signatures Intelligence, Target Acquisition, and Surveillance missions are performed by manned reconnaissance systems, across the spectrum of conflict. Manned reconnaissance systems also conduct missions in support of counter narcotics, disaster relief, mapping, charting and geodesy, scientific requirements, military and operations other than war. This element provides for manned reconnaissance platforms resident in the DARP. The activity ensures continued viability of both the platforms and the associated sensors as mission requirements and threats change. As DoD fosters greater commonality among systems, this element develops a means of compliance with the emerging architecture. This program is categorized as Budget Activity 7 because it provides for development of technologies and capabilities in support of Operational System Development.

COST (IN MILLIONS)	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to Complete	Total Cost
---------------------------	----------------	----------------	----------------	----------------	----------------	----------------	----------------	----------------	-------------------------	-------------------

UNCLASSIFIED

Exhibit R-2, RDT&E BUDGET ITEM JUSTIFICATION								DATE February 1999	
APPROPRIATION/BUDGET ACTIVITY						R-1 ITEM NOMENCLATURE			
RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7						Manned Reconnaissance Systems PE 0305207D			

Total PE Cost	26.402	*	*	*	*	*	*	*	*	*
Total Project Cost/No. Subtotal Cost U-2/P811	26.402	*	*	*	*	*	*	*	*	*
Quantity of RDT&E Articles										

* Per the FY 1999 Appropriations Act, the funds for FY 99 were transferred to the Services/Defense Agencies in various PEs; per the Program Decision Memorandum (PDM), the Manned Reconnaissance Systems funds for FY 00-05 were transferred to PE 0305207F and PE 0305207G.

A. Mission Description and Budget Item Justification

Brief Description of Element: The U-2 Program provides unique capabilities to remotely collect and relay signals to Remote Operating Facility Airborne (ROFA), either directly via satellite or indirectly through ground satellite relay stations. This element provides RDT&E for the continued enhancement of capabilities to receive and exploit those signals. This program also funds the RDT&E portion of high payoff upgrades for the U-2 Advanced Synthetic Aperture Radar System (ASARS-2). ASARS-2 upgrades and modifications will extend the usable life of this critical sensor as well as enhance its area search, precision geolocation, and image quality characteristics sufficiently to support the targeting of precision guided munitions (PGMs). Several key Line Replaceable Units (LRUs) including the Process Control Unit (PCU), receiver - exciter, and waveform generator are approaching the end of their supportability life. Replacing the LRUs with next generation technology will make ASARS-2 supportable through the expected service life of the U-2 and provide capability enhancements necessary to support PGMs. This program is categorized as Budget Activity 7 because it provides for development of technologies and capabilities in support of Operational System Development.

Note: The ASARS-2 portion of the U-2 Program was previously justified in separate budget documents under the title “U-2 Support for Precision Guided Munitions”.

Program Accomplishments and Plans: (\$ in millions)

UNCLASSIFIED

Exhibit R-2, RDT&E BUDGET ITEM JUSTIFICATION		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	
RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7	Manned Reconnaissance Systems PE 0305207D	

FY 1998 Accomplishments: (\$26.402)

- Upgrade airborne collection capabilities (\$3.689)
- ASARS 2 Radar hardware development (\$8.124)
- ASARS 2 Radar software development (\$8.989)
- ASARS 2 Integration & flight test (\$4.600)
- ASARS 2 Data Link (\$1.000)

*** Per the FY 1999 Appropriations Act, the funds for FY 99 were transferred to the Services/Defense Agencies in various PEs; per the Program Decision Memorandum (PDM), the Manned Reconnaissance Systems funds were transferred to PE 0305207F and PE 0305207G.**

Acquisition Strategy:

For airborne collection capabilities upgrades, modify existing platform and associated ground control equipment via Engineering Change Proposals (ECPs)/Task orders to existing USAF and NSA contracts. For defensive system capability add, select defensive system candidate from currently available systems, then evaluate and test on the U-2 aircraft. For ASARS-2, develop and test new technology line replaceable units (LRU's) for subsequent retrofit into the U-2's during normal U-2 Programmed Depot Maintenance (PDM), or during other ongoing U-2 modifications. LRUs for subsequent installation during PDM will be funded by the Air Force.

B. Program Change Summary

	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>
Previous President's Budget	26.6	*	*	*	*
Net Change	<u>(.2)</u>				
President's Budget Request	26.4	*	*	*	*

*** Per the FY 1999 Appropriations Act, the funding for FY 99 was transferred to the Services/Defense Agencies in various PEs; per the Program Decision Memorandum (PDM), the Manned Reconnaissance Systems funds were transferred to PE 0305207F and PE 0305207G.**

UNCLASSIFIED

Exhibit R-2, RDT&E BUDGET ITEM JUSTIFICATION		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	
RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7	Manned Reconnaissance Systems PE 0305207D	

Change Summary Explanation:

Funding: The change in funding is a result of internal realignments within the DARP.
 Schedule: N/A
 Technical: N/A

C. Other Program Funding Summary Cost

	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	To <u>Complete</u>	Total <u>Cost</u>
U-2, Procurement, AF	162.047	*	*	*	*	*	*	*	Continuing	Continuing

* Per the FY 1999 Appropriations Act, the funding for FY 99 was transferred to the Services/Defense Agencies in various PEs; per the Program Decision Memorandum (PDM), the Manned Reconnaissance Systems funds were transferred to PE 0305207F and PE 0305207G.

D. Schedule Profile

Fiscal Year actual and planned events by quarter

	<u>FY 1998</u>				<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Engineering Milestones N/A																
See Note: SRR/SDR					X											
See Note: CDR						X										
Test & Evaluation Milestones N/A																
See Note:						X										
Contract Milestones																
See Note: Award						X										

* Per the Program Decision Memorandum (PDM), the Manned Reconnaissance Systems funds were transferred to PE 0305207F and PE 0305207G.

UNCLASSIFIED

Exhibit R-2, RDT&E BUDGET ITEM JUSTIFICATION		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	
RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7	Manned Reconnaissance Systems PE 0305207D	

Note: This line funds Quick Reaction Capability (QRC) Upgrades to the U-2 sensor to allow response to emergency, high priority threats. Project duration varies depending on complexity—between 9 and 21 months from definition through integration and test.

UNCLASSIFIED

UNCLASSIFIED

Exhibit R-3, RDT&E PROGRAM ELEMENT/PROJECT COST BREAK DOWN		DATE September 1998
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	
RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7	Manned Reconnaissance Systems PE 0305207D8Z/P811	

UNCLASSIFIED

UNCLASSIFIED

Exhibit R-3 Cost Analysis (page 1)										DATE February 1999		
APPROPRIATION/BUDGET ACTIVITY				PROGRAM ELEMENT						PROJECT NAME AND NUMBER		
RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7				PE 0305207D8Z						Manned Reconnaissance Systems/P811		
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY Cost	1999 Cost*	1999 Award Date	2000 Cost *	2000 Award Date	2001 Cost *	2001 Award Date	Cost to Complete *	Total Cost *	Target Value of Contract
Product Development			26.402									
Licenses												
Tooling												
GFE												
Award Fees												
Subtotal Product Development			26.402									
Remarks												
Development Support												
Software Development												
Training Development												
Integrated Logistics Support												
Configuration Management												
Technical Data												
GFE												
Subtotal Support												
Remarks												

Exhibit R-3, Project Cost Analysis
(Exhibit R-3, page 1 of 2)

UNCLASSIFIED

Exhibit R-3 Cost Analysis (page 2)										DATE February 1999		
APPROPRIATION/BUDGET ACTIVITY				PROGRAM ELEMENT						PROJECT NAME AND NUMBER		
RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7				PE 0305207D8Z						Manned Reconnaissance Systems/P811		
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY Cost	1999 Cost*	1999 Award Date	2000 Cost *	2000 Award Date	2001 Cost *	2001 Award Date	Cost to Complete *	Total Cost *	Target Value of Contract
Development Test & Evaluation												
Operational Test & Evaluation												
Tooling												
GFE												
Subtotal T&E												
Remarks												
Contractor Engineering Support												
Government Engineering Support												
Program Management Support												
Program Management Personnel												
Travel												
Labor (Research Personnel)												
Overhead												
Subtotal Management												
Remarks												
Total Cost			26.402									
Remarks												
* Per the FY 1999 Appropriations Act, the funding for FY 99 was transferred to the Services/Defense Agencies in various PEs; per the Program Decision Memorandum (PDM), the Manned Reconnaissance Systems funds for FY00-05 were transferred to PE 0305207F and PE 0305207G.												

UNCLASSIFIED

Exhibit R-2, RDT&E BUDGET ITEM JUSTIFICATION								DATE February 1999	
APPROPRIATION/BUDGET ACTIVITY						R-1 ITEM NOMENCLATURE			
RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7						Distributed Common Ground Systems (DCGS) PE 0305208D8Z			

COST (IN MILLIONS)	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to Complete	Total Cost
Total PE Cost	34.879	*	*	*	*	*	*	*	*	*
Project Name/No. and Subtotal Cost: Airborne Reconnaissance Ground SIGINT Systems (ARGSS)/ P812	0.386	*	*	*	*	*	*	*	*	0.399
Project Name/No. and Subtotal Cost: Common Imagery Ground/Surface Systems (CIGSS)/ P813	28.139	*	*	*	*	*	*	*	*	*
Project Name/No. and Subtotal Cost: Distributed Common Ground System Interoperability (DCGSI)/P814	6.354	*	*	*	*	*	*	*	*	*
Quantity of RDT&E Articles										

* Per the FY 1999 Appropriations Act, the funding for FY 99 was transferred to the Services/Defense Agencies in various PEs; per the Program Decision Memorandum (PDM), the DCGS funds for FY00-05 were transferred to the Air Force (PE 0305208F), Army (PE 0305208A), Navy (PE 0305208N), NIMA (PE 0305208BQ), NSA (PE 0305208G), DIA/CMO (PE 0305208L).

A. Mission Description and Budget Item Justification

Brief Description of Element: The Distributed Common Ground System (DCGS) Program is a cooperative effort between the services, agencies and DoD to provide systems capable of receiving, processing, exploiting, and disseminating data from airborne and national reconnaissance platforms. The DCGS program is developing a family of systems, both fixed and deployable, that is capable of supporting all levels of conflict, is interoperable with all reconnaissance platforms and sensors, and is integrated into the Joint C4I environment. The program consists of Common Imagery Ground/Surface Systems (CIGSS) which process, exploit and disseminate imagery data; United States MASINT Systems (USMS) which process, exploit, and disseminate MASINT data; Airborne Reconnaissance Ground SIGINT Systems (ARGSS) which process, exploit, and disseminate SIGINT data; Multi-Intelligence Reconnaissance Ground Systems (MIRGS) which support inter-intelligence interoperability initiatives that process, exploit, and correlate data simultaneously from multi-intelligence sources; and Distributed Common Ground System Interoperability (DCGSI) which focuses on IMINT, SIGINT, MASINT, and multi-discipline system flexibility and

UNCLASSIFIED

Exhibit R-2, RDT&E BUDGET ITEM JUSTIFICATION		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7	R-1 ITEM NOMENCLATURE Distributed Common Ground Systems (DCGS) PE 0305208D8Z	

interoperability, test, and architecture compliance. This program is categorized as Budget Activity 7 because it provides for development of technologies and capabilities in support of Operational System Development.

UNCLASSIFIED

UNCLASSIFIED

Exhibit R-2, RDT&E BUDGET ITEM JUSTIFICATION								DATE February 1999	
APPROPRIATION/BUDGET ACTIVITY						R-1 ITEM NOMENCLATURE			
RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7						Distributed Common Ground Systems (DCGS) PE 0305208D8Z			

COST (IN MILLIONS)	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to Complete	Total Cost
Total PE Cost	34.879	*	*	*	*	*	*	*	*	*
Project Name/No. and Subtotal Cost: Airborne Reconnaissance Ground SIGINT Systems (ARGSS)/P 812	0.386	*	*	*	*	*	*	*	*	*
Quantity of RDT&E Articles										

* Per the FY 1999 Appropriations Act, the funding for FY 99 was transferred to the Services/Defense Agencies in various PEs; per the Program Decision Memorandum (PDM), the DCGS funds for FY00-05 were transferred to the Air Force (PE 0305208F), Army (PE 0305208A), Navy (PE 0305208N), NIMA (PE 0305208BQ), NSA (PE 0305208G), DIA/CMO (PE 0305208L).

A. Mission Description and Budget Item Justification

Brief Description of Element: HEARTLEAF adds two additional ground station processing capabilities at a centralized facility that will receive, process, and disseminate information from national, theater, and tactical reconnaissance sensors. It provides a centralized facility that will ensure commonality between ground systems and airborne sensors. EAGLE TOT will develop hardware and software modifications for the C-ROFA to allow receipt of U.S. and Allied radar data from airborne platforms. This program is categorized as Budget Activity 7 because it provides for development of technologies and capabilities in support of Operational System Development.

Program Accomplishments and Plans: (\$ in millions)

FY1998 Accomplishments: (\$0.386)

- Fielded additional reporting channel (EAGLE TOT) to remote sites (\$0.386)

UNCLASSIFIED

Exhibit R-2, RDT&E BUDGET ITEM JUSTIFICATION		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	
RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7	Distributed Common Ground Systems (DCGS) PE 0305208D8Z	

Acquisition Strategy: Develop integrated ground architecture and distributed communications capability via ECP/Task orders to existing USAF and NSAW contracts.

B. Program Change Summary

	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>
Previous President's Budget	0.4	*	*	*	
Net Changes					
President's Budget Request	0.4	*	*	*	

Program Change Summary

Funding: N/A

Schedule: N/A

Technical: N/A

C. Other Program Funding Summary Cost

	<u>FY1998</u>	<u>FY1999</u>	<u>FY2000</u>	<u>FY2001</u>	<u>FY2002</u>	<u>FY2003</u>	<u>FY2004</u>	<u>FY2005</u>	<u>To Complete</u>	<u>Total Cost</u>
ARGSS, Proc, DW	3.245	*								

* Per the FY 1999 Appropriations Act, the funding for FY 99 was transferred to the Services/Defense Agencies in various PE's.

D. Schedule Profile

Fiscal Year actual and planned events by quarter

N/A

UNCLASSIFIED

Exhibit R-2, BUDGET ITEM JUSTIFICATION								DATE February 1999	
APPROPRIATION/BUDGET ACTIVITY						R-1 ITEM NOMENCLATURE			
RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7						Distributed Common Ground Systems (DCGS) PE 0305208D8Z			

COST (IN MILLIONS)	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to Complete	Total Cost
Total PE Cost	34.879	*	*	*	*	*	*	*	*	*
Project Name/No. and Subtotal Cost: Common Imagery Ground/Surface Systems (CIGSS)/P813	28.139	*	*	*	*	*	*	*	*	*
Quantity of RDT&E Articles										

* Per the FY 1999 Appropriations Act, the funds for FY 99 were transferred to the Services/Defense Agencies in various PEs; per the PDM the CIGSS funds for FY00-05 were transferred to the Air Force (PE 0305208F), Army (PE 0305208A), and Navy (PE 0305208N).

A. Mission Description and Budget Item Justification

Brief Description of Element: This project supports the engineering development and acquisition of Service imagery ground/surface systems. The Common Imagery Ground/Surface System (CIGSS) is a Department of Defense (DoD) project, which integrates all imagery ground/surface systems into a single project. The CIGSS objective is to enable all systems to receive, process, exploit, and report any imagery source regardless of platform or sensor type to meet the intelligence and targeting needs of tactical commanders. The CIGSS project provides the warfighter with an integrated and interoperable airborne reconnaissance imagery processing and exploitation capability that can be tailored for all levels of conflict. CIGSS consolidates the JROC and DARSC approved restructure of the Joint Service Imagery Processing System (JSIPS) program including JSIPS-Navy, JSIPS-Air Force, JSIPS-Marine Corps, Enhanced Tactical Radar Correlator (ETRAC), Modernized Imagery Exploitation System (MIES), PACAF Interim National Exploitation System (PINES), and Tactical Exploitation Group (TEG) into a single project. The Navy CIGSS component, JSIPS-N, includes three major components, the Digital Imagery Workstation Suite Afloat (DIWSA), the National Input Segment (NIS), and a subset of equipment from the Tactical Input Segment (TIS). DIWSA receives, exploits, and disseminates imagery products based on multi-source imagery. The NIS and TIS provide the capability to receive, record, and process imagery from multiple sources. The Air Force CIGSS component consists of two deployable JSIPS systems, a deployable commercial imagery ground system (Eagle Vision), and the fixed PINES system. The Army CIGSS components consists of the MIES, ETRAC and the imagery portion of the Tactical Exploitation System (TES) systems. MIES receives and exploits imagery from national and theater sources and provides intelligence reports and exploited imagery products to the field commander. ETRAC is a C-130 drive on/off capable system that receives Synthetic Aperture Radar (SAR) data inputs from various platforms, converts the SAR data to exploitable images, and is capable of stand-alone operations. ETRAC and MIES are combined in the TES to be fielded beginning in FY 1999. The Marine Corps component of CIGSS consists of a JSIPS system identical to the

UNCLASSIFIED

Exhibit R-2, BUDGET ITEM JUSTIFICATION		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	
RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7	Distributed Common Ground Systems (DCGS) PE 0305208D8Z	

Air Force JSIPS and three JSIPS variants referred to as the Tactical Exploitation Group (TEG). It will be a small, highly mobile system that will provide the Marine Expeditionary Forces (MEFs) with the capability of processing and exploiting SAR and Electro-Optical/Infra-Red (EO/IR) imagery from theater and tactical reconnaissance aircraft. A mobile CIGSS testbed was developed to support the integration and test of CIGSS components and validation of interfaces prior to the introduction of CIGSS into the operational environment. The testbed will also be used by Program Offices to test interfaces with new sensors, applications, and other modifications. This program is categorized as Budget Activity 7 because it provides for development of technologies and capabilities in support of Operational System Development.

Program Accomplishments and Plans: (\$ in millions)

FY 1998 Accomplishments: (\$28.139)

- Continued JSIPS-N Imagery Exploitation Support System (IESS) support (N) (\$0.580)
- Continued DIWSA support (N) (\$0.437)
- Continued JSIPS-N alternative architecture support (N) (\$0.561)
- Continued Test and Evaluation support (N) (\$0.116)
- Completed upgrade of MIES with IPL/COTS workstations/ATM LAN for CIGSS Compliance (A) (\$0.200)
- Continued CIGSS elements sustaining engineering to implement software upgrades and enhancements to maintain compatibility with changing national and tactical interfaces (A) (\$4.287)
- Continued ETRAC sustaining engineering to implement upgrades to process data from ASARS-2 sensors and the ASARS Improvement Program (A) (\$1.000)
- Completed integration of IESS into ETRAC (A) (\$0.500)
- Continued CIGSS/DCGS elements sustaining engineering to implement software upgrades and enhancements to maintain compatibility with changing national and tactical interfaces (AF) (\$5.386)
- Continued development of CIGSS/DCGS Testbed (AF) (\$2.000)
- Continued system engineering and technical support (AF) (\$1.500)
- Continued upgrades for JSIPS/TEG to remain compliant and interoperable with Distributed Common Ground Station Architecture (AF) (\$1.920)
- Continued the integration of CIGSS core components into the delivery of the first Tactical Exploitation Groups (TEGs) (AF) (\$3.200)

UNCLASSIFIED

UNCLASSIFIED

Exhibit R-2, BUDGET ITEM JUSTIFICATION		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	
RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7	Distributed Common Ground Systems (DCGS) PE 0305208D8Z	

- Continued the integration of evolving CIP to keep pace with current and projected modification programs (AF) (\$6.452)

*** Per the FY 1999 Appropriations Act, funding for FY 99 was transferred to the Services/Defense Agencies in various PEs; per the Program Decision Memorandum (PDM), the CIGGS funds for FY00-05 were transferred to the Air Force (PE 0305208F), Army (PE 0305208A) and Navy (PE 0305208N).**

Acquisition Strategy: As approved by the Joint Requirements Oversight Council (JROC), Defense Airborne Reconnaissance Steering Committee (DARSC), and Under Secretary of Defense (Acquisition & Technology) a family of rapidly deployable imagery ground/surface systems, capable of operating in the Joint C4I environment and tailorable to support all levels of conflict will be developed. These systems are under the umbrella program called the Common Imagery Ground/Surface System (CIGSS). An acquisition baseline was established for CIGSS outlining JROC approved joint requirements and DARO/NIMA approved standards. All existing imagery ground/surface systems, and those currently in the pipeline, will be modified to meet the CIGSS acquisition baseline. All new imagery ground/surface systems must be delivered CIGSS compliant. Program management responsibility for CIGSS systems will rest with the individual Service or Agency developing the CIGSS system. The systems will be acquired using streamlined acquisition procedures. DoD will provide oversight to ensure compliance with joint airborne reconnaissance architectures, requirements, and standards.

B. Program Change Summary

	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>
Previous President's Budget	29.1	*	*	*	*
Net Change	<u>(1.0)</u>				
President's Budget Request	28.1	*	*	*	*

* Per the FY 1999 Appropriations Act, the funding for FY 99 was transferred to the Services/Defense Agencies in various PEs; per the Program Decision Memorandum (PDM), the CIGGS funds for FY00-05 were transferred to the Air Force (PE 0305208F), Army (PE 0305208A) and Navy (PE 0305208N).

Change Summary Explanation:

Funding: The change in funding is a result of internal realignments within the DARP.

UNCLASSIFIED

Exhibit R-2, BUDGET ITEM JUSTIFICATION		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	
RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7	Distributed Common Ground Systems (DCGS) PE 0305208D8Z	

Schedule: N/A

Technical: N/A

C. Other Program Funding Summary Cost

	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>To Complete</u>	<u>Total Cost</u>
CIGSS Proc, Defense Wide	89.473	*	*	*	*	*	*	*	*	*

* Per the FY 1999 Appropriations Act, the funding for FY 99 was transferred to the Services/Defense Agencies in various PEs; per the Program Decision Memorandum (PDM), the CIGGS procurement funds for FY 00-05 were transferred to the Air Force (PE 0305208F), Army (PE 0305208A) and Navy (PE 0305208N). The Air Force CIGSS funding line includes funding for Marine Corps JSIPS.

Related Activities: To ensure no duplication of effort, this project is coordinated with the Office of the Secretary of Defense, Army, Air Force, Marine Corps, and Navy TENCAP offices, CIO, DIA, and other agencies.

D. Schedule Profile

Fiscal Year actual and planned events by quarter

	<u>FY 1998</u>				<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Acquisition Milestones																
N-TIS Low Rate Initial Production (LRIP)																X
Contract Milestones																
Integrate National RFCs					X											

D. Schedule Profile

Fiscal Year actual and planned events by quarter

<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>
----------------	----------------	----------------	----------------

UNCLASSIFIED

Exhibit R-2, BUDGET ITEM JUSTIFICATION										DATE February 1999							
APPROPRIATION/BUDGET ACTIVITY										R-1 ITEM NOMENCLATURE							
RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7										Distributed Common Ground Systems (DCGS) PE 0305208D8Z							

	1	2	3	4												
Integrate IPL/COTS WS/ATM into MIES		X														
Integrate IESS into ETRAC			X													
Engineering Milestones																
ETRAC #1 System Upgrades - (User Test)		X														
ETRAC #2 System Upgrades - (User Test)			X													

* Per the FY 1999 Appropriations Act, the funding for FY 99 was transferred to the Services/Defense Agencies in various PEs; per the Program Decision Memorandum (PDM), the CIGGS procurement funds for FY00-05 were transferred to the Air Force (PE 0305208F), Army (PE 0305208A) and Navy (PE 0305208N).

UNCLASSIFIED

Exhibit R-2, RDT&E BUDGET ITEM JUSTIFICATION								DATE February 1999	
APPROPRIATION/BUDGET ACTIVITY						R-1 ITEM NOMENCLATURE			
RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7						Distributed Common Ground Systems (DCGS) PE 0305208D8Z			

COST (IN MILLIONS)	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003*	FY 2004	FY 2005	Cost to Complete	Total Cost
Total PE Cost	34.879	*	*	*	*	*	*	*	*	*
Project Name/No. and Subtotal Cost: Distributed Common Ground System Interoperability (DCGSI)/P814	6.354	*	*	*	*	*	*	*	*	*
Quantity of RDT&E Articles										

* Per the FY 1999 Appropriations Act, the funding for FY 99 was transferred to the Services/Defense Agencies in various PEs; per the Program Decision Memorandum (PDM), the DCGSI funds for FY00-05 were transferred to the Air Force (PE 0305208F), NIMA (PE 0305208BQ), NSA (PE 0305208G) and DIA/CMO (PE 03050208L).

A. Mission Description and Budget Item Justification

Brief Description of Element: The Distributed Common Ground System (DCGS) Interoperability project funds and coordinates engineering development work directed toward defense airborne reconnaissance ground processing technologies. The project will ensure that intelligence processing systems are developed to satisfy strategies and architectures that support warfighter intelligence needs in the face of rapidly developing threat technologies, proliferation of advanced weapons, and uncertain political alignments. This project supports IMINT, SIGINT, MASINT, and multi-discipline system interoperability and, consolidates the R&D efforts of the Ground/Surface System Development Program (GSSDP). This project focuses the Department’s ground system efforts to improve flexibility, commonality, interoperability, and efficiency in supporting Joint Task Force and Service unique intelligence requirements. The DCGS is a system of systems that does not need to be collocated but must be interconnected by a robust communications structure that will provide data streams between intelligence collector, exploiters, producers, disseminators, and users. The DCGS Interoperability project goal is to provide a near-real-time, day/night, all weather intelligence processing system which meets the warfighter’s need for timely intelligence on enemy forces. This program is categorized as Budget Activity 7 because it provides for development of technologies and capabilities in support of Operational System Development.

UNCLASSIFIED

Exhibit R-2, RDT&E BUDGET ITEM JUSTIFICATION		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	
RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7	Distributed Common Ground Systems (DCGS) PE 0305208D8Z	

Program Accomplishments and Plans: (\$ in millions)

FY 1998 Accomplishments: (\$6.354)

- Completed “Clip-kit” for CIGSS/HAE interoperability with the Common Imagery Processor and continued systems engineering and integration of UAV ground station into CIGSS (\$.913)
- Continued systems engineering, integration, and development of airborne ground/surface systems standards and interfaces to ensure commonality and interoperability with the DCGS architecture. (\$1.000)
- Continued architecture and standards development, as well as certification and testing for multi-“INT” baseline under DCGS (\$0.933)
- Continued Rapid Intelligence Transmission (RIT) implementation and graph reporting module development (\$0.186)
- Continued to ensure JASA is incorporated in ground/surface system migration efforts (\$1.000)
- Supported additional sensor processing capability to Common Imagery Processor (CIP) (\$0.300)
- Continued data recording standards and technology support (\$0.300)
- Continued DCGS and NATO Standards Imagery Format (NSIF) test and certification support (\$0.100)
- Completed DCGS Capstone Requirements Document (CRD) (\$0.184)
- Continued DCGS MASINT planning, architecture description and management plan (\$0.105)
- Supported Semi-Automated Imagery Intelligence (IMINT) Processing (SAIP) for operational systems (\$0.250)
- Provided HAE Moving Target Indicator (MTI) processing support within ETRAC (\$0.933)
- Continued to support NATO STANAG development for reconnaissance infrastructure elements (data links, recorders, and information exchange) (\$0.150)

*** Per the FY 199 Appropriations Act, the funding for FY 99 was transferred to the Services/Defense Agencies in various PEs; per the Program Decision Memorandum (PDM), the DCGSI funds for FY 00-05 were transferred to the Air Force (PE 0305208F), NIMA (PE 0305208BQ), NSA (PE 0305208G) and DIA/CMO (PE 03050208L).**

Acquisition Strategy: As outlined in the Integrated Airborne Reconnaissance Strategy (IARS) and approved by the JROC, DARSC, and Under Secretary of Defense (A&T), a family of fixed and rapidly deployable Distributed Common Ground Systems, capable of operating in the Joint C4I environment and tailorable to support all levels of conflict will be developed to support the nation's Defense Airborne Reconnaissance

UNCLASSIFIED

UNCLASSIFIED

Exhibit R-2, RDT&E BUDGET ITEM JUSTIFICATION		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	
RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7	Distributed Common Ground Systems (DCGS) PE 0305208D8Z	

Systems. DoD is restructuring the Ground/Surface System Development program and the other DARP Ground/Surface Programs into the DCGS Program that includes the JSIPS program, GSSDP, Multi-intelligence Reconnaissance Ground Systems Projects (CARS and KCOIC), and Airborne Reconnaissance SIGINT Ground Systems (HEARTLEAF). DoD is establishing liaison with the UAV Program Offices to ensure interoperability with DARP ground systems. The development of modifications to ensure interoperability among these systems will be directed under DoD oversight, implemented by Service acquisition agencies and funded under this project.

B. Program Change Summary

	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>
Previous President's Budget	6.6	*	*	*	*
Net Change	(.2)				
President's Budget Request	6.4	*	*	*	*

* Per the FY 1999 Appropriations Act, the funding for FY 99 was transferred to the Services/Defense Agencies in various PEs; per the Program Decision Memorandum (PDM), the DCGSI funds for FY 00-05 were transferred to the Air Force (PE 0305208F), NIMA (PE 0305208BQ), NSA (PE 0305208G) and DIA/CMO (PE 03050208L).

Change Summary Explanation:

- Funding: The change in funding is a result of internal realignments within the DARP.
- Schedule: N/A
- Technical: N/A

C. Other Program Funding Summary Cost

N/A

UNCLASSIFIED

Exhibit R-2, RDT&E BUDGET ITEM JUSTIFICATION		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	
RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7	Distributed Common Ground Systems (DCGS) PE 0305208D8Z	

D. Schedule Profile

Fiscal Year actual and planned events by quarter

<u>FY 1998</u>				<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Acquisition Milestones: N/A

Contract Milestones: N/A

Engineering Milestones: N/A

T&E Milestones: N/A

Other Program Events

CIGSS Testing by GITC

X ————— X

* Per the FY 1999 Appropriations Act, the funding for FY 99 was transferred to the Services/Defense Agencies in various PEs: per the Program Decision Memorandum (PDM), the DCGSI funds for FY 00-05 were transferred to the Air Force (PE 0305208F), NIMA (PE 0305208BQ), NSA (PE 0305208G) and DIA/CMO (PE 03050208L).

UNCLASSIFIED

Exhibit R-3 Cost Analysis (page 1)										DATE February 1999		
APPROPRIATION/BUDGET ACTIVITY				PROGRAM ELEMENT						PROJECT NAME AND NUMBER		
RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7				PE 0305208D8Z						Distributed Common Ground Systems/P814		
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY Cost	1999 Cost*	1999 Award Date	2000 Cost *	2000 Award Date	2001 Cost *	2001 Award Date	Cost to Complete *	Total Cost *	Target Value of Contract
Primary Hardware Development			6.354									
Ancillary Hardware Development												
Systems Engineering												
Licenses												
Tooling												
GFE												
Award Fees												
Subtotal Product Development			6.354									
Remarks												
Development Support												
Software Development												
Training Development												
Integrated Logistics Support												
Configuration Management												
Technical Data												
GFE												
Subtotal Support												
Remarks												

UNCLASSIFIED

Exhibit R-3 Cost Analysis (page 2)										DATE February 1999		
APPROPRIATION/BUDGET ACTIVITY				PROGRAM ELEMENT						PROJECT NAME AND NUMBER		
RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7				PE 0305208D8Z						Distributed Common Ground Systems/P814		
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY Cost	1999 Cost*	1999 Award Date	2000 Cost *	2000 Award Date	2001 Cost *	2001 Award Date	Cost to Complete *	Total Cost *	Target Value of Contract
Development Test & Evaluation												
Operational Test & Evaluation												
Tooling												
GFE												
Subtotal T&E												
Remarks												
Contractor Engineering Support												
Contractor Engineering Support												
Contractor Engineering Support												
Contractor Engineering Support												
Travel												
Labor (Research Personnel)												
Overhead												
Subtotal Management												
Remarks												
Total Cost			6.354									
Remarks												
* Per the FY 1999 Appropriations Act, the funding for FY 99 was transferred to the Services/Defense Agencies in various PEs; per the Program Decision Memorandum (PDM), the DCGSI funds for FY00-05 were transferred to the Air Force (PE 0305208F), NIMA (PE 0305208BQ), DIA/Central MASINT Office (CMO) (PE 0305208L) and NSA (PE 03050208G).												

(Exhibit R-3, page 2 of 2)

UNCLASSIFIED

UNCLASSIFIED

Exhibit R-3 Cost Analysis (page 1)										DATE February 1999		
APPROPRIATION/BUDGET ACTIVITY					PROGRAM ELEMENT					PROJECT NAME AND NUMBER		
RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7					PE 0305208D8Z					Distributed Common Ground Systems/P813		
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY Cost	1999 Cost*	1999 Award Date	2000 Cost *	2000 Award Date	2001 Cost *	2001 Award Date	Cost to Complete *	Total Cost *	Target Value of Contract
Primary Hardware Development			28.139									
Ancillary Hardware Development												
Systems Engineering												
Licenses												
Tooling												
GFE												
Award Fees												
Subtotal Product Development			28.139									
Remarks												
Development Support												
Software Development												
Training Development												
Integrated Logistics Support												
Configuration Management												
Technical Data												
GFE												
Subtotal Support												

UNCLASSIFIED

Exhibit R-3 Cost Analysis (page 2)										DATE February 1999		
APPROPRIATION/BUDGET ACTIVITY				PROGRAM ELEMENT						PROJECT NAME AND NUMBER		
RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7				PE 0305208D8Z						Distributed Common Ground Systems/P813		
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY Cost	1999 Cost*	1999 Award Date	2000 Cost *	2000 Award Date	2001 Cost *	2001 Award Date	Cost to Complete *	Total Cost *	Target Value of Contract
Development Test & Evaluation												
Operational Test & Evaluation												
Tooling												
GFE												
Subtotal T&E												
Remarks												
Contractor Engineering Support												
Government Engineering Support												
Program Management Support												
Program Management Personnel												
Travel												
Labor (Research Personnel)												
Overhead												
Subtotal Management												
Remarks												
Total Cost			28.139									
Remarks												
* Per the FY 1999 Appropriations ACT, the funding for FY 99 was transferred to the Services/Defense Agencies in various PEs: per the Program Decision Memorandum (PDM), the CIGSS funds for FY00-05 were transferred to the Air Force (PE 0305208F), Army (PE 0305208A) and Navy (PE 03050208N).												

(Exhibit R-3, page 2 of 2)

UNCLASSIFIED

UNCLASSIFIED

Exhibit R-2, RDT&E BUDGET ITEM JUSTIFICATION									DATE February 1999	
APPROPRIATION/BUDGET ACTIVITY						R-1 ITEM NOMENCLATURE				
RDT&E DEFENSE WIDE/BUDGET ACTIVITY 7						Defense Airborne Reconnaissance Program (DARP) PE 0305209D8Z				

COST (IN MILLIONS)	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to Complete	Total Cost
Total PE Cost	7.101	*	*	*	*	*	*	*	*	*
Total Project Cost/No. Subtotal Cost DARP Integration & Support/P815	7.101	*	*	*	*	*	*	*	*	*
Quantity of RDT&E Articles										

* Per the FY 1999 Appropriations Act, the funding for FY 99 was transferred to the Services/Defense Agencies in various PEs; per the Program Decision Memorandum (PDM), the Integration & Support funds for FY 00-05 were transferred to OASD C3I (PE 0902198D).

A. Mission Description and Budget Item Justification

Brief Description of Element: This project funded Defense Airborne Reconnaissance Office (DARO) functions required to carry out management oversight responsibilities specified in DoD Directive 5134.11 (5 April 1995). It included DARO civilian pay costs for assigned civil service employees, Systems Engineering and Technical Assistance (SETA) for development, integration, and support of Defense Airborne Reconnaissance Program (DARP) activities. It included DARO Administration, MIS and Security Support. As part of this project, DARO:

- established and maintained the DoD Integrated Airborne Reconnaissance Architecture to guide the development, demonstration, and acquisition of improved airborne reconnaissance capabilities; established and enforced commonality and interoperability standards; conducted trade-off analyses of Joint Military Department and Defense-wide manned and unmanned aerial vehicles (UAVs), sensors, data links, data relays, and associated processing systems to ensure future operational systems satisfy validated warfighter requirements; and served as focal point for coordinating policies, standards, and architectures with all other OSD organizations.
- supported the planning and execution of capability demonstrations and operational exercises to evaluate airborne reconnaissance capabilities with respect to evolving Unified Combatant Commander requirements.

UNCLASSIFIED

Exhibit R-2, RDT&E BUDGET ITEM JUSTIFICATION		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE Defense Airborne Reconnaissance Program (DARP) PE 0305209D8Z	
RDT&E DEFENSE WIDE/BUDGET ACTIVITY 7		

- coordinated with the intelligence community on military intelligence needs, intelligence requirements analyses and priorities, resource planning and programming, exploitation management, and intelligence data dissemination; provides USD(A&T) advice and supporting studies and analyses directed by USD(A&T).
- provided planning and resource guidance activities to support Military Departments and Defense Agencies in the development of DARP inputs to the DoD Planning, Programming and Budgeting process, and those activities necessary to develop and support the presentation and justification of DARP budget requests to the Congress.

This program is categorized as Budget Activity 7 because it provides for the development of technologies and capabilities in support of Operational System Development.

Programs Plans and Accomplishments: (\$ in millions)

FY 1998 Accomplishments: (\$7.101)

- Continued to assess and refine the Department's integrated airborne reconnaissance architecture (\$2.403)
- Developed plans in conjunction with the program offices, services and users to transfer UAV capabilities to users (\$0.734)
- Completed special studies to determine the programmatic, operational and budgetary impacts of changes to UAV requirements (\$0.669)
- Continued assessments of design issues for high data rate communications, complete assessment of 100 Megapixel equivalent Infrared Framing cameras (\$0.619)
- Maintained DARP financial oversight; coordinate DARP budget justifications with executing agents, provide special studies and reports as necessary to support DARSC, EDRB, and other Department and Congressional direction (\$1.354)
- Assessed the impact of operational, technological and industrial requirements and changes on manned reconnaissance capabilities (\$0.728)
- Oversaw Advanced Development initiatives for Global Broadcast Systems, High Band Prototype Demonstrations, JSAF standards development and implementation requirements (\$0.594)

UNCLASSIFIED

UNCLASSIFIED

Exhibit R-2, RDT&E BUDGET ITEM JUSTIFICATION		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	
RDT&E DEFENSE WIDE/BUDGET ACTIVITY 7	Defense Airborne Reconnaissance Program (DARP) PE 0305209D8Z	

*** Per the FY 1999 Appropriations Act, the funding for FY 99 was transferred to the Services/Defense Agencies in various PEs; per the Program Decision Memorandum (PDM), the Integration & Support funds for FY00-05 were transferred to OASD C3I (PE 0902198D).**

Acquisition Strategy: The DARP Integration and Support line funds architecture, oversight, and standardization across all areas of the DARP including manned and unmanned, systems, sensors, infrastructure, and technology development. It consists of government civilian personnel salaries, SETA support, operations and maintenance of government facilities and equipment, security and travel support. The initial SETA contract was competitively awarded in September 1995 for a five-year period of performance. Contract taskings are issued on a delivery order basis as required to meet requirements. The DARO Director maintains stringent restrictions on the utilization of SETA contractors.

B. Program Change Summary

	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost*</u>
Previous President's Budget	7.2	*	*	*	*
Net Change	<u>(.1)</u>				
President's Budget request	7.1	*	*	*	*

* Per the FY 1999 Appropriations Act, the funding for FY 99 was transferred to the Services/Defense Agencies in various PEs; per the Program Decision Memorandum (PDM), the Integration & Support funds for FY 00-05 were transferred to OASD C3I (PE 0902198D).

Change Summary Explanation:

- Funding: The change in funding is a result of internal realignments within the DARP.
- Schedule: N/A
- Technical: N/A

UNCLASSIFIED

Exhibit R-2, RDT&E BUDGET ITEM JUSTIFICATION		DATE February 1999
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	
RDT&E DEFENSE WIDE/BUDGET ACTIVITY 7	Defense Airborne Reconnaissance Program (DARP) PE 0305209D8Z	

C. Other Program Funding Summary Cost

N/A

D. Schedule Profile

Fiscal Year actual and planned events by quarter

	<u>FY 1998</u>				<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Contract Milestones																
Award SETA contract subtasks		X														
Architecture and Integration Milestones																
Baseline DARP Systems Architecture Developed																
Airborne Reconnaissance Information Technical Architecture (ARITA) – Ver 1.0 Published																
DARP Objective Architecture Options Completed																
1st DARP Systems Architecture Document Published																
DARP Operational Architecture Compiled/Published																

UNCLASSIFIED

Exhibit R-3, RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN		DATE
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	September 1998
RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7	Defense Airborne Reconnaissance Program (DARP) PE 0305209D8Z/P815	

UNCLASSIFIED

UNCLASSIFIED

Exhibit R-3 Cost Analysis (page 2)										DATE February 1999		
APPROPRIATION/BUDGET ACTIVITY				PROGRAM ELEMENT						PROJECT NAME AND NUMBER		
RDT&E, DEFENSE-WIDE/BUDGET ACTIVITY 7				PE 0305209D8Z						Defense Airborne Reconnaissance Program (DARP) P815		
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY Cost	1999 Cost*	1999 Award Date	2000 Cost *	2000 Award Date	2001 Cost *	2001 Award Date	Cost to Complete *	Total Cost *	Target Value of Contract
Development Test & Evaluation												
Operational Test & Evaluation												
Tooling												
GFE												
Subtotal T&E												
Remarks												
Contractor Engineering Support												
Government Engineering Support												
Program Management Support			7.101			*		*		*	*	
Program Management Personnel						*		*		*	*	
Travel						*		*		*	*	
Labor (Research Personnel)												
Overhead						*		*		*	*	
Subtotal Management			7.101			*		*		*	*	
Remarks												
Total Cost			7.101			*		*		*	*	
Remarks												
* Per the FY 1999 Appropriation Act, the funding for FY 99 was transferred to the Services/Defense Agencies in various PEs; per the Program Decision Memorandum (PDM), the I&S funds for FY 00-05 were transferred to OASD(C3I) (PE 0902198D).												

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification									Date: February 1999	
APPROPRIATION/BUDGET ACTIVITY					R-1 ITEM NOMENCLATURE					
RDT&E, Defense Wide, Budget Activity 7					PE1001017D8Z Partnership for Peace (PfP)					
COST (\$ in Millions)	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	FY 04	FY 05	Cost to Complete	Total Cost
Partnership for Peace Information Management System (PIMS)										
Total PE Cost	0	4.896*	0	0	0	0	0	0	Continuing	Continuing
<p>A. <u>Mission Description and Budget Item Justification</u></p> <p>Partnership for Peace (PfP) is a major initiative introduced by NATO at the January 1994 Brussels Summit. The Partnership is working to expand and intensify political and military cooperation throughout Europe, increase stability, diminish threats to peace, and build strengthened relationships by promoting the spirit of practical cooperation and commitment to democratic principles that underpin the Alliance.</p> <p>Partnership for Peace Information Management System (PIMS) is a DOD leadership project that will enhance cooperation and coordination bilaterally and multilaterally in accordance with US policy and to US benefit. Firmly based on priority requirements, PIMS is part of the NATO Enlargement Facilitation Act of 1996 and one of only two specifically highlighted activities. PIMS implements the Congressional endorsement for the modernization of Defense capabilities in eligible PfP countries relative to their telecommunications infrastructures. R&D funding is critical to provide tailored database development support to US and NATO-approved PfP Cooperative Areas such as Peacekeeping, Civil-Military Emergency Planning, and Exercises. It is also necessary to provide the requisite technical support to establish an information sharing capability to achieve the JCS Chairman's interoperability and integration goals outlined in Joint Vision 2010 for working in concert with allied and coalition forces in future operations. In addition, R&D dollars are essential to the enhanced systems development required to support the recently announced SecDef three-part proposal for building an enhanced PfP education and training framework. This framework incorporates a Consortium of Defense Academies and Security Institutes; an exercise simulation network focused on peace support operations; and a cooperative network of nationally sponsored PfP training centers. The proposal envisions a lead role for PIMS to provide research, development, and specialized engineering services in support of a distributed training environment. Moreover, R&D dollars must be directed to ensuring that PIMS is compliant with the evolving Defense Information Infrastructure and follows the guidance and recommendations of the Clinger-Cohen Act. The program is in Budget Activity 7, Operational Systems Development, because it supports currently employed systems and training activities.</p> <p><i>* Includes Congressionally-mandated funding plus-up for IT support to international educational medical programs utilized on PIMS.</i></p>										

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification

Date: February 1999

Program Plans

- Database development in support of OSD and Joint Staff policy objectives, i.e. Peacekeeping, Emergency Planning, and Professional Military Education, tailored to PfP mission enhancement. (\$1.0 million)
- Research, testing, evaluation, and integration of AIS security guards, filters, and firewalls to enhance bilateral and NATO interoperability, and technologies to support incorporation of the Defense Message System and other C3I, J-6, and DISA policy-driven improvements to the Defense Information Infrastructure. (\$1.0 million)
- System enhancements which leverage new communications technologies, devices, and software to maximize PIMS accessibility, flexibility, and utility in support of increased US DOD processing requirements for preparedness in coalition operations (simulation, tools, exercise support, and interactive training). (\$1.0 million)
- Per Congressional mandate, development of a satellite-based telecommunications distribution and delivery network through PIMS to support the military medical database development to Partner countries. (\$1.896 million)

Specific Application and Process Improvements represent specific types of program and system enhancements which will directly support development of OSD databases, interoperability initiatives, and communications enhancements. In addition these funds provide directly support to the PIMS Program Office in implementing the multiple facets of the PIMS program for both US and Partners.

B. Program Change Summary:

	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>
FY 1999 President's Budget	0	1.957	0	0	1.957
FY 1999 Appropriated Value	0				
Adjustment to Appropriated Value	0	3.000			3.000
Inflation Adjustment	0	-.061			-.061
FY 2000 Budget Estimate Submission	0	4.896			4.896

Change Summary Explanation

US Policy changes that enhance the Partnership for Peace program have put new emphasis on the requirement for the DOD to develop capabilities for information exchange that will not only serve coalition efforts in military operations but in complex contingency operations such as Peacekeeping and Emergency Planning. Increased PIMS funding is essential to enhanced systems development to support expanded technical and procedural interoperability among US organizations, PfP nations, and allies.

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification

Date: February 1999

C. Other Program Funding Summary

	<u>FY 98</u>	<u>FY 99</u>	<u>FY 00</u>	<u>FY 01</u>	<u>FY 02</u>	<u>FY 03</u>	<u>FY 04</u>	<u>FY 05</u>	<u>To Complete</u>	<u>Total Cost</u>
O&M (PfP)	41.2	36.4	43.9	44.6	46.6	48.6	49.8	51.1	TBD	TBD
O&M (PfP – PIMS)	3.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	Continuing	36.0
Total PfP	44.2	41.4	48.9	49.6	51.6	53.6	54.8	56.1	TBD	TBD

D. Acquisition Strategy:

PIMS employs an evolutionary acquisition strategy by establishing a well-defined core capability while planning for incremental upgrades and enhancements to the overall system capabilities. Each enhancement is treated as an individual acquisition; its scope and content the result of continuous feedback from PIMS users, supporting organizations, and the desired application of new technology balanced against the constraints of time and cost. Whenever possible, existing assets are leveraged to preserve US IT infrastructure investments and offer an economically prudent solution to increase mission effectiveness across the spectrum of PIMS participants.

E. Schedule Profile

Per developmental milestones listed below.

Quarter	<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>				<u>FY 2002</u>			
	1	2	3	4												
Milestone I	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
II	x	x	x	x												
III			x	x	x	x										
IV			x	x			x	x								
V			x	x	x	x	x	x	x	x						
VI			x		x	x	x	x	x	x	x	x	x	x	x	x
VII					x	x	x	x	x	x	x	x	x	x	x	x
VIII							x	x	x	x	x	x	x	x	x	x
IX							x		x	x	x	x	x	x	x	x

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification

Date: February 1999

I Database Development – *R&D support to multiple DOD office with international outreach initiatives, i.e. OSD/SOLIC (Peacekeeping), OSD (P) (Emergency Planning), OSD (P) (Environmental Security), Joint Staff (Exercise Planning and Professional Military Education (NDU))*

Identify information requirements, common formats and exchange mechanisms between, PfP, NATO, and US

Develop databases and support mechanisms to allow collaborative data warehousing and sharing by relevant participants

Test and execute solutions in exercise environment

Upgrade/modify warehousing and data mining techniques

Continued development of databases supporting US requirements

Development of transitional approaches to other CINCS

II Year 2000 Conversion

Evaluate system for Y2K deficiencies

Test solutions

Implement solutions or contingency plan

III Enhance Network and System Management

Evaluate network management tools

Test in operational configuration and evaluate results

Implement Solution

Develop diagnostic tools for IT and systemic measurement

IV Mandated System Migration

Identify appropriate segments

Migrate PIMS servers to DII-compliant Architecture

Develop and tailor GCCS applications to PfP mission requirements

V Develop Low-Bandwidth Video Teleconferencing Capability

Research video compression techniques

Test in operational environment

Implement initial solution

Enhance video capability

UNCLASSIFIED

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification

Date: February 1999

VI Integrate Defense Messaging System (DMS)

Evaluate requirement for implementation across constrained bandwidth architecture
Initiate for test and evaluation
PIMS modification/enhancement
Full implementation of DMS

VII Expand Long Haul/Wide Area Communications Infrastructure

Assess current network capacity and new requirements
Design, engineer, and test necessary upgrades
Implement expanded, improved architecture
Continued evaluation of new technologies to enhance cost avoidance

VIII Theater Interoperability

Evaluate interface requirements with existing target Theater and NATO systems
Develop required interface
Evaluate and test security guards, filters, and firewalls
Implement

IX Implement Voice Systems

Identify voice over TCP/IP network solution
Test and select most efficient process
Implement enhanced connectivity.
Research customer and mission driven security options.