

JOINT STAFF
FY 2005 Budget Estimates
Research, Development, Test, and Evaluation (RDT&E), Defense-Wide

Exhibit R-2, RDT&E Budget Item Justification

Exhibit R-2, RDT&E Budget Item Justification									Date: February 2004	
APPROPRIATION/BUDGET ACTIVITY					R-1 ITEM NOMENCLATURE: 160					
RDT&E, Defense Wide, Joint Staff 0400 / BA7					PE: 0303149J C4I for the Warrior (C4IFTW)					
COST (\$ in Millions)		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	Cost to Complete	Total Cost
Total PE Cost		9.466	4.139	4.177	4.249	4.258	4.325	4.471	TBD	TBD
Network Warfare Simulation (NETWARS)		6.061	.241	.289	.289	.294	.329	.331	TBD	TBD
Joint Warrior Interoperability Demonstrations (JWID)		1.532	1.510	1.546	1.542	1.555	1.553	1.551	TBD	TBD
Joint Satellite Communications Architecture Planning and Evaluation (J-SCAPE) Tool		1.873	2.388	2.342	2.418	2.409	2.443	2.589	TBD	TBD
<p>A. <u>Mission Description and Budget Item Justification:</u> The C4IFTW vision has evolved into the Department's Global Information Grid (GIG) as a means to achieve information superiority. This program provides focus and visibility into resolving joint C4 capacity and interoperability issues and provides a mechanism for achieving information superiority as envisioned by Joint Vision (JV) 2020. Currently, the overall GIG efforts stress interoperability, identification of transmission capacity, and leveraging of the rapid pace of C4 technology advancements. As the GIG evolves and matures, it will spawn new approaches to providing the joint warfighter with C4 capabilities to achieve information superiority. This program element consists of two Joint Staff programs: (1) Network Warfare Simulation (NETWARS), (2) Joint Warrior Interoperability Demonstrations (JWID), and (3) Joint Satellite Communications Architecture Planning and Evaluation (J-SCAPE) tool. Starting in FY 2003, day-to-day program and budget management activities for NETWARS were turned over to DISA. NETWARS oversight support will continue to be maintained at the Joint Staff, in accordance with a memorandum of agreement between the Director, DISA, and the Joint Staff, J-6. JWID is the only CJCS-sponsored demonstration of new and emerging, low-cost, low-risk C4ISR technologies and interoperability solutions, impartially presented to the Combatant Commands and Military Services, and national civil authorities, in an operational environment. Proposals are selected to fulfill identified warfighter deficiencies and are designed to provide the opportunity to experiment with new and emerging capabilities, assess their value, and recommend them for implementation where appropriate. JWID provides a structured process where new C4ISR capabilities are rigorously vetted, evaluated, and assessed by the warfighter. JWID is an integral component of the JV 2020 conceptual template for future joint warfighting. The current focus of the Satellite Communications (SATCOM) operations analysis and integration effort is the development of the Joint Satellite Communications Architecture Planning and Evaluation (J-SCAPE) Tool Set. J-SCAPE is required to provide decision-makers with the means to focus the ongoing modernization of SATCOM assets to transform current systems and choose the best architectural alternative for the 21st century SATCOM infrastructure. The J-SCAPE tool set is also required to support planning and evaluation necessary to maximize all four of the operational concepts of JV 2020--dominant maneuver, precision</p>										

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<p>engagement, focused logistics, and full dimensional protection. Currently, there is no effective, efficient, capability to plan and evaluate the ability of current and future SATCOM architectures to meet the Combatant Commands' requirements. When fully operational, the J-SCAPE tool set will be used by the Joint Staff, Combatant Commands, their components, other joint organizations, satellite systems program offices, and Earth terminal program offices. The Services will use this tool set to assess the adequacy of SATCOM systems to support their assigned missions, evaluate operational plans, define SATCOM-related operational requirements, and provide operational input to the acquisition process.</p>		
B. Program Change Summary:		
	<u>FY 2003</u>	<u>FY 2004</u>
FY 2004 President's Budget	9.466	4.198
Total Adjustments		4.188
a. Internal Reprogramming		(0.059)
		(0.011)
FY 2005 Budget Estimate	9.466	4.139
		4.177
C. <u>Other Program Funding Summary:</u> N/A.		
D. <u>Acquisition Strategy:</u> Exhibit R2a attached.		
E. <u>Schedule Profile:</u> Exhibit R2a attached.		

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Exhibit R-2a, RDT&E Budget Item Justification

APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT			PROJECT NAME AND NUMBER																																									
RDT&E, Defense Wide, Joint Staff 0400 / BA7		0303149J			C4I for the Warrior – NETWARS																																									
Cost (\$ in Millions)		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	Cost to Complete	Total Cost																																				
NETWARS		6.061	0.241	0.289	0.289	0.294	0.329	0.331	TBD	TBD																																				
RDT&E Articles Qty	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A																																				
<p>A. Mission Description and Budget Item Justification: The C4I for the Warrior (C4IFTW) vision has evolved into the Department’s Global Information Grid (GIG) as a means to achieve information superiority. In FY 2003, Defense Information Services Agency (DISA) assumed the leadership role for the NETWARS program, including day-to-day program management, contract management, and budget management. NETWARS funding was transferred to DISA during FY 2003, with the exception of one contracted man-year equivalent of support for the Joint Staff. NETWARS provides joint warfighters with a C4 modeling and simulation (M&S) tool to assess the effects of full operational combat traffic loading on current and future communications systems and networks in a joint task force major theater of war scenario, conduct quick-turn communications planning for small regional conflicts or peacekeeping scenarios, and evaluate new communication systems and technologies. The NETWARS program office works with the joint community to identify and support M&S study efforts that enable users to investigate and assess high-priority C4ISR technologies in the context of realistic warfighter scenarios. NETWARS supports capability developers, strategic and operational communications analysts, as well as strategic, operational, and tactical communications network planners. NETWARS is being integrated into the Joint Network Management System (JNMS) tool suite in order to make this capability more accessible to communications planners and managers, and to make M&S an integrated part of the overall C4 network planning and management process.</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">FY 2003</th> <th style="text-align: left;">FY 2004</th> <th style="text-align: left;">FY 2005</th> <th style="text-align: left;"><u>Description</u></th> </tr> </thead> <tbody> <tr> <td>1.600</td> <td></td> <td></td> <td>Software Development: Tool Kit Functionality</td> </tr> <tr> <td>1.200</td> <td></td> <td></td> <td>Software Development: Comm Model Development</td> </tr> <tr> <td>0.550</td> <td></td> <td></td> <td>Standardization/Interoperability (JWARS, JNMS, etc.)</td> </tr> <tr> <td>1.400</td> <td></td> <td></td> <td>Comm Burden Assessment Studies</td> </tr> <tr> <td>0.520</td> <td>0.241</td> <td>0.289</td> <td>Joint Studies, Requirements Support, and Technical Support</td> </tr> <tr> <td>0.591</td> <td></td> <td></td> <td>Training and Development Support</td> </tr> <tr> <td>0.200</td> <td></td> <td></td> <td>Maintenance (licenses, etc.)</td> </tr> <tr> <td style="border-top: 1px solid black;">6.061</td> <td style="border-top: 1px solid black;">0.241</td> <td style="border-top: 1px solid black;">0.289</td> <td>Total</td> </tr> </tbody> </table> <p>B. Accomplishments/Planned Program: FY 2003 Accomplishments. A 5-year contract was competitively awarded to OPNET Technologies January 6, 2003 and it will be administered by DISA. During FY 2003 NETWARS achieved DII COE compliance in order to provide greater interoperability among systems, including JNMS. NETWARS added a significant number of new communications device models to its “library,” including models developed by the U.S. Navy and U.S. Air Force. Those device models are now available to all joint users. The program released two significant software updates in FY 2003, incorporating</p>											FY 2003	FY 2004	FY 2005	<u>Description</u>	1.600			Software Development: Tool Kit Functionality	1.200			Software Development: Comm Model Development	0.550			Standardization/Interoperability (JWARS, JNMS, etc.)	1.400			Comm Burden Assessment Studies	0.520	0.241	0.289	Joint Studies, Requirements Support, and Technical Support	0.591			Training and Development Support	0.200			Maintenance (licenses, etc.)	6.061	0.241	0.289	Total
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APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT	PROJECT NAME AND NUMBER
RDT&E, Defense Wide, Joint Staff 0400 / BA7	0303149J	C4I for the Warrior – NETWARS
<p>new features and capabilities requested by joint users. NETWARS became fully integrated into the JNMS tool suite, and provided substantial support to the JNMS program office during its functional qualification testing and in preparation for its operational test and evaluation (OT&E). NETWARS supported numerous joint user endeavors, including: Joint exercises DICE, Combined Endeavor, and Cobra Gold; study efforts in support of USFK, USPACOM, USNORTHCOM, and the National Missile Defense Agency; and conducted on-site training support for numerous Service, Combatant Command, and DoD Agency users.</p> <p><u>FY 2004 Planned Activities.</u> Working together with the DISA NETWARS program office, the Joint Staff, J-6, will continue to provide oversight of NETWARS ability to satisfy joint user C4 M&S requirements. Specific focus will be on NETWARS development and functionality required by the JNMS program, which will be tested in the JNMS OT&E in 2nd Qtr FY 2004. The Joint Staff, J-6 will also oversee the NETWARS Study Program, monitoring on-going FY 2004 study efforts, and identifying and prioritizing study efforts to be undertaken in FY 2005. Specific efforts to be accomplished in FY 2004 include support to the National Missile Defense Agency (Team B), the multinational C4 exercises Combined Endeavor and American, British, Canadian and Australian Armies’ Standardization Program (ABCA). Starting in FY 2004 funding and overall control of the NETWARS program shifts to DISA. Funds remaining on the Joint Staff will be used for contract support to interface with DISA, and to ensure integrations of NETWARS functionality with other Joint programs, such as JWARS and JNMS. Also, this support will identify and satisfy Joint Warfighter requirements for future NETWARS development.</p> <p><u>FY 2005 Planned Program.</u> NETWARS study efforts in support of joint users will continue and build upon program development and study efforts conducted in FY 2004 with particular focus on: multinational and multi-agency C4 network M&S; enhanced JNMS data exchange and interoperability; and support of Transformational Communications (TC) and Future Combat System (FCS) activities. The Joint Staff, J-6, will continue to provide program oversight focused on identification and satisfaction of joint warfighter C4 M&S requirements.</p> <p>C. <u>Other Program Funding Summary:</u> N/A</p> <p>D. <u>Acquisition Strategy:</u> <i>FY 1997:</i> A Mission Needs Statement was developed and signed. Subsequent to initiating model development, an extensive Program Development Plan was developed and approved by the Director, Command, Control, Communications, and Computer (C4) Systems Directorate (J-6). A proof-of-concept effort validated the concept and determined that NETWARS would support the requirements. <i>FY 1998:</i> A Configuration Management Plan, Software Development and Integration Plan, and Systems Architecture Design Plan were developed. Initiated software and communications modules development and integration. NETWARS Toolkit Version 1.1 functional requirements were derived, documented, and formalized. JWARS initial requirements for C4 were evaluated relative to expected analytical outputs from NETWARS. <i>FY 1999:</i> Based on further refinement and analysis of requirements, initiated a transition to lower-risk developmental software and toward building the NETWARS Toolkit</p>		

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RDT&E, Defense Wide, Joint Staff 0400 / BA7	0303149J	C4I for the Warrior – NETWARS
<p>Advanced Development, Interim Version. Concurrent communications studies of accepted Joint Task Force (JTF) scenarios will help to refine requirements, the development of data, and the development of models that represent the C4 processors, systems, and networks used in a JTF that will become part of the NETWARS data and model repository. Continued development of NETWARS standards. <i>FY 2000:</i> Interim Version 2.0 provided to Combatant Commands/Services/Agency (C/S/A) users, including a training course, in November 1999. Continued development of NETWARS Toolkit Advanced Development, Version 2.0, associated documentation and completion of a Southwest Asia JTF-based communication burden assessment. <i>FY2001:</i> Further expansion of toolkit functionality (Versions 2.2 and 2.5) involved development of needed specific communication system models and information exchange requirements data; a series of developmental studies for Southwest Asia JTF scenarios (of up to 20,000 communication nodes); and gathering requirements from model users. Codified program requirements for subsequent toolkit conversion were captured subsequent to extensive use of NETWARS by the Combatant Commands, Services, and agencies. Continued development of input data in conjunction with communications studies conducted in parallel with model development. <i>FY2002:</i> Emphasis was on further expansion of toolkit functionality in response to requirements identified by Combatant Commands, Services and agencies; several studies to include a Northeast Asia scenario, the Army's Future Combat System (FCS) and the initial phase of a multi-year logistics communications modeling and simulation effort by OUSD (AT&L); release of several contingency planning tools for use by the Combatant Commands; and the award of a competitively bid contract. Additionally, with the recent award of the Joint Network Management System contract (JNMS), it is logical that the NETWARS program will serve as one of the Government Off The Shelf (GOTS) software options incorporated by JNMS. As such, the potential exists for some associated integration costs as the JNMS technical design matures. <i>FY 2003:</i> NETWARS program, contract, and budget management functions transitioned to DISA. NETWARS focused efforts on integration with the Joint Network Management System (JNMS) and looked for efficiencies to be gained in standardizing software data elements and communications device models. <i>FY 2004:</i> The NETWARS program will continue this effort in FY 2004 as JNMS completes its OT&E and begins fielding to joint users.</p> <p>E. <u>Schedule Profile and Performance Measures:</u> The first-Phase review was 23 September 1997, when the Phase I proof-of-concept results were presented to the J-6 and Service/Agency representatives. The mid-Phase II In-Progress Review (IPR) to the J-6 and the Service/Agency representatives was held on 19 December 1997. Block I formally began in March 1997 and involved researching and writing a detailed NETWARS development plan, followed by conducting a proof-of-concept prototype demonstration of a small JTF scenario of 100 to 200 communications nodes. Block II began in mid-September 1997, and was completed in October 1998. In Block II, J-6 continued the design and building to complete version 1.1 of the front-end toolset database and completed a study of a small JTF of up to 5,000 nodes and a JTF scenario of up to 10,000 nodes. The scenario selected was the Synthetic Theater of War (STOW)/UNITED ENDEAVOR 98-1 scenario, which involved a JTF defense of Kuwait. Block III, Version 2.0, which began in April 1999, involved advanced development, testing, and building of the interim Version 2.0 front-end toolkit and database for NETWARS, plus completing a Joint Task Force scenario of up to 5,000 communications nodes. Reviews of Version 2.0 were held in March 2000, with additional upgrading scheduled for August - November 2000. A refined 5,000-node communication burden assessment was completed in December 2000. Joint, Combatant Commands, Service, and Agency representatives will review that assessment for accuracy and completeness. By integrating input from these users,</p>		

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RDT&E, Defense Wide, Joint Staff 0400 / BA7	0303149J	C4I for the Warrior – NETWARS											
<p>NETWARS will enhance the abilities of the Combatant Commands, Services, and agencies to meet the goals stated in JV 2010, JV 2020, and the GIG Capstone Requirements Document (CRD). In FY 2003, NETWARS conducted detailed Verification and Validation (V&V) testing of two new software versions, including testing of DII COE compliance. Successful completion of this testing resulted in approval of two new software versions. Additional operational validation was achieved through completion of a theater-wide network model development in conjunction with U.S. Forces Korea, and in extensive functional qualification testing conducted in conjunction with the JNMS program. NETWARS functional capabilities will be stringently tested by operational users in FY 2004 as part of the JNMS OT&E effort.</p>													
		<u>FY 2003</u>				<u>FY 2004</u>				<u>FY 2005</u>			
		1	2	3	4	1	2	3	4	1	2	3	4
(Fiscal Qtr)													
Contract Award to OPNET Technologies		X											
IOC			X										
FOC (FY 2009/4 th Qtr)									X (JNMS Version)				

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Exhibit R-3, Project Cost Analysis

Exhibit R-3, Project Cost Analysis										Date: February 2004		
APPROPRIATION/BUDGET ACTIVITY: RDT&E, Defense Wide, Joint Staff 0400 / BA7				PROGRAM ELEMENT: 0303149J						PROJECT NAME: C4I for the Warrior – NETWARS		
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY03 Cost	FY03 Award Date	FY04 Cost	FY04 Award Date	FY05 Cost	FY05 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Program Definition & Proof of Concept	CPFF	MITRE	0	0		0		0		TBD	TBD	
Software Development	CPFF									TBD	TBD	
Program Management	CPFF		.200	0		0		0		TBD	TBD	
COTS Hardware and Software	CPFF									TBD	TBD	
Toolkit Functionality	Fixed Price	OPNET Technologies	1.470	1.600	Jan 03	0		0				
Standardization/Interoperability	CPFF	Various								TBD	TBD	
Communication Model Development	CPFF	Various	.700	1.200		0		0				
IER Refinement	CPFF	Various	.500									
Subtotal Product Development			2.870	2.800	Jan 03	0		0		TBD	TBD	
Communications Developmental Studies	CPFF									TBD	TBD	
Communications Burden Assessment Studies	CPFF	Various	1.787	1.400	Jan 03	0		0				
Configuration Mgmt	CPFF		.100			0		0		TBD	TBD	
Maintenance	CPFF		.100	.200	Jan 03	0		0				
Training/Development Support	CPFF		.200	.381	Jan 03	0		0				
Subtotal Support Cost			2.187	1.981		0		0				

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Exhibit R-3, Project Cost Analysis

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APPROPRIATION/BUDGET ACTIVITY: RDT&E, Defense Wide, Joint Staff 0400 / BA 7			PROGRAM ELEMENT: 0303149J							PROJECT NAME: C4I for the Warrior – NETWARS		
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY03 Cost	FY03 Award Date	FY04 Cost	FY04 Award Date	FY05 Cost	FY05 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Verification & Validation	CPFF	Various	.200		TBD					TBD	TBD	
Subtotal T&E			.200	0		0		0		TBD	TBD	
Contractor (FFRDC) Eng Support	CPFF	Various	.500	0.220	TBD					TBD	TBD	
Contractor Eng and Technical Support	CPFF	Various		0.410		0.241		0.289	TBD			
Independent Cost Estimate (ICE) (FFRDC)		MITRE								TBD	TBD	
NETWARS Standardization		Various		0.650								
Congressional non-programmatic rescission												
Subtotal Management			.500	1.280		0		0				
Total Cost			5.757	6.061		0.241		0.289				
Remarks NETWARS transferred to DISA control in FY 2003.												

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Cost (\$ in Millions)		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	Cost to Complete	Total Cost												
JWID		1.532	1.510	1.546	1.542	1.555	1.553	1.551	TBD	TBD												
RDT&E Articles Qty		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A												
<p>A. <u>Mission Description and Budget Item Justification:</u> The C4IFTW vision has evolved into the Department's Global Information Grid (GIG) as a means to achieve information superiority. JWID provides focus and visibility into resolving coalition C4 interoperability issues and provides organizing principles, techniques, and procedures for achieving information superiority as envisioned by Joint Vision (JV) 2020. The GIG stresses interoperability and JWID leverages the rapid pace of C4 technology advancements. JWID is the Chairman's annual event that enables the U.S. Combatant Commands, national civil authorities, and international community to investigate command, control, communications, computers, intelligence, surveillance and reconnaissance (C4ISR) solutions that focus on relevant and timely objectives for enhancing coalition interoperability and exploring new partnerships. JWID is conducted in a simulated operational environment to provide context for warfighter and national civil authorities validation of those solutions. Interoperability Trials (ITs) are the activities used to address the core coalition, and interagency interoperability objectives selected each year. ITs strive to address warfighter requirements and interoperability deficiencies. Ideally, they will benchmark successes that can immediately support and enhance operations requiring multinational or interagency cooperation. The selection of trials is dependent upon the annual overarching objectives, the host Combatant Command's priorities, C/S/A desires to partner in a proposed trial, interagency participation, and the desires of invited coalition participants. JWID is an integral component of the JV 2020 conceptual template for future joint and coalition warfighting. Interoperability and information superiority are key goals of the Chairman of the Joint Chiefs of Staff.</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><u>FY 2003</u></th> <th style="text-align: left;"><u>FY2004</u></th> <th style="text-align: left;"><u>FY2005</u></th> <th style="text-align: left;"><u>Description</u></th> </tr> </thead> <tbody> <tr> <td style="text-align: left;">1.532</td> <td style="text-align: left;">1.510</td> <td style="text-align: left;">1.546</td> <td style="text-align: left;">Contract Engineering and Technical Support</td> </tr> <tr> <td style="text-align: left;">1.532</td> <td style="text-align: left;">1.510</td> <td style="text-align: left;">1.546</td> <td style="text-align: left;">Total</td> </tr> </tbody> </table> <p>B. <u>Accomplishments/Planned Program:</u></p> <p><u>FY 2003 Accomplishments:</u> The JWID 2003 network was comprised of 29 connection sites supporting eight countries and NATO, as well as nine primary network sites located within the continental United States. Two information domains were created to ensure due diligence in protecting sensitive information. The two domains were termed "6-eyes" and "10-eyes" respectively. The 6-eyes domain contained the traditional six CCEB allied nations</p>											<u>FY 2003</u>	<u>FY2004</u>	<u>FY2005</u>	<u>Description</u>	1.532	1.510	1.546	Contract Engineering and Technical Support	1.532	1.510	1.546	Total
<u>FY 2003</u>	<u>FY2004</u>	<u>FY2005</u>	<u>Description</u>																			
1.532	1.510	1.546	Contract Engineering and Technical Support																			
1.532	1.510	1.546	Total																			

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<p>while the 10-eyes domain consisted of the six CCEB nations plus the four PACRIM nations. The dual-domain network successfully allowed 42 Coalition Interoperability Trials (CITs) to execute over 1,500 Master Scenario Events List (MSEL) occurrences. Four ITs were judged as top performers and recommended to USJFCOM for expedited fielding.</p> <p><u>FY 2004 Planned Program:</u> JWID 2004 host Combatant Command will be USNORTHCOM. FY 2004 activity will center on conducting CITs of hardware, software, and procedures for emerging interagency interoperability issues and problems with other U.S. Government departments as well as continuing CITs with multiple allied nations. With the goal of identifying benchmark successes that can immediately support interagency operations, as well as multinational operations. JWID 2004 participation includes the Department of Homeland Security, U.S. Coast Guard, National Guard Bureau, Federal Emergency Management Agency and its Canadian counterpart.</p> <p><u>FY 2005 Planned Program:</u> JWID 2005 host Combatant Command will be USNORTHCOM. FY 2005 activity will center on conducting Interoperability Trials (ITs) of hardware, software, and procedures for emerging interagency interoperability issues and problems with other U.S. Government departments, as well as continuing ITs with multiple allied nations. With the goal of identifying benchmark successes that can immediately support interagency operations, as well as multinational operations. Department of Justice participation is anticipated.</p>					
C. <u>Other Program Funding Summary:</u>					
	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	To <u>Complete</u>	Total <u>Cost</u>
O&M Defense-Wide	0.743	0.722	0.684	TBD	TBD
Procurement Defense-Wide	0.264	0.263	0.244	TBD	TBD
D. <u>Acquisition Strategy:</u> N/A					
E. <u>Schedule Profile:</u> The RDT&E program will be executed throughout various quarters across the Fiscal Years.					

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Exhibit R-3, Project Cost Analysis

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APPROPRIATION/BUDGET ACTIVITY: RDT&E, Defense Wide, Joint Staff 0400 / BA 7			PROGRAM ELEMENT: 0303149J						PROJECT NAME: C4I for the Warrior – JWID			
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY03 Cost	FY03 Award Date	FY04 Cost	FY04 Award Date	FY05 Cost	FY05 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Verification & Validation												
Subtotal T&E												
Contract Engineering and Technical Support		Various	1.530	1.532	TBD	1.510	TBD	1.546	TBD	TBD	TBD	
Subtotal Management			1.530	1.532		1.510		1.546		TBD	TBD	
Total Cost			1.530	1.532		1.510		1.546		TBD	TBD	

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FY 2005 Budget Estimates
Research, Development, Test, and Evaluation (RDT&E), Defense-Wide

Exhibit R-2a, RDT&E Budget Item Justification

Exhibit R-2a, RDT&E Project Justification									Date: February 2004																																	
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NAME AND NUMBER																																				
RDT&E, Defense Wide, Joint Staff 0400 / BA7			0303149J			C4 for the Warrior (C4IFTW) - SATCOM Ops Analysis and Integration Tools																																				
Cost (\$ in Millions)		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	Cost to Complete	Total Cost																																
SATCOM Ops Analysis and Integration Tools		1.873	2.388	2.342	2.418	2.409	2.443	2.589	TBD	TBD																																
RDT&E Articles Qty		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A																																
<p>A. <u>Mission Description and Budget Item Justification:</u> The current focus of the Satellite Communications (SATCOM) operations analysis and integration effort is the development of the Joint Satellite Communications Architecture Planning and Evaluation (J-SCAPE) Tool Set. J-SCAPE is required to provide decision-makers with the means to focus the ongoing modernization of SATCOM assets to transform current systems and choose the best architectural alternative for the 21st century SATCOM infrastructure. The J-SCAPE tool set is also required to support the planning and evaluation necessary to maximize all four of the operational concepts of JV 2020-dominant maneuver, precision engagement, focused logistics, and full dimensional protection. Currently, there is no effective, efficient capability to plan and evaluate the ability of current and future SATCOM architectures to meet the Combatant Commands' requirements. The J-SCAPE tool set mission recognizes the importance of information superiority to each of these operational concepts. Specifically, the J-SCAPE toolset will provide the capability to efficiently and accurately evaluate a set of communication requirements -- captured in the form of a scenario -- against a set of SATCOM resources. It will quantify supportability in terms of connectivity and capacity, emphasizing SATCOM parameters such as link budgets, including fading because of rain and scintillation, bit error rates, satellite processing, and crosslinks. Other measures of effectiveness include link availability, delay, resistance to jamming, and intercept or signals exploitation. When fully operational, the J-SCAPE toolset will be used by the Joint Staff, Combatant Commands, their components, other joint organizations, satellite systems program offices, and earth terminal program offices. The Services will use this tool set to assess the adequacy of SATCOM systems to support their assigned missions, evaluate operational plans, define SATCOM-related operational requirements, and provide operational input to the acquisition process.</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><u>FY 2003</u></th> <th style="text-align: left;"><u>FY 2004</u></th> <th style="text-align: left;"><u>FY 2005</u></th> <th style="text-align: left;"><u>Description</u></th> </tr> </thead> <tbody> <tr> <td>0.953</td> <td>1.101</td> <td>1.050</td> <td>Software Development/Software Functionality</td> </tr> <tr> <td>0.320</td> <td>0.330</td> <td>0.340</td> <td>Program Management</td> </tr> <tr> <td>0.100</td> <td>0.100</td> <td>0.100</td> <td>Verification and Validation</td> </tr> <tr> <td>0.000</td> <td>0.150</td> <td>0.150</td> <td>Configuration Management</td> </tr> <tr> <td>0.250</td> <td>0.362</td> <td>0.350</td> <td>Contract Engineering & Technical Support (non-FFRDC)</td> </tr> <tr> <td><u>0.250</u></td> <td><u>0.345</u></td> <td><u>0.352</u></td> <td>Contract Engineering & Technical Support (FFRDC)</td> </tr> <tr> <td>1.873</td> <td>2.388</td> <td>2.342</td> <td>Total</td> </tr> </tbody> </table>											<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>Description</u>	0.953	1.101	1.050	Software Development/Software Functionality	0.320	0.330	0.340	Program Management	0.100	0.100	0.100	Verification and Validation	0.000	0.150	0.150	Configuration Management	0.250	0.362	0.350	Contract Engineering & Technical Support (non-FFRDC)	<u>0.250</u>	<u>0.345</u>	<u>0.352</u>	Contract Engineering & Technical Support (FFRDC)	1.873	2.388	2.342	Total
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FY 2005 Budget Estimates
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Exhibit R-2a, RDT&E Budget Item Justification

Exhibit R-2a, RDT&E Project Justification			Date: February 2004
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT	PROJECT NAME AND NUMBER	
RDT&E, Defense Wide, Joint Staff 0400 / BA7	0303149J	C4 for the Warrior (C4IFTW) - SATCOM Ops Analysis and Integration Tools	
<p>B. <u>Accomplishments/Planned Program:</u></p> <p><u>FY 2003 Accomplishments.</u> Built on the FY 2002 prototyping efforts by adding a nodal diagram display/edit capability for network definition, expanding results reporting features, adding validation and format checking, supporting additional external systems interfaces, and expanding usability features to support analysis of additional SATCOM systems. Implemented a J-SCAPE UHF Planning Tool to address the UHF SATCOM planning needs of Combatant Commanders, Global SATCOM Support Center (GSSC), and Regional SATCOM Support Centers (RSSCs).</p> <p><u>FY 2004 Planned Program.</u> Expand J-SCAPE to support analysis of additional SATCOM systems including the anticipated Transformational SATCOM (T-SAT) system. This phase also builds upon the FY 2003 J-SCAPE UHF Planning Tool and integrates the tool into an integrated UHF SATCOM mission planning system for use by Combatant Commanders, GSSC, and RSSC planners. Design and implement interfaces to communications planning and management systems to acquire near real-time configuration and status information, and import such information as satellite resource data. Participate in military exercises and operations to demonstrate capabilities of the J-SCAPE system to the warfighter.</p> <p><u>FY 2005 Planned Program.</u> Building on FY 2004 software by adding a Mobile User Objective System (MUOS) analysis capability and refining the T-SAT configuration/model. In addition, this phase implements scenario development tools such as the definition/use of aggregate “force packages” to speed scenario development, and implementation of a web-based commercial SATCOM planning tool suitable for use by Combatant Commanders, GSSC, and RSSC planners.</p>			
C. <u>Other Program Funding Summary:</u> N/A.			
D. <u>Acquisition Strategy/ Schedule Profile:</u>			
(Fiscal Qtr)	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
	1 2 3 4	1 2 3 4	1 2 3 4
Contract Award * -- Jul 97			
IOC **		X	
FOC (To be determined)			
<p>* SAIC Inc., under competitively awarded delivery order type support contract awarded January 2003. Aerospace Corporation provides FFRDC support. After program definition, prototyping, risk-reduction phases, and engineering development (just prior to IOC), J-SCAPE will be openly competed based on fully defined requirement and a mature software design.</p> <p>** J-SCAPE acquisition strategy is to follow a proof-of-concept phase with a series of prototypes to help further define the program, continue to capture and refine requirements and implement risk-reduction measures. IOC will be achieved following a final engineering development phase with formalized software design and planning on use of commercial off the shelf software tools, as much as feasible.</p>			

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FY 2005 Budget Estimates
Research, Development, Test, and Evaluation (RDT&E), Defense-Wide

Exhibit R-3, Project Cost Analysis

Exhibit R-3, Project Cost Analysis										Date: February 2004		
APPROPRIATION/BUDGET ACTIVITY:				PROGRAM ELEMENT:						PROJECT NAME:		
RDT&E, Defense Wide, Joint Staff 0400 / BA 7				0303149J						C4IFTW – SATCOM Ops Analysis and Integration Tool		
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY03 Cost	FY03 Award Date	FY04 Cost	FY04 Award Date	FY05 Cost	FY05 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Program Definition & Proof of Concept										TBD	TBD	
Software Prototype Development	CPFF	SAIC, Aerospace		.953		1.101	TBD	1.081	TBD	TBD	TBD	
Program Management	CPFF	SAIC	1.705	.320		.330	TBD	.324	TBD	TBD	TBD	
COTS Hardware and Software	CPFF	SAIC	.300	.0	TBD	.0		.0		TBD	TBD	
Subtotal			2.005	1.273		1.431		1.405		TBD	TBD	
Verification & Validation		DISA	.100	.100		.100		.100		TBD	TBD	
Subtotal T&E			.100	.100		.100		.100		TBD	TBD	
Independent Cost Estimate (ICE) (FFRDC)	CPFF	Aerospace, AF Cost Analysis Agency	0	0		0		0		TBD	TBD	
Contract Engineering and Technical Support	CPFF	SAIC	.361	.250	TBD	.362	TBD	.352	TBD	TBD	TBD	
Contract Eng. & Tech. Support (FFRDC)	CPFF	Aerospace	.330	.250	TBD	.345	TBD	.335	TBD			
Configuration Management	CPFF			.150		.150	TBD	.150	TBD			
Congressional non programmatic rescission												
Subtotal Management			.691	.500		.857		.837		TBD	TBD	
Total Cost			2.796	1.873		2.388		2.342		TBD	TBD	
Remarks: All awards to SAIC under competitively won umbrella support contract, awarded Jul 97.												