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

February 2003

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
5 - System Development and Demonstration	**0604280A - Joint Tactical Radio System**	**162**

COST (In Thousands)		FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
162	JOINT TACTICAL RADIO SYSTEM	72742	62921	134693	91583	62826	55945	28849	27347	0	596720

A. Mission Description and Budget Item Justification: The mission of the Joint Tactical Radio System (JTRS) program is to provide software programmable, reconfigurable digital radio systems to meet Joint Vision 2010/2020 requirements for interoperability, flexibility, adaptability, and information exchange. The program will acquire a family of affordable, scaleable, high-capacity, interoperable Line of Sight (LOS) and Beyond Line of Sight (BLOS) radios to support simultaneous networked voice, data, and video transmissions with low probability of intercept within the frequency band of 2Mhz to 2GHz and above. The program will provide operational forces with an upgraded interoperable communications capability for improved battlespace management and increased warfighter effectiveness. Also, JTRS will contribute to Homeland Security and Defense, providing communications interoperability among civil and local agencies, particularly First Response units. Additionally, interoperability with allied and coalition partners is pursued through international cooperative efforts, including a signed US-Japan Memorandum Of Understanding (MOU) and the signed US-UK Project Arrangement. Approval has been received to develop a Project Agreement with Sweden. Discussions with Canada, Australia, France and NATO are ongoing.

The JTRS program is a distributed acquisition effort, with acquisition responsibilities divided among Service acquisition agencies. The Joint Program Office (JPO) is responsible for (1) the overall management and oversight of the JTRS program, (2) development, validation, and evolution of a common JTRS Software Communications Architecture (SCA), (3) development and maintenance of waveform software applications, (4) development of software cryptographic algorithms, and (5) testing and certification of JTRS hardware and software products. Service acquisition agencies are responsible for acquiring and fielding particular systems to meet specific warfighter needs, including hardware development, integration of software, and platform integration efforts. This approach promotes commonality, jointness and interoperability, providing cost savings through maximization of software code porting and reuse, technology insertion, and common solutions, while allowing flexibility to meet unique requirements. The Army is the Executive Service for the joint program.

Beginning in FY2004, the JTRS JPO will manage and execute transition of the Joint Task Force WARNET (JTFW) capability to the Services. JTFW is an integrated, secure, wide area networking communications and command and control (C2) applications architecture designed to promote joint interoperability among deployed US combatant forces, and including coalition partners. JTFW uses transformational technologies to enhance connectivity among users and provides interface and translation functionality between disparate Service tactical C2 systems.

This system supports the Legacy to Objective Transition path of the Transformation Campaign Plan (TCP).

Accomplishments/Planned Program	FY 2002	FY 2003	FY 2004	FY 2005
Maintain, evolve and provide configuration management of the SCA.	468	1051	2800	2000
Continue acquisition of waveforms listed in the JTRS Operational Requirements Document (ORD), including development of complex waveforms, Cluster support and other waveform related activities. Continue development of crypto algorithm software and other security related activities.	57240	34983	72393	44183
Continue technology advancement and problem resolution, to include areas such as multiple independent levels of security (MILS), multilevel security (MLS), and network modeling and security.	0	800	3000	3000
Continue hardware and software waveform certification process (SCA compliance testing) to meet program requirements.	3919	13198	16500	16300
Manage and transition JTF WARNET.	0	0	25000	12000
Continue Joint Program Office (JPO) technical support, including waveform development, system engineering, spectrum allocation and approval for use, systems security engineering and problem resolution and support of Software Communications Architecture (SCA) activities. Provide technical guidance to Service Program Management Offices (PMOs). Provide oversight for all DoD radio acquisitions to ensure JTRS interoperability.	6581	6996	8500	8000
Continue JPO program support, including administration, program management, international cooperative efforts, legal, contracting, budget execution and cost estimating activities.	4534	5893	6500	6100
Totals	72742	62921	134693	91583

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B. Program Change Summary	FY 2002	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2003)	74814	65818	50909	40053
Current Budget (FY 2004/2005 PB)	72742	62921	134693	91583
Total Adjustments	-2072	-2897	83784	51530
Congressional program reductions		-723		
Congressional rescissions				
Congressional increases				
Reprogrammings		-361		
SBIR/STTR Transfer	-2072	-1813		
Adjustments to Budget Years			83784	51530

Program funding in FY2004/FY2005 has been adjusted to reflect the recently approved Joint Cost Position (FY2004, +58784; FY2005,+39530). In FY2004/FY2005, funding has been provided for management and transition of Joint Task Force WARNET (FY2004, +25000; FY2005,+12000).

C. Other Program Funding Summary	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
RDTE, 0604805A C3 Systems - Eng Dev; project 615, JTRS Ground Domain Integration (Cluster 1)	83667	60340	172936	96935	63897	42782	15200	2804	Continue	Continue
OPA, Army Data Distribution System, BU1400 (JTRS) (Cluster 1)	0	0	0	136552	119146	132272	124542	123782	Continue	Continue
RDTE, 0604201A Aircraft Avionics (JTRS) (Cluster 1)	7040	30483	60650	41615	29052	23491	31348	24374	Continue	Continue
APA, JTRS A-Kit Procurement AA0702 (Cluster 1)	0	0	1906	22674	46498	62121	60544	66014	Continue	Continue

C. Other Program Funding Summary (continued)	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
RDTE, 0604805A C3 Systems - Eng Dev; project 615, JTRS Ground Domain Integration (Cluster X)	0	0	33201	52575	29506	15361	9838	3697	0	144178

D. Acquisition Strategy: The JTRS acquisition strategy consists of a three-step process:

Step 1: Baseline definition of the software architecture. This step was completed in FY99.

Step 2: Development and validation of the SCA. Step 2 is further divided into three parts. In Step 2A, a four-company Consortium (Raytheon, ITT, Rockwell-Collins, and BAE) developed the architecture and validated it as the Software Communications Architecture (SCA). The SCA is currently at Version 2.2, which was published in November 2001. The SCA is in the final stages of Commercial/International acceptance by the Object Management Group (OMB). In Step 2B, other companies provided additional third-party validation. The validation process used hardware prototypes and an initial set of software-based waveforms. Step 2C, which is managed and partially funded by PM Tactical Radio Communications Systems (TRCS), is another prototyping activity. It demonstrated that the SCA supports the security enhancements now in the SCA and JTRS networking requirements.

Step 3: In Step 3, the JPO is developing waveform software applications and will certify JTRS products. This step is on-going. The JPO is developing waveforms as identified in the JTRS Operational Requirements Document (ORD). To reduce cost and ensure best value for waveform development, the JPO has grouped similar waveforms in consolidated acquisition efforts. The JPO is also developing certification tools and procedures for the testing of JTRS products. Also in Step 3, the Services are acquiring and will test and field JTRS radios.

On 19 July 2001, the Defense Acquisition Board (DAB) approved the basic acquisition approach. On 2 August 2001, the Defense Acquisition Executive (DAE) signed a memorandum that approved the JTRS acquisition strategy. This memorandum also designated the JTRS SCA and waveform program an ACAT 1D program, to be managed by the JTRS JPO. The Cluster 1 acquisition was also designated an ACAT 1D program, to be managed by the Army's Program Executive Officer, Command, Control, and Communications (Tactical) (PEO C3T). The first Joint Cluster procurement, Cluster 1, is a joint acquisition led by the Army (PM TRCS).

The DAB review on 03 June 2002 authorized award of the Cluster 1 contract and JPO contracts for waveforms and crypto algorithms. The Cluster 1 contract was awarded to Boeing as the Prime System Contractor on 24 June 2002. This DAB also authorized Service leads for Clusters 2-4. Twenty one ORD waveforms are being developed using the Cluster 1 contract. The JPO is also awarding a series of contracts for the balance of the ORD waveforms. The first of these contracts was awarded in September 2002, with three additional awards in December 2002. Also in December 2002, a contract was awarded for development of AIM crypto algorithms. The Sierra crypto algorithm contract was awarded JAN 2003.

ARMY RDT&E COST ANALYSIS(R-3)

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BUDGET ACTIVITY
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I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Architecture Development and Validation; Maintain, Evolve and Provide CM Mgmt of SCA*	Various	Various	62557	1051	2Q	2800	2Q	2000	2Q	Continue	68408	Continue
b . Waveform Development; Crypto S/W; Waveform Sustainment Engineering	Various	Various	76102	34983	1-3Q	72393	1-2Q	44183	1-2Q	Continue	227661	Continue
c . Certification (SCA Compliance Testing)	Various	Various	11227	13198	1-3Q	16500	1-2Q	16300	1-2Q	Continue	57225	Continue
d . Technology Advancement/Problem Resolution	Various	Various	7460	800	2Q	3000	1-3Q	3000	1-3Q	Continue	14260	Continue
e . JTF WARNET	TBD	TBD	0	0		25000	2-3Q	12000	2-3Q	0	37000	0
Subtotal:			157346	50032		119693		77483		Continue	404554	Continue

Remarks: * Step 2C activities partially funded in Army
Program Element 0604805A;
Managed by PM TRCS.

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February 2003

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II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . FFRDC - MITRE and Other contracted Technical Support	FFP	Various	22216	6996	1-2Q	8500	1-2Q	8000	1-2Q	Continue	45712	Continue
Subtotal:			22216	6996		8500		8000		Continue	45712	Continue

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . N/A*	N/A	N/A	0	0		0		0		0	0	0
Subtotal:			0	0		0		0		0	0	0

Remarks: *System and operational testing performed by the Services; funded in Service appropriations.

ARMY RDT&E COST ANALYSIS(R-3)

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IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Program Support	Various	Various	13405	5893	1-2Q	6500	1-2Q	6100	1-2Q	Continue	31898	Continue
Subtotal:			13405	5893		6500		6100		Continue	31898	Continue
Project Total Cost:			192967	62921		134693		91583		Continue	482164	Continue

Schedule Profile Detail (R-4a Exhibit)

February 2003

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Schedule Detail	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Deliver Version 2.2 of SCA	1Q							
Maintain, Evolve and Provide Configuration Management of SCA	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q
Address Technology Advancement Issues and Problem Resolution	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q
DAB Program Review	3Q							
Award Cluster 1 and JPO Waveform Contracts	3-4Q	1Q	1Q		1Q			
Acquire ORD Waveforms and Cryptographic Algorithms	3-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q		
Provide Certification of JTRS SCA Compliance for Acquired Systems and Waveforms		3-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-2Q	
Manage and transition JTF WARNET			1-4Q	1-4Q				

NOTE: All milestones scheduled through 1QFY2003 have been accomplished.