ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2004

BUDGET ACTIVITY	PE NUMBER AND TITLE
5 - System Development and Demonstration	**0604805A - Command, Control, Communications Systems - Eng Dev**

COST (In Thousands)		FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost		89465	216811	219790	173555	135195	55590	22896	0	1083728
097	INTEROP & STANDARDS COMPLIANCE EXPERIMENT & TEST	1648	2322	0	0	0	0	0	0	8010
485	INFO STANDARDS INTEROP ENG/JOINT INTEROP CERT	4218	5619	2614	3507	4355	3440	3678	0	34817
589	ARMY SYS ENGINEERING & WARFIGHTING TECH SUP	8033	3340	5963	6024	6294	5615	5712	0	57277
591	WPN SYS TECH ARCH (WSTA)	2229	669	585	583	582	583	583	0	10497
615	JTRS-GROUND DOMAIN INTEGRATION	60659	202148	101770	61578	41322	14616	2674	0	600422
61A	JTRS CLUSTER 5 DEVELOPMENT	0	0	100605	94522	75311	25454	3960	0	299852
629	TACTICAL COMMUNICATIONS SYSTEM - ENGINEERING DEVEL	12678	2713	0	0	0	0	0	0	37757
F99	NUCLEAR ARMS CTRL TECH - SENSORE NETWORK MONIT	0	0	8253	7341	7331	5882	6289	0	35096

A. Mission Description and Budget Item Justification: This Program Element (PE) supports efforts to develop interoperability of Army programs and products, horizontally and vertically for the digitized battlefield. Project D097 supports Interoperability and Standards Compliance Experimentation and Testing. Project D485 supports Information Standards Interoperability Engineering and Joint Interoperability Certification. It provides the critical elements of the Army/Joint Technical Architecture, the mandated standards and communication protocols for Army/Joint ground and air operations, and crucial certification test tools to evaluate systems' interoperability for the Warfighter in support of the Vice Chief of Staff of the Army (VCSA) and Army Acquisition Executive (AAE). It also provides Joint certification testing and certification recommendations to the Joint Chiefs of Staff (JCS) for Army systems. This Army-wide effort directly supports the management, oversight, development, maintenance, and interoperability at the Army enterprise level C4I/IT (Command, Control, Communications, Computers, and Intelligence/Information Technology) architecture efforts required to implement the Army Transformation Campaign Plan (TCP), Unit Set Fielding (USF), Software Blocking (SWB) Policy and Army Knowledge Management. Project D589 Army Systems Engineering (ASE) & Warfighter Technical Support provides essential technology expertise on all Systems Engineering and Technical Architecture (SE/TA) matters critical to gain Information Dominance and foster interoperability among all Army systems. The Weapons Systems Technical Architecture, Project D591, supports development of the Joint Technical Architecture-Army (JTA-A) which provides the 'building code" foundation for designing, building, fielding, and supporting interoperable systems in an expedient and cost-effective manner.

In FY04, Project D615 supports the JTRS Cluster 1 and Cluster 5 Programs. In FY05, Project D615 supports the Cluster 1 program. In FY05, Project D61A supports JTRS Cluster 5 program. This project provides for the development of three discrete radio form factors: Handheld; Manpack (including vehicular mounted); and Small Form Fit (SFF) embedded applications. Project D629, Tactical Communications System - Demonstration Validation, provides for insertion of selected proven communications technology from program elements 0602782A, Project AH92 applied research and 0603008A, advanced technology development, into the next phase of development. The Protocol Investigation for the Next Generation (PING) program evaluates and assesses emerging network protocols, concentrating on the assessment and evaluation of the next generation of Internet Protocol (IPv6) and its protocol dependencies affecting the Army Enterprise Architecture. The Applied Communications and Information Networking (ACIN) project provides for the evaluation and capitalization of emerging commercial communications and networking technologies by leveraging advances, influencing development efforts, influencing standards and delivering technical solutions in support of emerging architectures (JTA-A). This system supports the Current to Future transition path of the Transformation Campaign Plan (TCP).

B. Program Change Summary	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2004)	89546	219088	162970
Current Budget (FY 2005 PB)	89465	216811	219790
Total Adjustments	-81	-2277	56820
Congressional program reductions		-2060	
Congressional rescissions			
Congressional increases			
Reprogrammings	-81	5897	
SBIR/STTR Transfer		-6114	
Adjustments to Budget Years			56820

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

February 2004

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
5 - System Development and Demonstration	**0604805A - Command, Control, Communications Systems - Eng Dev**	**097**

COST (In Thousands)		FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
097	INTEROP & STANDARDS COMPLIANCE EXPERIMENT & TEST	1648	2322	0	0	0	0	0	0	8010

A. Mission Description and Budget Item Justification: Interoperability and Standards Compliance Experimentation & Testing: The increased combat power of the Future Force, as defined by the Chief of Staff of the Army's Transformation Campaign Plan (TCP), will derive directly from the information superiority of network/ knowledge centric warfare and the ability to be fully "interoperable as a member of the joint, multinational, interagency team." In addition, attaining full interoperability will be critical to meet the Army's Division XXI, Corps XXI, Army XXI, Army 2010 and JV 2020 plans. To attain this significantly increased combat power, it is essential that interoperability issues be identified early in the life cycle of emerging C4ISR systems, through the conduct of Army interoperability assessments and Joint Technical Architecture (JTA) standards compliance testing. This project, in accordance with the TCP, "establishes a mechanism to ensure all digitally capable material, including the Future Force, is fully operational, compatible and interoperable" before fielding. In particular, it provides the resources for a virtual command, control, communications, computer, intelligence, electronic warfare and sensor (C4IEWS) Digital Integration Lab (DIL) which is utilized to integrate/assess the Army's programs and products, horizontally and vertically for the digitized battlefield, by replicating current and future tactical battlefield environments (including Army, Joint and Allied interoperability environments). To attain this goal, it utilizes on-site and electronically interconnected remote C4IEWS systems, labs/ test beds, field/integration sites, developers facilities, test tools and Battle Labs to enable/facilitate comprehensive evaluations of new prototypes, evolutionary system developments, new technologies, commercial products, software and systems interoperability. This program supports the Current to Future transition path of the Transformation Campaign Plan (TCP) and towards the Future Combat System (FCS).

Accomplishments/Planned Program	FY 2003	FY 2004	FY 2005
Provide external DIL connectivity to remote battlefield digitization sites for digitization experimentation and tests.	100	350	0
Upgrade, operate and support DIL Evaluation & Certification Testbed and other facilities supporting experiments/certifications needed for battlefield digitization efforts, including Joint, Allied as well as STO/ACTD/ATD experimentation and evaluations related to Objective Force development. Support interoperability testing between emerging FCS C4ISR Systems and the SDD, FCD, IBCD systems.	0	750	0
Upgrade, operate and support secure DIL Evaluation & Certification Testbed and other facilities supporting experiments/certifications needed for battlefield digitization for Army SDD & FDC, as well as STO/ACTD/ATD experimentation and evaluations related to Future Force development.	392	0	0

Accomplishments/Planned Program (continued)	FY 2003	FY 2004	FY 2005
Acquire/update DIL hardware and software interfacing systems, test tools, and supporting C4ISR systems for SDD, FDC, and Future Forces.	0	150	0
Acquire DIL automated scenario drivers and test analysis tools for SDD, FDC and Future Force evaluations TA/SA evaluations	0	112	0
Combat Net Radio (CNR) Protocol Test Tool (Monitor/Decoder) development to support Sync Mode, common PTT components	49	0	0
CNR Protocol Test Tool (Conformance Tester V5) development; develop latest approved version of CNR standard.	35	0	0
CNR Protocol Test Tool (Network Analyzer V4) development; supports Net troubleshooting & Net performance.	35	0	0
VMF Test Tool development and On site support	50	0	0
Develop/Field VMF Reissue 6 VMF tool database	55	0	0
VTT Message Generation Scripting	45	0	0
Provide DIL System Engineering and Integration support for conducting experiments and evaluations to support FDD, Joint Tests, and testing related to development of ATD's and STO's related to the development of the Future Force.	0	220	0
Evaluate and certify IT/C4ISR systems interoperability for FDD, Future Force, Joint experiments to assure compliance with the Technical and System Architectures.	0	560	0
Provide systems engineering, integrated support & field support for identification and resolution of systems' discrepancies and inconsistencies identified during evaluations.	0	180	0
Army Enterprise Applications Architecture (AEAA) - Developed and published the Enterprise Applications Architecture (EAA) Guidance Document version 1.0 which identified to-be software architecture patterns and provided a proposed migration plan.	887	0	0
Totals	1648	2322	0

B. Other Program Funding Summary: Not applicable for this item.

C. Acquisition Strategy: The efforts funded in this project are non-system specific, supporting interoperability across multiple systems. The contractual efforts/services are obtained from existing competitive omnibus support services contracts.

ARMY RDT&E COST ANALYSIS(R3)

February 2004

BUDGET ACTIVITY
5 - System Development and Demonstration

PE NUMBER AND TITLE
0604805A - Command, Control, Communications Systems - Eng Dev

PROJECT
097

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 . Labor (internal Govt)	In House	USACECOM, Fort Monmouth, NJ	3366	319	1-4Q	650		0		Continue	4335	0
b . Travel	In House	USACECOM, Fort Monmouth, NJ	79	7	1-4Q	50		0		Continue	136	0
Subtotal:			3445	326		700		0		Continue	4471	0

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 . System Engineering	C/CPFF	Arinc, Fort Monmouth, NJ	3061	342	1-2Q	1200	1-2Q	0		Continue	4603	0
b . Development Support	C/CPFF	CSC, Fort Monmouth, NJ	607	0		100	1-2Q	0		Continue	707	0
c . Development Support	C/CPFF	C3I, Fort Monmouth, NJ	908	93	1-2Q	200	1-3Q	0		Continue	1201	0
d . Security Engineering	C/CPFF	Nations, Fort Monmouth, NJ	111	0	1Q	0		0		Continue	111	0
e . Equipment	FFP	USA CECOM, NJ	753	0	1-4Q	122	1-4Q	0		Continue	875	0

ARMY RDT&E COST ANALYSIS(R3)

February 2004

BUDGET ACTIVITY
5 - System Development and Demonstration

PE NUMBER AND TITLE
0604805A - Command, Control, Communications Systems - Eng Dev

PROJECT
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II. Support Cost (continued)	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
f . Development Support	C/CPFF	BAH, Fort Monmouth, NJ	40	0	1-4Q	0		0		Continue	40	0
g . Development Support	C/FP	Binary Consulting Inc. Bethesda, MD	0	887	2Q	0		0		0	887	0
Subtotal:			5480	1322		1622		0		Continue	8424	0

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
Subtotal:			0	0		0		0		0	0	0

ARMY RDT&E COST ANALYSIS(R3)

February 2004

BUDGET ACTIVITY
5 - System Development and Demonstration

PE NUMBER AND TITLE
0604805A - Command, Control, Communications Systems - Eng Dev

PROJECT
097

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
Subtotal:			0	0		0		0		0	0	0
Project Total Cost:			8925	1648		2322		0		Continue	12895	0

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

February 2004

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
5 - System Development and Demonstration	**0604805A - Command, Control, Communications Systems - Eng Dev**	**485**

COST (In Thousands)		FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
485	INFO STANDARDS INTEROP ENG/JOINT INTEROP CERT	4218	5619	2614	3507	4355	3440	3678	0	34817

A. Mission Description and Budget Item Justification: Evaluate systems' interoperability, in support of the Vice Chief of Staff Army (VCSA) and the Office of the Chief Information Officer (CIO/G-6), Army Enterprise Architecture (AEA) Program, as cited in the AEA Master Plan, fulfilling the Clinger-Cohen Act's mandate of developing sound integrated Information Technology (IT) architectures and the Army's Software Blocking Policy. The increased combat power of the Future Force, as defined by the Chief of Staff of the Army (CSA) Transformation Campaign Plan (TCP), will be dependent on the information superiority of network & knowledge centric warfare and the ability of systems to be fully "interoperable as a member of the joint, multinational, interagency team as well as emerging Future Force (FF) C4ISR (Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance) Systems." It identifies and reduces interoperability issues earlier in the life cycle by intra-Army/FF/Joint/combined experiments, certifications, and assessments and through the establishment & sustainment of common standards. This Army wide effort directly supports the management, oversight, development, maintenance, and interoperability of the Army enterprise level C4I/IT architecture efforts required to implement the Army Transformation Campaign Plan, Unit Set Fielding, Software Blocking and Army Knowledge Enterprise Architecture (AKEA). Specifically, this project resources the Army's messaging standards conformance authority in assessing compliance with the Joint Technical Architecture - Army (JTA-A), in meeting the war fighter information exchange requirements and in facilitating their interoperability. Also it resources, in accordance with the JTA-A, the development and maintenance of the following information standards: Variable Message Format (VMF) & Combat Net Radio (CNR) protocol, which support Army/Joint ground operations; Tactical Digital Information Links (TADILs), which support Air Defense operations; and US Message Text Format (USMTF), which support Intel and Commanders operations. It provides the Army's lead for configuration management functions of these standards and test tools at both Army and Joint levels. This project resources the Army participation in joint/allied messaging certification testing & configuration management processes. This project also resources the development and fielding of a suite of four (4) crucial tools which are used throughout the entire Army. These tools which are currently under development will provide the ideal means to: a) validate JTA-A critical messaging and protocol standards; b) improve systems interoperability; c) verify/certify correct system implementations and interpretation to JTA-A; d) sustain/support digitization and transition of fielded systems; e) support Software Blocking and interoperability testing; f) provide Legacy AEA interoperability with Future Combat System (FCS) command and control systems. These crucial tools are critical to the JTA-A Compliance, Certification Testing mission & Interoperability programs. The task also supports the Army's transformation campaign while mitigating interoperability issues resulting in reducing cost & program slippages. This project also provides the Configuration Management & Control for the Software Blocking (SWB)/USF (Unit Set Fielding). This program supports the Current to Future transition path of the Transformation Campaign Plan (TCP).

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

February 2004

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
5 - System Development and Demonstration	**0604805A - Command, Control, Communications Systems - Eng Dev**	**485**

Accomplishments/Planned Program	FY 2003	FY 2004	FY 2005
Evaluate and certify IT/C4ISR systems interoperability for DCX (Division Capstone Exercise), Joint experiments to assure compliance with the Technical and System Architectures	70	0	0
Provide DIL (Digital Integration Laboratory) System Engineering and Integration support for conduct of experiments and evaluations to support FDD, Joint Tests, and testing related to development of ATDs (Advanced Technology Demonstrations) and STOs (Science and Technology Objectives) related to the development of the Future Force.	72	0	0
Develop and publish Army wide Combat Net Radio (CNR) and Variable Message Format (VMF)/USMTF (United States Message Text Format) application header standards and updates that support warfighting interoperability requirements during the Current to Future Force Transformation.	300	433	350
Develop/Joint approved new Variable Message Format (VMF) messages to support interoperability during the Current to Future Force Transformation.	300	450	350
Joint approval of 50-200 Variable Message Format (VMF) change proposals to support warfighting interoperability during the Current to Future Force Transformation. Change proposal also includes requirements for Homeland Defense (i.e. Nuclear/Biological & Chemical, security, etc) Interoperability and Software Blocking/Unit Set Fielding.	390	500	400
Maintain Army wide common Variable Message Format (VMF) Data Base (VID) and provide multiple versions that supports interoperability during the system development, testing and fielding. Ensure the warfighter requirements(Army-Wide & Joint) in the VMF Integrated Database are validated.	77	200	71
Chair the VMF Integrated database IPT. Including the development and maintenance of the VID QA consistency tool & automated distribution mechanism.	0	100	52
Conduct, chair & manage at multiple Army CCBs (Configuration Control Boards) and represent the Army at multiple Army/Joint CCBs to support existing and evolving warfighter interoperability.	150	200	97
Evaluate, process and obtain approval of 1100-1200 Air defense TADILs & ground operation USMTF change proposals incorporating crucial Ground, Air Defense, Intel & Commander requirements.	600	550	287
Prepare for and Conduct 10 Joint certification testings to include 30 operational systems, and develop over 500 interoperability problem reports for analysis by Joint services	700	0	0
Army lead in over 24 Joint Air Defense (i.e.TADILS), Ground Operations (i.e.USMTF), OSD Tactical Data Link Management plans (TDLMP), and Joint Interface Requirements.	45	50	24
Engineer, develop & publish Warfighter Information Standards (i.e. XML-USMTF/VMF,Wireless XML, database exchange, etc...) Incorporating the Army's requirements into the standards IAW Army guidance, policy and warfighter needs.	20	191	130

Accomplishments/Planned Program (continued)	FY 2003	FY 2004	FY 2005
Develop, field and provide SME (subject matter expert) support for Combat Net Radio (CNR) Protocol Test tool (Monitor/Decoder) for the design & implementation of the operational Sync Mode, common PTT components and capabilities.	90	0	0
Develop, field and provide SME support for the CNR Protocol Test Tool (PTT) mandated version of CNR standards and ensure Army-Wide requirements (i.e. Mobility,Security,Robustness, etc) are met in accordance with crucial Army guidance & policy.	275	270	131
Develop, field and provide SME support for CNR PTT (Network Analyzer) design/implement net troubleshooting & net performance limited bandwidth systems to meet time sensitive information exchanges. Conduct PTT Conformance to standard test to the CNR standards to obtain Army wide & joint approval.	50	89	42
Develop and field the Army's VMF Test Tool (VTT) to current reissue baseline for the VMF standard and provide SME Support. Conduct VTT Conformance to standard test to the VMF standards to obtain Army wide & Joint approval.	150	203	104
Develop, field and support VTT Message Generation Scripting to include all Army-Wide requirements (i.e. Homeland Security, SWB/USF, etc...) and ensure compatibility with Army mandates.	150	203	104
Develop, field and support the US Message Text Tool (MTT) to support XML-USMTF support to evolving warfighter requirements and Architectural guidance. Conduct MTT Conformance to standard test to the US MTF standards to obtain Army wide & Joint approval.	387	400	207
Develop, publish and execute the SWB CM (Software Blocking Configuration Management) function to include all the configuration items developed by the Requirements WG (Working Group), Architecture WG, Block Execution Management WG and the IPT/SUB-IPTs for all SW Blocks, ISCCB SOP development, & SWB architecture CM web site development.	387	425	202
Develop and engineer OSD Global Information Grid/Network Centric Enterprise Services (GIG/NCES) messaging requirements and serve as Army focal point for messaging working group.	5	4	63
Army Enterprise Applications Architecture (AEAA) - Developed and published the Enterprise Applications Architecture (EAA) Guidance Document version 1.0 which identified to-be software architecture patterns and provided a proposed migration plan.	0	46	0
Knowledge Center Development - Provided Army Architects access to key policies and directives and provided a collaboration mechanism for them to utilize.	0	1198	0
Small Business Innovative Research/Small Business Technology Transfer Programs	0	107	0
Totals	4218	5619	2614

B. Other Program Funding Summary: Not applicable for this item.

C. Acquisition Strategy: The efforts funded in this project are non-system specific, interoperability experimentation, evaluation and certification across multiple systems. The contractual efforts/services are obtained from existing competitive omnibus support service contracts.

ARMY RDT&E COST ANALYSIS(R3)

February 2004

BUDGET ACTIVITY
5 - System Development and Demonstration

PE NUMBER AND TITLE
0604805A - Command, Control, Communications Systems - Eng Dev

PROJECT
485

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 . Labor (internal Govt)	In House	USACECOM , Fort Monmouth, NJ	7692	1765	1-4Q	2002	1-4Q	1215	1-4Q	Continue	12674	0
b . Travel	In House	USACECOM, Fort Monmouth, NJ	226	50	1-4Q	70	1-4Q	111	1-4Q	Continue	457	0
Subtotal:			7918	1815		2072		1326		Continue	13131	0

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 . Development Support	C/CPFF	Arinc, Fort Monmouth, NJ	5289	410	1-4Q	0		0		0	5699	0
b . Development Support	C/CPAF	Telos, Fort Monmouth, NJ	4581	0		0		0		0	4581	0
c . Development Support	C/CPFF	CSC, Fort Monmouth, NJ	1963	0		0		0		0	1963	0
d . Development Support	C/CPFF	C3I, Fort Monmouth, NJ	1374	0		0		0		0	1374	0
e . Development Support	SS/CPFF	Mitre, Fort Monmouth, NJ	280	0		0	3-4Q	0		0	280	0
f . Development Support/ Army Enterprise Applications Architecture	C/T&M	Binary, Ft. Belvoir, VA	0	0		46	4Q	0		0	46	0

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BUDGET ACTIVITY
5 - System Development and Demonstration

PE NUMBER AND TITLE
0604805A - Command, Control, Communications Systems - Eng Dev

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II. Support Cost (continued)	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
g . Development Support-Knowledge Center	C/T&M	ITEL, Ft Monmouth, NJ	0	0		1198	2Q	0		0	1198	0
h . Development Support	C/T&M	ITEL, Ft Monmouth, NJ	0	897	2Q	1121	2Q	622	2Q	Continue	2640	0
i . Development Support	C/T&M	Northrop Grumman (SEC SSES), Ft Monmouth, NJ	0	871	2Q	1102	2Q	606	2Q	Continue	2579	0
j . Technical Support	C/CPFF	TFE, Fort Monmouth, NJ	0	25	2-3Q	40	2-3Q	30	2-3Q	Continue	95	0
k . Technical Support	C/CPFF	Marconi, Fort Monmouth, NJ	183	0		0		0		0	183	0
l . Equipment	In House	USACECOM, NJ	375	40	4Q	40	4Q	30	4Q	Continue	485	0
m . Equipment (Development Support)	C/FFP	GTE, Tauton, MA	106	0		0		0		0	106	0
n . Telecommunications	MIPR	USASC, Fort Huachuca, AZ	985	160	2Q	0		0		Continue	1145	0
Subtotal:			15136	2403		3547		1288		Continue	22374	0

Remarks: *Contracts/awards cited are 5 year (1 base + 4 option years). Future award dates imply future competitive award, contractor TBD.

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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
Subtotal:			0	0		0		0		0	0	0

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
Subtotal:			0	0		0		0		0	0	0

Project Total Cost:			23054	4218		5619		2614		Continue	35505	0

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

February 2004

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
5 - System Development and Demonstration	**0604805A - Command, Control, Communications Systems - Eng Dev**	**589**

COST (In Thousands)		FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
589	ARMY SYS ENGINEERING & WARFIGHTING TECH SUP	8033	3340	5963	6024	6294	5615	5712	0	57277

A. Mission Description and Budget Item Justification: The Army Systems Engineering Office (ASEO) provides essential subject matter expertise and systems engineering critical to the transformation of the Army from the current force to the Future Force. The ASEO is primarily engaged in defining and integrating the Army Enterprise Architecture (AEA) and its many components, which extend from tactical levels up through operational and strategic components of the Army Battle Command Architecture (ABCA), as well as, the institutional portions of the Enterprise to include the Army's Business Enterprise Architecture (BEA). The ASEO supports the Army CIO/G6 Architecture Integration Cell (AIC) in establishing an integrated AEA framework that complements, and is a natural extension of, the GIG-Enterprise Services (GIG-ES). In addition, the ASEO is an essential contributor in the development of the JBMC2 integrated architecture, the Battle Command "Good Enough" architecture, and emerging Cross-Service Integrated Architecture efforts. Each of these architecture definition and integration efforts is elemental to achieving the Army's goal of a NetCentric Future Force.
The Joint Technical Architecture (JTA) and JTA-Army (JTA-A) have, in the past, provided the foundation for designing, building, fielding and supporting Joint interoperable Army systems in an expedient and cost-effective manner. The ASEO is the Army's driving force behind the technical content of the JTA-A and serves as the Army's representative to the JTA community, ensuring Army requirements are adequately captured and reflected in that baseline. The ASEO identifies emerging standards in support of the integration of new technologies into existing Army systems and Advanced Technology Demonstrations/Advanced Concept Technology Demonstrations (ATD/ACTDs), enabling the Army transformation to the Future Force. The ASEO's work efforts in the development and maintenance of JTA and JTA-A baselines are critical path elements to achieve transformation, increase joint interoperability and to provide the future Army with the ability to fight and win on tomorrow's battlefields. However, the Technical Architecture (TA) alone only provides the foundation for interoperability. Integrated Army Enterprise Architectures (e.g., ABCA, BEA, etc.) fuse Operational, Systems and Technical views of the Army Enterprise into cohesive and manageable information sets that allow the Army to make consequent decisions regarding the Army's inventory of present and future systems and their associated funding. In this area the ASEO specializes in defining and exploiting (through analysis) the relationships between architectural views to provide quantitative answers to complex questions regarding the Army's future capabilities and the roadmap the Army will pursue in realizing them.
The allocated resources fund two support efforts for CIO/G6. First, subsequent to the development of the AKEA (Army Knowledge Enterprise Architecture) Guidance Document, V1.1, the effort has shifted to development of the Army Technical Reference Model (TRM) for information broker/mediation services, and mapping the Army's architecture requirements to DOD Net-Centric Operations and Warfare Reference Model, including NCES (Net-Centric Enterprise Services). Second, support of the design, development, deployment and maintenance of the AAIC (Army Architecture Integration Cell) Web-based Knowledge Center continues with increased development requirements and functionality, including the consolidation of architectural repositories, design of the DARS-A (Defense Architecture Repository-Army) database, and acting as the Army's agent for DARS/DARS-A. This program supports the Current to Future Force transition path of the Transformation Campaign Plan (TCP) to include HLS.

Accomplishments/Planned Program	FY 2003	FY 2004	FY 2005
Conducted major design evaluations for Joint Technical Architecture-Army (JTA-A) Interoperability. System Implementations for 03: WIN-T, Theater High Altitude Air Defense (THAAD), Joint Tactical Radio System (JTRS), Future Combat Systems (FCS), Advanced Threat Infrared Countermeasures (ATIRCM/CMWS),Land Warrior Redesign, MOSAIC, Agile Commander,Advanced Precision Kill Weapons System (APKWS), Defense Advanced GPS Receiver (DAGR), Depoyable Joint Command & Control (DJC2), Joint Mission Planning System (JMPs), Future Force Warrior (FFW).	1092	0	0
Ensured JTA-A Interop Implementation and Assess JTA-A compatibility for Army, Science & Technology and PEO/PM programs to ensure they have an executable and effective strategy for implementing JTA-A mandated standards in their systems. Ensured JTA-A system level profiles were sufficient to promote Army and Joint system-to-system interoperability, supporting the interoperability analysis of Army system designs and provided analysis of JTA-A waivers. SSEBS/RFPs supported in 03: WIN-T,Joint Tactical Radio System (JTRS), Future Combat System (FCS),SPIDER, Reserve Component Automation System (RCAS), BLACKHAWK, Advanced Threat Infrared Countermeasures (ATIRCM/CMWS), LAND WARRIOR, VOLCANO, COMMANCHE, Distance Learing System (DLS), High Mobility Artillery Rocket System (HIMARS), Ground Standoff Minefield Detection System (GSTAMIDS),Enhanced Bandwidth Efficient Modem (EBEM).	1067	0	0
Assessed JTA-A interoperability for Army Systems. AD Hoc Assessments.	700	0	0
Technically influence the development/implementation of Joint Technical Architecture (JTA). FY03 accomplishements: JTA Versions 5.x, 6.0 restructured and aligned with Net-Centric Philosophy and redefined scope and standards applicability. Planned activities: JTA-A version 7.0, 7.5 to include major revision of Information Security Section, to include results of Tactical Imagery Transport Study	710	185	555
Investigate information technical standards for inclusion in JTA-A/JTA. Global Information Grid (GIG) Technologies (XML, JPEG 2000, MPEG 4, IPV6)	600	162	0
Maintain subject matter expertise on existing JTA and JTA-A Information Technology (IT) standards' mandates to ensure current and future force systems remain interoperable. Ensure a logical and cost-effective evolution of TA baselines while maximizing Joint interoperability. Incorporate emerging open standards-based commercial technologies to influence future force systems. Ensure that open commercial standards adopted by Future Force enabling systems are reflected in the JTA-A baseline.	570	1827	1850
JTA-A Compliance-ensure Program Managers have an executable and effective strategy for implementing the JTA-A.	0	370	823
Validate/Integrate Army Enterprise Technical Views to enable the Army Technical Architect (CIO/G6) to monitor, assess and control the inherent risks associated with leveraging continuously changing technologies across all Army Enterprise Functionals/PEO/Communities.	0	210	822

Accomplishments/Planned Program (continued)	FY 2003	FY 2004	FY 2005
As a result of the decision agreed to at the 19 Dec 02 Army Knowledge Enterprise Architecture (AKEA), General Officer Steering Committee (GOSC)meeting, CECOM/CERDEC was directed to transfer MU17 RDTE funding to DA G2, DA CIO/G6 and PEO Command, Control and Communications,Tactical (C3T). The transfer included $983,000 from PE 0604805A,Project 589 as well as other funding. (Ref Memorandum, SAIS-IOE,undated (S:15 Feb 03), Subject: MU17 FY03/FY04 Architectural Funding Re-Allocations to CECOM)	983	0	0
As a result of the decision agreed to at the 19 Dec 02 AKEA, GOSC, direction of MU17 funding was realigned to support the Protocols Investigation for the Next Generation (PING) program. The PING supported current technology agreements with various technology developers such as HP, Cisco, Microsoft and Telecordia. In addition, PING represented the ARMY CIO/G6 office at various ASD (NII)/DoD CIO meetings discussing DoD IPv6 policy and Transisition Planning, participated with JITC at DISA's Def Interop Comm Exercise 2003 (DICE 2003) demonstrating IPv6 interoperability, active member of DoD IPv6 Test Bed evaluating and testing IPv6 benefits and trade-offs, first Army lab participating with North American IPv6 Task Forces MoonV6 initiative, drafted ARmy's Phase I IPv6 Transition plan and initial transition strategy to migrate Army systems and networks to native IPv6 by FY08 in compliance with DoD policy,prepared evaluation criteria for selecting early IPv6 adopter candidates in support of the Army GIO/G6 office, hosted first Army IPv6 data call to collect systems impact information and baseline on Army IPv6 transition plan, provided IPv6 technical guidance and knowledge to the Army acquisition community.	433	0	0
Knowledge Center Development - Provided Army Architects access to key policies and directives and provided a collaboration mechanism for them to utilize.	849	0	731
Define and exploit (through analysis) the relationships between architectural views to provide quantitative answers to complex questions regarding the Army's future capabilities and the roadmap the Army will pursue in realizing them.	0	568	1913
Incorporated Command and Control application into Defense Collaborative Tool Suite (DCTS) Application by establishing Army focus for Commercial product integration into the Joint Architecture. Evaluate DCTS emerging certified suites and use R&D testbed to assist vital Army community rations of collaboration applications. Serve as Army Technical Lead supporting DCTS evolution with Collaboration Interoperability Working Group (CIWG) and Global Information Grid/Net-Centric Enterprise Services (GIG/NCES) DoD Working Groups Assessed C4ISR architectural performance in Joint Experimentation .	1029	0	0
Army Enterprise Applications Architecture (AEAA) - Develop and publish the Enterprise Applications Architecture (EAA) Guidance Document which identifies to-be software architecture patterns and provides a proposed migration plan	0	0	342

Accomplishments/Planned Program (continued)	FY 2003	FY 2004	FY 2005
Develop and publish Army wide Combat Net Radio (CNR) and Variable Message Format (VMF)/USMTF (United States Message Text Format) application header standards and updates that support warfighting interoperability requirements during the Current to Future Force Transformation.	0	0	106
Develop/Joint approved new Variable Message Format (VMF) messages to support interoperability during the Current to Future Force Transformation.	0	0	145
Joint approval of 50-200 Variable Message Format (VMF) change proposals to support warfighting interoperability during the Current to Future Force Transformation. Change proposal also includes requirements for Homeland Defense (i.e. Nuclear/Biological & Chemical, security, etc) Interoperability and Software Blocking/Unit Set Fielding.	0	0	154
Maintain Army wide common Variable Message Format (VMF) Data Base (VID) and provide multiple versions that supports interoperability during the system development, testing and fielding. Ensure the warfighter requirements(Army-Wide & Joint) in the VMF Integrated Database are validated.	0	0	45
Chair the VMF Integrated database IPT. Including the development and maintenance of the VID QA consistency tool & automated distribution mechanism.	0	0	33
Conduct, chair & manage at multiple Army CCBs (Configuration Control Boards) and represent the Army at multiple Army/Joint CCBs to support existing and evolving warfighter interoperability.	0	0	62
Evaluate, process and obtain approval of 1100-1200 Air defense TADILs & ground operation USMTF change proposals incorporating crucial Ground, Air Defense, Intel & Commander requirements	0	0	183
Army lead in over 24 Joint Air Defense (i.e.TADILS), Ground Operations (i.e.USMTF), OSD Tactical Data Link Management plans (TDLMP), and Joint Interface Requirements	0	0	15
Engineer, develop & publish Warfighter Information Standards (i.e. XML-USMTF/VMF,Wireless XML, database exchange, etc...) Incorporating the Army's requirements into the standards IAW Army guidance, policy and warfighter needs.	0	0	83
Develop, field and provide SME support for the CNR Protocol Test Tool (PTT) mandated version of CNR standards and ensure Army-Wide requirements (i.e. Mobility,Security,Robustness, etc) are met in accordance with crucial Army guidance & policy.	0	0	49
Develop, field and provide SME support for CNR PTT (Network Analyzer) design/implement net troubleshooting & net performance limited bandwidth systems to meet time sensitive information exchanges. Conduct PTT Conformance to standard test to the CNR standards to obtain Army wide & joint approval.	0	0	27
Develop and field the Army's VMF Test Tool (VTT) to current reissue baseline for the VMF standard and provide SME Support. Conduct VTT Conformance to standard test to the VMF standards to obtain Army wide & Joint approval	0	0	20

Accomplishments/Planned Program (continued)	FY 2003	FY 2004	FY 2005
Develop, field and support VTT Message Generation Scripting to include all Army-Wide requirements (i.e. Homeland Security, SWB/USF, etc...) and ensure compatibility with Army mandates.	0	0	20
Develop, field and support the US Message Text Tool (MTT) to support XML-USMTF support to evolving warfighter requirements and Architectural guidance. Conduct MTT Conformance to standard test to the US MTF standards to obtain Army wide & Joint approval.	0	0	23
Develop, publish and execute the SWB CM (Software Blocking Configuration Management) function to include all the configuration items developed by the Requirements WG (Working Group), Architecture WG, Block Execution Management WG and the IPT/SUB-IPTs for all SW Blocks, ISCCB SOP development, & SWB architecture CM web site development.	0	0	25
Develop and engineer OSD Global Information Grid/Network Centric Enterprise Services (GIG/NCES) messaging requirements and serve as Army focal point for messaging working group.	0	0	2
Small Business Innovative Research/Small Business Technology Transfer Programs	0	18	0
Totals	8033	3340	8028

B. Other Program Funding Summary: Not applicable for this item.

C. Acquisition Strategy: The efforts funded in the project are non-system specific, therefore no acquisition strategy is provided.

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February 2004

BUDGET ACTIVITY
5 - System Development and Demonstration

PE NUMBER AND TITLE
0604805A - Command, Control, Communications Systems - Eng Dev

PROJECT
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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 . Government Systems Engineering Support	In House	ASEO, DCTS, PING/03 only, Fort Monmouth, NJ	7895	2553	1-4Q	1424	1-4Q	1978	1-4Q	Continue	13850	0
b . Contract Support	C & T&M-R	C3ISGI, Tinton Falls, NJ	2830	250		0		0		0	3080	0
c . Contract Support	C & FP	TRW, Domingues Hills, CA	1281	0		0		0		0	1281	0
d . Overhead		ASEO/WTS CECOM, Fort Monmouth, NJ	1422	0		0		0		0	1422	0
e . Contract Systems Engineering Support	C & FP	Battelle, Alexandria, VA	354	0		0		0		0	354	0
f . System Development and Integration	MIPR	PEO C3S, PM TOCS, Fort Monmouth, NJ	25	0		0		0		0	25	0
g . Travel	In House	SEC, USACECOM, Ft. Monmouth, NJ	0	0		0		20	1-4Q	0	20	0
h . Development Support	C/T&M	Northrop Grummon (SEC SSES), Ft. Monmouth, NJ	0	0		0		50	2Q	0	50	0
i . Contract Systems Engineering Support	C & FP	SRI, Menlo Park, CA	0	199	3-4Q	0		0		0	199	0
j . Labor (Internal Government)	In House	SEC, USACECOM, Ft. Monmouth, NJ	0	0		0		867	1-4Q	0	867	0

ARMY RDT&E COST ANALYSIS(R3)

February 2004

BUDGET ACTIVITY
5 - System Development and Demonstration

PE NUMBER AND TITLE
0604805A - Command, Control, Communications Systems - Eng Dev

PROJECT
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I. Product Development (continued)	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
k . Equipment	In House	USACECOM, NJ	0	0		0		5	4Q	0	5	0
l . Development Support	C & TM	ITEL, Mays Landing, NJ	0	0		0		50	2Q	0	50	0
m . Contract Support	C & FP	Lockheed Martin, Eatontown, NJ	545	0		0		0		0	545	0
n . Development Support - Army Enterprise Applications Architecture	C/T&M	Binary, Ft. Belvoir, VA	0	0		0		342	3-4Q	0	342	0
o . Contract Support	C & T&M	SAIC, Falls Church, VA	1511	300	2Q	0		0		0	1811	0
p . Contract Systems Engineering Support	C & FP	SRC, Atlanta, GA	612	0		0		0		0	612	0
q . Contract Systems Engineering Support	SS & FP	MITRE, Tinton Falls, NJ	5552	1630	1Q	275	1-2Q	1650		0	9107	0
r . Systems Engineering and Integration	MIPR	WTS - ISIO CECOM, Fort Monmouth, NJ	2341	0		0		0		Continue	2341	0
s . Contract Support	C & T&M	Datron, Simi Valley, CA	305	0		0		0		0	305	0
t . Contract Systems Engineering Support	C & FP	Gemini, Billerica, MA	137	0		0		0	2Q	0	137	0

ARMY RDT&E COST ANALYSIS(R3)

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BUDGET ACTIVITY
5 - System Development and Demonstration

PE NUMBER AND TITLE
0604805A - Command, Control, Communications Systems - Eng Dev

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I. Product Development (continued)	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
u . Development Support-Knowledge Center	C & TM	ITEL, Mays Landing, NJ	0	849	2Q	0		731	2Q	0	1580	0
v . Contract Support	IPA Agreement	Rutgers University, New Brunswick, NJ	378	150	1-4Q	0		0		0	528	0
w . Contract Systems Engineering Support	C & FP	Suntek Systems, Eatontown, NJ	0	249	3Q	211	1-2Q	0		0	460	0
x . Contract Systems Engineering Support	C & FP	HTPi, Shrewsbury, NJ	145	0		0		0		0	145	0
y . Contract Support	C & TM	Telos, Eatontown, NJ	0	24	1Q	0		0		0	24	0
z . Engineering Support	MIPR	ISEC, Fort Huachuca, AZ	1357	0	1Q	0		0		Continue	1357	0
aa. Contract Support	C & TM	PTG/CACI, Eatontown, NJ	0	26	2Q	0		0		0	26	0
bb. Contract Systems Engineering Support	C & FP	Litton, Reading, MA	245	0		0		0		0	245	0
cc. Contract Support	C & FP	CSC, Eatontown, NJ	1746	0		0		0		0	1746	0
dd. Contract Support	C & FP	Janus Research Group, Appling GA	0	72	3Q	0		0		0	72	0

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BUDGET ACTIVITY
5 - System Development and Demonstration

PE NUMBER AND TITLE
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I. Product Development (continued)	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
dd. Contract Systems Engineering Support	C & FP	GTE/BBN, Cambridge, MA	960	0		0		0		0	960	0
ee. Travel	In House	ASEO/WTS CECOM, Fort Monmouth, NJ	1096	200	1-4Q	80	1-4Q	115	1-4Q	Continue	1491	0
ee. Contract Support	C & T&M	BAE, Tinton Falls, NJ	139	0		0		0		0	139	0
ff. Contract Systems Engineering Support	C & FPI	CSC, Eatontown, NJ	7002	1531	1-3Q	1350	1Q	2220	1-4Q	0	12103	0
Subtotal:			37878	8033		3340		8028		Continue	57279	0

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BUDGET ACTIVITY
5 - System Development and Demonstration

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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
Subtotal:			0	0		0		0		0	0	0

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
Subtotal:			0	0		0		0		0	0	0

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
Subtotal:			0	0		0		0		0	0	0

Project Total Cost:			37878	8033		3340		8028		Continue	57279	0

Schedule Detail (R4a Exhibit)

February 2004

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
5 - System Development and Demonstration	**0604805A - Command, Control, Communications Systems - Eng Dev**	**589**

Schedule Detail	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
TA - JTA-A 7.5			1Q				
TA - JTA-A 7.0	2-4Q	2Q					
TA - JTA 5.0	1-2Q						
TA - JTA 6.0		1-4Q					
SWB Shortfall Analysis		2Q					
AS-IS, AS-IS Plus Comms Analysis		1-2Q					
SA - 2DFSA (3BDE/1CAV)	1Q						
BCT 3 - (172nd Inf Bde) S=STRYKER	2Q						
Corps Warfighter	1Q						
75 Ranger Reg	1Q						
AECP/Homeland Security Support	2Q						
Joint /HLS Architecture Development	2Q						
04 Joint/HLS Architecture Support	2Q						
Juice 03	2-4Q						
Joint Blue Force System Analysis (JBFSA) Technical Views		1-4Q					
TA-JTA-A 8.0			2-4Q				
TA-JTA 7.0			1-3Q				
TRADOC BCBL DCTS Assessment	4Q						
DCTS Version 2 Phase 2 Testbed	4Q						

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

February 2004

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
5 - System Development and Demonstration	**0604805A - Command, Control, Communications Systems - Eng Dev**	**591**

COST (In Thousands)		FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
591	WPN SYS TECH ARCH (WSTA)	2229	669	585	583	582	583	583	0	10497

A. Mission Description and Budget Item Justification: Weapons Systems Technical Architecture (WSTA): The Joint Technical Architecture (JTA) and JTA-Army (JTA-A) provides the "building code" foundation for designing, building, fielding, and supporting interoperable systems in an expedient and cost-effective manner. The WSTA identifies new and emerging standards for integration of new technologies into new and existing Army Weapons Systems in support of Army transformation efforts. WSTA defines JTA and JTA-A Weapon Systems domain specific mandatory and emerging standards which are required for these embedded, real-time computing systems use of electronic data and information. It has and will continue to refine the Common Operation Environment (COE) concept insuring that the Army's hard-real-time and embedded requirements for systems are acknowledged. These endeavors enable the realization of the Transformation Campaign Plan (TCP) goals by providing the means by which all three axes of the TCP can be achieved.

Accomplishments/Planned Program	FY 2003	FY 2004	FY 2005
Update the WSTA Framework	0	0	0
Interface Standards Analysis for WS Core Operating Environment (COE)	0	0	0
Define DII COE to WS COE Interfaces	0	0	0
Develop and Test Real-Time Computing WS COE API	290	0	0
Develop and Test Real-Time WS COE Mapping Services API	0	0	0
Modify and Test Embedded Battle Command (EBC) Software in WS COE	0	0	0
Develop, Test, and Certify a WSTA Security Architecture for WS COE	0	0	0
Support WS COE Family of API's Transistion to Industry and COTS	271	247	244
Develop updates to MIL-STD-2525B (Symbology)	0	0	0
Research, Define, and Input Unmanned WS Standards in JTA/JTA-A	0	0	0
Maintain and support update of WS Domain of the JTA/JTA-A	64	171	170
Engineering and Program Development Infrastructure	564	251	171
Funding not received	1040	0	0
Totals	2229	669	585

B. Other Program Funding Summary: Not applicable for this item.

This activity receives an intermediate level of support from participation by Program Executive Offices, Program Managers, Commodity Commands, Academia and Industry. This support significantly supplements the overall WSTA activity at an estimated level of three for one in the near term and five or more to one in the out years.

C. Acquisition Strategy: The efforts funded in this project are non-system specific, interoperability experimentation, evaluation and certification across multiple systems. The contractual efforts/services are obtained from existing competitive Omnibus support services contracts.

ARMY RDT&E COST ANALYSIS(R3)

February 2004

BUDGET ACTIVITY
5 - System Development and Demonstration

PE NUMBER AND TITLE
0604805A - Command, Control, Communications Systems - Eng Dev

PROJECT
591

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 . USAISSC	MIPR	Fort Belvoir, VA	128	64	2Q	69	2Q	70	2Q	Continue	331	0
b . TACOM-ARDEC	MIPR	Picatinny Arsenal, NJ	1599	365	1-4Q	163	1-4Q	162	1-4Q	Continue	2289	0
c . TACOM-TARDEC	MIPR	Warren, MI	2754	611	1-4Q	223	1-4Q	143	1-4Q	Continue	3731	0
d . GSA	MIPR	Huntsville, AL	1480	74	1-4Q	0		0		0	1554	0
e . AMCOM-AMRDEC	MIPR	Redstone Arsenal, AL	208	0	1-4Q	167	1-4Q	169	1-4Q	Continue	544	0
f . CSC (Nichols Research Corp)	C/CPFF	Huntsville, AL	171	0		0		0		0	171	0
g . PEO AVN	MIP	Redstone Arsenal, AL	0	25	1-4Q	0		0		0	25	0
Subtotal:			6340	1139		622		544		Continue	8645	0

ARMY RDT&E COST ANALYSIS(R3)

February 2004

BUDGET ACTIVITY
5 - System Development and Demonstration

PE NUMBER AND TITLE
0604805A - Command, Control, Communications Systems - Eng Dev

PROJECT
591

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
Subtotal:			0	0		0		0		0	0	0

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
Subtotal:			0	0		0		0		0	0	0

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 . AMCOM-AMRDEC	In House	Redstone Arsenal, AL	683	50	1-4Q	47	1-4Q	41	1-4Q	Continue	821	Continue
b . Funding not received at AMCOM			0	1040		0		0		0	1040	0
Subtotal:			683	1090		47		41		Continue	1861	Continue
Project Total Cost:			7023	2229		669		585		Continue	10506	Continue

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

February 2004

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
5 - System Development and Demonstration	**0604805A - Command, Control, Communications Systems - Eng Dev**	**615**

COST (In Thousands)		FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
615	JTRS-GROUND DOMAIN INTEGRATION	60659	202148	101770	61578	41322	14616	2674	0	600422

A. Mission Description and Budget Item Justification: Project D615 supports the Joint Tactical Radio System (JTRS)- Cluster 1 and Cluster 5 RDTE development efforts. The Cluster 1 JTRS-Army RDTE program will enable the Army to acquire and field a family of affordable, scaleable, high capacity, interoperable radio sets based on a common JTRS Software Communications Architecture (SCA). The JTRS is a key enabler of the Army Transformation and will provide critical communications capabilities across the spectrum of operations in a Joint environment. The Cluster 1 JTRS is a Joint program encompassing the specific requirements of the JTRS Joint Program Office (JPO), US Army Ground Vehicular and Rotary Wing Aircraft, US Air Force Tactical Control Party (TACP), and US Marine Corps applications. This project supports RDT&E efforts for the JTRS Cluster 1 program while the Services provide funding for their unique requirements. In FY04, the Army initiated the Cluster 5 (formerly known as Cluster X) program. This cluster encompasses the development and design of three discrete form factors: Handheld, Manpack (including vehicular mounted), and Small Form Fit (SFF) embedded applications to support Future Combat System and Operation Enduring Freedom requirements. Beginning in FY05, all Cluster 5 funding is contained within PE 0604805A, Project D61A. These systems support the Current to Future transition path of the Transformation Campaign Plan (TCP).

Accomplishments/Planned Program	FY 2003	FY 2004	FY 2005
JTRS Product Development (JTRS Step 2C Contract)	0	0	0
JTRS Product Development (JTRS Cluster 1 Vehicular and Airborne Hardware Design and Development of Prototypes and technical engineering support)	38113	137000	64806
JTRS Product Development (JTRS Cluster procurement of up to 10 Vehicular and up to 14 Airborne pre-engineering models for Early Operational Assessment testing)	9843	0	0
JTRS Product Development (Cluster 1 Platform Installation Kit Development)	0	5653	5748
JTRS Test and Evaluation (JTRS EPG Testbed and Test Planning/Test Support/Electronic and Information Warfare Test and Evaluation/Labor)	2080	8696	20210
JTRS Management Services (JTRS Program Management Office Support)	7122	10113	9220
JTRS Support Costs (Systems Engineering and Technical Support)	3093	3211	1786
NTDRS Support Costs (NTDRS Testbed and Technical Support)	408	0	0
Initiate the development and design of an embeddable, dismountable form factor identified as Cluster 5 (formerly Cluster X)	0	31615	0
Small Business Innovative Research/Small Business Technology Transfer Programs	0	5860	0

Accomplishments/Planned Program (continued)	FY 2003	FY 2004	FY 2005
Totals	60659	202148	101770

B. Other Program Funding Summary	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
OPA, Army, JTRS Cluster 1, B90100*	0	0	121452	136436	109171	101150	177147	Continuing	Continuing
RDTE, JTRS, 0604280A/D162**	62921	133293	121400	71221	57233	28573	27073	Continuing	Continuing
RDTE, PEO AVN, JTRS A-Kit PE 64201/C97***	24483	44331	62964	55629	26748	36526	24130	Continuing	Continuing
APA, PEO AVN, JTRS A-Kit Procurement AA0702/AA0700***	0	1892	0	19058	61545	55083	66189	Continuing	Continuing

Note: *This funding was previously contained as part of the BU1400 SSN and has been broken out into a separate funding line in this submission. ** Funding represents all Clusters. ***Other Procurement, Army funding is JTRS Cluster 1 only. Funding in line AA0702 for FY04 only. Funding is contained within AA0700 in FY05 and out.

C. Acquisition Strategy: Joint Tactical Radio System (JTRS): Project D615 supports JTRS Cluster 1 and Cluster 5 Army Software Development and Demonstration efforts, and JTRS Step 2C. In FY03, development and testing efforts for the Step 2C program were completed upon final delivery of 40 JTRS Step 2C Engineering Development Models, no further development activity is planned. The Army Project Manager Warfighter Information Network-Tactical (PM WIN-T) is the lead for the Cluster 1 effort. Under Cluster 1, a software reprogrammable radio providing the warfighter with a multi-band and multi-mode capability, networkable radio system which provides simultaneous voice, data and video communications to increase interoperability, flexibility and adaptability in support of varied mission requirements is being developed. The JTRS Joint Program Office (JPO) is responsible for common core activities including developing, maintaining, and evolving the JTRS open standards architecture, providing re-coded versions of legacy waveforms to operate on JTRS architecture compliant hardware, and provides a certifying infrastructure for hardware/software compliance. After a successful Milestone B Decision in 3QFY02, the Cluster 1 development effort was awarded to develop multi-channel ground and airborne configurations. The JTRS Cluster 1 supports an evolutionary acquisition strategy. In June 2002, a cost plus award fee contract was competitively awarded to a Prime Systems Engineering Contractor (The Boeing Company) who is responsible for developing and/or acquiring numerous Software Communications Architecture compliant waveforms, defining common form-fit-function configurations for vehicular and aviation versions of the JTRS hardware, and successfully porting the waveforms to JTRS hardware produced by two different developers. The FY04-05 budget supports continued development and support of the development of Cluster 1 Ground and Airborne sets, design of ground vehicular A-kits (installation kits) for platforms required for testing, Early Operational Assessment and System Integration Test (SIT)/Limited User Test (LUT) and Multi-Service Operational Test and Evaluation (MOT&E) testing for Cluster 1.

The JTRS Cluster 5 program has been structured to satisfy requirements for handheld, manpack, and small form fit embedded radios. Technical requirements are met over time, using spiral development. After an anticipated Milestone Review in 2QFY2004, a single contract is projected to be awarded in February 2004 for the development of the Cluster 5 system. The Cluster 5 program has been designated an ACAT 1C program. In FY04, Cluster 5 funding is contained in PE 0604805A, Project D615. Beginning in FY05, Cluster 5 funding transitions to PE 0604805A, Project D61A.

ARMY RDT&E COST ANALYSIS(R3)

February 2004

BUDGET ACTIVITY
5 - System Development and Demonstration

PE NUMBER AND TITLE
0604805A - Command, Control, Communications Systems - Eng Dev

PROJECT
615

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 . NTDRS CPIF/T&M/FFP Efforts*	C/T&M/CPIF/FFP	ITT, Fort. Wayne, IN	9715	0		0		0		0	9715	8968
b . NTDRS (Ancillary Equip, NMT, & Misc)	Misc	Misc	430	0		0		0		0	430	325
c . JTRS Army Step 2C Hardware Development and Cost of Prototypes	C/OTA/T&M	BAE Systems, Wayne, NJ	6876	0		0		0		0	6876	0
d . JTRS Step 2C Anc Equip/Log & Engrg	Various	Various	616	0		0		0		0	616	0
e . JTRS Cluster 1 GFE	Various	Various	22	25	3Q	50	1-3Q	0		Continue	Continue	0
f . JTRS Cluster 1 (EPLRS Data Rights)	FFP	Raytheon, Fullerton, CA	5000	0		0		0		0	5000	0
g . JTRS Cluster 1 Development	CPAF	BOEING, Annaheim, CA	62086	47039	1-3Q	134235	1-3Q	63903	1-3Q	Continue	Continue	0
h . JTRS Cluster 1 (Installation Kit)	TBD	TBD	0	0		5653	1-3Q	5748	1-3Q	Continue	Continue	0
i . Tactical Internet Integration	T&M	ITT, Ft. Wayne,IN	1792	0		0		0		0	1792	0

ARMY RDT&E COST ANALYSIS(R3)

February 2004

BUDGET ACTIVITY
5 - System Development and Demonstration

PE NUMBER AND TITLE
0604805A - Command, Control, Communications Systems - Eng Dev

PROJECT
615

I. Product Development (continued)	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
j . JTRS Development - System Engrg Spt	various	MISC	1596	912	1-4Q	2715	1-4Q	903	1-4Q	Continue	Continue	0
k . ABCS System Engineering and Integration Efforts	Various	MISC	1227	0		0		0		0	1227	0
l . Cluster 5 Design and Development**	CPAF	TBD	0	0		31615	2Q	0		Continue	Continue	0
Subtotal:			89360	47976		174268		70554		Continue	Continue	9293

Remarks: *NTDRS efforts prior to FY 2000 were funded in PE 0603713A, Proj D370
**Cluster 5 efforts in FY05 and out are funded in PE 0604805A, Proj D61A

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 . *NTDRS Test/Training/Logistics/Technical /Exercise Support	Various	Various	7154	408	1-2Q	0		0		0	7562	0
b . JTRS Antenna Studies	PWD	ARINC, Annapolis, MD	504	0		0		0		0	504	0
c . JTRS Technical Support	Various	Miscellaneous	4204	3093	1-2Q	3211	1-4Q	1786	1-4Q	Continue	Continue	0
d . ABCS SE&I Effort			1633	0	1-3Q	0		0		0	1633	0

ARMY RDT&E COST ANALYSIS(R3)

February 2004

BUDGET ACTIVITY
5 - System Development and Demonstration

PE NUMBER AND TITLE
0604805A - Command, Control, Communications Systems - Eng Dev

PROJECT
615

II. Support Cost (continued)	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
Subtotal:			13495	3501		3211		1786		Continue	Continue	0

Remarks: *NTDRS efforts prior to FY 2000 were funded in PE 0603713A, Proj D370

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 . *NTDRS Field Testing	MIPR	EPG, Fort Huachuca, AZ	95	0		0		0		0	95	0
b . JTRS Step 2C EPG Qual Testing/Customer Testing	MIPR	EPG, Fort Huachuca, AZ	2450	0		0		0		0	2450	0
c . JTRS EPG Testbed and Test Planning	MIPR	EPG, Fort Huachuca, AZ	1484	800	1Q	1200	1Q	1200	1Q	Continue	Continue	0
d . JTRS Modeling & Simulation	MIPR	USAIC	350	315	1-2Q	1968	1-2Q	1465	1-2Q	Continue	Continue	0
e . JTRS Test Inhouse Spt & Govt Activities	Various	Various	747	665	1-3Q	1566	1-3Q	1332	1-3Q	Continue	Continue	0
f . JTRS EOA/DTOT Test Activity			0	300	1-3Q	3962	1-3Q	16213	1-3Q	Continue	Continue	0

ARMY RDT&E COST ANALYSIS(R3)

February 2004

BUDGET ACTIVITY
5 - System Development and Demonstration

PE NUMBER AND TITLE
0604805A - Command, Control, Communications Systems - Eng Dev

PROJECT
615

III. Test and Evaluation (continued)	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
Subtotal:			5126	2080		8696		20210		Continue	Continue	0

Remarks: *NTDRS efforts prior to FY 2000 were funded in PE 0603713A, Proj D370
**Cluster 5 efforts in FY05 and out are funded in PE 0604805A, Proj D61A

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 . *NTDRS Program Support	MIPR	Fort Monmouth, NJ	655	0		0		0		0	655	0
b . JTRS Business/Engineering Management	Various	Various	8180	3496	1-2Q	3438	1-3Q	1610	1-4Q	Continue	Continue	0
c . Project Management Office Support	Various	Various	3729	2565	1-3Q	5534	1-3Q	6410	1-3Q	Continue	Continue	0
d . JTRS MITRE Support	PWD	MITRE Corp., Mclean, VA	1407	1041	1Q	1141	1Q	1200	1Q	Continue	Continue	0
e . Small Business Innovative Research/Small Business Technology Transfer Programs	TBD		0	0	1-2Q	5860		0		0	5860	0
Subtotal:			13971	7102		15973		9220		Continue	Continue	0

Remarks: *NTDRS efforts prior to FY 2000 were funded in PE 0603713A, Proj D370
**Cluster 5 efforts in FY05 and out are contained in PE 0604805A, Proj 61A

Project Total Cost:			121952	60659		202148		101770		Continue	Continue	9293

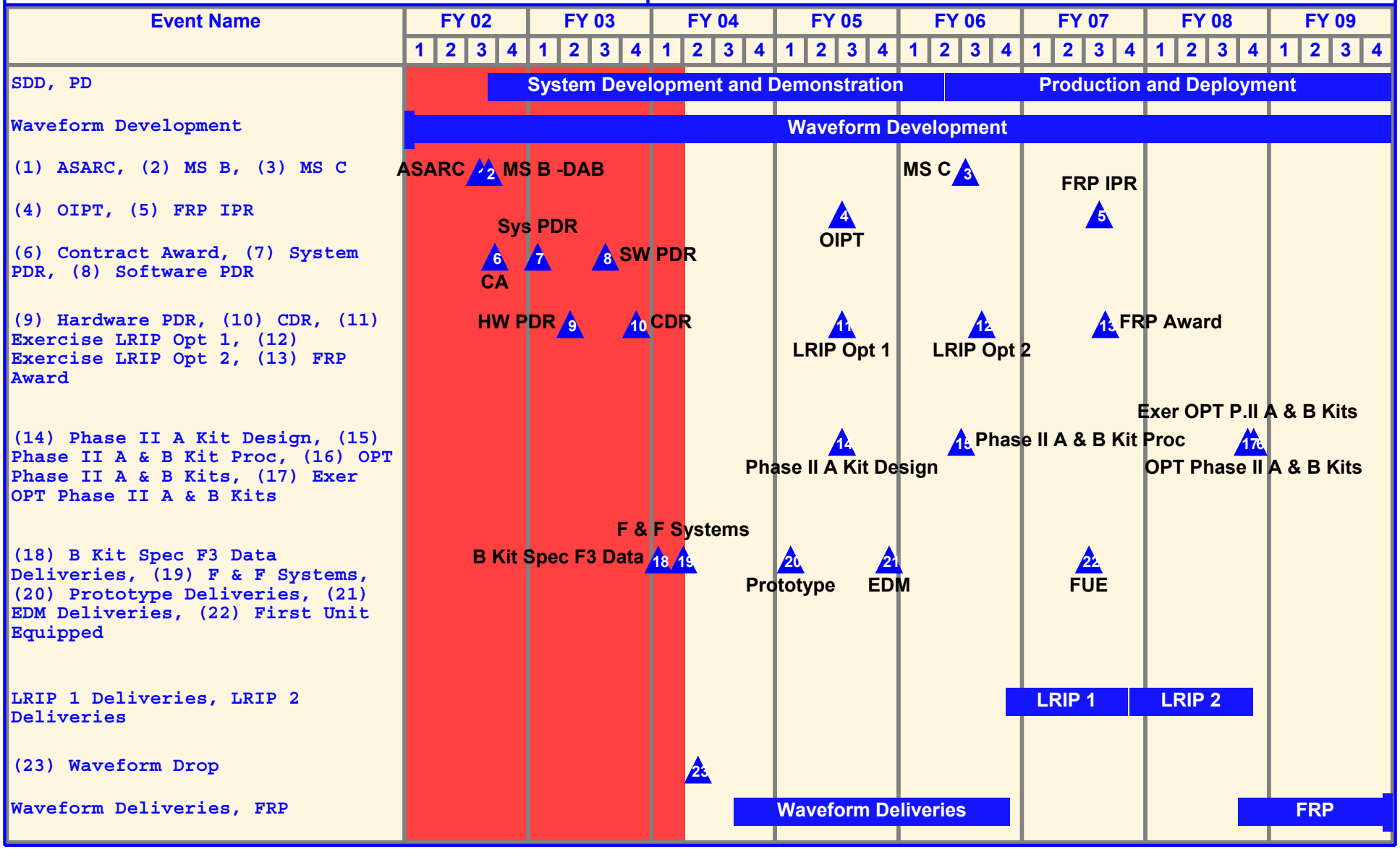
Schedule Profile (R4 Exhibit)

February 2004

BUDGET ACTIVITY
5 - System Development and Demonstration

PE NUMBER AND TITLE
0604805A - Command, Control, Communications Systems - Eng Dev

PROJECT
615



Schedule Detail (R4a Exhibit)

February 2004

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
5 - System Development and Demonstration	**0604805A - Command, Control, Communications Systems - Eng Dev**	**615**

Schedule Detail	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
NTDRS CTSF ABCS Software Updates							
NTDRS Participation in Millennium Challenge 02							
NTDRS Deployment to Brigade Combat Team 2							
NTDRS Participation NTC/01-06/02-05/02-08/03-03/03-05/03-08	1-4Q						
NTDRS Participation FBCB2 Field Test IV and V							
NTDRS Participation in FBCB2 IOT&E							
JTRS-Army Milestone B							
JTRS-Army Cluster 1 Ground & Airborne SDD Award							
JTRS-Army Step 2C EPG Testing/Validation	1Q						
JTRS-Early Operational Assessment			1Q				
JTRS Cluster 1 OIPT Approval to Exercise Option 1			3Q				
JTRS-Army Cluster 1 LRIP Option 1 Contract Award			3Q				
JTRS-Army Cluster 1 Ground & Airborne System Integration Test/Limited User Test (LUT)			4Q	2Q			
JTRS Cluster 1 Milestone C				3Q			
JTRS-Army Cluster 1 Ground & Airborne MOT&E					1-3Q		
JTRS-Army Cluster 1 LRIP Option 2 Award				3Q			
LRIP Option 1 Deliveries Begin				4Q			
Full Rate Production In Process Review					3Q		
Full Rate Production Contract Award					3Q		
LRIP Option 2 Deliveries Begin						1Q	
Full Rate Production Deliveries						4Q	1-4Q
Product Improvements						1-4Q	1-4Q
Cluster 5 Milestone B		2Q					
Cluster 5 Contract Award		2Q					
Cluster 5 Spiral Design Readiness Review-Spiral 1		4Q					

Cluster 5 schedule profile detail for FY05-09 is contained within PE 0604805A Project D61A.

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

February 2004

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
5 - System Development and Demonstration	**0604805A - Command, Control, Communications Systems - Eng Dev**	**61A**

COST (In Thousands)		FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
61A	JTRS CLUSTER 5 DEVELOPMENT	0	0	100605	94522	75311	25454	3960	0	299852

A. Mission Description and Budget Item Justification: Project 61A supports the Joint Tactical Radio (JTRS) Cluster 5 RDT&E development effort. JTRS is the Department of Defense (DOD) family of common software-defined programmable radios that will form the foundation of information radio frequency transmission for Joint Vision 2020. JTRS will ultimately replace all existing tactical radios through the Services' migration plans and introduce new capabilities to the Warfighter. The JTRS Cluster 5 is a materiel solution for the requirements of the JTRS Operational Requirements Document (ORD) Version 3.2 and the JTRS Joint Program Office (JPO) mandated multi-channel Software Communications Architecture (SCA) compliant hardware system hosting SCA compliant software waveforms. The JTRS Cluster 5 program is comprised of three discrete form factors: Handheld, Manpack (including vehicular mounted), and Small Form Fit (SFF) embedded applications. JTRS Cluster 5 is structured to be synchronized with Future Combat Systems and Land Warrior program capabilities and timelines.

This is not a new start. Prior to FY05 the Cluster 5 program funding is captured within the PE 0604805A and in the Project 615 (JTRS Cluster 1).

This system supports the Current to Future transition path of the Transformation Campaign Plan (TCP).

Accomplishments/Planned Program	FY 2003	FY 2004	FY 2005
JTRS Cluster 5 Product Development of both spiral 1 and spiral 2 radios.	0	0	72436
JTRS Cluster 5 Test and Evaluation	0	0	9054
JTRS Cluster 5 Management Services (JTRS Program Management Office Support)	0	0	16097
JTRS Cluster 5 Support Costs	0	0	3018
Totals	0	0	100605

B. Other Program Funding Summary	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
Joint Program Office (JPO) Waveform Certification	62921	133293	121400	71221	57223	28573	27073	Continuing	Continuing

C. Acquisition Strategy: In accordance with the ADM approved 29 May 2003, the program has been structured to satisfy requirements for Handheld, Manpack and Small Form Fit embedded radios. Cluster 5 technical performance requirements are met over time, using spiral development. JTRS Cluster 5 will use JPO certified waveforms. There is no waveform development under the Cluster 5 program.

A single contract is projected to be awarded after a successful Milestone B scheduled for late February 2004 for the development of the Cluster 5 system. The contract will be structured to address the two spirals including options to purchase hardware for each spiral. Spiral 1 will meet JTRS ORD Version 3.2 Block 1 requirements developing single-channel handheld and two-channel manpack systems. Spiral 2 will meet JRS ORD 3.2 Block 2 requirements developing all form factors including twelve versions of a small form fit form factor.

The program is entering the acquisition lifecycle at Milestone (MS) B, System Development and Demonstration (SDD). The Milestone B Decision Review is planned for February 2004. A Cost Plus contract will be awarded in 2QFY04 following full and open competition.

There will be two Production Option Awards for Spiral 1 Limited Production, in FY06 and FY07. After Milestone C, there will be two LRIP Option Awards for Spiral 2 in FY07 and FY08. A competitive full rate production (FRP) contract award is scheduled for FY09.

ARMY RDT&E COST ANALYSIS(R3)

February 2004

BUDGET ACTIVITY
5 - System Development and Demonstration

PE NUMBER AND TITLE
0604805A - Command, Control, Communications Systems - Eng Dev

PROJECT
61A

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 . JTRS Cluster 5 Design, Development and Manufacture of Engineering Development Models (EDMs)	CPAF	TBD	0	0		0		72436	2Q	Continue	Continue	0
Subtotal:			0	0		0		72436		Continue	Continue	0

Remarks: Funding for FY2004 is captured in PE 0604805A in the Project 615 (Cluster 1).

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 . Training/Logistics	Various	Various	0	0		0		3018	2Q	Continue	Continue	0
Subtotal:			0	0		0		3018		Continue	Continue	0

Remarks: Funding for FY2004 is captured in PE 0604805A in the Project 615 (Cluster 1).

ARMY RDT&E COST ANALYSIS(R3)

February 2004

BUDGET ACTIVITY
5 - System Development and Demonstration

PE NUMBER AND TITLE
0604805A - Command, Control, Communications Systems - Eng Dev

PROJECT
61A

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 . Testing includes: Government Development Tests (GDT), Limited User Tests (LUT), and MOTE	Various	Various	0	0		0		9054	2Q	Continue	Continue	0
Subtotal:			0	0		0		9054		Continue	Continue	0

Remarks: Funding for FY2004 is captured in PE 0604805A in the Project 615 (Cluster 1).

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 . Project Management Office Support	Various	Various	0	0		0		9658	2Q	Continue	Continue	0
b . JTRS Business/Engineering Management	Various	Various	0	0		0		6439	2Q	Continue	Continue	0
Subtotal:			0	0		0		16097		Continue	Continue	0

Remarks: Funding for FY2004 is captured in PE 0604805A in the Project 615 (Cluster 1).

Project Total Cost:			0	0		0		100605		Continue	Continue	0

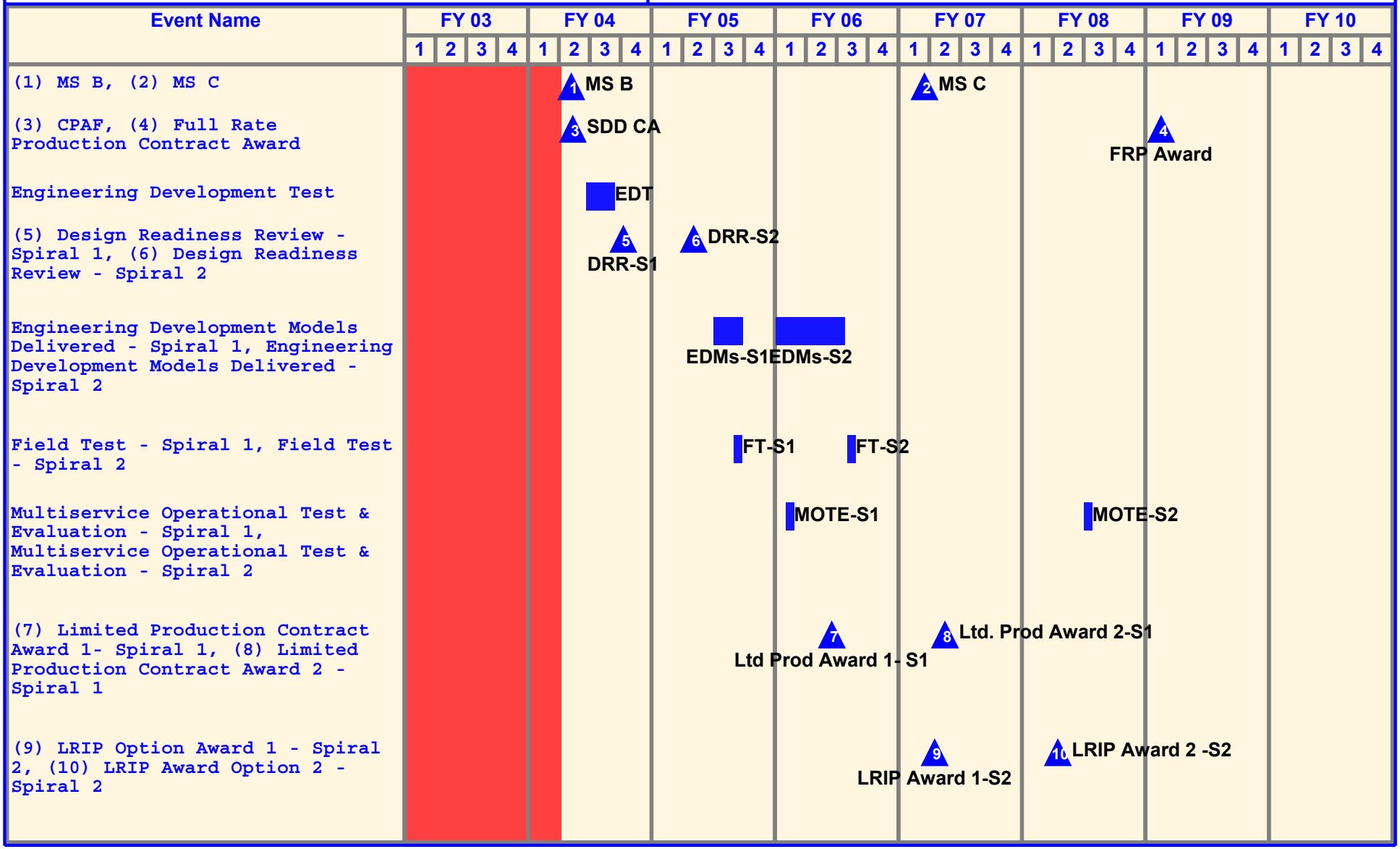
Schedule Profile (R4 Exhibit)

February 2004

BUDGET ACTIVITY
5 - System Development and Demonstration

PE NUMBER AND TITLE
0604805A - Command, Control, Communications Systems - Eng Dev

PROJECT
61A



Schedule Detail (R4a Exhibit)

February 2004

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
5 - System Development and Demonstration	**0604805A - Command, Control, Communications Systems - Eng Dev**	**61A**

Schedule Detail	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Milestone B Decision		2Q					
SDD Contract Award		2Q					
Engineering Development Test - Spiral 1		2-3Q					
Design Readiness Review - Spiral 1		4Q					
Design Readiness Review - Spiral 2			2Q				
Engineering Development Models (EDMs) Delivery - Spiral 1			3Q				
Field Test - Spiral 1			3Q				
MOTE - Spiral 1				1Q			
Engineering Development Models (EDMs) Delivery - Spiral 2				1-2Q			
Government Tests and Field Test - Spiral 2				3Q			
MOTE - Spiral 2						3Q	
Limited Production Award 1 - Spiral 1				2Q			
Limited Production Award 2 - Spiral 1					2Q		
LRIP Award 1 - Spiral 2					2Q		
LRIP Award 2 - Spiral 2						1Q	
Limited User Test (LUT)				4Q			
Milestone C Decision					1Q		
FRP Award							1Q
First Unit Equipped (FUE)							4Q

Spiral 1 - single-channel handheld and two-channel manpack systems.
Spiral 2 - all form factors including twelve versions of a small form fit form factor.

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

February 2004

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
5 - System Development and Demonstration	**0604805A - Command, Control, Communications Systems - Eng Dev**	**629**

COST (In Thousands)		FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
629	TACTICAL COMMUNICATIONS SYSTEM - ENGINEERING DEVEL	12678	2713	0	0	0	0	0	0	37757

A. Mission Description and Budget Item Justification: The Army Transformation and the goals of the Future Force will be met by introducing the latest in information and network protocol technologies within current and future combat systems.

The Protocol for Investigation Next Generation (PING) Program's objectives are to identify network and communication architecture gaps, validate emerging network technologies, assess proposed network solutions, ensure system of systems network communications interoperability among tactical and sustaining Army assets, as well as, with Joint, Interagency, and Multinational systems, and verify compliance to Army Knowledge Enterprise Architecture (AKEA) System and Technical Views that will make possible the Army's Objective Force. The PING analyze emerging commercial network communication protocols assessing their benefits and suitability to satisfy Army requirements, mitigate risks associated with implementing them across the AKEA and future combat systems, and to assist system developers in incorporating emerging technologies across Army communication systems accelerating Army Transformation goals.

The PING Program is the Army's principal organization evaluating and testing the Next Generation of Internet Protocol, Version 6, or IPv6. While IPv6 is being implemented globally, the PING will determine a coordinated approach for Army adaptation of IPv6 that will meet current network communication requirements, maintain interoperability across Army, Joint, Interagency, and Multinational systems, and provide the enhancements necessary to make the Objective Force possible.

The PING program supports the Army Chief Information Office (CIO/G6), the Future Force Task Force (OFTF), and maintain close cooperation with the Army System Engineering Office (ASEO); helping identify technologies suitable for consideration in future versions of the Joint Technical Architecture - Army (JTA-A), and various PEOs/PMs by participating at Working Groups involved with System Views (SVs) and Technical Views (TVs). The PING will analyze or develop SVs and TVs.

The PING Program's mission is critical for mitigating risks associated in the evolution and maturation of communications networks within the AKEA and for ensuring a cost effective Current to Future transition path of the Transformation Campaign Plan.

Accomplishments/Planned Program	FY 2003	FY 2004	FY 2005
CIO/G6 reprogrammed all monies in MU17 including those in PE654805-D629. A formal decision was made by the MU17 GOSC not to fund the PING project effective FY03 and all funds slated for PING were reprogrammed to fund other priorities; but the funds remained in this line.	1959	2388	0
Applied Communications and Information Networking (ACIN) FY03: - The objective of this one year Congressional add is to investigate specific emerging commercial communication technologies in the areas of Information Assurance, Subterranean Communications, Software Defined Radio and SATCOM On-The-Move. No additional funding is required to cmplete this project.	11310	0	0
Totals	13269	2388	0

B. Other Program Funding Summary: Not applicable for this item.

C. Acquisition Strategy: NA

ARMY RDT&E COST ANALYSIS(R3)

February 2004

BUDGET ACTIVITY
5 - System Development and Demonstration

PE NUMBER AND TITLE
0604805A - Command, Control, Communications Systems - Eng Dev

PROJECT
629

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 . Systems Engineering	In House	CECOM RDEC, Fort Monmouth, NJ	5400	3269	1-4Q	2388		0		Continue	11057	0
b . 1)		MITRE, Eatontown, NJ	1226	0		0		0		0	1226	0
c . 2)		SRI, Eatontown, NJ	840	0		0		0		0	840	0
d . ACIN	OTA (Other Transactions)	Drexel Univ, Philadelphia, Pa	17388	10000	2Q	0		0		0	27388	0
Subtotal:			24854	13269		2388		0		Continue	40511	0

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
Subtotal:			0	0		0		0		0	0	0

ARMY RDT&E COST ANALYSIS(R3)

February 2004

BUDGET ACTIVITY
5 - System Development and Demonstration

PE NUMBER AND TITLE
0604805A - Command, Control, Communications Systems - Eng Dev

PROJECT
629

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
Subtotal:			0	0		0		0		0	0	0

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
Subtotal:			0	0		0		0		0	0	0

Remarks: Not Applicable

Project Total Cost:			24854	13269		2388		0		Continue	40511	0

Schedule Detail (R4a Exhibit)

February 2004

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
5 - System Development and Demonstration	**0604805A - Command, Control, Communications Systems - Eng Dev**	**629**

Schedule Detail	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Evaluate Architecture Issues	1-4Q	1-4Q	1-4Q				
Assessment and Analysis of Technology Impacts	1-4Q	1-4Q	1-4Q				
Policy and Implementation Plan Development	1-4Q	1-4Q	1-4Q				

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

February 2004

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
5 - System Development and Demonstration	**0604805A - Command, Control, Communications Systems - Eng Dev**	**F99**

COST (In Thousands)		FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
F99	NUCLEAR ARMS CTRL TECH - SENSORE NETWORK MONIT	0	0	8253	7341	7331	5882	6289	0	35096

A. Mission Description and Budget Item Justification: This project provides Research, Development, Testing & Evaluation (RDT&E) to meet technology requirements in support of implementation, compliance, monitoring and inspection for existing and emerging nuclear arms control activities and dual use technology for missile defense integration activities. The project addresses requirements validated by the Office of the Under Secretary of Defense, Acquisition, Technology & Logistics (OUSD AT&L). This project conforms to the administration's research and development priorities as related to nuclear weapons of mass destruction arms control and disarmament. Technical assessments are made to provide the basis for sound project development, evaluate existing programs and provide the data required to make compliance judgments and support U.S. policy, decision-makers and negotiating teams. Technology developments and system improvement projects are conducted to ensure that capabilities for monitoring systems are available when required.

The program includes development of equipment and procedures for data exchanges, inspections and monitoring capability and analysis. The technologies and procedures developed in the arms control technology program provide an invaluable source of information on equipment and procedures that is extensively used by U.S. and international agencies.

This project element also supports the JCS warfighting capability area of counterproliferation.

Accomplishments/Planned Program	FY 2003	FY 2004	FY 2005
Conduct analyses as required to support the OSD manager	0	0	326
Development of prototype sensor	0	0	1400
Development of radionuclide particle and noble gas detectors	0	0	750
Information system enhancements	0	0	750
Continue the R&D support system	0	0	500
Research on location calibration for seismic events	0	0	1627
Development of techniques to identify signals from sensor systems	0	0	1900
Research of source phenomenology for events threshold	0	0	1000
Totals	0	0	8253

B. Other Program Funding Summary: Not applicable for this item.

C. Acquisition Strategy: Not applicable for this item.

ARMY RDT&E COST ANALYSIS(R3)

February 2004

BUDGET ACTIVITY
5 - System Development and Demonstration

PE NUMBER AND TITLE
0604805A - Command, Control, Communications Systems - Eng Dev

PROJECT
F99

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 . Product Development			0	0		0		2100	1-2Q	0	2100	0
Subtotal:			0	0		0		2100		0	2100	0

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 . Monitoring Sensor Systems, Program Data Analysis, Verification Systems Concept Demo		SAIC, General Dynamics, VA	0	0		0		3653	1-4Q	0	3653	0
b . Support Contracts & Government Support	Various	FL, NM, VA, AL	0	0		0		1000	1-4Q	0	1000	0
c . SMDC		Huntsville, AL	0	0		0		500	1-4Q	0	500	0
Subtotal:			0	0		0		5153		0	5153	0

ARMY RDT&E COST ANALYSIS(R3)

February 2004

BUDGET ACTIVITY
5 - System Development and Demonstration

PE NUMBER AND TITLE
0604805A - Command, Control, Communications Systems - Eng Dev

PROJECT
F99

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 . Test and Eval	Huntsville, AL		0	0		0		500	2-3Q	0	500	0
Subtotal:			0	0		0		500		0	500	0

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 . SMDC		Huntsville, AL	0	0		0		500	1-4Q	0	500	0
Subtotal:			0	0		0		500		0	500	0
Project Total Cost:			0	0		0		8253		0	8253	0

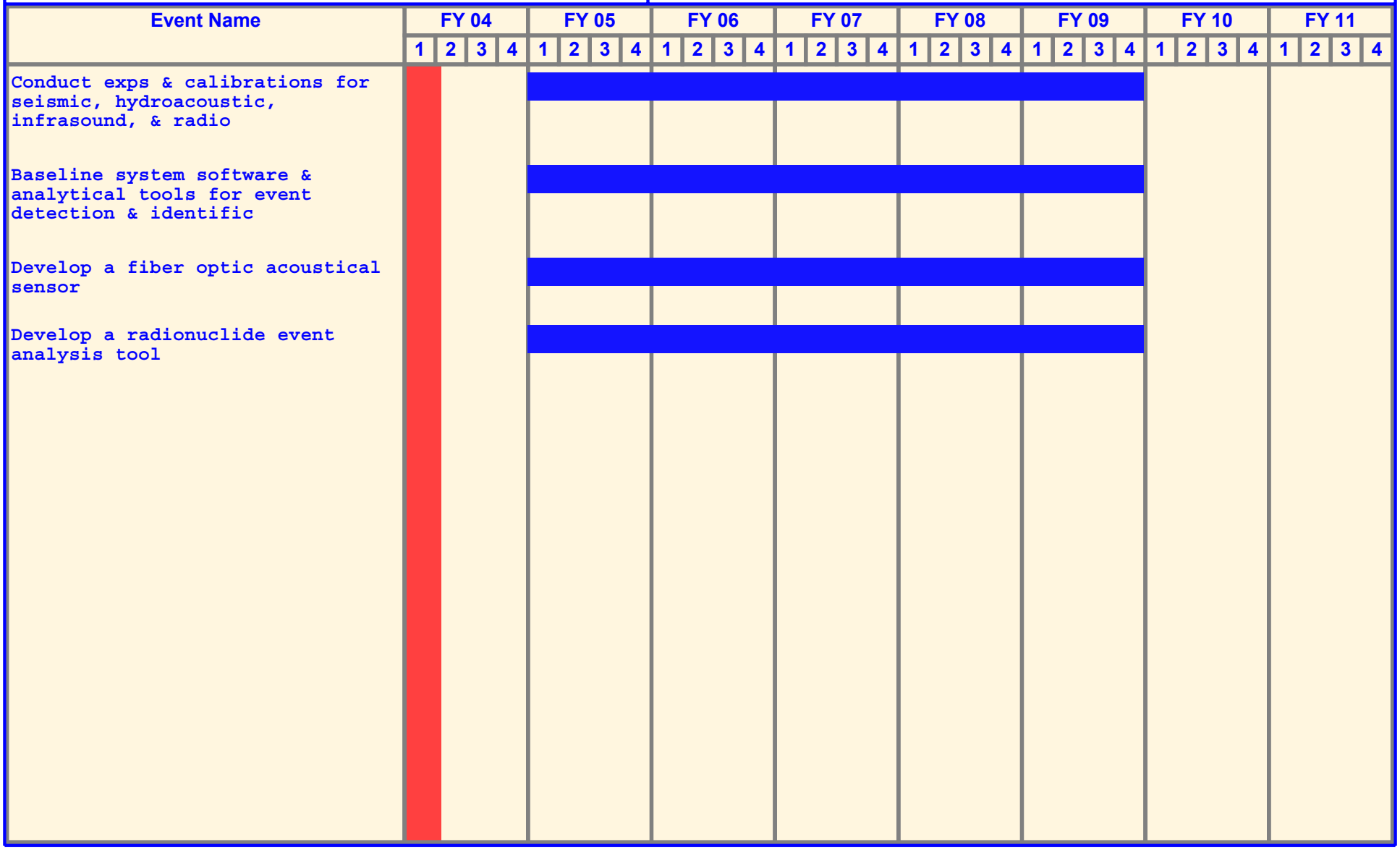
Schedule Profile (R4 Exhibit)

February 2004

BUDGET ACTIVITY
5 - System Development and Demonstration

PE NUMBER AND TITLE
0604805A - Command, Control, Communications Systems - Eng Dev

PROJECT
F99



Schedule Detail (R4a Exhibit)

February 2004

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
5 - System Development and Demonstration	**0604805A - Command, Control, Communications Systems - Eng Dev**	**F99**

Schedule Detail	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Conduct experiments and calibrations for seismic, hydroacoustic, infrasound, and radionuclide sensor			1-4Q	1-4Q	1-4Q	1-4Q	1-4Q
Baseline system software and analytical tools for event detection and identification			1-4Q	1-4Q	1-4Q	1-4Q	1-4Q
Develop a fiber optic acoustical sensor			1-4Q	1-4Q	1-4Q	1-4Q	1-4Q
Development a radionuclide event analysis tool			1-4Q	1-4Q	1-4Q	1-4Q	1-4Q

This program transferred from the Defense Threat Reduction Agency (DTRA) to SMDC in FY03 IAW PBD 289 (FY04). During the FY04 BES, the program was transferred to the Army and placed in PE 0603782A, Project #F98. During PB05, the program was transferred to PE 0604805A, Project #F99. In FY03, DTRA transferred funds to SMDC via a MIPR. This is an on-going program transfer and not a new program start