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ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)	DATE February 1999
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BUDGET ACTIVITY 4 - Demonstration and Validation	PE NUMBER AND TITLE 0603805A Combat Service Support Control Systems Evaluation and Analysis
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COST (In Thousands)	FY1998 Actual	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY2004 Estimate	FY2005 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	7037	14056	11062	8839	3725	3827	4028	4023	9981	197877
D091 Combat Service Support Control System	5447	12275	11062	8839	3725	3827	4028	4023	8200	185717
D246 Tactical Communications System-Advanced Development	1590	1781	0	0	0	0	0	0	1781	12160

A. Mission Description and Budget Item Justification: Project D091: The Combat Service Support Control System is an automated command and control (C2) system that supports the CSS component of the Army Battle Command System (ABCS), and provides a critical logistical C2 capability for the Army's Force XXI. It will automate the current manual processes of force level planning and decision-making for commanders and their staffs. Project D246, Tactical Communications System – Demonstration Validation, provides for insertion of selected proven communications technology from program elements 0602782A, Project AH92 applied research and 0603006A, advanced technology development, into the next phase of development. Examples of these potential programs are the Joint Tactical Radio, high power solid state amplifiers and couplers, and packet appliques used to increase network efficiency. Note: Funding for PE/Proj. 0603805A/D246 has been transferred to PE/Proj. 0604805/D629, beginning in FY 2000.

B. Program Change Summary	FY 1998	FY 1999	FY 2000	FY 2001
Previous President's Budget (FY 1999 PB)	7280	14353	8265	5975
Appropriated Value	7673	14353		
Adjustments to Appropriated Value				
a. Congressional General Reductions	-393	-297		
b. SBIR / STTR	-182			
c. Omnibus or Other Above Threshold Reductions	-61			
d. Below Threshold Reprogramming				
e. Rescissions				
Adjustments to Budget Years Since FY 1999 PB			+2797	+2864
Current Budget Submit (FY 2000 / 2001 PB)	7037	14056	11062	8839

Change Summary Explanation: FY 2000 funds increased 4644 and FY 2001 funds increased 4720 to support Force XXI software enhancements. FY 2000 funds (-1847), and FY 2001 funds(-1856), for Project D246 have been transferred to PE/Proj 0604805/D629.

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COST <i>(In Thousands)</i>	FY1998 Actual	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY2004 Estimate	FY2005 Estimate	Cost to Complete	Total Cost
D091 Combat Service Support Control System	5447	12275	11062	8839	3725	3827	4028	4023	8200	185717

A. Mission Description and Justification: Project D091, Combat Service Support (CSS) Control System. The Combat Service Support Control System is an automated command and control (C2) system that supports the CSS component of the Army Battle Command System (ABCS), and provides a critical logistical C2 capability for the Army's Force XXI. It will automate the current manual processes of force level planning and decision-making for commanders and their staffs. CSSCS interoperates both vertically, within the CSS Battlefield Functional Area (BFA), as well as horizontally with the other BFAs; namely, Fire Support, Maneuver Control, Intelligence/Electronic Warfare, and Air Defense. CSSCS implements functionally through use of Common Hardware and Software (CHS), Common Operating Environment (COE), reuse software, and unique application software.

FY 1998 Accomplishments:

- 3136 Continued Version 4 development.
 - 520 Began Version 5 development.
 - 750 Conducted Demonstrations for DOT&E.
 - 1041 Prepared for and conducted Army Warfighting Experiments and implemented Force XXI enhancements.
- Total 5447

FY 1999 Planned Program:

- 9055 Continue Version 4 development.
 - 820 Continue Version 5 development.
 - 775 Conduct Version 4 continuous evaluation activities.
 - 1300 Prepare for and conduct Army Warfighting Experiments and implement Force XXI enhancements.
 - 325 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs
- Total 12275

FY 2000 Planned Program:

- 2750 Complete Version 4 development.
- 5862 Continue Version 5 development.
- 2450 Prepare for and conduct Army Warfighting Experiments and achieve First Digitized Division IOC.

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Total 11062

FY 2001 Planned Program:

- 7149 Continue Version 5 development.
 - 1690 Prepare for and conduct Army Warfighting Experiments.
- Total 8839

B. Other Program Funding Summary	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	To <u>Compl</u>	Total <u>Cost</u>
Procurement, OPA 2 (W34600)	6648	9306	19922	18090	15534	25374	13934	18420	57525	201056
Spares (BS9706)	293	183	167	167	177	176	194	0	5755	8372

C. Acquisition Strategy: Acquisition strategy is to pursue a spiral development process, with program development structured to evolve over five versions. Versions 1 and 2 served as proof of principle, and provided initial division level CSS functional capability on common hardware. Version 3 was built on the capabilities of the previous versions and provided an Initial Operational Capability at Division and Corps level, to include initial horizontal interoperability with ABCS systems. Version 4 extends CSSCS to EAC, as well as provides added capabilities at Echelons Corps and Below (ECB). Version 5, the objective CSSCS software, will provide remaining ECB functionality, and extend CSSCS capabilities to joint, allied and coalition forces. TRW is the software development contractor. Lockheed Martin Corporation (LMC) provides training support. Hardware is procured from the Common Hardware/Software-2 (CHS-2) contract with GTE.

D. Schedule Profile	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
FUE V3	1Q*							
V3 IOC	3Q*							
V4 Technical Test	4Q*							
V4 Continuous Evaluation		1-4Q						
Complete V4			3Q					
First Digitized Division (FDD) IOC			4Q					
Incremental Software Build Releases				3Q	3Q	3Q		
Complete V5							3Q	
V5 Operational Test							4Q	
First Digitized Corps (FDC) IOC							4Q	

*Milestone Complete

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ARMY RDT&E COST ANALYSIS (R-3)

DATE
February 1999

BUDGET ACTIVITY
4 - Demonstration and Validation

PE NUMBER AND TITLE
0603805A Combat Service Support Control
Systems Evaluation and Analysis

PROJECT
D091

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 1999 Cost	FY 1999 Award Date	FY 2000 Cost	FY 2000 Award Date	FY 2001 Cost	FY 2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a. TRW	CPAF	Carson, CA	85191	7624	1 Oct 98	6712	1 Oct 99	4956	1 Oct 00	0	104483	110000
b. Lockheed Martin	CPAF	Springfield, VA	4744	829	1 Oct 98	875	1 Oct 99	775	1 Oct 00	300	7523	20500
c. COE/Common Spt	MIPR	Various	5290	656	1 Oct 98	550	1 Oct 99	450	1 Oct 00	0	6946	
d. TBD			0	0		0		0		13128	13128	
e. GFE	FFP	Various	3601	0						1500	5101	
Subtotal Product Development:			98826	9109		8137		6181		14928	137181	

II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 1999 Cost	FY 1999 Award Date	FY 2000 Cost	FY 2000 Award Date	FY 2001 Cost	FY 2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a. CECOM	MIPR	Ft. Monmouth/Belvoir	1600	213	1 Oct 98	203	1 Oct 99	175	1 Oct 00	740	2931	
b. SDC-LEE	MIPR	Ft. Lee	550	0		0		0		0	550	
c. SDC-HUACHUCA	MIPR	Ft. Huachuca, AZ	971	408	1 Oct 98	380	1 Oct 99	320	1 Oct 00	992	3071	
d. EER	MIPR	McLean, VA	5054	1400	1 Oct 98	1330	1 Oct 99	1260	1 Oct 00	3842	12886	
e. LMI			775	300	1 Oct 98	275	1 Oct 99	250	1 Oct 00	975	2575	
Subtotal Support Costs:			8950	2321		2188		2005		6549	22013	

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 1999 Cost	FY 1999 Award Date	FY 2000 Cost	FY 2000 Award Date	FY 2001 Cost	FY 2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a. GOVT	MIPR	Various	5112	400	1 Oct 98	350	1 Oct 99	250	1 Oct 00	1650	7762	
b. EPG	MIPR	Various	833	145	1 Oct 98	75	1 Oct 99	79	1 Oct 00	345	1477	
c. OPTEC	MIPR	Various	1578	0		0		0		0	1578	
Subtotal Test and Evaluation:			7523	545		425		329		1995	10817	

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IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 1999 Cost	FY 1999 Award Date	FY 2000 Cost	FY 2000 Award Date	FY 2001 Cost	FY 2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a. PM CSSCS	N/A	Ft. Belvoir, VA	14439	300	1 Oct 98	312	1 Oct 99	324	1 Oct 00	331	15706	
Subtotal Management Services:			14439	300		312		324		331	15706	
Project Total Cost:			129738	12275		11062		8839		23803	185717	

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BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603805A Combat Service Support Control Systems Evaluation and Analysis					PROJECT D246	
COST (In Thousands)	FY1998 Actual	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY2004 Estimate	FY2005 Estimate	Cost to Complete	Total Cost
D246 Tactical Communications System-Advanced Development	1590	1781	0	0	0	0	0	0	1781	12160
<p>A. <u>Mission Description and Budget Item Justification</u> This project will validate the new Tactical Internet capability required for Force XXI. It provides definition, integration and testing of a mix of mature and prototype products which are used to develop a Tactical Internet capability. The Tactical Internet will be the primary data communications infrastructure at Corps and below for Force XXI and will revolve around interconnecting a mix of existing (e.g.: SINCGARS, SINCGARS SIP, EPLRS, MSE TPN, ETC) and emerging communications devices using gateways and routers. Gateways will also provide the link to Strategic levels. This capability will result in the tactical equivalent of the Information Highway and will support key battlefield functional areas to include logistics reporting, telemedicine, etc. The Tactical Internet (TI) will use and leverage commercial network standards and products. The "Internet Protocol" (IP) suite will be used to provide seamless communications with the capability to dynamically route data to hosts. It will be designed to facilitate technology insertion. The focus of this project will be to reduce the technical risk by assembling, integrating, and testing the Tactical Internet components prior to TF XXI, Division XXI, and Corps XXI and beyond. New services and components will be added and tested as required for each iteration leading up to Force XXI. Note: Funding for this project has been transferred to PE/Proj. 0604805/D629, beginning in FY2000.</p> <p>FY 1998 Accomplishments:</p> <ul style="list-style-type: none"> • 350 Resolved technical issues with Transmissions Control Protocol (TCP) parameters and the Near Term Digital Radio (NTDR) instrumentation identified during the TF XXI and DIV XXI Exercises • 555 Integrated and tested the latest EPLRS, SINCGARS, INC and FBCB2 software products. Expanded the testbed to include NTDR, HF radios and C2 Protect products. Insert latest products and expand the testbed to address requirements for Corps size networks • 100 Provided empirical data from experiments with the US Marines data systems to support joint service integration. • 181 Incorporated NTDR and HF radios into the testbed, and evaluated DARPA Glomo products for potential integration. • 404 Procured state-of-the art video equipment for airborne demos. Performed demonstration of NTDR networking capabilities using latest equipment in video teleconferencing. <p>Total 1590</p> <p>FY 1999 Planned Program:</p> <ul style="list-style-type: none"> • 394 Integrate new applications and data services for the Tactical Internet (TI). Demonstrate advanced architectural concepts for the TI beyond the First Digitized Division (FDD) • 670 Evaluate emerging Internet protocols for use in the TI. Support the Tactical Internet for FDD fielding. • 238 Support Advanced Technology Demonstrations (ATD) including C2 Protect. 										
Project D246	Page 6 of 8 Pages					Exhibit R-2A (PE 0603805A)				

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FY 1999 Planned Program: (continued)

- 447 Conduct airborne demo of latest NTDR capabilities, using new video equipment. Procure emerging technologies in video/multimedia equipment. Demonstrate networking capabilities of Handheld Multimedia Terminal in airborne platform.
 - 32 Small Business Innovation Research/ Small Business Technology Transfer Programs
- Total 1781

FY 2000 Planned Program: Funding for this program has been transferred to PE/Project 0604805/D629 beginning in FY2000.

FY 2001 Planned Program: Funding for this program has been transferred to PE/Project 0604805/D629 beginning in FY2000.

B. Other Program Funding Summary: Not Applicable.

C. Acquisition Strategy: The objective of this program is to validate new TI Capabilities required for Force XXI. In FY97, laboratory integration testing was conducted to reduce risk for Task Force XXI AWE. Similar laboratory testing was performed in FY98 for Division XXI and for the FBCB2 Limited User Test (LUT). In FY99 new services and components will be added and tested to validate critical technologies for Force XXI beyond FDD.

D. <u>Schedule Profile</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2004</u>	<u>FY 2005</u>
Tactical Internet									
Prototype Instrumentation	4Q								
System Integration	4Q	4Q							
Demonstration Range Extension	4Q	4Q							
Address Architecture Issue		4Q							
Integrate Network Services		4Q							
Laboratory Testing	4Q	4Q							
Airborne Communications									
System Integration	4Q	4Q							
Video Demonstration	4Q	4Q							

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I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 1999 Cost	FY 1999 Award Date	FY 2000 Cost	FY 2000 Award Date	FY 2001 Cost	FY 2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a. Systems Engineering	PO	CECOM RDEC, Ft. Monmouth, NJ	3966	1356	01/01/99						5322	
b. Contract Services												
1)	C-T&M AF	CSC/BAH	485	90	5/13/99						575	
2)	C-T&M Rqmts	C3I	270	135	08/28/98						405	
3)	C-T&M IDIQ	TAMSCO	105	150	05/19/98						255	
4)	C-T&M PSLA	LSI	150	50	08/01/99						200	
Subtotal Product Development:			4976	1781							6757	

Remark: **NOTES:**

Performing Activity & Location

CSC/BAH- Computer Science Corporation, support contractor Booz, Allen & Hamilton – Eatontown, NJ
 C3I – C3I Systems Group Inc, Award date 8/28/98 with 3 option years- Tinton Falls, NJ
 TAMSCO – TAMSCO Inc, Award date 5/19/98 with 5 options years- Calverton, MD
 LSI – Lear Sigler Inc, Lakehurst, NJ

Contract Method and Type

C-T&M – Competitive, Time and Materials
 -AF- Award Fee
 -Rqmts-Requirements
 -IDIQ-Indefinite Delivery Indefinite Quantity
 -PSLA- Purchase Service Labor Agreement

II. Support Costs: Not applicable

III. Test and Evaluation: Not applicable

V. Management Services: Not applicable

Project Total Cost:	4976	1781							6757	
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