PE NUMBER: 0207438F

PE TITLE: Theater Battle Management (TBM) C4I

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE June 2001	
BUDGET ACTIVITY **07 - Operational System Development**				PE NUMBER AND TITLE **0207438F Theater Battle Management (TBM) C4I**						
COST ($ in Thousands)	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	39,940	44,159	37,331	35,049	30,622	31,261	32,222	32,909	Continuing	TBD
3330 Cmd Cntrol Info Process Sys (C2IPS)	7,510	9,189	2,208	2,330	0	0	0	0	0	51,620
4287 Contingency Theater Automated Planning System (CTAPS)	0	0	0	0	0	0	0	0	0	104,634
4288 Wing C2 System (WCCS)	0	0	0	0	0	0	0	0	0	19,975
4790 Theater Battle Management Core System (TBMCS)	23,349	23,540	22,828	22,372	20,057	20,475	21,092	21,543	Continuing	TBD
4802 Deliberate and Crisis Action Planning and Execution Segment (DCAPES)	9,081	11,430	12,295	10,347	10,565	10,786	11,130	11,366	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

FY03-FY07 budget numbers do not reflect the DoD strategic review results.

(U)   A. Mission Description

TBM C4I develops force-level and wing-level command, control, and intelligence systems which utilize DoD's Defense Information Infrastructure (DII) common operating environment (COE). Acquisition of these systems supports the Air Force's expeditionary force concept and will allow the execution of Theater Battle Management (TBM) planning, intelligence, and operational functions of the Joint Forces Air Component Commander (JFACC). Those functions include: generation and dissemination of the air tasking order (ATO) from the Air Operations Center (AOC) down to the wing and unit levels; aerospace defense planning and execution; airspace deconfliction; targeting and weaponeering; and many other applications supporting air operations command and control. Projects included in this program element are Command & Control Information Processing System (C2IPS), Contingency Theater Automated Planning System (CTAPS), Wing Command & Control System (WCCS), Theater Battle Management Core Systems (TBMCS), and Deliberate and Crisis Action Planning and Execution Segment (DCAPES).

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE June 2001

BUDGET ACTIVITY	PE NUMBER AND TITLE
07 - Operational System Development	0207438F Theater Battle Management (TBM) C4I

(U) **B. Budget Activity Justification**

The TBMCS effort is post Milestone III effort, and is in Budget Activity 7, Operational Systems Development because it incrementally upgrades and develops capabilities for currently operational systems.

(U) **C. Program Change Summary ($ in Thousands)**

		FY 2000	FY 2001	FY 2002	Total Cost
(U)	Previous President's Budget (FY 2001 PBR)	46,406	41,068	32,388	TBD
(U)	Appropriated Value	46,727	44,568		
(U)	Adjustments to Appropriated Value				
	a. Congressional/General Reductions	-66			
	b. Small Business Innovative Research	-1,058			
	c. Omnibus or Other Above Threshold Reprogram	-1,017			
	d. Below Threshold Reprogram	-4,463			
	e. Rescissions	-183	-409		
(U)	Adjustments to Budget Years Since FY 2001 PBR			4,943	
(U)	Current Budget Submit/FY 2002 PBR	39,940	44,159	37,331	TBD

(U) Significant Program Changes:

Exhibit R-2 (PE 0207438F)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)		DATE **June 2001**

BUDGET ACTIVITY **07 - Operational System Development**	PE NUMBER AND TITLE **0207438F Theater Battle Management (TBM) C4I**	PROJECT **3330**

COST ($ in Thousands)	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
3330 Cmd Cntrol Info Process Sys (C2IPS)	7,510	9,189	2,208	2,330	0	0	0	0	0	51,620

FY03-FY07 budget numbers do not reflect the DoD strategic review results.

(U) A. Mission Description

The Command & Control Information Processing System (C2IPS) project develops communications and information processing hardware and software for all echelons of the Air Mobility Command (AMC). C2IPS provides AMC the automated capability to perform command and control functions associated with planning, scheduling, and global execution and monitoring of airlift and air refueling missions consisting of both fixed and deployable nodes. C2IPS satisfies the warfighters needs for horizontal and vertical communication.

(U) FY 2000 ($ in Thousands)
(U) $5,112   Continue Increment 4 (Detailed Planning & Scheduling for integration of AMC Aircraft Schedules)
(U) $2,198   Start next level DII/COE integration
(U) $200   Continue requirements planning for future C2IPS architecture migration
(U) $7,510   Total

(U) FY 2001 ($ in Thousands)
(U) $4,134   Continue Increment 4 (Detailed Planning & Scheduling for integration of AMC aircraft schedules)
(U) $4,856   Continue higher level integration of C2IPS in DII/COE
(U) $199   Continue requirements planning for future C2IPS architecture migration
(U) $9,189   Total
     The following net transactions are not reflected in the FY01 program total: BTR=+1,296 K and SBIR=-1,257 K. These transactions are not reflected in other sections of the R-docs where a FY01 total is shown.

(U) FY 2002 ($ in Thousands)
(U) $2,208   Completion of Increment 4 (Detailed Planning & Scheduling for integration of AMC aircraft schedules)
(U) $2,208   Total

(U) B. Project Change Summary
     N/A

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	DATE June 2001

BUDGET ACTIVITY 07 - Operational System Development	PE NUMBER AND TITLE 0207438F Theater Battle Management (TBM) C4I	PROJECT 3330

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
(U) AF RDT&E										
(U) Other APPN										

(U) D. Acquisition Strategy

The C2IPS will be developed and installed in four increments. A spiral development process is used to produce consecutive software releases within each increment. The first three increments were developed under contract with Computer Sciences Corporation. Increment 1 provided a digital data message handling capability at each Information Processing System (IPS) node and implements mission execution monitoring. Increment 2 built on Increment 1 software to support mission planning and scheduling. Increment 3 provided C2IPS with a client server architecture as part of the system migration efforts. Increment 4 continues the evolutionary acquisition process, using modular development through government wide agency contracts. It also lays the foundation for the migration strategy that will result in interoperability of C2IPS with TBMCS and achieve level 7 DII/COE integration.

(U) E. Schedule Profile

	FY 2000				FY 2001				FY 2002			
	1	2	3	4	1	2	3	4	1	2	3	4
(U) Increment 4 Completion Dates												
(U) Spiral A (Planning & Sched)					*							
(U) Spiral B (Plan & Sched, DII/COE)								X				
(U) Spiral C (Planning & Scheduling)									X			

Note: * Denotes Completed Event; X Denotes Planned Event

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE June 2001

BUDGET ACTIVITY 07 - Operational System Development	PE NUMBER AND TITLE 0207438F Theater Battle Management (TBM) C4I	PROJECT 3330

(U)   **A. Project Cost Breakdown ($ in Thousands)**

	FY 2000	FY 2001	FY 2002
(U) Major Product Development Contracts	5,819	8,676	1,683
(U) Support Contracts	1,591	313	325
(U) Program Management Support	100	200	200
(U) Total	7,510	9,189	2,208

(U)   **B. Budget Acquisition History and Planning Information ($ in Thousands)**

(U)   **Performing Organizations:**

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 2000	Budget FY 2000	Budget FY 2001	Budget FY 2002	Budget to Complete	Total Program
Product Development Organizations										
CSC	FPIF	Dec 88	TBD	TBD	18,043	1,272	8,676	1,683	1,780	31,454
Unisys	IDIQ	Dec 98	TBD	TBD	3,378	4,547	0		0	7,925
Support and Management Organizations										
MITRE	T&M	Oct 94	N/A	N/A	6,003	1,272	0	0	0	7,275
TEMS/ITSP	Various	Various	N/A	N/A	1,467	319	313	325	350	2,774
ESC (government organization)	n/a	n/a	N/A	N/A	1,492	100	200	200	200	2,192
Test and Evaluation Organizations										
N/A										

Subtotals	Total Prior to FY 2000	Budget FY 2000	Budget FY 2001	Budget FY 2002	Budget to Complete	Total Program
Subtotal Product Development	21,421	5,819	8,676	1,683	1,780	39,379
Subtotal Support and Management	8,962	1,691	513	525	550	12,241
Subtotal Test and Evaluation						
Total Project	30,383	7,510	9,189	2,208	2,330	51,620

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	DATE June 2001

BUDGET ACTIVITY 07 - Operational System Development	PE NUMBER AND TITLE 0207438F Theater Battle Management (TBM) C4I	PROJECT 4790

COST ($ in Thousands)	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
4790 Theater Battle Management Core System (TBMCS)	23,349	23,540	22,828	22,372	20,057	20,475	21,092	21,543	Continuing	TBD

FY03-FY07 budget numbers do not reflect the DoD strategic review results.

(U)   A. Mission Description

The Theater Battle Management Core Systems (TBMCS) develops force-level and wing-level command, control, and intelligence systems which utilize DoD's Defense Information Infrastructure (DII) common operating environment (COE) and Joint Technical Architecture (JTA). It links planning, intelligence and operations functions in an integrated battle management system for planning and executing the air war at the theater level and evaluates future aerospace comand and control concepts identified and incorporated via evolutionary acquisition. Functions supported include: generation and dissemination of the air tasking order in support of the Joint Forces Air Component Commander (JFACC) from the Air Operations Center (AOC) down to the wing and unit levels; aerospace defense planning and execution; airspace deconfliction; targeting and weaponeering; and many other applications supporting air operations command and control. TBMCS integrates functionality of the following legacy systems: Contingency Theater Automated Planning System (CTAPS), Wing Command & Control System (WCCS), and Combat Intelligence System (CIS). Funds were added in FY00 and FY01 for NATO R&D to collectively enhance interoperability between the emerging NATO Air Command and Control System (ACCS) and TBMCS, and to share relevant research.

(U)   FY 2000 ($ in Thousands)
(U) $4,943   Completed TBMCS software version 1.0.1 development
(U) $5,950   TBMCS software version 1.0.2 development
(U) $9,637   Continue TBMCS software version 1.1 development
(U) $1,000   NATO R&D
(U) $1,819   System Engineering
(U) $23,349   Total

(U)   FY 2001 ($ in Thousands)
(U) $16,728   TBMCS software v1.1 development (renamed increment 1.1)
(U) $2,402   TBMCS software v2.0 development (renamed increment 1.2)
(U) $1,500   NATO R&D
(U) $2,910   System Engineering
(U) $23,540   Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	DATE June 2001

BUDGET ACTIVITY 07 - Operational System Development	PE NUMBER AND TITLE 0207438F Theater Battle Management (TBM) C4I	PROJECT 4790

(U) A. Mission Description Continued

(U) FY 2002 ($ in Thousands)
(U) $1,290   Complete TBMCS software increment 1.1 development
(U) $18,658   Continue TBMCS software increment 1.2 development (Web-Enable TBMCS, support Joint Expeditionary Forces Experiment (JEFX-02))
(U) $1,000   Initiate TBMCS Block 2 planning
(U) $1,880   System engineering and interoperability with US, NATO or other coalition systems
(U) $22,828   Total

(U) B. Project Change Summary

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
(U) AF RDT&E										
(U) Other APPN										
(U) Other Procurement, AF, PE 0207438F, WSC 832010	22,227									22,227
(U) Other Procurement, AF, PE 0207438F, WSC 834520	47,150	49,580	43,383	52,610	54,191	55,207	55,858	57,105	Continuing	TBD
(U) Other Procurement, AF, PE 0207431F, WSC 834520		3,179	3,908	4,132	4,465	4,064	4,177	4,279		28,204
(U) Other Procurement, AF, PE 0207431F, WSC 832010, Intelligence Data Handling System, Combat Intelligence System portion	1,344	0	0	0	0	0			Continuing	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	DATE June 2001

BUDGET ACTIVITY 07 - Operational System Development	PE NUMBER AND TITLE 0207438F Theater Battle Management (TBM) C4I	PROJECT 4790

(U) D. Acquisition Strategy

Electronic Systems Center (ESC), Hanscom AFB, MA manages the TBMCS program. Lockheed-Martin Mission Systems (LMMS) was competitively selected after full and open competition. They were awarded a cost plus award fee contract to develop improved capabilities in support of effective Theater Battle Management and to integrate existing and evolutionary capabilities in the DII Common Operating Environment. The program uses an evolutionary acquisition strategy with a series of incremental, spiral development software releases. This approach accommodates refinement and prioritization of user requirements and improves adaptability to advances in commercial technology to fulfill evolving aerospace command and control requirements.

(U) E. Schedule Profile

		FY 2000			FY 2001				FY 2002			
	1	2	3	4	1	2	3	4	1	2	3	4
(U) TBMCS software version 1.0.1												
(U) Multi-Service Operational T&E				*								
(U) Version 1.0.1 Release				*								
(U) TBMCS software version 1.0.2												
(U) In-Plant Test						*						
(U) Version 1.0.2 Release							*					
(U) TBMCS software increment 1.1												
(U) In-Plant Test								X				
(U) Combined Dev Test/Ops Test									X			
(U) Increment 1.1 release										X		
(U) TBMCS software increment 1.2												
(U) In-Plant Test												X
(U) Initiate TBMCS software blk 2 Planning											X	
(U)												

Note: * Denotes Completed Event; X Denotes Planned Event

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE June 2001

BUDGET ACTIVITY **07 - Operational System Development**	PE NUMBER AND TITLE **0207438F Theater Battle Management (TBM) C4I**	PROJECT **4790**

(U)   A. Project Cost Breakdown ($ in Thousands)

	FY 2000	FY 2001	FY 2002
(U) System Integration and Development	21,530	20,630	20,948
(U) System Engineering and Support	1,819	2,910	1,880
(U) Total	23,349	23,540	22,828

(U)   B. Budget Acquisition History and Planning Information ($ in Thousands)

(U)   Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 2000	Budget FY 2000	Budget FY 2001	Budget FY 2002	Budget to Complete	Total Program
Product Development Organizations										
LMMS	CPAF	Oct 95	TBD	TBD		21,530	20,130	18,948	Continuing	TBD
TBD	TBD	Jul 01	TBD	TBD			500	2,000		2,500
Support and Management Organizations										
MITRE	CPAF	Oct 94	N/A	N/A		1,689	2,780	1,750	Continuing	TBD
Test and Evaluation Organizations										
46TS	Project Order	Various	N/A	N/A		130	130	130	Continuing	TBD

(U)   Government Furnished Property:

Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date		Total Prior to FY 2000	Budget FY 2000	Budget FY 2001	Budget FY 2002	Budget to Complete	Total Program
Product Development Property										
Support and Management Property										
Test and Evaluation Property										

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE June 2001				

BUDGET ACTIVITY
07 - Operational System Development

PE NUMBER AND TITLE
0207438F Theater Battle Management (TBM) C4I

PROJECT 4790

Subtotals	Total Prior to FY 2000	Budget FY 2000	Budget FY 2001	Budget FY 2002	Budget to Complete	Total Program
Subtotal Product Development		21,530	20,630	20,948	TBD	TBD
Subtotal Support and Management		1,689	2,780	1,750	TBD	TBD
Subtotal Test and Evaluation		130	130	130	TBD	TBD
Total Project		23,349	23,540	22,828	TBD	TBD

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)		DATE June 2001

BUDGET ACTIVITY 07 - Operational System Development	PE NUMBER AND TITLE 0207438F Theater Battle Management (TBM) C4I	PROJECT 4802

COST ($ in Thousands)		FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
4802	Deliberate and Crisis Action Planning and Execution Segment (DCAPES)	9,081	11,430	12,295	10,347	10,565	10,786	11,130	11,366	Continuing	TBD

FY03-FY07 budget numbers do not reflect the DoD strategic review results.

(U)   A. Mission Description

Deliberate and Crisis Action Planning and Execution Segment (DCAPES is being developed as the next generation AF interface to the Joint Operational Planning and Execution System (JOPES). This effort is an evolutionary follow on to the Contingency Operations Mobility Planning and Execution System (COMPES), which is currently the Air Force interface to JOPES. COMPES is the legacy system ported from WWMCCS to GCCS in 1996 as a stop gap measure. DCAPES will replace the functionality of COMPES with modern relational databases, integrated-distributed database, and common and shared data consistent with the Joint vision for integrated C2. DCAPES is intended to be more tightly coupled with the range of planning support systems to provide a more effective crisis action planning capability for a wider range of operational scenarios and will fully support the force provider function of the AF Forces (AFFOR) Commander. DCAPES provides a real time, two way interchange of manpower, logistics, and operational data between the Air Force and the warfighting CINCs. It matches people and airframes/weapon systems to the CINC's warfighting requirements.

(U)   FY 2000 ($ in Thousands)
(U) $8,581   DCAPES Increment 1 development, prototyping, coding, and internal testing
(U) $500   Government deployment and test support
(U) $9,081   Total

(U)   FY 2001 ($ in Thousands)
(U) $10,531   DCAPES Increment 1 development, prototyping, coding, and testing
(U) $560   Government development testing and integration and interoperability testing
(U) $339   DCAPES Increment 2 requirements definition, development, prototyping, coding, and testing
(U) $11,430   Total

(U)   FY 2002 ($ in Thousands)
(U) $7,985   DCAPES Increment 2 development, prototyping, coding, and testing (includes program management support)
(U) $600   Government deployment and test support
(U) $2,100   DCAPES Increment 3 requirements definition
(U) $1,610   DCAPES Increment 3 development, requirements allocation, prototyping, and coding

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	DATE June 2001

BUDGET ACTIVITY 07 - Operational System Development	PE NUMBER AND TITLE 0207438F Theater Battle Management (TBM) C4I	PROJECT 4802

(U) **A. Mission Description Continued**

(U) **FY 2002 ($ in Thousands) Continued**
(U) $12,295   Total

(U) **B. Project Change Summary**

(U) **C. Other Program Funding Summary ($ in Thousands)**

	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
(U) AF RDT&E										
(U) Other APPN										

(U) **D. Acquisition Strategy**
DCAPES will be managed by Electronic Systems Center, Hanscom AFB, MA. In July 98, the DCAPES contract was awarded to the Raytheon, Computer Sciences Corporation, and Science Applications International team under Command and Control Product Line (CCPL) contracts awarded and maintained by Electronic Systems Center. The program uses an evolutionary acquisition strategy with a series of incremental software releases. This approach accommodates refinement and prioritization of user requirements and improves adaptability to improvements in commercial technology.

(U) **E. Schedule Profile**

		FY 2000				FY 2001				FY 2002		
	1	2	3	4	1	2	3	4	1	2	3	4
(U) Complete Increment 1 Development							X					
(U) Government Acceptance Testing (Incr 1)								X				
(U) DCAPES Initial Increment Fielded									X			
(U) Complete Increment 2 Development											X	
(U) Increment 2 Fielding												X
(U) Begin Increment 3 Development											X	
(U)												

Note 1: * Denotes Completed Event; X Denotes Planned Event

Project 4802	Page 12 of 13 Pages	Exhibit R-2A (PE 0207438F)

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE June 2001

BUDGET ACTIVITY 07 - Operational System Development	PE NUMBER AND TITLE 0207438F Theater Battle Management (TBM) C4I	PROJECT 4802

(U)   A. Project Cost Breakdown ($ in Thousands)

	FY 2000	FY 2001	FY 2002
(U) Development Contract Effort	7,281	9,370	9,695
(U) Test Support	500	560	600
(U) Program Management Support	1,300	1,500	2,000
(U) Total	9,081	11,430	12,295

(U)   B. Budget Acquisition History and Planning Information ($ in Thousands)

(U)   Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 2000	Budget FY 2000	Budget FY 2001	Budget FY 2002	Budget to Complete	Total Program
Product Development Organizations										
Raytheon/ CSC/ SAIC	FP/LH with award fee	Feb 98	N/A	N/A	0	7,263	9,370	9,695	Continuing	TBD
Support and Management Organizations										
Mitre	CPAF					800	1,000	1,200	Continuing	TBD
TEMS	T&M					400	500	800	Continuing	TBD
Test and Evaluation Organizations										
46 Test Sqdn	Project Order					618	560	600	Continuing	TBD
Subtotals					Total Prior to FY 2000	Budget FY 2000	Budget FY 2001	Budget FY 2002	Budget to Complete	Total Program
Subtotal Product Development					0	7,263	9,370	9,695	TBD	TBD
Subtotal Support and Management						1,200	1,500	2,000	TBD	TBD
Subtotal Test and Evaluation						618	560	600	TBD	TBD
Total Project					0	9,081	11,430	12,295	TBD	TBD