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DEPARTMENT OF THE AIR FORCE

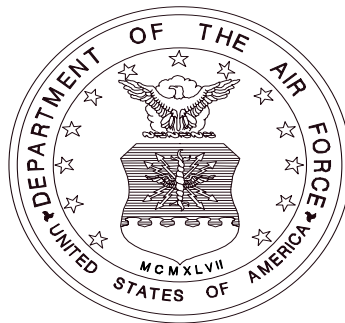
FISCAL YEAR (FY) 2005 BUDGET ESTIMATES

RESEARCH, DEVELOPMENT, TEST AND EVALUATION (RDT&E)

DESCRIPTIVE SUMMARIES, VOLUME III

BUDGET ACTIVITY 7

FEBRUARY 2004 (REVISED)



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**Fiscal Year 2005 Budget Estimates
RDT&E Descriptive Summaries, Volume III
Budget Activity 7
FEBRUARY 2004 (REVISED)**

INTRODUCTION AND EXPLANATION OF CONTENTS

1. (U) GENERAL

- A. This document has been prepared to provide information on the United States Air Force (USAF) Research, Development, Test and Evaluation (RDT&E) program elements and projects in the FY 2005 President's Budget.
- 1) All exhibits in this document have been assembled in accordance with DoD 7000.14R, Financial Management Regulation, Volume 2B, Chapter 5, Section 050402. Exceptions:
 - a) Exhibit R-1, RDT&E Program, which was distributed under a separate cover due to classification.
 - 2) Other comments on exhibit contents in this document:
 - a) Exhibits R-2/2a and R-3 provide narrative information for all RDT&E program elements and projects within the USAF FY 2005 RDT&E program with the exception of classified program elements. The formats and contents of this document are in accordance with the guidelines and requirements of the Congressional committees insofar as possible.
 - b) The "Other Program Funding Summary" portion of the R-2 includes, in addition to RDT&E funds, Procurement funds and quantities, Military Construction appropriation funds on specific development programs, Operations and Maintenance appropriation funds where they are essential to the development effort described, and where appropriate, Department of Energy (DOE) costs.
 - c) "Facilities Exhibits", Military Construction Project Data, (DD 1391), for improvements to and construction of government-owned facilities funded in RD&E, are included at the end of Volume III.

2. (U) CLASSIFICATION

- A. All exhibits contained in Volumes I, II, and III are unclassified. Classified exhibits are not included in the submission due to the level of security classification and necessity of special security clearances.

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Advanced Communications Systems	0207423F	1393
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Advanced Medium Range Air-to-Air Missile	0207163F	1315
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AERIAL TARGETS	0305116F	1111
Air and Space Operations Center (AOC)	0207410F	1363
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Common Aero Vehicle	0604856F	711
Common Low Observable Verification Sys	0604762F	1041
Communications Security	0303401F	1625
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Conventional Munitions	0602602F	221
Conventional Weapons Technology	0603601F	425
Counterspace Systems	0604421F	911
Crew Systems and Personnel Protection Technology	0603231F	339
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Information Warfare Support	0208021F	1529
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Integrated Broadcast Service (DEM/VAL)	0603850F	609
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International Activities	1001004F	1183
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Joint Direct Attack Munition	0604618F	977
Joint Expeditionary Force Experiment	0207028F	1247
Joint Helmet Mounted Cueing System (JHMCS)	0604012F	793
JOINT NATIONAL TRAINING CENTER	0804757F	485

Joint Precision Approach and Landing Systems - Dem/Val	0603860F	675
JOINT STARS	0207581F	1467
Joint Strike Fighter EMD	0604800F	1049
JOINT TACTICAL RADIO SYSTEMS (JTRS)	0604280F	889
JUDGEMENT FUND REIMBURSEMENT	0909980F	1181
KC-10S	0401219F	1951
KC-135s	0401218F	1945
Large Aircraft InfraRed Counter Measures (LAIRCM)	0401134F	1937
Life Support Systems	0604706F	983
Link 16 Support and Sustainment	0207434F	725
Logistic Support Activities	0708012F	1989
Major T&E Investment	0604759F	1123
Manned Destructive Suppression	0207136F	1287
Manned Reconnaissance System	0305207F	1793
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MILSATCOM Terminals	0303601F	1633
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Modeling and Simulation Support	0308601F	1889
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National Polar-Orbiting Op Env Satellite	0305178F	487
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NATO Cooperative R&D	0603790F	579
NAVSTAR Global Positioning System User Equipment Space	0305164F	1703
NAVSTAR GPS (Space)	0305165F	1711
NCMC - TW/AA System	0305906F	1833
NEXT GENERATION BOMBER	0604015F	683
Nuclear Weapons Support	0604222F	801
NUDET Detection System (Space)	0305913F	1873
Operationally Responsive Launch	0604855F	705
OTHER PERSONNEL ACTIVITIES	0808716F	2037
Physical Security Equipment	0603287F	519
Physical Security Equipment	0604287F	897
Polar MILSATCOM (Space)	0603432F	543
Pollution Prevention	0603859F	669
PREDATOR DEVELOPMENT/FIELDING	0305219F	1807
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Ranch Hand II Epidemiology Study	0605306F	1139
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RDT&E For Aging Aircraft	0605011F	1099
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Specialized Undergraduate Pilot Training	0604233F	831
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Submunitions	0604604F	957
Support Systems Development	0708611F	2005
Tactical AIM Missiles	0207161F	1309
Tactical Data Link Integration	0604754F	1033
Test and Evaluation Support	0605807F	1153
Theater Battle Management (TBM) C4I	0207438F	1399

Threat Simulator Development	0604256F	1115
Transformational SATCOM (TSAT)	0603845F	599
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Unmanned Air Vehicle Dev/Demo	0603333F	375
Joint Unmanned Combat Air System (J-UCAS)	0604731F	991
USAF Modeling and Simulation	0207601F	1481
Warfighter Rapid Acquisition Program	0203761F	1241
Wargaming and Simulation Centers	0207605F	1513
WEATHER SERVICE	0305111F	1663
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PROGRAM ELEMENT COMPARISON SUMMARY

PROGRAM ELEMENT (By BUDGET ACTIVITY)

REMARKS

BUDGET ACTIVITY #1: BASIC RESEARCH (Volume I)

0601102F Defense Research Sciences

In FY 2005, Project 2311, Space Sciences changed its name to Space and Information Sciences.

0601102F

In FY 2005, Project 2304, Mathematical and Computer Services, efforts will be moved to the Project 2311, Space and Information Sciences.

In FY 2005, Project 2311, Space and Information Sciences, efforts were transferred from Project 2304, Mathematical and Computer Services.

BUDGET ACTIVITY #2: APPLIED RESEARCH (Volume I)

None

BUDGET ACTIVITY #3: ADVANCED TECHNOLOGY DEVELOPMENT (Volume I)

0603216F Aerospace Propulsion and Power Technology

In FY 2005, Project 2480, Aerospace Fuels and Atmospheric Propulsion, efforts were transferred to Project 5098, Advanced Aerospace Propulsion.

In FY 2005, Project 4921, Aircraft Propulsion Subsystems Integration, efforts was transferred to Project 5098, Advanced Aerospace Propulsion.

In FY 2005, Project 5098, Advanced Aerospace Propulsion, efforts were transferred from Project 2480, Aerospace Fuels and Atmospheric Propulsion.

In FY 2005, Project 5098, Advanced Aerospace Propulsion, efforts were transferred from Project 4921, Aircraft Aerospace Propulsion.

BUDGET ACTIVITY #4: ADVANCED COMPONENT DEVELOPMENT & PROTOTYPE (Volume 2)

0603434F National Polar-Orbiting Operations Environmental Satellite System (NPOESS)

In FY 2005, Project 4056, NPOESS, efforts were transferred to PE 0305178F, NPOESS, Project 4056, NPOESS, in order to accomplish program System Development & Demonstration.

0603791F International Space Cooperative R&D

In FY 2005, Project 5035, International Space Cooperative R&D, includes new start efforts.

0603850F Integrated Broadcast System (IBS)

In FY 2005, Project 4778, IBS, efforts were transferred to PE 0207443F, Family of Interoperable Operational Picture (FIOP), Project 5137, FIOP.

0604015F Next Generation Bomber

In FY 2005, this is a new PE.

BUDGET ACTIVITY #5: SYSTEM DEVELOPMENT & DEMONSTRATION (SDD) (Volume 2)

0207256F Joint-Unmanned Combat Air System (JUCAS)

In FY05, the PE was renamed Joint-Unmanned Combat Air System (JUCAS).

In FY 2005, Project 5118, J-UCAS, efforts were transferred to a new RDT&E Defense-wide Program Element.

0207434F Link 16 Support & Sustainment

In FY 2005, Project 5051, FIOP, efforts were transferred to PE 0207443F, FIOP, in order to consolidate FIOP funding.

0207443F	Family of Interoperable Operational Picture (FIOP)	<p>In FY 2005, this is a new PE.</p> <p>In FY 2005, efforts from PE 0604754F, Tactical Data Links Integration, Project 5051, FIOP, efforts were transferred to Project 5137, FIOP, in order to consolidate FIOP program funding.</p> <p>In FY 2005, efforts from PE 0207438F, Theater Battle Management C4I, Project 4790, Theater Battle Management Core System (TBMCS), were transferred to Project 5137, FIOP, in order to consolidate FIOP program funding.</p> <p>In FY 2005, efforts from PE 0603580F, Integrated Broadcast Service (IBS) (Dem/Val), Project 4781, IBS, efforts were transferred to Project 5137, FIOP, in order to consolidate FIOP program funding.</p> <p>In FY 2005, efforts from PE 0604754F, Tactical Data Links Integration, Project 654992, FIOP; were transferred to Project 5137, FIOP, in order to consolidate FIOP program funding.</p> <p>In FY 2005, efforts from PE 0207438F, Theater Battle Management C4I, Project 4790, TBMCS, were transferred to Project 5137, FIOP, in order to consolidate FIOP program funding.</p> <p>In FY 2005, efforts from PE 0603850F, IBS (Dem/Val), Project 4778, IBS, were transferred to Project 5137, FIOP, in order to consolidate FIOP program funding.</p>
0207450F	Multi-Sensor Command and Control Aircraft (MC2A)	<p>In FY 2005, this is a new PE.</p> <p>In FY 2005, PE 0207449F, C2C, Project 5064, Airframe, efforts were transferred to Project, 5131, M2CA Airframe.</p> <p>In FY 2005, PE 0207449F, C2C, Project 5065, Sensors, efforts were transferred to Project 5132, MC2A Sensors.</p>
0305178F	NPOESS	<p>In FY2005, this is a new PE.</p> <p>In FY2005, Project 4056, NPOESS, efforts were transferred from PE 0603434F, NPOESS, Project 4056, NPOESS, in order to accomplish System Development and Demonstration.</p>
0604221F	Counterspace Systems	<p>In FY 2005, Project A001, Counter Satellite Communications Systems, includes new start efforts.</p>
0604226F	B-1B	<p>In FY 2005, Project 4596, Conventional Mission Upgrade, includes new start efforts.</p>
0604270F	Electronic Warfare (EW) Development	<p>In FY 2005, Project 8462, Airborne Electronic Attack, includes new start efforts.</p>
0604754F	Tactical Data Link Integration	<p>In FY 2005, Project 4992, FIOP, efforts transferred to PE 0207443F, Family of Interoperable Operational Pictures (FIOP), Project 655137, FIOP in order to consolidate FIOP funding.</p>

0604617F Agile Combat Support In FY 2005, Project 2895, Civil Engineering Readiness (CE), includes new start efforts.

0604731F Joint-Unmanned Combat Air System (JUCAS) In FY 2005, Project 5058, J-UCAS, efforts were transferred to a new RDT&E Defense-wide Program Element.

BUDGET ACTIVITY #6: RDT&E MANAGEMENT SUPPORT (Volume 2)

0305116F Aerial Targets In FY 2005, this is a new PE.

In FY 2005, Projects 5136, Target Systems Development, efforts were transferred from PE 0604735F, Combat Training Ranges, Project 2286, Combat Training Range Equipment.

0604759F Major T&E Investment In FY 2005, Project 4597, Air Force Test Investments, includes a new start effort

0702806F Acquisition and Management Support In FY05, this is a new PE.

BUDGET ACTIVITY #7: OPERATIONAL SYSTEM DEVELOPMENT (Volume 3)

0101113F B-52 Squadrons In FY 2005, Project 5039, B-52 Modernization, includes new start efforts.

0207028F Joint Expeditionary Force Experiment (JEFX) In FY 2005, Project 4373, JEFX, efforts were transferred to PE 0207449F, C2C, Project 5140, JEFX.

FY 2005, Project 4991, JDEP, efforts were transferred to PE 0207601F, USAF Modeling & Simulation, Project 5133, Joint Distribute Engineering Plant (JDEP).

0207141F F-117A Squadrons In FY 2005, Project 3956, F-117A Squadrons, includes new start efforts.

0207161F Tactical AIM Missiles In FY 2005, Project 4132, AIM-9 Product Improvement, includes new start efforts.

0207224F Combat Rescue and Recovery In FY 2005, this is a new PE.

0207438F Theater Battle Management C4I In FY 2005, Project 4790, TBMCS, efforts were transferred to PE 0207443F, FIOP, Project 5137, FIOP, in order to consolidate FIOP funding.

0207449F Command and Control Constellation (C2C) In FY 2005, this Program Element (PE) was renamed Command and Control Constellation (C2C).

In FY 2005, Project 5078, Horizontal Integration, efforts were transferred from Project 5064, Airframe.

In 2005, Project 5064, JEFX, efforts were transferred from PE 0207028F, Joint Expeditionary Force Experiment, Project 5140, JEFX.

In FY 2005, Project 5064, Airframe, efforts were transferred to PE 0207450F, MC2A, Project 655131, MC2A Airframe.

0207601F

USAF Modeling & Simulation

In FY 2005, Project 5065, Sensors, efforts were transferred to PE 0207450F, MC2A, Project 655132, MC2A Sensors.

In FY 2005, Project 5078, Horizontal Integration, efforts were transferred from Project 675064, Airframe.

In 2005, Projects 5140, JEFX, efforts were transferred from PE 0207028F, Joint Expeditionary Force Experiment, Project 674373, JEFX.

In FY 2005, Project Number 5135, Distributed Mission Operations (DMO), includes new start efforts.

In FY05, Project 4567, was renamed to the Joint Synthetic Battlespace (JSB) Environment.

In FY 2005, Project 4567, JSB, efforts were transferred from Project 5005, Executive Agent for Air Space Environment.

In FY 2005, Projects 4991, JDEP, efforts were transferred from PE 0207028F, Joint Expeditionary Force Experiment, Project 674991, JDEP.

In FY 2005, Project 5005, Executive Agent for Air Space Environment, efforts transferred to Project 4567, JSB Environment.

0303140F	Information Systems Security Program	<p>In FY 2005, Project 4579, Information Warfare, was terminated.</p> <p>In FY 2005, Project 4871, Information Operations Technology, efforts were transferred to PE 0305193F, Intelligence Support to Information Operations, Project 4871, Information Operations Technology.</p> <p>In FY 2005, Projects 4871, Information Operations Technology, efforts were transferred to PE 0305887F, Intelligence Support to Information Warfare, Project IOT, Information Warfare Support.</p>
0305193F	Intelligence Support to Information Operations	<p>In FY 2005, this is a new PE.</p> <p>In FY 2005, Project 4871, Information Operations Technology, efforts were transferred from PE 0303140F, Information Systems Security Program, Project 4871, Information Operations Technology.</p>
0305219F	Predator Development/Fielding	<p>In FY2005, this is a new PE.</p> <p>In FY2005, Project 5143, Predator, efforts were transferred from PE 0305205F, Endurance Unmanned Aerial Vehicles, Project 4755, Predator..</p>
0305220F	Global Hawk Development/Fielding	<p>In FY 2005, this is a new PE.</p> <p>In FY 2005, Project 5144, Global Hawk, efforts were transferred from PE 305205F, Endurance Unmanned Aerial Vehicles, Project 4799, Global Hawk.</p>
0305887F	Electronic Combat Intelligence Support	<p>In FY 2005, this is a new PE.</p> <p>In FY 2005, Project IOT, Information Operations Technology, efforts were transferred from PE 0303140F, Information Systems Security Program, Project 4871, Information Operations Technology.</p>
0401130F	C-17 Aircraft	<p>In FY 2005, Project 4886, C-17 Aircraft, efforts were transferred to PE 41134F, Large Aircraft Infra-Red Countermeasures (LAIRCM), Project 4942, LAIRCM.</p>
0401134F	Large Aircraft Infra-Red Countermeasures (LAIRCM)	<p>In FY 2005, Project 4942, LAIRCM, efforts were transferred from PE 0401130F, C-17 Aircraft, Project 4886, C-17 Aircraft.</p>
0408011F	Special Tactics/Combat Control	<p>In FY 2005, this is a new PE.</p>
0808716F	Other Personnel Activities	<p>In FY 2005, this is a new PE.</p>

The following are Program Elements not providing RDT&E exhibits due to classification:

0101815F	Advanced Strategic Programs
0207248F	Special Evaluation Program
0207424F	Evaluation and Analysis Program
0207591F	Advanced Program Evaluation
0208160F	Technical Evaluation System
0208161F	Special Evaluation System
0304311F	Selected Activities
0603801F	Special Programs

UNCLASSIFIED

PE NUMBER: 0101113F
 PE TITLE: B-52 SQUADRONS

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0101113F B-52 SQUADRONS
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Cost (\$ in Millions)	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
Total Program Element (PE) Cost	52.001	28.406	25.766	34.259	71.215	28.487	0.000	Continuing	TBD
4810 Avionics Midlife Improvement (AMI)	29.563	28.354	9.176	0.000	0.000	0.000	0.000	Continuing	TBD
4875 Situational Awareness Defensive Improvement	22.438	0.000	0.000	0.000	0.000	0.000	0.000	0.000	70.925
4876 B-52 Global Air Traffic Management (GATM)	0.000	0.052	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5039 B-52 Modernization	0.000	0.000	16.590	34.259	71.215	28.487	0.000	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

The B-52 is one of two bomber weapon systems which supports conventional and nuclear taskings. It employs a diverse weapons load and is the only long range bomber/weapon system that can employ the Advanced Cruise Missile (ACM), Air Launched Cruise Missile (ALCM) and Conventional Air Launched Cruise Missile (CALCM). The current service life is forecast beyond 2040. The Avionics Midlife Improvement (AMI) modification replaces unsupportable mission critical parts of the Offensive Avionics System (OAS), which controls navigation and weapons delivery. The Situational Awareness Defensive Improvement (SADI) modification originally was planned to improve situational awareness and electronic countermeasure system control. SADI has been rebaselined under the Airborne Electronic Attack Stand Off Jamming (AEA/SOJ) program (PE 64270F). The Global Air Traffic Management (GATM) spiral upgrade will allow the B-52 to meet Federal Aviation Agency and International Civil Aviation Organization (ICAO) avionics requirements to reduce airspace congestion and increase safety. B-52 Modernization upgrade provides communications improvements for enhanced command and control, an in flight CALCM mission planning system, machine-to-machine J-series/GPS aided weapons retargeting, increased carriage of GPS guided gravity and standoff weapons, support for B-52 test activities at the Air Force Flight Test Center (AFFTC), and other future program/studies to improve Total Ownership Cost (TOC) of the Aircraft. Air Force Material Command's Oklahoma Air Logistics Center has program management responsibility. The prime contractor for these projects is Boeing Defense located in Wichita, Kansas.

The B-52 is an operational system resulting in this program being budget activity 7 - Operational System Development.

Exhibit R-2, RDT&E Budget Item Justification

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0101113F B-52 SQUADRONS

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	54.712	28.649	16.633
(U) Current PBR/President's Budget	52.001	28.406	25.766
(U) Total Adjustments	-2.711	-0.243	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.243	
Congressional Increases			
Reprogrammings	-1.102		
SBIR/STTR Transfer	-1.609		

(U) **Significant Program Changes:**

B-52 Modernization Program deferred by one year--originally planned to start in FY 04. Program will now be an FY05 start.

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0101113F B-52 SQUADRONS			PROJECT NUMBER AND TITLE 4810 Avionics Midlife Improvement (AMI)			
Cost (\$ in Millions)	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	
4810 Avionics Midlife Improvement (AMI)	29.563	28.354	9.176	0.000	0.000	0.000	0.000	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

(U) A. Mission Description and Budget Item Justification

The B-52H Offensive Avionics System (OAS) has several subsystems which must be replaced. The Inertial Navigation System (INS) utilizes 1960 unsupportable spinning mass gyro technology. The Avionics Control Unit (ACU) is a computer system with limited processing capability and memory. The Data Transfer Unit Cartridges (DTUCs) are bulky, unreliable, and obsolete. The AMI program will use non developmental components and technology to replace these subsystems and their associated software, significantly increasing OAS reliability, maintainability, supportability. Reliability and DMS deficiencies and performance improvements to the OAS are also addressed in this program. Funding is provided for engineering and planning studies for potential future weapon system enhancements (weapons, sensors, and avionics) and for weapon system operation/safety, supportability, maintainability, reliability, and Total Ownership Cost (TOC) improvements.

The B-52 is an operational system resulting in this program being budget activity 7 - Operational System Development.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments/Planned Program	0.000	0.000	
(U) Prototype Hardware	4.253	0.000	
(U) Design, development of replacement software	16.908	15.841	
(U) Ground and Flight Test	7.350	11.875	9.176
(U) System Program Office Support	0.892	0.638	
(U) Program Support/Modeling and Simulation/Studies and Analysis	0.160		
(U) Total Cost	29.563	28.354	9.176

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E	29.563	28.354	9.176					Continuing	TBD
(U) Other APPN									
(U) Aircraft Procurement (BP1100)	0.000	12.411	37.178	35.320	5.591	0.818		Continuing	TBD

(U) D. Acquisition Strategy

The AMI program will contract with Boeing Wichita for aircraft hardware integration and Flight Management System and the Stores Management Overlay software development. Boeing will work with select vendors which will provide EMD hardware. The Government will subsequently contract with these vendors for production hardware supporting aircraft installations.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

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BUDGET ACTIVITY		PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE				
07 Operational System Development		0101113F B-52 SQUADRONS						4810 Avionics Midlife Improvement (AMI)				
(U) <u>Cost Categories</u>	<u>Contract Method</u>	<u>Performing Activity &</u>	<u>Total</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to</u>	<u>Total</u>	<u>Target</u>
(Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>& Type</u>	<u>Location</u>	<u>Prior to FY</u>	<u>2003</u>	<u>2003</u>	<u>2004</u>	<u>2004</u>	<u>2005</u>	<u>2005</u>	<u>Complete</u>	<u>Cost</u>	<u>Value of</u>
			<u>2003</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>			<u>Contract</u>
			<u>Cost</u>		<u>Date</u>		<u>Date</u>		<u>Date</u>			
(U) <u>Product Development</u>												
Boeing, Wichita	CONTRACT		26.670	19.619		9.776				Continuing	TBD	
Subtotal Product Development			26.670	19.619		9.776		0.000		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												
OC-ALC/LH	PMA		0.538	0.204		0.203				Continuing	TBD	
OC-ALC/LAS	206		0.400	2.240		0.500				Continuing	TBD	
OO-ALC/LIR	616		0.100	0.200		5.700				Continuing	TBD	
SER/CASU	MIPR		0.100	0.300		0.300				Continuing	TBD	
Miscellaneous	BTR/SIBR										0.000	
Subtotal Support			1.138	2.944		6.703		0.000		Continuing	TBD	0.000
Remarks:												
(U) <u>Test & Evaluation</u>												
419 FLTS	Project Order		0.050	7.000		11.875		9.176		Continuing	TBD	
Subtotal Test & Evaluation			0.050	7.000		11.875		9.176		Continuing	TBD	0.000
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			27.858	29.563		28.354		9.176		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

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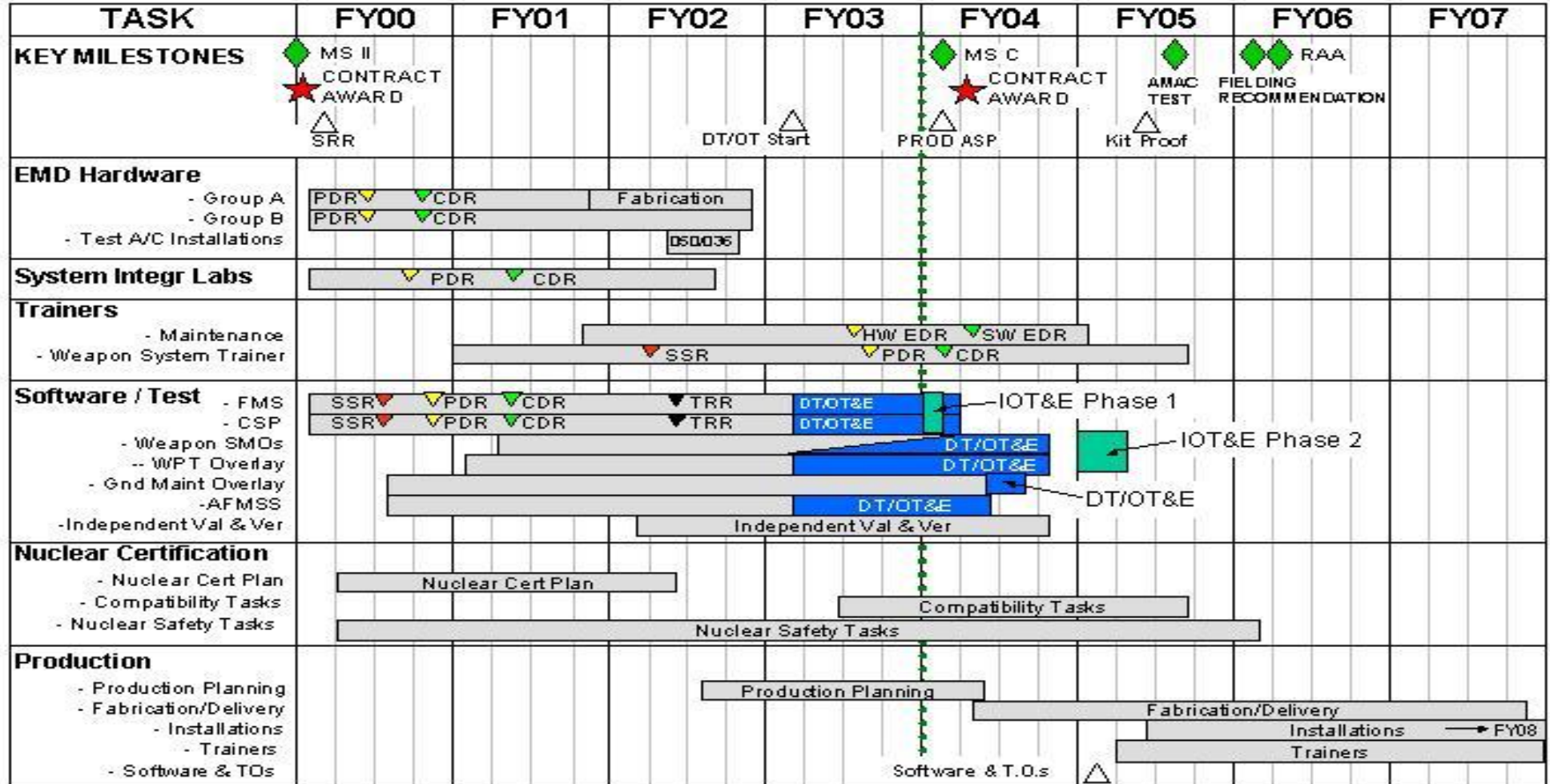
BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0101113F B-52 SQUADRONS

PROJECT NUMBER AND TITLE
4810 Avionics Midlife Improvement (AMI)

AMI Integrated Schedule

Date: 8 SEP 03
OPR: CC-ALC/LHMM
AMI Program Manager



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Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2004

BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0101113F B-52 SQUADRONS	PROJECT NUMBER AND TITLE 4810 Avionics Midlife Improvement (AMI)
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(U) <u>Schedule Profile</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Software Development	1-4Q		
(U) Test Planning	1-4Q		
(U) Ground & Flight Test	1-4Q	1-4Q	1-3Q
(U) DT/OT Start	1Q		
(U) Milestone C		1Q	
(U) Production Acquisition Strategy Plan		1Q	
(U) Production Contract Award		2Q	
(U) Kit Proof			2Q

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0101113F B-52 SQUADRONS			PROJECT NUMBER AND TITLE 4875 Situational Awareness Defensive Improvement		
Cost (\$ in Millions)	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
4875 Situational Awareness Defensive Improvement	22.438	0.000	0.000	0.000	0.000	0.000	0.000	0.000	70.925
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The Situational Awareness Defensive Improvement (SADI) modification originally was planned to preserve B-52 survivability and add cornerstone architecture for stand off jamming (SOJ) capability in support of Air Force's system of system approach for airborne electronic (AEA) by replacing the AN/ALR-20 Panoramic Receiver System. SADI has been rebaselined under the Airborne Electronic Attack Stand Off Jamming (AEA/SOJ) program (PE 64270F).

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments/Planned Program	0.000		
(U) System Concept Studies (Includes CTD planning, System Engineering, System Capability Trades, Modeling and Simulation, Studies and Analysis, and Subsystem Source Selection).	15.438		
(U) Support Equipment/NRE	4.000		
(U) Program Management	3.000		
(U) Not Applicable		0.000	
(U) Total Cost	22.438	0.000	0.000

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to Complete</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>		
(U) AF RDT&E	22.438							Continuing	TBD
(U) Other APPN								Continuing	TBD
(U) Aircraft Procurement (BP1100)								Continuing	TBD

(U) D. Acquisition Strategy

Program has been rebaselined under the Airborne Electronic Attack Stand Off Jamming (AEA/SOJ) program (PE 64270F).

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2004

BUDGET ACTIVITY		PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE				
07 Operational System Development		0101113F B-52 SQUADRONS						4875 Situational Awareness Defensive Improvement				
<u>(U) Cost Categories</u>	<u>Contract Method</u>	<u>Performing Activity &</u>	<u>Total</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to</u>	<u>Total</u>	<u>Target</u>
(Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>& Type</u>	<u>Location</u>	<u>Prior to FY</u>	<u>2003</u>	<u>2003</u>	<u>2004</u>	<u>2004</u>	<u>2005</u>	<u>2005</u>	<u>Complete</u>	<u>Cost</u>	<u>Value of</u>
			<u>2003</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>			<u>Contract</u>
			<u>Cost</u>		<u>Date</u>		<u>Date</u>		<u>Date</u>			
<u>(U) Product Development</u>												
Boeing Military Programs, Wichita Division	CPAF		17.595	15.438							33.033	
Subtotal Product Development			17.595	15.438		0.000		0.000		0.000	33.033	0.000
Remarks:												
<u>(U) Support</u>												
OC-ALC/LH	PMA		0.813	0.875							1.688	
WR/ALC	616		0.098	1.306							1.404	
OO-ALC/YWT			1.404	1.500							2.904	
HQ ACC/XRA52	MORD		0.010	0.169							0.179	
Subtotal Support			2.325	3.850		0.000		0.000		0.000	6.175	0.000
Remarks:												
<u>(U) Test & Evaluation</u>												
36 EWS//EWF	616		0.050	0.050							0.100	
419 FLTS	616		0.050	0.050							0.100	
2LG & 49 TES	616		0.050	0.050							0.100	
Subtotal Test & Evaluation			0.150	0.150		0.000		0.000		0.000	0.300	0.000
Remarks:												
<u>(U) Management</u>												
				3.000							3.000	
Subtotal Management			0.000	3.000		0.000		0.000		0.000	3.000	0.000
Remarks:												
<u>(U) Total Cost</u>			20.070	22.438		0.000		0.000		0.000	42.508	0.000

Exhibit R-4, RDT&E Schedule Profile

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February 2004

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0101113F B-52 SQUADRONS

PROJECT NUMBER AND TITLE

**4875 Situational Awareness
Defensive Improvement**

Exhibit R-4a, RDT&E Schedule Detail	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0101113F B-52 SQUADRONS	PROJECT NUMBER AND TITLE 4875 Situational Awareness Defensive Improvement
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(U) <u>Schedule Profile</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Studies and Analysis/Pre Milestone A/risk reduction activities for AEA/SOJ program	1-4Q		

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0101113F B-52 SQUADRONS			PROJECT NUMBER AND TITLE 4876 B-52 Global Air Traffic Management (GATM)		
Cost (\$ in Millions)	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
4876 B-52 Global Air Traffic Management (GATM)	0.000	0.052	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The GATM program will develop and install an integrated communication, navigation, surveillance and air traffic management capability needed to comply with International Civil Aviation Organization (ICAO) and Federal Aviation Administration (FAA) requirements and to insure unrestricted access to global airspace. Program has been deferred past the FYDP.

The B-52 is an operational system resulting in this program being budget activity 7 - Operational System Development.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments/Planned Program	0.000	0.000	
(U) No funding appropriated	0.000		
(U) No Activity		0.000	
(U) Total Cost	0.000	0.000	0.000

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
(U) Other APPN								Continuing	TBD
(U) Aircraft Procurement (BP1100)								Continuing	TBD

(U) D. Acquisition Strategy

Not Applicable at this time.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2004

BUDGET ACTIVITY		PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE				
07 Operational System Development		0101113F B-52 SQUADRONS						4876 B-52 Global Air Traffic Management (GATM)				
(U) <u>Cost Categories</u>	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to</u>	<u>Total</u>	<u>Target</u>
(Tailor to WBS, or System/Item Requirements) (\$ in Millions)			<u>Prior to FY</u>	<u>2003</u>	<u>2003</u>	<u>2004</u>	<u>2004</u>	<u>2005</u>	<u>2005</u>	<u>Complete</u>	<u>Cost</u>	<u>Value of</u>
			<u>2003</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>			<u>Contract</u>
			<u>Cost</u>		<u>Date</u>		<u>Date</u>		<u>Date</u>			
(U) <u>Product Development</u>												0.000
Subtotal Product Development			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Support</u>												0.000
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Test & Evaluation</u>												0.000
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u>												0.000
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			0.000	0.000		0.000		0.000		0.000	0.000	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0101113F B-52 SQUADRONS

PROJECT NUMBER AND TITLE

4876 B-52 Global Air Traffic Management (GATM)

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Exhibit R-4a, RDT&E Schedule Detail

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0101113F B-52 SQUADRONS

PROJECT NUMBER AND TITLE

4876 B-52 Global Air Traffic Management (GATM)

(U) Schedule Profile

FY 2003

FY 2004

FY 2005

(U) No Activity

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0101113F B-52 SQUADRONS			PROJECT NUMBER AND TITLE 5039 B-52 Modernization		
Cost (\$ in Millions)	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
5039 B-52 Modernization	0.000	0.000	16.590	34.259	71.215	28.487	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

B-52 Modernization is a comprehensive program that will ensure future B-52 viability. B-52 Modernization will first provide a communication and data link suite through the COmbat NETwork Communications Technology (CONNECT) incremental program. Increment one, Conventional Air Launched In-flight Beyond Line-Of-Sight Rapid Retasking (CIBR2), will be the communication backbone of the program by providing a new client/server architecture using commercial-off-the-shelf (COTS) computers interconnected through a Local Area Network (LAN) system and new color displays at each crew station. The upgrade will improve information processing and presentation. Increment two, Airborne Wideband Terminal (AWT), is part of the Family of Airborne Terminal (FAB-T) and the Extremely High Frequency (EHF) radio that will take the place of the AFSATCOM radio which is used for nuclear connectivity. AWT and associated antenna are architecture keystones to the B-52 conventional beyond-line-of-sight (BLOS) data link integration programs. AWT will provide secure, wideband, high data rate BLOS capability. Increment three will integrate Link 16 Tactical Data Link (TDL) system protocol. Future B-52 Modernization programs will also include (but not limited to) 1760 mil standard upgrade, new weapons integration, and targeting pod integration. Funding is provided for B-52 test activities at the Air Force Flight Test Center (AFFTC), engineering and planning studies for potential future weapon system enhancements (weapons, sensors, and avionics), and for weapon system operational/safety, supportability, reliability, and Total Ownership Cost (TOC) improvements.

The B-52 is an operational system resulting in this program being budget activity 7 - Operational System Development.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments/Planned Program			
(U) Group A and B Kit Development			8.700
(U) Ground and Flight Test Planning			0.831
(U) Data Development			0.277
(U) Installation/Integration Planning			0.211
(U) Support Equipment Development			1.066
(U) Software Development			3.284
(U) Simulation/Trainer Development			1.203
(U) Program Support/Modeling and Simulation/Studies and Analsis			1.018
(U) Total Cost	0.000	0.000	16.590

Exhibit R-2a, RDT&E Project Justification

DATE

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0101113F B-52 SQUADRONS

PROJECT NUMBER AND TITLE

5039 B-52 Modernization

(U) C. Other Program Funding Summary (\$ in Millions)(U) D. Acquisition Strategy

B-52 modernization is an development program that will be sole sourced to Boeing, who will be designing group A wiring and fairing for an Electronic System Center developed antenna and associated electronic hardware. At the same time Boeing will be developing the architecture for a system to process the information; procuring information processing equipment from their subcontractors; and developing drawings, data, and time compliance technical order (TCTO) for the installation on the B-52.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2004

BUDGET ACTIVITY			PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
07 Operational System Development			0101113F B-52 SQUADRONS					5039 B-52 Modernization				
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to</u>	<u>Total</u>	<u>Target</u>
			<u>Prior to FY</u>	<u>2003</u>	<u>2003</u>	<u>2004</u>	<u>2004</u>	<u>2005</u>	<u>2005</u>	<u>Complete</u>	<u>Cost</u>	<u>Value of</u>
			<u>2003</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Contract</u>
			<u>Cost</u>	<u>Date</u>	<u>Date</u>	<u>Date</u>	<u>Date</u>	<u>Date</u>	<u>Date</u>			
(U) <u>Product Development</u>												
Boeing, Wichita								13.000	Jan-05	Continuing	TBD	
Subtotal Product Development			0.000	0.000		0.000		13.000		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												
OO-ALC/LIR								1.203		Continuing	TBD	
OC-ALC/LH								2.387		Continuing	TBD	
Subtotal Support			0.000	0.000		0.000		3.590		Continuing	TBD	0.000
Remarks:												
(U) <u>Test & Evaluation</u>												
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			0.000	0.000		0.000		16.590		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

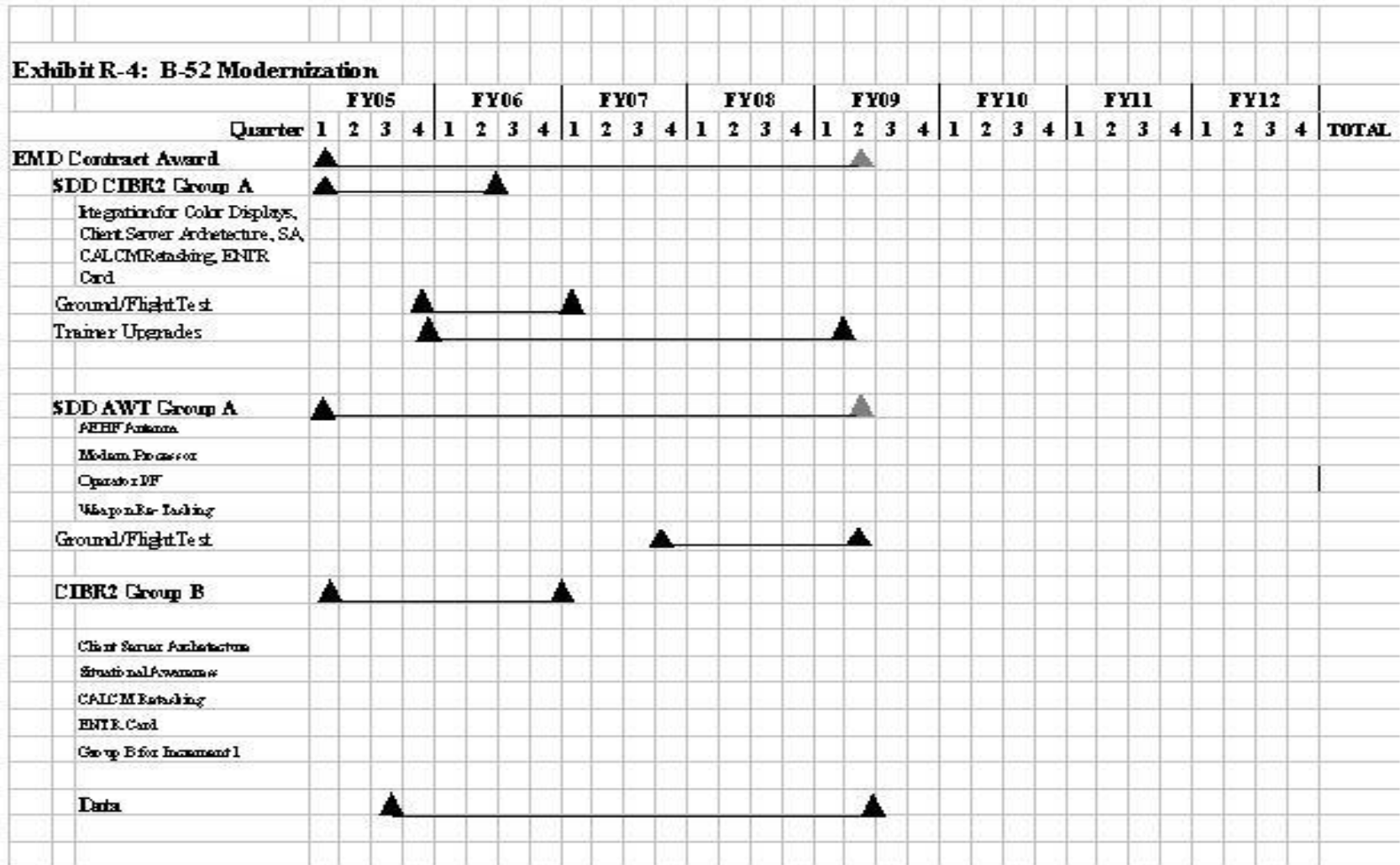
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February 2004

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0101113F B-52 SQUADRONS

PROJECT NUMBER AND TITLE
5039 B-52 Modernization



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Exhibit R-4a, RDT&E Schedule Detail

DATE

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0101113F B-52 SQUADRONS

PROJECT NUMBER AND TITLE

5039 B-52 Modernization

(U) **Schedule Profile**

FY 2003

FY 2004

FY 2005

(U) Begin Interface Development in FY 05

1-4Q

(U) Begin Software Development in FY 05

1-4Q

(U) CIBR2 Ground and Flight Test

4Q

(U) Trainer Upgrade

4Q

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Exhibit R-2, RDT&E Budget Item Justification								DATE February 2004	
BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0101120F ADVANCED CRUISE MISSILE					
Cost (\$ in Millions)	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
Total Program Element (PE) Cost	2.562	13.212	7.740	5.779	6.903	3.005	0.387	0.000	45.973
4798 Life Extension Program	2.562	13.212	7.740	5.779	6.903	3.005	0.387	0.000	45.973

(U) **A. Mission Description and Budget Item Justification**

AGM-129, The Advanced Cruise Missile (ACM), is a low-observable air-launched, strategic missile with significant improvements over the Air Launched Cruise Missile B version (ALCM-B) in range, accuracy, and survivability. Armed with a W-80 warhead, it is designed to evade air and ground-based defenses in order to strike heavily defended, hardened targets at any location within any enemy's territory. The ACM is designed for B-52H external carriage and there is currently 402 ACM in the inventory. The ACM fleet design service life expires between the years 2003 and 2008.

A Service Life Extension Plan (SLEP) was developed to meet an AF Long Range Plan requirement to extend ACM Service Life to FY30. The results of Service Life Extension Program (SLEP) studies will identify system components that cannot be sustained beyond the standard service life. The current system is experiencing obsolescence of parts/components. Missile support equipment and components are becoming non-supportable. Service Life Extension of this critical weapon is essential to meet ACC and STRATCOM SIOP commitments.

The initial requirement for ACM SLEP was the development of a conforming JTIK door design. The program developed 2 prototype JTIK doors for qualification and system-level testing. JTIK development satisfied test range safety requirements by incorporating GPS tracking capability and a Department of Energy (DOE) Joint Test Assembly (JTA) redesign.

Together government and contractor personnel prepared an efficient, economical program schedule, in order to realize potential program economies of scale and to ensure the contractor can manage any increased workload. The JTIK development effort was a low risk program, but an essential effort because DOE-compliant JTIK doors are required in FY04 in order to continue conducting flight testing for weapon system reliability data collection used for Nuclear Certification and support of the W-80 Warhead Life Extension Program (LEP).

The ACM Subsystem Simulator (SSS) and Advanced Missile Simulator (AMS) Upgrade will develop, integrate, test and install a real-time simulation system that replaces aging and obsolete equipment. This requirement was identified as part of the ACM SLEP study to upgrade the simulation systems in the AF Avionics Software Integration Facility (ASIF) and the System Integration Lab (SIL). To extend the service life of the ACM to FY30, the real-time computer based simulation systems must be upgraded to resolve aging and obsolescence issues. These systems have many irreplaceable electronic components with high probability of failure. The ability to resolve real-time missile hardware and software anomalies and missile flight test investigations will not be possible without a reliable simulation system provided by this upgrade.

Development of an ACM Aging and Surveillance (A&S) program for the Nuclear Weapons Sub-System (NWSS) components is a Program Management Directive (PMD) requirement. The A&S program is required to analyze critical warhead interface missile components. Fault diagnostics will be accomplished and the data collected from

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2004

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0101120F ADVANCED CRUISE MISSILE

the A&S tests will indicate failure trends and the rate of aging within each component. This effort is the second phase of what was initiated in 1999 to develop test equipment, utilizing Commercial Off-the-Shelf (COTS) to the maximum extent possible, and software necessary to lay in a test program for the NWSS components.

Cruise Missile Functional Ground Testing (FGT) is required to provide the capability to non-destructively accomplish functional flight simulation of a full-up missile flight profile on the ground to obtain additional reliability data. This capability will provide critical reliability data without the cost of flight test mission and will also retain the missiles in the inventory. This effort will develop the software and hardware for an existing test facility for accomplishment of the ground tests.

The W-80 LEP replaces warhead components to extend its service life. The National Nuclear Security Administration (NNSA) is responsible for most of the refurbishment costs associated with the W-80 Warhead. The Air force is responsible for funding ACM/W-80 integration. Integration includes evaluation of interface control changes as part of the Initial Concept Design, missile testing and logistics requirements necessary to support a First Production Unit (FPU) delivery of 2008.

These programs are in Budget Activity 7, Operational System Development, due to efforts supporting a fielded, post Milestone III weapon system.

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	2.788	13.364	7.760
(U) Current PBR/President's Budget	2.562	13.212	7.740
(U) Total Adjustments	-0.226	-0.152	
(U) Congressional Program Reductions		-0.038	
Congressional Rescissions	-0.030	-0.114	
Congressional Increases			
Reprogrammings	-0.031		
SBIR/STTR Transfer	-0.165		
(U) <u>Significant Program Changes:</u>			

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0101120F ADVANCED CRUISE MISSILE			PROJECT NUMBER AND TITLE 4798 Life Extension Program		
Cost (\$ in Millions)	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
4798 Life Extension Program	2.562	13.212	7.740	5.779	6.903	3.005	0.387	0.000	45.973
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

AGM-129, The Advanced Cruise Missile (ACM), is a low-observable air-launched, strategic missile with significant improvements over the Air Launched Cruise Missile B version (ALCM-B) in range, accuracy, and survivability. Armed with a W-80 warhead, it is designed to evade air and ground-based defenses in order to strike heavily defended, hardened targets at any location within any enemy's territory. The ACM is designed for B-52H external carriage and there is currently 402 ACM in the inventory. The ACM fleet design service life expires between the years 2003 and 2008.

A Service Life Extension Plan (SLEP) was developed to meet an AF Long Range Plan requirement to extend ACM Service Life to FY30. The results of Service Life Extension Program (SLEP) studies will identify system components that cannot be sustained beyond the standard service life. The current system is experiencing obsolescence of parts/components. Missile support equipment and components are becoming non-supportable. Service Life Extension of this critical weapon is essential to meet ACC and STRATCOM SIOP commitments.

The initial requirement for ACM SLEP was the development of a conforming JTIK door design. The program developed 2 prototype JTIK doors for qualification and system-level testing. JTIK development satisfied test range safety requirements by incorporating GPS tracking capability and a Department of Energy (DOE) Joint Test Assembly (JTA) redesign.

Together government and contractor personnel prepared an efficient, economical program schedule, in order to realize potential program economies of scale and to ensure the contractor can manage any increased workload. The JTIK development effort was a low risk program, but an essential effort because DOE-compliant JTIK doors are required in FY04 in order to continue conducting flight testing for weapon system reliability data collection used for Nuclear Certification and support of the W-80 Warhead Life Extension Program (LEP).

The ACM Subsystem Simulator (SSS) and Advanced Missile Simulator (AMS) Upgrade will develop, integrate, test and install a real-time simulation system that replaces aging and obsolete equipment. This requirement was identified as part of the ACM SLEP study to upgrade the simulation systems in the AF Avionics Software Integration Facility (ASIF) and the System Integration Lab (SIL). To extend the service life of the ACM to FY30, the real-time computer based simulation systems must be upgraded to resolve aging and obsolescence issues. These systems have many irreplaceable electronic components with high probability of failure. The ability to resolve real-time missile hardware and software anomalies and missile flight test investigations will not be possible without a reliable simulation system provided by this upgrade.

Development of an ACM Aging and Surveillance (A&S) program for the Nuclear Weapons Sub-System (NWSS) components is a Program Management Directive (PMD) requirement. The A&S program is required to analyze critical warhead interface missile components. Fault diagnostics will be accomplished and the data collected from the A&S tests will indicate failure trends and the rate of aging within each component. This effort is the second phase of what was initiated in 1999 to develop test

Exhibit R-2a, RDT&E Project Justification

DATE

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0101120F ADVANCED CRUISE
MISSILE

PROJECT NUMBER AND TITLE

4798 Life Extension Program

equipment, utilizing Commercial Off-the-Shelf (COTS) to the maximum extent possible, and software necessary to lay in a test program for the NWSS components.

Cruise Missile Functional Ground Testing (FGT) is required to provide the capability to non-destructively accomplish functional flight simulation of a full-up missile flight profile on the ground to obtain additional reliability data. This capability will provide critical reliability data without the cost of flight test mission and will also retain the missiles in the inventory. This effort will develop the software and hardware for an existing test facility for accomplishment of the ground tests.

The W-80 LEP replaces warhead components to extend its service life. The National Nuclear Security Administration (NNSA) is responsible for most of the refurbishment costs associated with the W-80 Warhead. The Air force is responsible for funding ACM/W-80 integration. Integration includes evaluation of interface control changes as part of the Initial Concept Design, missile testing and logistics requirements necessary to support a First Production Unit (FPU) delivery of 2008.

These programs are in Budget Activity 7, Operational System Development, due to efforts supporting a fielded, post Milestone III weapon system.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Subsystem Simulator (SS) and Advanced Missile Simulator (AMS) Upgrade Accomplishments/Planned Program			
(U) Initiate System Design for Subsystem Simulator (SS) and Advanced Missile Simulator (AMS) Upgrade	0.913		
(U) Begin Integration Design for 3rd Party Software to Support PDR of SS and AMS upgrade	0.930		
(U) Re-Host Raytheon Developed/Maintained software for SS and AMS	0.719		
(U) Subsystem Simulator (SS) and Advanced Missile Simulator (AMS) Upgrade Accomplishments/Planned Program			
(U) Continue system design efforts for SS and AMS, SS software CDR, Interface design review, detailed component design, component fabrication and test, hardware acquisition,		1.360	
(U) Conduct SS and AMS software development, system integration and test, validation and verification (V&V)		1.120	
(U) SS and AMS Component fabrication and test, hardware integration and test.		0.530	
(U) Nuclear Weapons Sub-system (NWSS) Aging & Surveillance Accomplishments/Planned Program			
(U) Conduct Nuclear Weapons Subsystem (NWSS) component aging & surveillance program, initial design, PDR, hardware acquisition, software design & code		0.807	
(U) Complete Final Design Review, system integration and test, engineering data		0.687	
(U) Conduct acceptance testing, documentation, delivery and installation, demonstration		0.560	
(U) Cruise Missile Functional Ground Test (FGT) Accomplishments/Planned Program			
(U) Begin Cruise Missile Functional Ground Test (FGT) software design/development		1.800	
(U) Begin FGT hardware design/development		1.800	
(U) Begin FGT System/Missile integration and test		1.400	
(U) ACM/W-80 Warhead Life Extension Program (LEP) Support Accomplishments/Planned Program			
(U) ACM Interface Change evaluations and contractor Interface Control Document Support for W-80 LEP		2.035	
(U) ACM/W-80 Integration Data development		0.125	
(U) ACM/W-80 Integration Ground Test and Flight Test support		0.988	

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0101120F ADVANCED CRUISE MISSILE	PROJECT NUMBER AND TITLE 4798 Life Extension Program
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(U) Subsystem Simulator (SS) and Advanced Missile Simulator (AMS) Upgrade Accomplishments/Planned Program			
(U) Complete SS software, delivery of both Subsystem Simulators (SS) and Computer Support System (CSS), and documentation delivery			1.200
(U) Accomplish validation/acceptance testing of Subsystem Simulators and Computer Support System			0.500
(U) Complete delivery, validation & acceptance testing of AMS, and documentation delivery			1.330
(U) ACM/W-80 Warhead Life Extension Program (LEP) Support Accomplishments/Planned Program			
(U) Continue contractor Interface Control Document (ICD) support and interface change evaluations for W-80 LEP			1.110
(U) Continue ACM/W-80 Integration Ground Test and Flight Test Support			2.600
(U) ACM/W-80 Service System Test And Repair (Service STAR) re-design/modification			1.000
(U) Total Cost	2.562	13.212	7.740

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) MPAF, Missile Modifications (BA03, PE 0101120F, P-9)	5.313	3.465	4.094	3.208	1.273	0.096	0.000	0.000	16.380
(U) MPAF, Replenishment Spares (BA04, PE 0101120F, P-17)	9.565	9.379	7.712	6.301	1.949	0.343	0.353	Continuing	TBD
(U) MPAF, Missile Modification Initial Spares (BA04, PE 0101120F, P-16)	0.379	0.311	0.308	0.308	0.244	0.252	0.259	Continuing	TBD

(U) D. Acquisition Strategy

JTIK door development was performed by the prime contractor, Raytheon, utilizing Cost Plus Fixed Fee (CPFF). Sub-System Simulator and Advanced Missile Simulator Upgrades will be performed by the prime contractor, Raytheon, utilizing a Firm Fixed Price (FFP) contract. Aging & Surveillance (A&S) program development is planned to be by a FFP contract with E-Spectrum Technologies. The Cruise Missile FGT development will be performed by the prime contractor, utilizing a FFP contract. Contract support for W-80 LEP will be acquired using Time & Materials (T&M) on existing sustainment contract.

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Exhibit R-3, RDT&E Project Cost Analysis										DATE February 2004		
BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0101120F ADVANCED CRUISE MISSILE				PROJECT NUMBER AND TITLE 4798 Life Extension Program				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2003 Cost</u>	<u>FY 2003 Cost</u>	<u>FY 2003 Award Date</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Joint Test Instrumentation Kit (JTIK) Development	CPFF	Raytheon, Tucson AZ	6.183								6.183	
Subsystem Simulator (SS)/Advanced Missile Simulator (AMS) Development	FFP	Raytheon, Tucson AZ		1.995	Apr-03	2.971	Oct-03	2.961			7.927	7.927
Nuclear Weapons Sub-System (NWSS) Aging & Surveillance (A&S)	FFP	E-Spectrums, San Antonio TX				2.054					2.054	2.054
Functional Ground Test (FGT) Development	FFP	Raytheon, Tucson AZ				5.000					5.000	5.000
W80 LEP Support	T&M	Raytheon, Tucson AZ				2.035		1.110		1.170	4.315	13.170
W80 LEP support, Service STAR	FFP	E-Spectrums, San Antonio TX						1.000			1.000	1.000
Service Life Extension Program (SLEP)	CPFF	Raytheon, Tucson AZ								6.012	6.012	
Subtotal Product Development			6.183	1.995		12.060		5.071		7.182	32.491	29.151
Remarks:												
(U) <u>Support</u>												
W80 Support	T&M	OC-ALC/PSM, Tinker AFB OK								0.892	0.892	
SS/AMS Support	T&M	OC-ALC/MAS, Tinker AFB OK		0.202				0.069			0.271	
Subtotal Support			0.000	0.202		0.000		0.069		0.892	1.163	0.000
Remarks:												
(U) <u>Test & Evaluation</u>												
W80 Support	Fund cite/MIPR	49 TES, Barksdale AFB LA				0.608		2.600		8.000	11.208	
W80 Support	T&M	OC-ALC/LHMR, Tinker AFB OK/Boeing, Wichita KS				0.075					0.075	

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT NUMBER AND TITLE			
07 Operational System Development				0101120F ADVANCED CRUISE MISSILE			4798 Life Extension Program			
Subtotal Test & Evaluation				0.000	0.000	0.683	2.600	8.000	11.283	0.000
Remarks: None										
(U) <u>Management</u>										
W-80 Support	T&M	OC-ALC/PSM, Tinker AFB OK				0.430			0.430	
SS/AMS Support	T&M	OC-ALC/PSM, Tinker AFB OK			0.365	0.039			0.404	
Subtotal Management				0.000	0.365	0.469	0.000	0.000	0.834	0.000
Remarks:										
(U) Total Cost				6.183	2.562	13.212	7.740	16.074	45.771	29.151

Exhibit R-4, RDT&E Schedule Profile

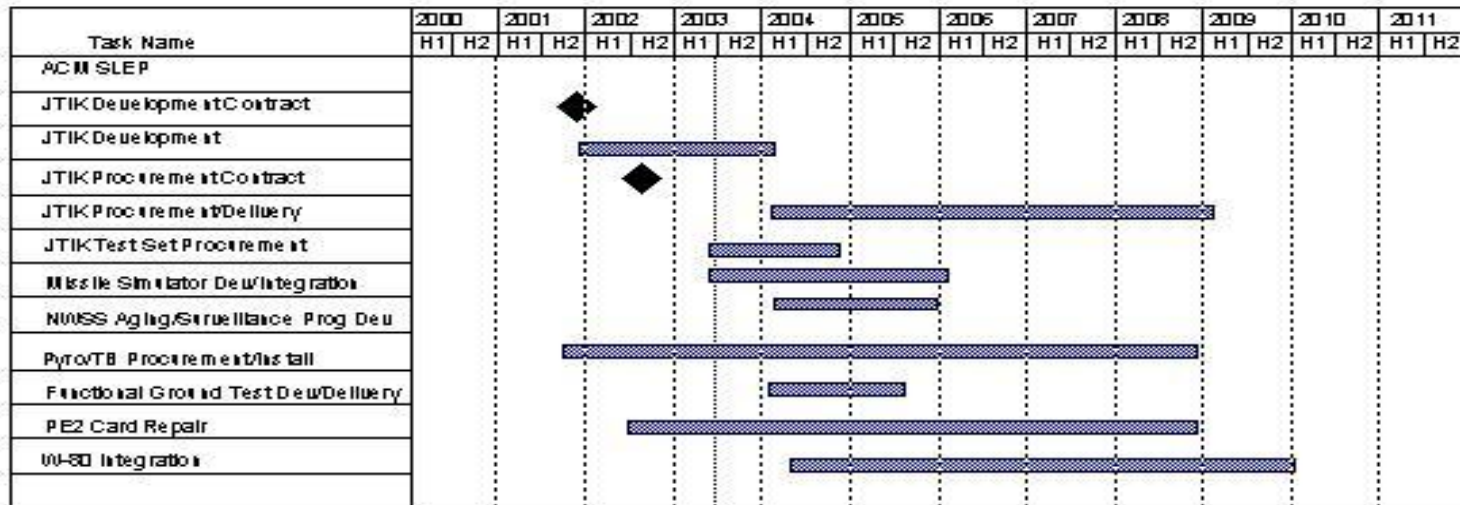
DATE

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BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0101120F ADVANCED CRUISE
MISSILE

PROJECT NUMBER AND TITLE
4798 Life Extension Program



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Exhibit R-4a, RDT&E Schedule Detail		DATE February 2004		
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE		
07 Operational System Development	0101120F ADVANCED CRUISE MISSILE	4798 Life Extension Program		
		<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Schedule Profile				
(U) JTIK Dev Integration Testing			2Q	
(U) JTIK Test & Evaluation			3Q	
(U) SS/AMS Contract Award		3Q		
(U) SS & Computer Interface Unit (CIFU) SRR		4Q		
(U) SS PDR (overall system)			1Q	
(U) SS CDR (CIFU/SW)			3Q	
(U) AMS PDR (delta SW design/AMS IFU)			4Q	
(U) SS Test Readiness Review				3Q
(U) Computer Support System Test Readiness Review				4Q
(U) AMS Deliver/Installation				4Q
(U) ACM NWSS A&S program development Contract Award			2Q	
(U) Preliminary Design Review			3Q	
(U) Critical Design Review			4Q	
(U) Demo Arm/Disarm Device Tests				1Q
(U) Demo Separation Switch Tests				1Q
(U) Demo Impact Sensor Dynamic Test				2Q
(U) Demo Warhead Mount Tests				3Q
(U) Functional Ground Test (FGT) Development Contract Award			2Q	
(U) PDR				1Q
(U) CDR				2Q
(U) ACM/W-80 Life Extension Program (LEP) Integration Support Contract Award			1Q	
(U) Interface Control Changes/Documentation (Support)			1-4Q	1Q
(U) Ground Test (Support)			2-3Q	1Q
(U) Flight Test (Support)			4Q	2Q

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PE NUMBER: 0101122F
 PE TITLE: AIR LAUNCHED CRUISE MISSILE

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0101122F AIR LAUNCHED CRUISE MISSILE
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	Cost (\$ in Millions)	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
	Total Program Element (PE) Cost	19.400	29.466	11.837	2.238	3.693	5.718	0.387	0.000	94.700
4797	Flight Testing & Navigation Enhancement	19.400	29.466	11.837	2.238	3.693	5.718	0.387	0.000	94.700

(U) A. Mission Description and Budget Item Justification

The AGM-86B, Air Launched Cruise Missile (ALCM), is a subsonic, air-to-surface strategic nuclear missile, operational since 1982. Armed with a W-80 warhead, it is designed to evade air and ground-based defenses in order to strike targets at any location within any enemy's territory. The ALCM is designed for B-52H internal and external carriage.

A Service Life Extension Plan (SLEP) was developed to meet an AF Long Range Plan requirement to extend ALCM Service Life to FY30. The results of Service Life Extension Program (SLEP) studies identified system components that cannot be sustained beyond the standard service life. The current system is experiencing obsolescence of parts/components. Missile components and support equipment are becoming non-supportable. Service Life Extension of this critical weapon is essential to meet Air Combat Command (ACC) and United States Strategic Command (USSTRATCOM) commitments (also known as OPLAN 8044).

Initial SLEP assessment required the development and acquisition of new Conventional Air Launched Cruise Missile (CALCM)/ALCM Test Instrumentation Kit (CATIK) flight test payload doors, replacement of the current navigation system, and replacement of Operational Test & Evaluation (OT&E) hardware and software. CATIK commenced in FY00 based on the AF decision to maintain this weapon system beyond its current design life. Previous payload doors were purchased to support the original service life only. CATIK development efforts are driven by depleting test assets, parts obsolescence, Range Command Council 319 (RCC-319) safety requirements and re-certification of the Flight Termination System. Five CATIK RDT&E test articles will be developed to support Developmental Test & Evaluation (DT&E) flight tests. The five test articles will be used to conduct one ALCM Operational Test Launch, one ALCM Joint Test Assembly (JTA) integration test to ensure compatibility with the warhead package, one CALCM Operational Test Launch, one Captive Carry and a backup test asset.

CATIK payload doors, containing range transponder and battery, are required to be replaced due to depleting test assets to continue flight tests beyond FY06. The new CATIK payload doors will provide an inventory of test assets for continued flight testing through FY16, based on current flight test requirements. W-80 LEP (current interface) - CATIK will be designed to a JTA-R1. If the W-80 LEP program changes interface, CATIK will require modification and additional funding/schedule. The CATIK payload door is a critical component for determining Weapon System Reliability (WSR) and for supporting the W-80 Life Extension Program (LEP) (current interface).

Operational Test & Evaluation (OT&E) hardware and software replacement will occur concurrently with the CATIK development effort.

FY04 EMD efforts consist of qualification tests of the CATIK doors. Individual component qualification will have already been completed at the subvendors. FY05 EMD

Exhibit R-2, RDT&E Budget Item Justification

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0101122F AIR LAUNCHED CRUISE MISSILE

efforts is flight tests finishing up with the flight test report FY06. Contract period of performance ends April 06.

INE - The original ALCM Inertial Navigation Element (INE) service life design expired in 1996. The AF took action to study the INE components and determine which components were expected to become increasingly difficult to maintain or support. The completed studies indicate the ALCM INE failure rate has remained constant over the past 10 yrs and the INE is sustainable to 2030 with software modifications and Sub-Terminal Map Upgrades, hardware cannibalization and depot support/test equipment replacement. The Sub-Terminal map software upgrade will help maintain the credibility of the ALCM threat for the remainder of its service life.

Cruise Missile Functional Ground Testing (FGT) is required to provide the capability to non-destructively accomplish functional flight simulation of a full-up missile flight profile on the ground to obtain additional reliability data. This capability will provide critical reliability data without the costs of flight test missions and will also retain the missiles in the inventory. This effort will develop the software and hardware for an existing test facility for accomplishment of the ground tests.

The Big Crow Alternative development effort will produce a telemetry relay system mounted in B-52H wings. The Big Crow aircraft are used for Air Force flight testing and ensure continued Air Force conventional and nuclear cruise missile flight test capability at all times. Currently, two Big Crow aircraft provide a telemetry gathering capability for Army, Navy and Air Force requirements. The Big Crow aircraft perform a classified wartime mission, which takes precedence over Air Force cruise missile flight tests. This effort will design, develop, produce and test two aircraft systems (2 Pylons each) worth of equipment to ensure Air Force cruise missile flight testing/telemetry gathering capability when Big Crow is unavailable. The Pylons produced in the development effort will remain operational at the conclusion of the test effort.

The W-80 LEP replaces warhead components to extend its service life. The National Nuclear Security Administration (NNSA) is responsible for most of the refurbishment costs associated with the W-80 warhead. The Air Force is responsible for funding ALCM W-80 integration. Integration includes evaluation of interface control changes as part of the Initial Concept Design (ICD), missile testing, and logistics requirements necessary to support a First Production Unit (FPU) delivery of 2008.

These programs are in Budget Activity 7, Operational System Development, due to efforts supporting a fielded, post Milestone III operational weapon system.

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	20.513	29.804	11.837
(U) Current PBR/President's Budget	19.400	29.466	11.837
(U) Total Adjustments	-1.113	-0.338	
(U) Congressional Program Reductions	-0.217	-0.085	
Congressional Rescissions	-0.226	-0.253	
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer	-0.670		
(U) <u>Significant Program Changes:</u>			

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0101122F AIR LAUNCHED CRUISE MISSILE			PROJECT NUMBER AND TITLE 4797 Flight Testing & Navigation Enhancement		
Cost (\$ in Millions)	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
4797 Flight Testing & Navigation Enhancement	19.400	29.466	11.837	2.238	3.693	5.718	0.387	0.000	94.700
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) **A. Mission Description and Budget Item Justification**

The AGM-86B, Air Launched Cruise Missile (ALCM), is a subsonic, air-to-surface strategic nuclear missile, operational since 1982. Armed with a W-80 warhead, it is designed to evade air and ground-based defenses in order to strike targets at any location within any enemy's territory. The ALCM is designed for B-52H internal and external carriage.

A Service Life Extension Plan (SLEP) was developed to meet an AF Long Range Plan requirement to extend ALCM Service Life to FY30. The results of Service Life Extension Program (SLEP) studies identified system components that cannot be sustained beyond the standard service life. The current system is experiencing obsolescence of parts/components. Missile components and support equipment are becoming non-supportable. Service Life Extension of this critical weapon is essential to meet Air Combat Command (ACC) and United States Strategic Command (USSTRATCOM) commitments (also known as OPLAN 8044).

Initial SLEP assessment required the development and acquisition of new Conventional Air Launched Cruise Missile (CALCM)/ALCM Test Instrumentation Kit (CATIK) flight test payload doors, replacement of the current navigation system, and replacement of Operational Test & Evaluation (OT&E) hardware and software. CATIK commenced in FY00 based on the AF decision to maintain this weapon system beyond its current design life. Previous payload doors were purchased to support the original service life only. CATIK development efforts are driven by depleting test assets, parts obsolescence, Range Command Council 319 (RCC-319) safety requirements and re-certification of the Flight Termination System. Five CATIK RDT&E test articles will be developed to support Developmental Test & Evaluation (DT&E) flight tests. The five test articles will be used to conduct one ALCM Operational Test Launch, one ALCM Joint Test Assembly (JTA) integration test to ensure compatibility with the warhead package, one CALCM Operational Test Launch, one Captive Carry and a backup test asset.

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Operational Test & Evaluation (OT&E) hardware and software replacement will occur concurrently with the CATIK development effort.

FY04 EMD efforts consist of qualification tests of the CATIK doors. Individual component qualification will have already been completed at the subvendors. FY05 EMD efforts is flight tests finishing up with the flight test report FY06. Contract period of performance ends April 06.

Exhibit R-2a, RDT&E Project Justification		DATE February 2004
BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0101122F AIR LAUNCHED CRUISE MISSILE	PROJECT NUMBER AND TITLE 4797 Flight Testing & Navigation Enhancement

INE - The original ALCM Inertial Navigation Element (INE) service life design expired in 1996. The AF took action to study the INE components and determine which components were expected to become increasingly difficult to maintain or support. The completed studies indicate the ALCM INE failure rate has remained constant over the past 10 yrs and the INE is sustainable to 2030 with software modifications and Sub-Terminal Map Upgrades, hardware cannibalization and depot support/test equipment replacement. The Sub-Terminal map software upgrade will help maintain the credibility of the ALCM threat for the remainder of its service life.

Cruise Missile Functional Ground Testing (FGT) is required to provide the capability to non-destructively accomplish functional flight simulation of a full-up missile flight profile on the ground to obtain additional reliability data. This capability will provide critical reliability data without the costs of flight test missions and will also retain the missiles in the inventory. This effort will develop the software and hardware for an existing test facility for accomplishment of the ground tests.

The Big Crow Alternative development effort will produce a telemetry relay system mounted in B-52H wings. The Big Crow aircraft are used for Air Force flight testing and ensure continued Air Force conventional and nuclear cruise missile flight test capability at all times. Currently, two Big Crow aircraft provide a telemetry gathering capability for Army, Navy and Air Force requirements. The Big Crow aircraft perform a classified wartime mission, which takes precedence over Air Force cruise missile flight tests. This effort will design, develop, produce and test two aircraft systems (2 Pylons each) worth of equipment to ensure Air Force cruise missile flight testing/telemetry gathering capability when Big Crow is unavailable. The Pylons produced in the development effort will remain operational at the conclusion of the test effort.

The W-80 LEP replaces warhead components to extend its service life. The National Nuclear Security Administration (NNSA) is responsible for most of the refurbishment costs associated with the W-80 warhead. The Air Force is responsible for funding ALCM W-80 integration. Integration includes evaluation of interface control changes as part of the Initial Concept Design (ICD), missile testing, and logistics requirements necessary to support a First Production Unit (FPU) delivery of 2008.

These programs are in Budget Activity 7, Operational System Development, due to efforts supporting a fielded, post Milestone III operational weapon system.

(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) - Accomplishments/Planned Program	0.000	0.000	
(U) - Continue CATIK payload door Interface Design/Development; pre-planning for integration testing	15.635		
(U) - Continue update of CATIK Interface Control Documents and purchase hardware	1.690		
(U) - Begin INE Software Emulation Development, Testing and Integration	2.075		
(U) - Conduct flight test planning for integration testing		0.180	
(U) - Continue update of CATIK Interface Control Documents and assemble hardware		0.320	
(U) CATIK Test and Evaluation/Government costs		4.500	
(U) Continue CATIK Test & Evaluation/Government costs			0.937
(U) Begin INE Software Subterminal Map Development, Testing and Integration		2.146	
(U) Continue INE Software Subterminal Map Development, Testing and Integration		0.000	0.500

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Exhibit R-2a, RDT&E Project Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0101122F AIR LAUNCHED CRUISE MISSILE	PROJECT NUMBER AND TITLE 4797 Flight Testing & Navigation Enhancement
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(U) Begin Cruise Missile Functional Ground Test (FGT) software design & development	7.128		
(U) Begin Cruise Missile FGT hardware design/development	7.128		
(U) Begin FGT System/Missile Integration & Test	1.244		
(U) Continue FGT System/Missile Integratin & Test			4.300
(U) ALCM interface change evaluations and contractor Interface Control Document support for W-80 LEP	1.000		
(U) Continue ALCM interface change evaluations and contractor Interface Control Document support for W-80 LEP			1.360
(U) ALCM/W-80 integration data development	0.125		
(U) ALCM/W-80 integration ground test and flight test support	0.595		
(U) Continue ALCM/W-80 integration ground test and flight test support			0.840
(U) Begin ALCM/W-80 Service System Test and repair (Service STAR) re-design/modification			1.000
(U) Begin Big Crow Alternative hardware and software devlopement	5.100		
(U) Continue Big Crow Alternative hardware and softare development			2.900
(U) Total Cost		19.400	29.466
			11.837

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) MPAF, Missile Modifications (BA 03, PE 0101122F, P-13)	1.961	1.981	21.154	24.440	9.519	9.753	9.902	Continuing	TBD
(U) MPAF, Missile Modifications Initial Spares (BA 04 PE 0101122F, P-16)	1.006	1.661	0.375	0.178	0.182	0.185	0.189	Continuing	TBD
(U) MPAF, Replenishment Spares (BA 04, PE 0101122F, P-17)	4.143	3.785	4.234	4.249	0.282	0.286	0.293	Continuing	TBD
(U) OPAF, Electronics and Telecommunications Equipment (BP83) (BA 03, PE 0101122F, P-18)	1.312	1.305	1.328	1.374	1.407	1.438	1.466	Continuing	TBD

(U) D. Acquisition Strategy

Begun in FY00, CATIK payload door development efforts are performed by Boeing utilizing a Cost Plus Award Fee (CPAF) contract. A CATIK Low Rate Initial Production contract will be awarded in the 3rd quarter FY04 to ensure CATIK production assets are available in late FY06/early FY07 to continue ALCM flight testing beyond FY06 and support W-80 LEP (current interface).

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

**0101122F AIR LAUNCHED CRUISE
MISSILE**

PROJECT NUMBER AND TITLE

**4797 Flight Testing & Navigation
Enhancement**

The Cruise Missile FGT development will be performed by the prime contractor, utilizing a Firm Fixed Price (FFP) contract.

The ALCM/W-80 LEP integration will be performed by the prime contractor utilizing a Time and Materials (T&M) engineering assignment on an existing sustainment contract.

The Big Crow Alternative development will be performed by SAIC using a CPFF contract.

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Exhibit R-3, RDT&E Project Cost Analysis										DATE February 2004		
BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0101122F AIR LAUNCHED CRUISE MISSILE				PROJECT NUMBER AND TITLE 4797 Flight Testing & Navigation Enhancement				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
(U) <u>Product Development</u>												
Development:											0.000	
CATIK	Eng Asgn/ CPAF	Boeing, Seattle, WA.	8.191	17.680		0.500		0.050		0.050	26.471	
TRW- INE	Eng Asgn/T&M		1.441							0.000	1.441	
Boeing-INE	Eng Asgn/ CPAF		1.200							0.000	1.200	
	TBD									7.668	7.668	
Functional Ground Test (FGT)	FFP	Raytheon, Tuscon AZ				15.500		4.300		0.000	19.800	
W80 LEP Support	Eng Asgn/T&M	Boeing, Seattle, WA.		1.720		2.035		1.360		1.600	6.715	
W80 LEP Support, Service STAR	FFP	E-Spectrums, San Antonio TX.						1.000			1.000	
INE Software Subterminal Map Development	Eng Asgn/T&M	Boeing, Seattle, WA.				0.500		0.500			1.000	
Big Crow Alternative Hardware and Software Development	CPFF	SAIC, San Diego				3.874		1.127			5.001	
											0.000	
Subtotal Product Development			10.832	19.400		22.409		8.337		9.318	70.296	0.000
Remarks:												
(U) <u>Support</u>												
OC-ALC/PSM			0.101							0.652	0.753	
W80 Support/PSM										1.436	1.436	
Subtotal Support			0.101	0.000		0.000		0.000		2.088	2.189	0.000
Remarks:												
(U) <u>Test & Evaluation</u>												
Utah Test Range	MIPR		0.000			2.875		1.400		0.475	4.750	
49th Test Wing	MIPR		0.000			2.475		1.000		0.450	3.925	
Responsible Test Org	TBD					0.612		0.260		0.025	0.897	
Eglin AFB	MIPR					0.500				0.000	0.500	

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Exhibit R-3, RDT&E Project Cost Analysis					DATE February 2004			
BUDGET ACTIVITY		PE NUMBER AND TITLE			PROJECT NUMBER AND TITLE			
07 Operational System Development		0101122F AIR LAUNCHED CRUISE MISSILE			4797 Flight Testing & Navigation Enhancement			
49th Test Wing (W-80 LEP)	MIPR			0.595	0.840	8.000	9.435	
None							0.000	
Subtotal Test & Evaluation		0.000	0.000	7.057	3.500	8.950	19.507	0.000
Remarks:								
(U) <u>Management</u>							0.000	
Subtotal Management		0.000	0.000	0.000	0.000	0.000	0.000	0.000
Remarks:								
(U) Total Cost		10.933	19.400	29.466	11.837	20.356	91.992	0.000

Exhibit R-4, RDT&E Schedule Profile

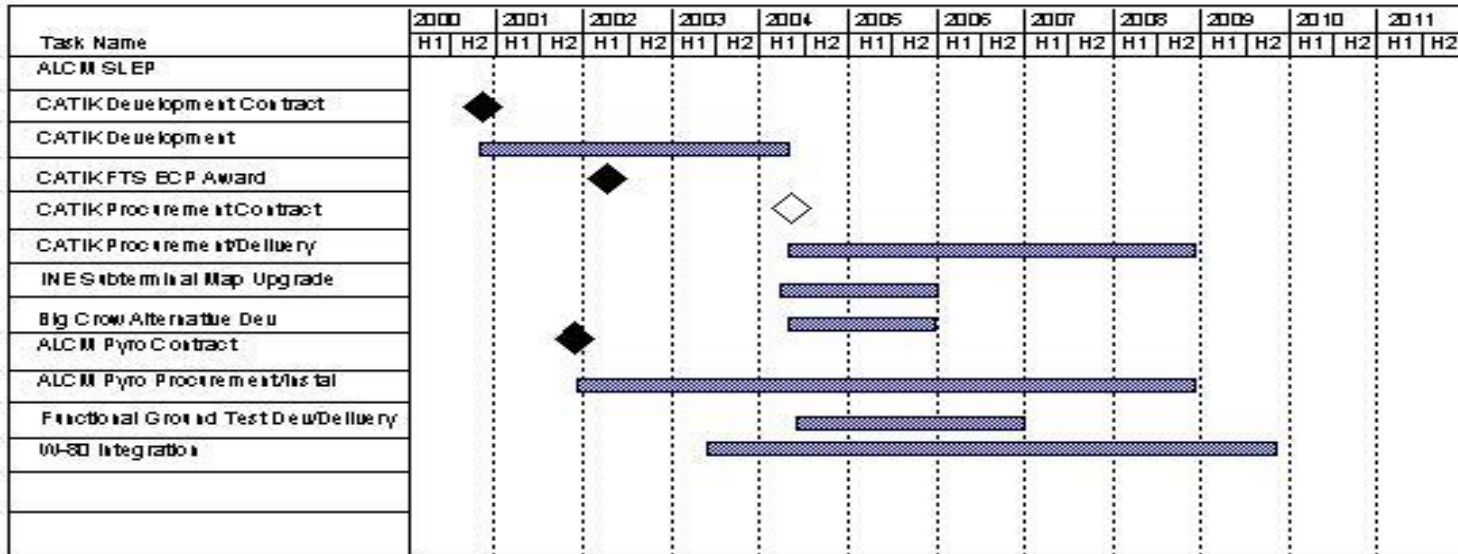
DATE

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BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0101122F AIR LAUNCHED CRUISE
MISSILE

PROJECT NUMBER AND TITLE
4797 Flight Testing & Navigation
Enhancement



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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0101122F AIR LAUNCHED CRUISE MISSILE	PROJECT NUMBER AND TITLE 4797 Flight Testing & Navigation Enhancement
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(U) <u>Schedule Profile</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) -- Contract Award - CATIK (2QFY00)	2Q		
(U) CATIK Development Milestones			4Q
(U) -- Critical Design Review (CDR)	3Q		
(U) Integration/Qual Testing		3Q	
(U) CATIK Production Contract Award			2Q
(U) Functional/Physical Config Audit			2Q
(U) 5 Prototype CATIKs delivered			2Q
(U) Flight Testing			3Q
(U) Funtional Ground Test (FGT) Contract Award		3Q	
(U) FGT PDR			3Q
(U) FGT CDR			4Q
(U) ALCM/W-80 Contract Award		3Q	
(U) ALCM/W-80 Ground Test Support		3Q	
(U) ALCM/W-80 Flight Test Support		3Q	
(U) INE Software Subterminal Map Development Contract Award		3Q	
(U) Big Crow Alternative Hardware and Software Development		3Q	

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PE NUMBER: 0101313F

PE TITLE: STRAT WAR PLANNING SYS - USSTRATCOM

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0101313F STRAT WAR PLANNING SYS - USSTRATCOM
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Cost (\$ in Millions)	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
Total Program Element (PE) Cost	1.625	1.724	23.391	29.077	26.761	12.973	9.876	Continuing	TBD
5059 Strategic War Planning System (SWPS)	1.625	1.724	23.391	29.077	26.761	12.973	9.876	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

The mission of USSTRATCOM is to establish and provide full-spectrum global strike, coordinated space and information operations capabilities to meet both deterrent and decisive national security objectives, and to provide operational space support, integrated missile defense, Global Command Control Communications and Computers Intelligence Surveillance and Reconnaissance (C4ISR) and specialized planning expertise to the joint warfighter. To fulfill these missions, the Integrated Strategic Planning and Analysis Network (ISPAN) (formerly known as Strategic War Planning System (SWPS)) must be capable of both deliberate and adaptive planning employing the full spectrum of kinetic and non-kinetic weapons. The planning system will continue to evolve as weapon systems are matured, new systems are developed and the threat changes, particularly in the area of worldwide proliferation of Weapons of Mass Destruction (WMD). ISPAN infrastructure capabilities develop, verify, and produce Operational Plan (OPLAN) 8044, Global Strike Planning (formerly Theater Support Planning) Documents, and new Unified Command Plan (UCP) taskings and related products. ISPAN includes automatic data processing equipment (ADPE), software, facilities support, manpower, and training to support the mission objectives of the ISPAN, associated deployable and distributed data processing nodes, and subsidiary systems.

ISPAN is in budget activity 7, Operational System Development, because the program is operational and currently supports capabilities to create, verify, and produce the OPLAN 8044 and to meet new UCP taskings and other products.

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	1.895	1.748	1.625
(U) Current PBR/President's Budget	1.625	1.724	23.391
(U) Total Adjustments	-0.270	-0.024	
(U) Congressional Program Reductions	-0.013	-0.009	
Congressional Rescissions	-0.021	-0.015	
Congressional Increases	0.000		
Reprogrammings	-0.037		
SBIR/STTR Transfer	-0.199		

(U) Significant Program Changes:

\$7.1M of O&M funding is being reprogrammed to RDT&E funding in FY04. \$21.8M of O&M funding will be moved to RDT&E funding in FY 05.

Exhibit R-2a, RDT&E Project Justification

DATE
February 2004

BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0101313F STRAT WAR PLANNING SYS - USSTRATCOM			PROJECT NUMBER AND TITLE 5059 Strategic War Planning System (SWPS)		
Cost (\$ in Millions)	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
5059 Strategic War Planning System (SWPS)	1.625	1.724	23.391	29.077	26.761	12.973	9.876	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The mission of USSTRATCOM is to establish and provide full-spectrum global strike, coordinated space and information operations capabilities to meet both deterrent and decisive national security objectives, and to provide operational space support, integrated missile defense, Global Command Control Communications and Computers Intelligence Surveillance and Reconnaissance (C4ISR) and specialized planning expertise to the joint warfighter. To fulfill these missions, the Integrated Strategic Planning and Analysis Network (ISPAN) (formerly known as Strategic War Planning System (SWPS)) must be capable of both deliberate and adaptive planning employing the full spectrum of kinetic and non-kinetic weapons. The planning system will continue to evolve as weapon systems are matured, new systems are developed and the threat changes, particularly in the area of worldwide proliferation of Weapons of Mass Destruction (WMD). ISPAN infrastructure capabilities develop, verify, and produce Operational Plan (OPLAN) 8044, Global Strike Planning (formerly Theater Support Planning) Documents, and new Unified Command Plan (UCP) taskings and related products. ISPAN includes automatic data processing equipment (ADPE), software, facilities support, manpower, and training to support the mission objectives of the ISPAN, associated deployable and distributed data processing nodes, and subsidiary systems. ISPAN is in budget activity 7, Operational System Development, because the program is operational and currently supports capabilities to create, verify, and produce the OPLAN 8044 and to meet new UCP taskings and other products.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Continue modernizing, integrating and testing ISPAN planning tools, to include but not be limited to, System Engineering and modification of existing software tools to interface with ISPAN Modernization.	1.625	1.724	23.391
(U) Total Cost	1.625	1.724	23.391

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Other Procurement, AF WSC									
(U) 833140 Strategic Command and Control	8.405	11.070	15.361	6.686	9.840	9.608	12.728	Continuing	TBD
(U) Operations and Maintenance AF	9.367	67.270	60.181	59.913	47.959	53.682	57.038	Continuing	TBD

The funding for SWPS O&M is not correctly reflected in the Air Force financial database, for FYs 07-09. The values should be: \$60.758 M, \$67.677 M and \$71.306 M respectively. These values will be reflected in the next budget submission.

(U) D. Acquisition Strategy

Exhibit R-2a, RDT&E Project Justification

DATE

February 2004

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

**0101313F STRAT WAR PLANNING
SYS - USSTRATCOM**

PROJECT NUMBER AND TITLE

**5059 Strategic War Planning System
(SWPS)**

ISPAN encompasses software development contracts that are negotiated and awarded in a competitive environment.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2004

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
07 Operational System Development				0101313F STRAT WAR PLANNING SYS - USSTRATCOM				5059 Strategic War Planning System (SWPS)				
<u>(U) Cost Categories</u>	<u>Contract Method</u>	<u>Performing Activity &</u>	<u>Total</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to</u>	<u>Total</u>	<u>Target</u>
(Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>& Type</u>	<u>Location</u>	<u>Prior to FY</u>	<u>2003</u>	<u>2003</u>	<u>2004</u>	<u>2004</u>	<u>2005</u>	<u>2005</u>	<u>Complete</u>	<u>Cost</u>	<u>Value of</u>
			<u>2003</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>			<u>Contract</u>
			<u>Cost</u>		<u>Date</u>		<u>Date</u>		<u>Date</u>			
<u>(U) Product Development</u>												
BAE	CPAF	San Diego, Ca	0.000	1.193	Oct-02	0.117	Oct-03	0.796	Oct-04	Continuing	TBD	2.106
Northrop Grumman *	CPAF	Bellevue, Ne	0.000	0.432	Oct-02	0.807	Oct-03	0.471	Oct-04	Continuing	TBD	1.710
SAIC	CPAF	San Diego, Ca	0.000	0.000		0.800	Oct-03	1.442	Oct-04	Continuing	TBD	2.242
ISPAN Modifications Contractor (TBD)	CPAF	Unknown	0.000	0.000		0.000		20.682	Oct-04	Continuing	TBD	112.000
Subtotal Product Development			0.000	1.625		1.724		23.391		Continuing	TBD	118.058
Remarks: * In the FY 04 RDOC, TRW was listed as one of the product development contractors. Since then, Northrop Grumman bought TRW - hence the name change.												
<u>(U) Total Cost</u>			0.000	1.625		1.724		23.391		Continuing	TBD	118.058

Exhibit R-4, RDT&E Schedule Profile

DATE

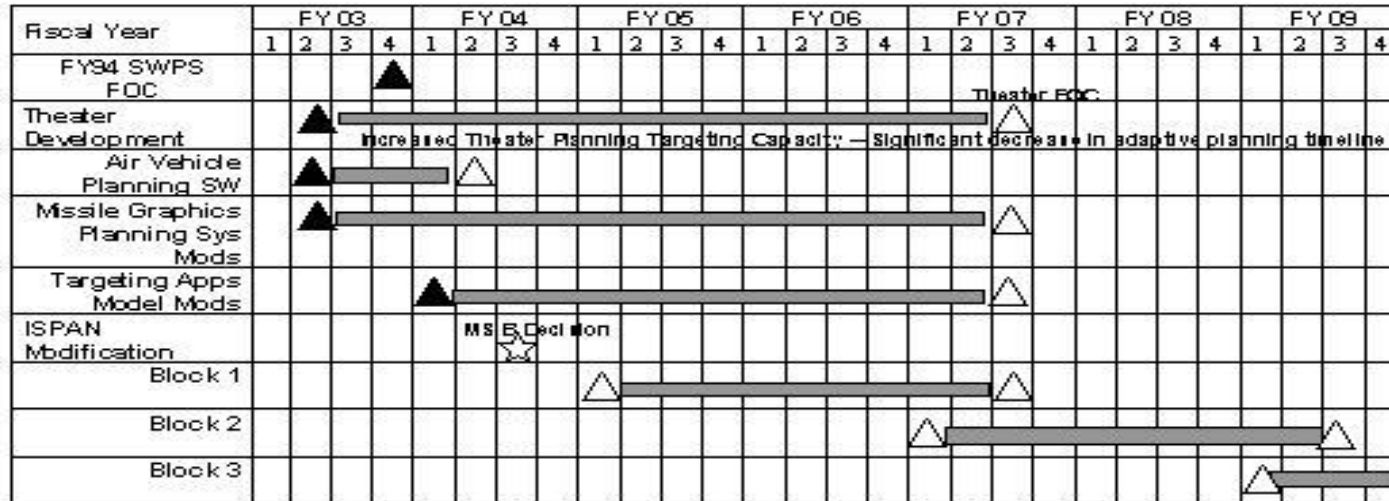
February 2004

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0101313F STRAT WAR PLANNING
SYS - USSTRATCOM

PROJECT NUMBER AND TITLE
5059 Strategic War Planning System
(SWPS)

Exhibit R-4: ISPAN (formerly SWPS)



☆ Major Event or Milestone △ Planned Task(s) ▲ Completed Task

SM Milestone B Decision

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0101313F STRAT WAR PLANNING SYS - USSTRATCOM	PROJECT NUMBER AND TITLE 5059 Strategic War Planning System (SWPS)
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	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <u>Schedule Profile</u>			
(U) FY 94 SWPS Modernization FOC	4Q		
(U) Theater Development - Air Vehicle Planning Software Modifications Initiation/Completion	2Q	2Q	
(U) Theater Development - Missile Graphics Planning System Modifications Initiation	2Q		
(U) Theater Development - Targeting Applications Model Modifications Initiation		1Q	
(U) Integrated Strategic Planning and Analysis Network (ISPAN) Milestone B		3Q	
(U) ISPAN Modenization Block 1 Initiation			1Q

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PE NUMBER: 0102326F

PE TITLE: REGION/ SECTOR OPERATIONS CONTROL CENTER

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0102326F REGION/ SECTOR OPERATIONS CONTROL CENTER
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	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 (\$ in Millions)									
Total Program Element (PE) Cost	26.286	32.185	19.047	24.328	19.442	19.420	19.287	Continuing	TBD
4592 Region/Sector Operations Modernization Center (R/SAOC)	26.286	32.185	19.047	24.328	19.442	19.420	19.287	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

Battle Control System (BCS) Family of Systems (FOS) is comprised of fixed sites for Homeland Defense (HLD) [Region/Sector Operation Control Center, PE 0102326F (referred to herein as Battle Control System-Fixed {BCS-F})] and mobile Theater Battle Management (TBM) Command and Control (C2) nodes [Modular Control System, PE 0207412F (referred to herein as Battle Control System-Mobile {BCS-M})]. Battle Control System-Fixed (BCS-F) is the upgrade for the fixed sites for the Region/Sector Air Operations Center (R/SAOC) [also known as Region Air Operations Center-Air Defense Sector (RAOC-ADS)] for the Atmospheric Early Warning System (AEWS). The BCS-F program will provide a next-generation Command and Control, Communications, Computer and Intelligence (C4I) system with enhanced capability to integrate data from existing and future civil and military defense surveillance systems into a comprehensive recognized air picture to enhance North American Aerospace Defense/Combatant Commander's (NORAD/CC's) capability to conduct peacetime air sovereignty, transition and conventional warfare in the event of aggression toward the North American Continent. The legacy system (R/SAOC) has reached saturation in its capability to receive, process, display, exchange, and employ air surveillance data from current sensor and communication systems, thus contributing to delays in the kill chain. The outdated technology has become increasingly difficult and costly to sustain and provides no opportunity for application enhancement. This program is a Budget Activity 7 - Operational System Development because it provides funding for the upgrading of a currently existing and operating system.

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	35.000	22.573	19.697
(U) Current PBR/President's Budget	26.286	32.185	19.047
(U) Total Adjustments	-8.714	9.612	
(U) Congressional Program Reductions	-0.209	-0.388	
Congressional Rescissions	-0.370		
Congressional Increases		10.000	
Reprogrammings	-7.087		
SBIR/STTR Transfer	-1.048		

(U) Significant Program Changes:

HAC approved a \$10M plus up in FY04 for Northcom-FAA National Capital Region Airspace Integration which was originally placed in PE 0305906F, NCMC - TW/AA System (R-197 in FY 04), and then transferred to this PE.

Exhibit R-2a, RDT&E Project Justification

DATE

February 2004

BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT NUMBER AND TITLE		
07 Operational System Development				0102326F REGION/ SECTOR OPERATIONS CONTROL CENTER			4592 Region/Sector Operations Modernization Center (R/SAOC)		
Cost (\$ in Millions)	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
4592 Region/Sector Operations Modernization Center (R/SAOC)	26.286	32.185	19.047	24.328	19.442	19.420	19.287	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

Battle Control System (BCS) Family of Systems (FOS) is comprised of fixed sites for Homeland Defense (HLD) [Region/Sector Operation Control Center, PE 0102326F (referred to herein as Battle Control System-Fixed {BCS-F})] and mobile Theater Battle Management (TBM) Command and Control (C2) nodes [Modular Control System, PE 0207412F (referred to herein as Battle Control System-Mobile {BCS-M})]. Battle Control System-Fixed (BCS-F) is the upgrade for the fixed sites for the Region/Sector Air Operations Center (R/SAOC) [also known as Region Air Operations Center-Air Defense Sector (RAOC-ADS)] for the Atmospheric Early Warning System (AEWS). The BCS-F program will provide a next-generation Command and Control, Communications, Computer and Intelligence (C4I) system with enhanced capability to integrate data from existing and future civil and military defense surveillance systems into a comprehensive recognized air picture to enhance North American Aerospace Defense/Combatant Commander's (NORAD/CC's) capability to conduct peacetime air sovereignty, transition and conventional warfare in the event of aggression toward the North American Continent. The legacy system (R/SAOC) has reached saturation in its capability to receive, process, display, exchange, and employ air surveillance data from current sensor and communication systems, thus contributing to delays in the kill chain. The outdated technology has become increasingly difficult and costly to sustain and provides no opportunity for application enhancement.

This program is a Budget Activity 7 - Operational System Development because it provides funding for the upgrading of a currently existing and operating system.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Continue Acquisition Activities associated with System Development of the BCS-F, to include but not limited to Software Development, System Integration, Purchase of Government Furnished Equipment, Production Representative Hardware, Test, Certification and System Support.	23.800	28.389	15.590
(U) Continue Program Management/Systems Engineering	2.174	3.302	3.107
(U) Continue Program Support (i.e. travel, supplies, equipment, misc)	0.312	0.494	0.350
(U) Total Cost	26.286	32.185	19.047

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Other Procurement, AF (3080)	0.000	0.000	8.010	19.228	24.119	19.351	19.373	Continuing	TBD

(U) D. Acquisition Strategy

The BCS Program Family of Systems is utilizing a spiral development acquisition strategy to further advance Command and Control (C2) concepts supporting future aerospace operations and all contracts are awarded after open competitions.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2004

BUDGET ACTIVITY			PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
07 Operational System Development			0102326F REGION/ SECTOR OPERATIONS CONTROL CENTER					4592 Region/Sector Operations Modernization Center (R/SAOC)				
<u>(U) Cost Categories</u>	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to</u>	<u>Total</u>	<u>Target</u>
(Tailor to WBS, or System/Item Requirements) (\$ in Millions)			<u>Prior to FY</u>	<u>2003</u>	<u>2003</u>	<u>2004</u>	<u>2004</u>	<u>2005</u>	<u>2005</u>	<u>Complete</u>	<u>Cost</u>	<u>Value of</u>
			<u>2003</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>			<u>Contract</u>
			<u>Cost</u>		<u>Date</u>		<u>Date</u>		<u>Date</u>			
<u>(U) Product Development</u>												
LITTON	CPAF/C	Agoura Hills, CA	48.274								48.274	48.274
PROLOGIC INC.	CPFF/SS	Fairmont, WV	2.591								2.591	2.591
THALES RAYTHEON	FFP/C	Fullerton, CA		22.272	Apr-03	24.251	Dec-03	12.827	Dec-04	Continuing	TBD	TBD
MIDS LVT-1 Terminals	MIPR	SPAWAR, San Diego, CA	1.083								1.083	1.083
Various	Various		0.776	0.647	Jun-03	1.196	Dec-03	1.000	Dec-04	Continuing	TBD	TBD
Subtotal Product Development			52.724	22.919		25.447		13.827		Continuing	TBD	TBD
Remarks:												
<u>(U) Support</u>												
MITRE	Various	Bedford, MA	7.464	0.435	Oct-02	1.009	Oct-03	0.895	Oct-04	Continuing	TBD	TBD
ITSP	Various	Bedford, MA	7.852	1.739	Feb-03	2.293	Feb-04	2.212	Feb-04	Continuing	TBD	TBD
Program Office Support	Various		3.403	0.312		0.494		0.350		Continuing	TBD	TBD
Subtotal Support			18.719	2.486		3.796		3.457		Continuing	TBD	TBD
Remarks:												
<u>(U) Test & Evaluation</u>												
46th Test Wing/Other Test Act			0.941	0.881	Jul-03	2.942	Nov-03	1.763	Nov-04	Continuing	TBD	TBD
Subtotal Test & Evaluation			0.941	0.881		2.942		1.763		Continuing	TBD	TBD
Remarks:												
<u>(U) Total Cost</u>			72.384	26.286		32.185		19.047		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0102326F REGION/ SECTOR
OPERATIONS CONTROL CENTER

PROJECT NUMBER AND TITLE
4592 Region/Sector Operations
Modernization Center (R/SAOC)

Exhibit R-4: PE 0102326F REGION/SECTOR OPERATIONS CONTROL CENTER

Fiscal Year	FY 02				FY 03				FY 04				FY 05				FY 06				FY 07				FY 08				FY 09			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
NORAD Contingency Suite (NCS)	IOI			Development	Complete	Sustainment																										
Alaska Aerospace Surveillance and Range Operations Modernization (AASROM) (formerly known as ROAC-Alaska)*									CDR				Field																			
BCS-F Spiral 1									Contract Award				Fielding Decision				IOC															
BCS-F Spiral 2																	IOC															
BCS-F Spiral 3																																

* AASROM funding was previously within this PE, but is now part of PE 0207434F, Link -16 Support and Sustainment


-  Planned Ongoing Activity
-  Completed Event
-  Planned Task(s)

Exhibit R-4a, RDT&E Schedule Detail	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0102326F REGION/ SECTOR OPERATIONS CONTROL CENTER	PROJECT NUMBER AND TITLE 4592 Region/Sector Operations Modernization Center (R/SAOC)
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	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <u>Schedule Profile</u>			
(U) Complete NORAD Contingency Suite (NCS) Development	2Q		
(U) Critical design review for Alaska Aerospace Surveillance Range and Operations Modernization (AASROM) (formerly known as ROAC-Alaska)		2Q	
(U) Complete Alaska Aerospace Surveillance Range and Operations Modernization (AASROM)			2Q
(U) BCS-F Spiral 1 Contract Award	3Q		
(U) BCS-F Spiral 1 IOC			2Q
(U) BCS-F Spiral 2 IOC			2Q

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PE NUMBER: 0203761F

PE TITLE: Warfighter Rapid Acquisition Program

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0203761F Warfighter Rapid Acquisition Program
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	Cost (\$ in Millions)	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
	Total Program Element (PE) Cost	27.029	0.000	24.935	24.932	24.949	24.989	25.039	Continuing	TBD
4936	Warfighter Rapid Acquisition Program	27.029	0.000	24.935	24.932	24.949	24.989	25.039	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

WRAP provides rapid transition funding for the development and fielding of the results of highly successful competitive experiments, demonstrations, and innovative approaches to support the Expeditionary Air Force (EAF) and other warfighters. WRAP supports the specific DoD goal of significantly shortening the acquisition response time and acquisition cycle times. This process is expected to shorten the project decision/initiation time by 2-5 years for selected projects due to the integrated headquarters review and immediate availability of transition funding. Candidate projects will compete for WRAP approval and funds based on business case analyses; identified and demonstrated operational impact; cost savings; project development, production, and lifecycle costs; project risk; and cost of delay. The Air Force corporate structure will nominate projects to the VCSAF, CSAF, or SECAF for final approval. Potential sources of projects include, but are not limited to, JEFX, Battlelabs, Joint Experimentation, Advanced Technology Demonstrations (ATDs), Advanced Concept Technology Demonstrations (ACTDs), S&T, and IR&D efforts. MAJCOM/Agencies must commit full project funding in the subsequent programming cycle. AF will ensure the successful projects are incorporated in the future annual planning and programming guidance or POM preparation instructions.

This effort is Budget Activity 7, Operational System Development, because the program provides a vehicle for developing operational concepts and attendant new technologies for enhancing capabilities of the 21st century aerospace force.

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	25.057	24.992	24.935
(U) Current PBR/President's Budget	27.029	0.000	24.935
(U) Total Adjustments	1.972	-24.992	
(U) Congressional Program Reductions	-0.265		
Congressional Rescissions			
Congressional Increases			
Reprogrammings	3.079	-24.992	
SBIR/STTR Transfer	-0.842		

(U) Significant Program Changes:

In FY04, program funding eliminated to fund high priority Air Force Programs.

Exhibit R-2a, RDT&E Project Justification

DATE
February 2004

BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0203761F Warfighter Rapid Acquisition Program			PROJECT NUMBER AND TITLE 4936 Warfighter Rapid Acquisition Program		
Cost (\$ in Millions)	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
4936 Warfighter Rapid Acquisition Program	27.029	0.000	24.935	24.932	24.949	24.989	25.039	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

WRAP provides rapid transition funding for the development and fielding of the results of highly successful competitive experiments, demonstrations, and innovative approaches to support the Expeditionary Air Force (EAF) and other warfighters. WRAP supports the specific DoD goal of significantly shortening the acquisition response time and acquisition cycle times. This process is expected to shorten the project decision/initiation time by 2-5 years for selected projects due to the integrated headquarters review and immediate availability of transition funding. Candidate projects will compete for WRAP approval and funds based on business case analyses; identified and demonstrated operational impact; cost savings; project development, production, and lifecycle costs; project risk; and cost of delay. The Air Force corporate structure will nominate projects to the VCSAF, CSAF, or SECAF for final approval. Potential sources of projects include, but are not limited to, JEFX, Battlelabs, Joint Experimentation, Advanced Technology Demonstrations (ATDs), Advanced Concept Technology Demonstrations (ACTDs), S&T, and IR&D efforts. MAJCOM/Agencies must commit full project funding in the subsequent programming cycle. AF will ensure the successful projects are incorporated in the future annual planning and programming guidance or POM preparation instructions.

This effort is Budget Activity 7, Operational System Development, because the program provides a vehicle for developing operational concepts and attendant new technologies for enhancing capabilities of the 21st century aerospace force.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments/Planned Programs			
(U) WRAP project selection and project initiation	22.691		24.935
(U) Complete transition of Panoramic Night Vision Goggles	4.000		
(U) Program Support	0.338		
(U) Total Cost	27.029	0.000	24.935

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Not Applicable									

(U) D. Acquisition Strategy

WRAP enables Air Force innovation including experimentation and spiral development processes to decrease fielding timelines and allows development, fielding, or upgrading of systems until the sponsoring MAJCOM/Agency can incorporate them into their subsequent submission. The Air Force, through appropriate program offices, will manage the acquisition and development process for the integration and fielding of WRAP approved projects. Each project will have a complete acquisition plan

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0203761F Warfighter Rapid Acquisition Program

PROJECT NUMBER AND TITLE

4936 Warfighter Rapid Acquisition Program

defined and approved as a criterion for project selection and subsequent funding. The Air Staff and the Air Force corporate structure will complete an Operations and Acquisition Review to ensure project affordability and appropriateness within the Air Force Overall program. The AF corporate structure will nominate projects to the VCSAF, CSAF and SECAF for final approval.

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY			PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
07 Operational System Development			0203761F Warfighter Rapid Acquisition Program					4936 Warfighter Rapid Acquisition Program				
(U) <u>Cost Categories</u>	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to</u>	<u>Total</u>	<u>Target</u>
(Tailor to WBS, or System/Item Requirements) (\$ in Millions)			<u>Prior to FY</u>	<u>2003</u>	<u>2003</u>	<u>2004</u>	<u>2004</u>	<u>2005</u>	<u>2005</u>	<u>Complete</u>	<u>Cost</u>	<u>Value of</u>
			<u>2003</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>			<u>Contract</u>
			<u>Cost</u>		<u>Date</u>		<u>Date</u>		<u>Date</u>			
(U) <u>Product Development</u>												
Various						0.000				Continuing	TBD	TBD
Subtotal Product Development			0.000	0.000		0.000		0.000		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u>											0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Test & Evaluation</u>												
Various	Various		28.882	27.029	Mar-03			24.935	Dec-05	Continuing	TBD	TBD
Subtotal Test & Evaluation			28.882	27.029		0.000		24.935		Continuing	TBD	TBD
Remarks:												
(U) <u>Management</u>											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Various</u>												
(U) Total Cost			28.882	27.029		0.000		24.935		Continuing	TBD	TBD
Remarks:												

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0203761F Warfighter Rapid Acquisition Program

PROJECT NUMBER AND TITLE
4936 Warfighter Rapid Acquisition Program

Warfighting Rapid Acquisition Program PE 23761F

Fiscal Year	FY02				FY 03				FY 04				FY 05				FY 06				FY 07				FY 08				FY 09			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Acquisition Milestones	—————				▲																											
Prototype Phase																																
T&E Milestones	★		△		★		△		★		△		★		△		★		△		★		△		★		△		★		△	
Production Milestones																																
Delivery Schedules	—————				▲																											

- ★ Award of project funding for selected programs
- ▲ End of 1st two year R&D cycle, FY 02 projects
- △ Annual Data call for subsequent year WRAP Projects
- Ongoing WRAP cycle
- 1st WRAP decision, funding, acquisition cycle

Exhibit R-4a, RDT&E Schedule Detail

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0203761F Warfighter Rapid Acquisition Program

PROJECT NUMBER AND TITLE

4936 Warfighter Rapid Acquisition Program

(U) Schedule Profile

FY 2003

FY 2004

FY 2005

(U) FY 03 WRAP Project Initiation

2Q

(U) FY05 WRAP Project Initiation

2Q

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PE NUMBER: 0207028F

PE TITLE: Joint Expeditionary Force Experiment

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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207028F Joint Expeditionary Force Experiment
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Cost (\$ in Millions)	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
Total Program Element (PE) Cost	25.533	50.931	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4373 JEFX	19.439	44.455	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4991 Joint Distributed Engineering Plant (JDEP)	6.094	6.476	0.000	0.000	0.000	0.000	0.000	0.000	0.000

FY05, project 674373, Joint Expeditionary Force Experiments (JEFX) work transferred to Program Element (PE) 0207449F, project 675140. Project 674991, Joint Distributed Engineering Plant (JDEP) work transferred to PE 0207601F, project 674991.

(U) A. Mission Description and Budget Item Justification

The Joint Expeditionary Force Experiments (JEFX) are large-scale warfighter experiments that address emerging operational challenges and are part of the total Air Force (AF) experimentation effort. They combine live-fly forces and simulations into an operationally representative warfighter environment. These experiments provide a vehicle for experimentation with operational concepts and attendant new technologies to evolve and transform our aerospace forces and capabilities for the 21st century. They are part of a broader effort to implement the Joint Vision 2020, exploit the Revolution in Military Affairs, demonstrate emerging Air Force capabilities to deploy and employ decisive aerospace power for the Joint Force Commander, and are important enablers of innovation and transformation.

In FY01, the Air Force moved to a biennial schedule for JEFX conducted in the even years. To reduce risk in the large scale experiments during the even years, a small scale Advanced Process and Technology Experiment (APTX) is scheduled for the odd years. These experiments will focus on specifically targeted capability requirements that will be part of the JEFX experiment. Transition of selected technologies to the warfighter will be based on a rigorous, defined process which ensures interoperability with fielded programs and maximum return on investment. Funding for transition of selected technologies is provided in the odd years only. Specific weapon system development and procurement activities are funded in their own budget lines as applicable.

In FY03, the JEFX Enterprise conducted small scale experiments and seminars designed to define the architectures, technology, and concepts of operations required to achieve the JEFX 04 objectives and reduce the risk to JEFX 04 experimentation with future generation Air and Space Operations Center (AOC) Weapons System and the C2 Constellation (formerly known as the Multi-Sensor Command and Control Constellation (MC2C)).

In FY04, JEFX 04 explored the horizontal integration (HI) capabilities of the C2 Constellation with a primary focus on the integration of an Advanced Technology Air Operations Center (AT-AOC) and Advanced Technology Distributed Ground System, with Command and Control, Intelligence, Surveillance, Reconnaissance (C2ISR). This enabled capabilities of the Multi-Sensor Command and Control Aircraft (MC2A), Family of Interoperable Operational Pictures, Battle Control System, Persistent Battlespace ISR, and the Deployable Theater Information Grid to be reviewed. The outcome was that the future architecture will be designed to achieve C2ISR capabilities required to support Global Strike Task Force (GSTF) and C2ISR concepts of operations. Those requisite C2ISR capabilities include Effects-Based Operations, Horizontal & Vertical Integration, Dynamic Engagement Control, Predictive Battlespace Awareness, Global Battlespace Visualization, Networked On-Demand Information, and Persistent Battlespace ISR. JEFX 04 provided a warfighting environment through an operational scenario designed to achieve the objectives of the GSTF.

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207028F Joint Expeditionary Force Experiment

In addition, this PE funds the Joint Distributed Engineering Plant (JDEP) which connects combat system engineering sites and replicates Joint Force Combat Systems to create a network testbed to assess Joint Battle Management, Command, Control, Communication, Computers and Intelligence (BMC4I). JDEP's objective is to improve interoperability of weapons systems and platforms through more rigorous interoperability evaluation in a replicated battlefield environment. JDEP will link existing service and joint combat system engineering and test sites, such as Command, Control, Communications, Computers, & Intelligence (C4I) hardware in-the-loop and computer-program in-the-loop engineering sites (including design activities, software support activities, test and evaluation facilities and training commands) located around the country. Also, JDEP provides the capability both to improve service and joint systems performance in a system-of-systems environment.

This program is in Budget Activity 7 - Operational System Development because it provides a vehicle for developers, testers and warfighters to experiment, analyze, and explore operational concepts and new technologies to enhance operational system developments and improve capabilities of the 21st century aerospace force.

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	27.161	51.367	0.000
(U) Current PBR/President's Budget	25.533	50.931	0.000
(U) Total Adjustments	-1.628	-0.436	
(U) Congressional Program Reductions	-0.335		
Congressional Rescissions		-0.436	
Congressional Increases			
Reprogrammings	-0.505		
SBIR/STTR Transfer	-0.788		
(U) <u>Significant Program Changes:</u>			

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0207028F Joint Expeditionary Force Experiment			PROJECT NUMBER AND TITLE 4373 JEFX		
Cost (\$ in Millions)	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
4373 JEFX	19.439	44.455	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

In FY05, project 674373 work transfers to Program Element (PE) 0207449F, Command and Control Constellation (C2 Constellation), project 675140, Joint Expeditionary Force Experiments (JEFX).

(U) **A. Mission Description and Budget Item Justification**

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Exhibit R-2a, RDT&E Project Justification							DATE February 2004			
BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0207028F Joint Expeditionary Force Experiment		PROJECT NUMBER AND TITLE 4373 JEFX				
(U)	Select and begin developing initiatives to introduce new technologies and operational capabilities into the AEF CONOPS.				0.800	0.000	0.000			
(U)	Develop systems architecture, systems engineering, and integration of initiatives into a cohesive system of systems. Integration of systems and processes is the major reason JEFX is an experiment and not simply a demonstration or exercise.				3.800	8.594	0.000			
(U)	Plan , design, coordinate, assess, and report the experiment. Provide expertise to support SPO functions of initiative selection, acquisition, program management, communications and systems planning.				4.164	0.000	0.000			
(U)	Implement architectural configuration, conduct M&S, install and test the communications infrastructure and execute the APTX 03 experiment.				1.700	0.000	0.000			
(U)	Transition the integration of new initiatives and legacy systems into an integrated C2ISR baseline. (This funding is in the odd years only.)				8.975	0.000	0.000			
(U)	Develop initiatives to introduce new technologies and operational capabilities into the AEF CONOPS and develop and install C2 center upgrades.				0.000	12.227	0.000			
(U)	Plan , design, coordinate, assess, and report the JEFX 04 experiment. Provide expertise to support SPO functions of initiative selection, acquisition, program management, communications and systems planning.				0.000	8.400	0.000			
(U)	Implement architectural configuration, conduct M&S, install and test the communications infrastructure and execute the JEFX 04 experiment.				0.000	15.234	0.000			
(U)	Total Cost				19.439	44.455	0.000			
(U)	<u>C. Other Program Funding Summary (\$ in Millions)</u>									
		<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U)	Not Applicable									
(U)	<u>D. Acquisition Strategy</u>									
	Electronic Systems Center (ESC), Hanscom AFB, MA and Air Force C2ISR Center, Langley AFB, VA will manage the acquisition and development for the experimentation, integration, and fielding of selected technologies and processes with legacy systems into an integrated C2ISR baseline.									

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Exhibit R-3, RDT&E Project Cost Analysis

DATE
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207028F Joint Expeditionary Force Experiment	PROJECT NUMBER AND TITLE 4373 JEFX
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(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
				<u>2003</u> <u>Cost</u>	<u>2003</u> <u>Award</u> <u>Date</u>	<u>2004</u> <u>Cost</u>	<u>2004</u> <u>Award</u> <u>Date</u>	<u>2005</u> <u>Cost</u>	<u>2005</u> <u>Award</u> <u>Date</u>			
(U) <u>Product Development</u>												
MITRE	FFRDC	AFC2ISRC, Langely AFB, VA	6.500	1.250	Dec-02	3.500	Dec-03	0.000		Continuing	TBD	
GSA	Multiple	Various	5.500	1.250	Dec-02	2.975	Dec-03	0.000		Continuing	TBD	
ACS Defense	C/IDIQ	AFC2ISRC, Langely AFB, VA	1.500	1.066	Mar-03	2.907	Mar-04	0.000		Continuing	TBD	
MIT/LL	Various	ESC Hanscom AFB, MA	0.668	0.250	Dec-02	0.275	Dec-03	0.000		Continuing	TBD	
Northrup	Time & Material	ESC Hanscom AFB, MA	0.000	0.630	Mar-03	4.500	Mar-04	0.000		Continuing	TBD	
Lockheed Martin	C/CPAF	ESC Hanscom AFB, MA	0.000	3.770	Dec-02	0.000		0.000		Continuing	TBD	
SAF/FMBMB	MIPR	Pentagon, Washington DC	0.000	0.315	Dec-02	0.000		0.000		Continuing	TBD	
AFRL	MIPR	Various	0.000	0.140	Mar-03	0.000		0.000		Continuing	TBD	
AFSOC	MIPR	Various	0.000	0.800	Apr-03	0.000		0.000		Continuing	TBD	
ASC/RAB	MIPR	Various	0.000	0.000		0.870	Mar-04	0.000		Continuing	TBD	
CITPAD	C/Time & Material	AFC2ISRC, Langely AFB, VA	0.000	0.000		0.435	Mar-04	0.000		Continuing	TBD	
Logicon	C/Time & Material	AFC2ISRC, Langely AFB, VA	0.000	0.000		0.290	Dec-03	0.000		Continuing	TBD	
General Dynamics	C/Time & Material	AFC2ISRC, Langely AFB, VA	0.000	0.000		0.290	Oct-03	0.000		Continuing	TBD	
SPO/Other	MIPR	ESC Hanscom AFB, MA	6.154	3.605	Oct-02	7.384	Oct-03	0.000		Continuing	TBD	
L3 Comm	C/GSA	Various	1.000	1.000	Mar-03	1.000	Mar-04	0.000		Continuing	TBD	
TRW	C/GSA	Various	0.300	0.300	Mar-03	0.300	Mar-04	0.000		Continuing	TBD	
TRW	C/GSA	Various	0.250	0.000		0.270	Dec-03	0.000		Continuing	TBD	
AFC2TIG	MIPR	AFC2ISRC, Langely	8.630	0.000		8.770	Oct-03	0.000		Continuing	TBD	

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Exhibit R-3, RDT&E Project Cost Analysis								DATE February 2004			
BUDGET ACTIVITY			PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
07 Operational System Development			0207028F Joint Expeditionary Force Experiment				4373 JEFX				
		AFB, VA									
Alion	C/GSA	Various	1.811	1.724	Dec-02	1.811	Dec-03	0.000	Continuing	TBD	
ACS Defense	C/GSA	Various	0.499	0.475	Oct-02	0.475	Oct-03	0.000	Continuing	TBD	
SAIC	C/GSA	Various	0.959	0.814	Dec-02	0.970	Dec-03	0.000	Continuing	TBD	
L3 Comm	C/GSA	Various	0.961	0.961	Mar-03	1.037	Mar-04	0.000	Continuing	TBD	
TRW	C/GSA	Various	0.287	0.287	Oct-02	0.300	Oct-03	0.000	Continuing	TBD	
Various	Various	Various	7.218	0.257	Oct-02	5.876	Oct-03	0.000	Continuing	TBD	
Zel Tech	C/GSA	Various	0.220	0.220	Dec-02	0.220	Dec-03	0.000	Continuing	TBD	
Subtotal Product Development			42.457	19.114		44.455		0.000	Continuing	TBD	0.000
Remarks:											
(U) <u>Support</u>											0.000
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000
Remarks:											
(U) <u>Test & Evaluation</u>											
46th Test Squadron	Project Order	Various	0.325	0.325					Continuing	TBD	
Subtotal Test & Evaluation			0.325	0.325		0.000		0.000	Continuing	TBD	0.000
Remarks:											
(U) <u>Management</u>											0.000
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000
Remarks:											
(U) Total Cost			42.782	19.439		44.455		0.000	Continuing	TBD	0.000

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BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0207028F Joint Expeditionary Force
Experiment

PROJECT NUMBER AND TITLE
4373 JEFX

	<u>FY 2002</u>				<u>FY 2003</u>				<u>FY 2004</u>				<u>FY 2005</u>				<u>FY 2006</u>				<u>FY 2007</u>				<u>FY 2008</u>				<u>FY 2009</u>			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Conduct JEFX 02				X																												
Call for Initiatives/Selection, APTX 03						X																										
Architecture development, APTX 03						X																										
Perform Assessment, JEFX 02 (1Q FY03)					X																											
Conduct APTX 03								X																								
Call for Initiatives/Selection, JEFX 04					X	X																										
Architecture development, JEFX 04						X																										
Conduct Spiral I									X																							
Conduct Spiral II										X																						
Conduct Spiral III										X																						
Conduct JEFX 04											X																					
Perform Assessment, JEFX 2004 (1Q FY05)												X																				
Commence integration of selected initiative(1Q FY05)												X																				
Call for Integration/Selection, APTX 05												X																				
Architecture development												X																				
Conduct APTX 05												X																				
Call for initiatives JEFX 06												X																				
Initiative Selection JEFX 06												X																				
Architecture development JEFX 06												X																				
Conduct Spiral I													X																			
Conduct Spiral II														X																		
Conduct Spiral III														X																		
Conduct JEFX 2006 Experiments															X																	
Perform Assessment, JEFX 2006 (1Q FY07)																X																
Commence integration of selected initiative (1Q FY07)																X																
Call for Integration, APTX 07																	X															
Initiative selection, APTX 07																	X															
Architecture development																		X														
Conduct APTX 07																		X														
Call for initiatives JEFX 08																			X													
Initiative Selection JEFX 08																			X													
Architecture development JEFX 08																			X													
Conduct Spiral I																				X												
Conduct Spiral II																				X												
Conduct Spiral III																				X												
Conduct JEFX 2008 Experiments																					X											
Perform Assessment, JEFX 2008 (1Q FY09)																						X										
Commence integration of selected initiative (1Q FY09)																						X										
Call for Integration, APTX 09																							X									
Initiative selection, APTX 09																							X									
Architecture development																							X									
Conduct APTX 09																							X									

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

**0207028F Joint Expeditionary Force
Experiment**

PROJECT NUMBER AND TITLE

4373 JEFX

(U) Schedule Profile

- (U) Call for Initiatives, APTX 03
- (U) Initiative Selection, APTX 03
- (U) Architectural Development
- (U) Conduct APTX 03
- (U) Perform Assessment, JEFX 02
- (U) Call for Initiatives, JEFX 04
- (U) Initiative Selection, JEFX 04
- (U) Architectural Development, JEFX 04
- (U) Conduct Spiral I
- (U) Conduct Spiral II
- (U) Conduct Spiral III
- (U) Conduct JEFX 04

FY 2003

FY 2004

FY 2005

2Q

2Q

3Q

4Q

1Q

1Q

2Q

3Q

2Q

3Q

3Q

4Q

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0207028F Joint Expeditionary Force Experiment			PROJECT NUMBER AND TITLE 4991 Joint Distributed Engineering Plant (JDEP)		
Cost (\$ in Millions)	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
4991 Joint Distributed Engineering Plant (JDEP)	6.094	6.476	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

FY02 was the first year of Joint Distributed Engineering Plant (JDEP) project execution under PE 0207028F.

In FY05, JDEP work transferred to PE 0207601F, USAF Modeling and Simulation, project 674991.

(U) **A. Mission Description and Budget Item Justification**

The Joint Distributed Engineering Plant (JDEP) connects combat system engineering sites and replicates Joint Force Combat Systems to create a network test bed to assess Joint Battle Management, Command, Control, Communication, Computers and Intelligence. Its objective is to improve interoperability of weapons systems and platforms through more rigorous interoperability evaluation in a replicated battlefield environment. JDEP will provide the capability both to improve service and joint system performance in a system-of-systems environment.

JDEP will link existing Service and Joint combat system engineering and test sites, such as C4I hardware in the loop and computer-program-in-the-loop engineering sites (including Design Activities, software support activities, test & evaluation facilities and training commands) located around the country.

This project is in Budget Activity 7 - Operational System Development because it provides a vehicle to developers, testers, and warfighters for experimentation, analysis, operational concepts, and new technologies to enhance operational system developments and improve capabilities of the 21st century aerospace forces.

(U) **B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Continue site activations and Operations support. This includes hardware, software and activation cost for each site.	1.806	1.918	0.000
(U) Continue communication architectures, links and engineering and support for site activities.	1.068	1.318	0.000
(U) Continue existing JDEP support activities to include ops & maintenance support along with contracted personnel to assist in event activities.	1.275	1.275	0.000
(U) Continue development of systems architecture and integration, including engineering, for the JDEP repeatable environment.	0.490	0.490	0.000
(U) Continue experiment implementation and analysis to participant in various events during pre, during and post exercise events.	1.240	1.163	0.000
(U) Continue development of a simulation/stimulation environment for JDEP events.	0.215	0.312	0.000
(U) Total Cost	6.094	6.476	0.000

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

**0207028F Joint Expeditionary Force
Experiment**

PROJECT NUMBER AND TITLE

**4991 Joint Distributed Engineering
Plant (JDEP)****(U) C. Other Program Funding Summary (\$ in Millions)****(U) D. Acquisition Strategy**

Electronic Systems Center (ESC), Hanscom AFB, MA will manage the acquisition and development process for the experimentation, integration and site activation activities for all Air Force JDEP activities. JDEP will provide and opportunity to perform integration activities with joint users from a single location for system integration, development and risk reduction activities.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE
February 2004

BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207028F Joint Expeditionary Force Experiment	PROJECT NUMBER AND TITLE 4991 Joint Distributed Engineering Plant (JDEP)
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(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
(U) <u>Product Development</u>												
ESC	MIPR	ESC Hanscom AFB, MA	1.090	0.319	Oct-02	0.350	Oct-03	0.000		Continuing	TBD	
ESC	Various	ESC Hanscom AFB, MA	0.150	0.000		0.000		0.000		Continuing	TBD	
Boeing	MIPR	ESC Hanscom AFB, MA	0.350	0.350	Oct-02	0.350	Oct-03	0.000		Continuing	TBD	
Northrop Grumman	Various	ESC Hanscom AFB, MA	0.000	0.050	Oct-02	0.000		0.000		Continuing	TBD	
ESC	Various	Various	0.500	0.000		0.200	Dec-03	0.000		Continuing	TBD	
DISA	MIPR	Various	0.650	1.068	Dec-02	1.218	Dec-03	0.000		Continuing	TBD	
ASC	ITSP	ESC Hanscom AFB, MA	0.590	0.768	Oct-02	0.790	Oct-03	0.000		Continuing	TBD	
MITRE	FFRDC	ESC Hanscom AFB, MA	0.470	0.660	Oct-02	0.675	Oct-03	0.000		Continuing	TBD	
DARPA/DISA	MIPR	Various	0.150	2.248	Oct-02	2.090	Oct-03	0.000		Continuing	TBD	
Raytheon	C/CPFF	ESC Hanscom AFB, MA	0.160	0.215	Dec-02	0.315		0.000		Continuing	TBD	
ESC	Various	ESC Hanscom AFB, MA	0.100	0.000		0.000		0.000		Continuing	TBD	
ESC	Various	ESC Hanscom AFB, MA	0.416	0.416	Dec-02	0.488	Dec-03	0.000		Continuing	TBD	
Subtotal Product Development			4.626	6.094		6.476		0.000		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												0.000
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Test & Evaluation</u>												

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2004

BUDGET ACTIVITY		PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE			
07 Operational System Development		0207028F Joint Expeditionary Force Experiment				4991 Joint Distributed Engineering Plant (JDEP)			
46 Test Wing	MIPR	0.000				Continuing	TBD		
Subtotal Test & Evaluation		0.000	0.000	0.000	0.000	Continuing	TBD	0.000	
Remarks:									
(U) <u>Management</u>								0.000	
Subtotal Management		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Remarks:									
(U) Total Cost		4.626	6.094	6.476	0.000	Continuing	TBD	0.000	

Exhibit R-4, RDT&E Schedule Profile

DATE

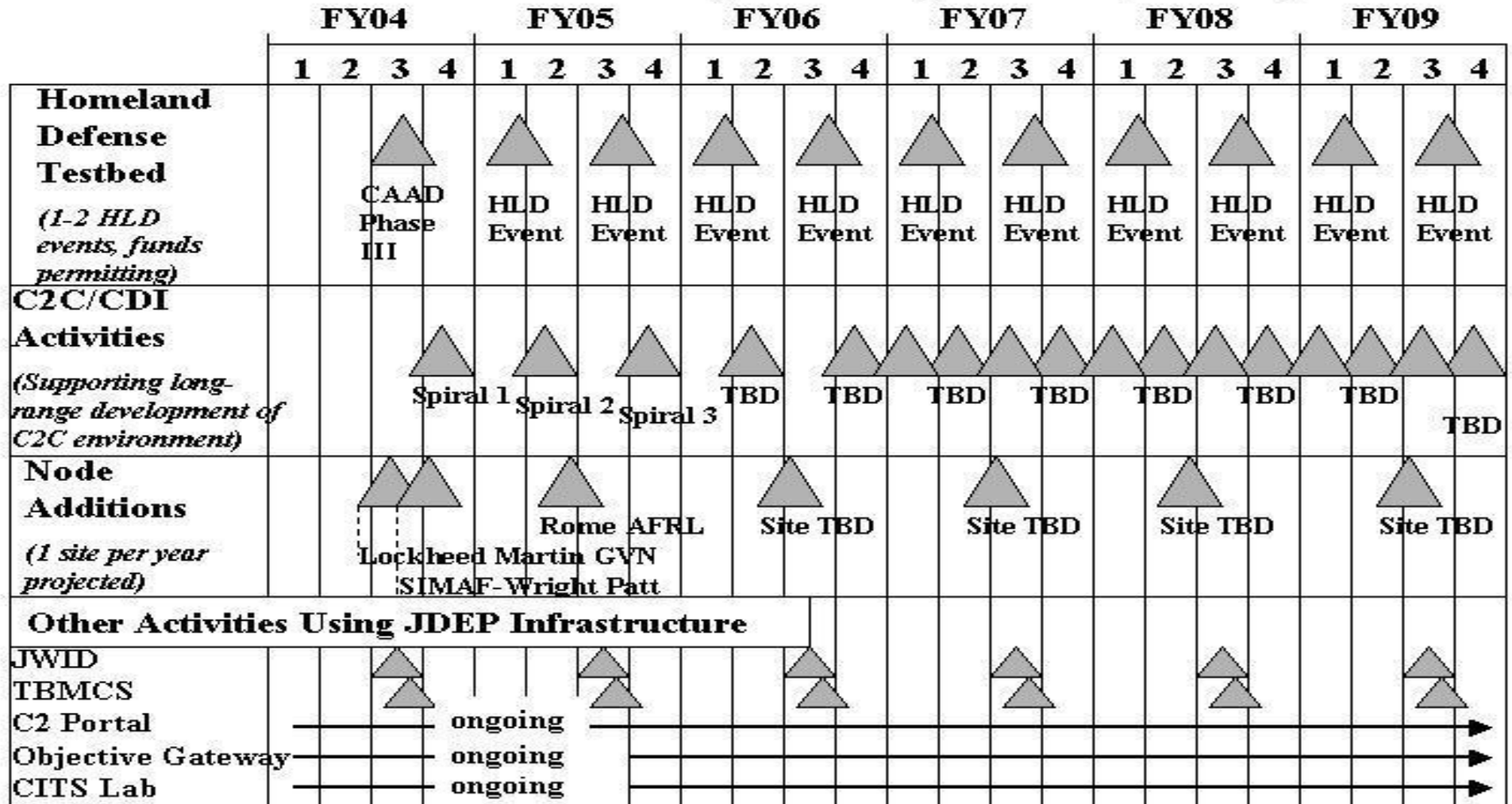
February 2004

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0207028F Joint Expeditionary Force
Experiment

PROJECT NUMBER AND TITLE
4991 Joint Distributed Engineering
Plant (JDEP)

Joint Distributed Engineering Plant (JDEP)



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Exhibit R-4a, RDT&E Schedule Detail

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207028F Joint Expeditionary Force Experiment

PROJECT NUMBER AND TITLE

4991 Joint Distributed Engineering Plant (JDEP)

(U) Schedule Profile

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Conduct SIAP Interoperability Event		2Q	
(U) Implement JDEP connectivity at Hanscom and other Air Force sites.	2Q	3Q	
(U) Conduct TACMEMO Interoperability Event		3Q	
(U) CAAD Event (Phase II)	3Q		
(U) JCMD Event	4Q		
(U) CAAD Event (Phase III)		2Q	

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PE NUMBER: 0207131F
 PE TITLE: A-10 SQUADRONS

Exhibit R-2, RDT&E Budget Item Justification								DATE February 2004	
BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0207131F A-10 SQUADRONS					
Cost (\$ in Millions)	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
Total Program Element (PE) Cost	10.960	29.476	22.590	9.054	9.222	0.000	0.000	Continuing	TBD
4809 A-10 Squadrons	10.960	29.476	22.590	9.054	9.222	0.000	0.000	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

** NOTE: The \$14M Congressional add to purchase Litening pods for the Air National Guard has been moved to the Precision Attack program element.

The A/OA-10 is the USAF's primary aircraft for Close Air Support (CAS) and Forward Air Control (FAC) supporting the ground battle including special forces, with a secondary mission of Combat Search and Rescue (CSAR) and the capability to perform interdiction under certain circumstances. Currently, all RDT&E funding supports the Precision Engagement (PE) Program (MN-9805). The PE program is a spiral development program installing a Digital Stores Management System (DSMS), integrated capabilities for smart weapons delivery, targeting pod integration, increased DC power system and joint-service battlefield interface via digital data links. The result of PE is increased tactical effectiveness (more targets destroyed), greater survivability, and decreased chance of fratricide. These modifications are mandatory for the A/OA-10 to adhere to the regional CINC's requirement for a CAS platform.

Spiral #1 of the PE modification integrates 1760 BUS, Joint Direct Attack Munition (JDAM), Wind Corrected Munitions Dispenser (WCMD), LITENING and SNIPER targeting pods, increases the current DC power system by 100% and creates a Digital Stores Management System (DSMS) for the A-10. The DSMS replaces the current Armament Control Panel (ACP) and the Interstation Control Unit (ICU) and adds two Multi-Function Color Displays (MFCD) to replace the existing ACP and Television Monitor and replaces the current stick and throttle with improved Hands on Throttle and Stick Capable controls reducing 'heads down' time in the cockpit. During spiral #1, the ICU will be replaced with a new processor: the Central Interface Control Unit (CICU). This program does not purchase JDAM/WCMD munitions, targeting pods or their associated support equipment.

Spiral #2 of the PE modification is Digital Data Link (DDL) MN-37120. Funding control for the DDL was transferred from the A-10 System Program Office (SPO) to the Tactical Data Links (TDL) SPO for an enterprise management approach to data links however, it is still part of the PE modification. OSD has directed the integration of the Army Joint Tactical Radio Set (JTRS) radio onto the A-10 as part of the PE modification. Spiral #2 of this modification integrates tests and fields the JTRS radio with the Enhanced Position Location Reporting System (EPLRS) waveform into the PE program. The EPLRS waveform provides connectivity to the digital battlefield to ensure joint forces communication, reduced fratricide and interoperability with forward C2 platform centers.

Spiral #3 of the A-10 modernization program may include: a moving map, BRU-57, Small Diameter Bomb (SDB), and additional data link waveforms. Improvements will enhance situational awareness, enable the A-10 to carry two smart weapons on a single parent station, and expand combat data link capability. Through a spiral development approach, the PE program will ultimately improve survivability and tactical affectivity, decrease fratricide, and continue to play a major role as one of the USAF's primary Close Air Support and Forward Air Control weapon systems.

* Note: The decision to make PE a spiral program was based on differing PE and JTRS IOC schedules. Although JTRS will be part of the PE program, it will be flight

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2004

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207131F A-10 SQUADRONS

tested and fielded as a separate spiral. Spiral #1 is PE without JTRS, Spiral # 2 is PE with JTRS. Initial aircraft will have JTRS installed as a field level TCTO, the remaining aircraft will come out of the modification line with JTRS.

The A/OA-10 RDT&E program is in budget activity 7 - Operational System Development because it supports an operational system.

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	7.503	29.729	22.649
(U) Current PBR/President's Budget	10.960	29.476	22.590
(U) Total Adjustments	3.457	-0.253	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.253	
Congressional Increases			
Reprogrammings	3.678		
SBIR/STTR Transfer	-0.221		

(U) Significant Program Changes:

(U) OSD directed JTRS integration onto A-10 as part of the PE modification; due to this change PE modification is now a Spiral development program. Spiral #1 PE w/o JTRS. Spiral #2 PE with JTRS.

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0207131F A-10 SQUADRONS			PROJECT NUMBER AND TITLE 4809 A-10 Squadrons			
Cost (\$ in Millions)	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	
4809 A-10 Squadrons	10.960	29.476	22.590	9.054	9.222	0.000	0.000	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

(U) A. Mission Description and Budget Item Justification

** NOTE: The \$14M Congressional add to purchase Litening pods for the Air National Guard has been moved to the Precision Attack program element.

The A/OA-10 is the USAF's primary aircraft for Close Air Support (CAS) and Forward Air Control (FAC) supporting the ground battle including special forces, with a secondary mission of Combat Search and Rescue (CSAR) and the capability to perform interdiction under certain circumstances. Currently, all RDT&E funding supports the Precision Engagement (PE) Program (MN-9805). The PE program is a spiral development program installing a Digital Stores Management System (DSMS), integrated capabilities for smart weapons delivery, targeting pod integration, increased DC power system and joint-service battlefield interface via digital data links. The result of PE is increased tactical effectiveness (more targets destroyed), greater survivability, and decreased chance of fratricide. These modifications are mandatory for the A/OA-10 to adhere to the regional CINC's requirement for a CAS platform.

Spiral #1 of the PE modification integrates 1760 BUS, Joint Direct Attack Munition (JDAM), Wind Corrected Munitions Dispenser (WCMD), LITENING and SNIPER targeting pods, increases the current DC power system by 100% and creates a Digital Stores Management System (DSMS) for the A-10. The DSMS replaces the current Armament Control Panel (ACP) and the Interstation Control Unit (ICU) and adds two Multi-Function Color Displays (MFCD) to replace the existing ACP and Television Monitor and replaces the current stick and throttle with improved Hands on Throttle and Stick Capable controls reducing 'heads down' time in the cockpit. During spiral #1, the ICU will be replaced with a new processor: the Central Interface Control Unit (CICU). This program does not purchase JDAM/WCMD munitions, targeting pods or their associated support equipment.

Spiral #2 of the PE modification is Digital Data Link (DDL) MN-37120. Funding control for the DDL was transferred from the A-10 System Program Office (SPO) to the Tactical Data Links (TDL) SPO for an enterprise management approach to data links however, it is still part of the PE modification. OSD has directed the integration of the Army Joint Tactical Radio Set (JTRS) radio onto the A-10 as part of the PE modification. Spiral #2 of this modification integrates tests and fields the JTRS radio with the Enhanced Position Location Reporting System (EPLRS) waveform into the PE program. The EPLRS waveform provides connectivity to the digital battlefield to ensure joint forces communication, reduced fratricide and interoperability with forward C2 platform centers.

Spiral #3 of the A-10 modernization program may include: a moving map, BRU-57, Small Diameter Bomb (SDB), and additional data link waveforms. Improvements will enhance situational awareness, enable the A-10 to carry two smart weapons on a single parent station, and expand combat data link capability. Through a spiral development approach, the PE program will ultimately improve survivability and tactical affectivity, decrease fratricide, and continue to play a major role as one of the USAF's primary Close Air Support and Forward Air Control weapon systems.

* Note: The decision to make PE a spiral program was based on differing PE and JTRS IOC schedules. Although JTRS will be part of the PE program, it will be flight tested and fielded as a separate spiral. Spiral #1 is PE without JTRS, Spiral # 2 is PE with JTRS. Initial aircraft will have JTRS installed as a field level TCTO, the

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207131F A-10 SQUADRONS	PROJECT NUMBER AND TITLE 4809 A-10 Squadrons
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remaining aircraft will come out of the modification line with JTRS.

The A/OA-10 RDT&E program is in budget activity 7 - Operational System Development because it supports an operational system.

(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments/Planned Program	0.000	0.000	
(U) Accelerating development/integration of Precision Engagement (PE). Initial integration design of JDAM/WCMD, Targeting Pod, DSMS, DC Power and 1760 Bus.	10.960		
(U) Continuing development/integration tasks for PE. Spiral #1 efforts include Critical Design Review, hardware design and test, software coding and test, initial Group A design and build, aircraft trail installation aircraft instrumentation and initial developmental flight test.		29.476	
(U) Spiral #2 efforts include Critical Design Review, integration of prototype Joint Tactial Radio Set (JTRS) into the systems integration lab, software PVI design/build and early developmental model testing of JTRS radios.			22.590
(U) Total Cost	10.960	29.476	22.590

(U) <u>C. Other Program Funding Summary (\$ in Millions)</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E	10.960	29.476	22.590	9.054	9.222			Continuing	TBD
(U) Other APPN									
(U) Aircraft Procurement, BP-11 (PE 27131F)	25.490	20.334	48.223	45.237	74.530	80.806	52.151	Continuing	TBD

(U) **D. Acquisition Strategy**
Precision Engagement and Digital Data Link (now under PE 0207445F) development will be conducted under the A-10 Prime Contract which was awarded in Dec 1997 on a full-and-open basis. Cost Plus Award Fee (CPAF) contract awarded for specific modernization efforts.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2004

BUDGET ACTIVITY			PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
07 Operational System Development			0207131F A-10 SQUADRONS					4809 A-10 Squadrons				
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
(U) <u>Product Development</u>												
Precision Engagement Development	SS/CPFF	Lockheed Martin Systems Integration--Owego NY	0.000	10.960	Dec-02	21.400	Jan-04	17.574	Jan-04	Continuing	TBD	
Precision Engagement Spiral 3	CPFF	Lockheed Martin Systems Integration--Owego NY	0.000							Continuing	TBD	
Subtotal Product Development			0.000	10.960		21.400		17.574		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												
USAF (Multiple)						5.956	Apr-04	3.059	Jan-05	1.101	10.116	
Navy						0.120	Jan-04				0.120	
Subtotal Support			0.000	0.000		6.076		3.059		1.101	10.236	0.000
Remarks:												
(U) <u>Test & Evaluation</u>												
USAF (40th FTS)						2.000	Dec-03	1.957	Jan-05	0.461	4.418	3.601
Subtotal Test & Evaluation			0.000	0.000		2.000		1.957		0.461	4.418	3.601
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			0.000	10.960		29.476		22.590		Continuing	TBD	3.601

Exhibit R-4, RDT&E Schedule Profile

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February 2004

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0207131F A-10 SQUADRONS

PROJECT NUMBER AND TITLE
4809 A-10 Squadrons



Precision Engagement



5656N AIR LOGISTICS CENTER

Schedule - by FY

	Calendar	2002	2003	2004	2005	2006	2007	2008	2009
CRT S	06/02	▲							
PDR	03/03		▲						
CDR	10/03			▲					
SIL Demo	05/04				▲				
DT&E	09/04-10/05				▲	▲			
NOT&E	06/05-10/05				▲	▲			
IOC	06/06					▲			
Production	04/05-06/05					▲			▲
Installation	04/05-05/05					▲			▲

Today

5656N AIR LOGISTICS CENTER

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Exhibit R-4a, RDT&E Schedule Detail

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207131F A-10 SQUADRONS

PROJECT NUMBER AND TITLE

4809 A-10 Squadrons

(U) Schedule Profile

(U) Precision Engagement Preliminary Design Review (PDR)

FY 2003

2Q

FY 2004

1Q

(U) Precision Engagement Critical Design Review (CDR)

3Q

(U) Systems Integration Lab Demo.

3-4Q

(U) Precision Engagement Developmental Test

1-4Q

(U) Precision Engagement Initial Operation Test and Evaluation

3-4Q

(U) Production

3-4Q

(U) Installation

3-4Q

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Exhibit R-2, RDT&E Budget Item Justification								DATE February 2004	
BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0207133F F-16 SQUADRONS					
Cost (\$ in Millions)	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
Total Program Element (PE) Cost	77.627	96.135	99.606	98.486	102.968	106.501	109.289	Continuing	TBD
2671 F-16 Squadrons	77.627	96.135	99.606	98.486	102.968	106.501	109.289	Continuing	TBD

(U) **A. Mission Description and Budget Item Justification**

The F-16 Fighting Falcon is the world's premier multi-mission fighter. It is a fixed-wing, high performance, single-engine fighter aircraft. In its 25-year history, the F-16 has proven itself in combat in a variety of air-to-air and air-to-surface missions such as close air support, combat air patrol, forward air control, battle air interdiction (day/night and all-weather) and suppression of enemy air defenses (SEAD). Also during these years the aircraft has evolved in its capabilities to exploit the advances made in computer, avionics systems, engine, and structures technologies. The F-16 has been selected by more than 20 air forces around the world. Foreign military sales production will continue well into the 21st century. The F-16 System Program Office (SPO) develops, integrates, and qualifies systems to enhance the overall performance of the F-16 mission.

Modifications which are being or will be developed during the FYDP:

- a. Advanced Weapons Integration will integrate Joint Air-to-Surface Stand-off Missile (JASSM), Joint Direct Attack Munition (JDAM), Joint Stand-off Weapon (JSOW) and Wind Corrected Munition Dispenser (WCMD) and other smart weapons into the Block 30, Block 40, and Block 50 F-16. This task also includes performing risk reduction activities on advanced weapon integration.
- b. Global Positioning System (GPS) Integration adds GPS capability to the Block 30 and supports testing of GPS changes to other F-16 Blocks. The F-16 development efforts are complemented by comprehensive Operational Flight Program (OFP) upgrades and flight tests.
- c. Integrate the Sniper targeting pod on the Blocks 40-52 and transition the HARM Targeting System (HTS) pod to the left inlet hardpoint on the Blocks 50/52. This will allow the F-16 Block 50 to perform the SEAD/DEAD mission.
- d. The Air-to-Air Interrogator (AAI) consists of a single unit interrogator/transponder, a beam forming network, fuselage-mounted array antenna elements, and a lower interrogator antenna. The system provides a higher reliability rate and increases performance over present systems. Initial capabilities include coverage of + or - 60 degrees azimuth and elevation coverage with a + or - 2 degree accuracy, a range accuracy of 152 meters and range of 100 nmi. 32 in beam targets can be handled. Modes 1, 2, 3/A, C, S, and 4 are available. The AAI is developed for Block 50 and will be integrated into Block 40.
- e. Structural analysis from the on-going Structural Integrity Program (SIP) has indicated that the F-16 is experiencing structural fatigue that will impact the ability of the airframes to reach their 8,000 hrs service life. RDT&E funds are required to design the required structural modifications, as appropriate for each F-16 Block of aircraft. Falcon Structural Augmentation Roadmap (Falcon STAR) development costs will be shared with the Multi-National Fighter Program (MNFP) countries.
- f. The Blk 50 AN/APG-68(V)9 radar enables an all weather autonomous detection and targeting capability to take full advantage of newly introduced Global Positioning System (GPS) weapons to conduct evolving missions of time critical targeting and Destruction of Enemy Air Defenses (DEAD).

Note: Flight test costs reflect OFP work required for software modifications

Exhibit R-2, RDT&E Budget Item Justification

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207133F F-16 SQUADRONS

Since the development activities in this PE support an operational aircraft, these development activities are funded in the Operational System Development budget activity 7.

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	81.639	87.478	99.867
(U) Current PBR/President's Budget	77.627	96.135	99.606
(U) Total Adjustments	-4.012	8.657	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.843	
Congressional Increases		9.500	
Reprogrammings	-1.626		
SBIR/STTR Transfer	-2.386		
(U) <u>Significant Program Changes:</u>			
FY04: 3.500M Common Configurable Remote Interface Unit Congressional Plus Up			
FY04: 6.000M Blk 50 AN/APG-68(V)9 Congressional Plus Up			

Exhibit R-2a, RDT&E Project Justification

DATE

February 2004

BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT NUMBER AND TITLE			
07 Operational System Development				0207133F F-16 SQUADRONS			2671 F-16 Squadrons			
Cost (\$ in Millions)	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	
2671 F-16 Squadrons	77.627	96.135	99.606	98.486	102.968	106.501	109.289	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

(U) A. Mission Description and Budget Item Justification

The F-16 Fighting Falcon is the world's premier multi-mission fighter. It is a fixed-wing, high performance, single-engine fighter aircraft. In its 25-year history, the F-16 has proven itself in combat in a variety of air-to-air and air-to-surface missions such as close air support, combat air patrol, forward air control, battle air interdiction (day/night and all-weather) and suppression of enemy air defenses (SEAD). Also during these years the aircraft has evolved in its capabilities to exploit the advances made in computer, avionics systems, engine, and structures technologies. The F-16 has been selected by more than 20 air forces around the world. Foreign military sales production will continue well into the 21st century. The F-16 System Program Office (SPO) develops, integrates, and qualifies systems to enhance the overall performance of the F-16 mission.

Modifications which are being or will be developed during the FYDP:

- a. Advanced Weapons Integration will integrate Joint Air-to-Surface Stand-off Missile (JASSM), Joint Direct Attack Munition (JDAM), Joint Stand-off Weapon (JSOW) and Wind Corrected Munition Dispenser (WCMD) and other smart weapons into the Block 30, Block 40, and Block 50 F-16. This task also includes performing risk reduction activities on advanced weapon integration.
- b. Global Positioning System (GPS) Integration adds GPS capability to the Block 30 and supports testing of GPS changes to other F-16 Blocks. The F-16 development efforts are complemented by comprehensive Operational Flight Program (OFP) upgrades and flight tests.
- c. Integrate the Sniper targeting pod on the Blocks 40-52 and transition the HARM Targeting System (HTS) pod to the left inlet hardpoint on the Blocks 50/52. This will allow the F-16 Block 50 to perform the SEAD/DEAD mission.
- d. The Air-to-Air Interrogator (AAI) consists of a single unit interrogator/transponder, a beam forming network, fuselage-mounted array antenna elements, and a lower interrogator antenna. The system provides a higher reliability rate and increases performance over present systems. Initial capabilities include coverage of + or - 60 degrees azimuth and elevation coverage with a + or - 2 degree accuracy, a range accuracy of 152 meters and range of 100 nmi. 32 in beam targets can be handled. Modes 1, 2, 3/A, C, S, and 4 are available. The AAI is developed for Block 50 and will be integrated into Block 40.
- e. Structural analysis from the on-going Structural Integrity Program (SIP) has indicated that the F-16 is experiencing structural fatigue that will impact the ability of the airframes to reach their 8,000 hrs service life. RDT&E funds are required to design the required structural modifications, as appropriate for each F-16 Block of aircraft. Falcon Structural Augmentation Roadmap (Falcon STAR) development costs will be shared with the Multi-National Fighter Program (MNFP) countries.
- f. The Blk 50 AN/APG-68(V)9 radar enables an all weather autonomous detection and targeting capability to take full advantage of newly introduced Global Positioning System (GPS) weapons to conduct evolving missions of time critical targeting and Destruction of Enemy Air Defenses (DEAD).

Note: Flight test costs reflect OFP work required for software modifications

Since the development activities in this PE support an operational aircraft, these development activities are funded in the Operational System Development budget activity

Exhibit R-2a, RDT&E Project Justification

DATE
February 2004

BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207133F F-16 SQUADRONS	PROJECT NUMBER AND TITLE 2671 F-16 Squadrons
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7.

(U) B. Accomplishments/Planned Program (\$ in Millions)	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) ACCOMPLISHMENTS/PLANNED PROGRAM			
(U) Blk 40 AAI Congressional Plus Up	1.978		
(U) Reprogramming		5.191	
(U) Blk 50 AN/APG-68(V)9 Congressional Plus Up		9.500	
(U) Common Configurable Remote Interface Unit Plus Up		3.500	
(U) Continue OFP Updates	47.297	44.639	60.278
(U) ALR-56M	0.547	0.497	0.494
(U) Continue Flight Tests DT&E	22.990	27.735	38.340
(U) Weapons Integration	0.382	0.451	0.494
(U) Complete Falcon STAR (Structural analysis and design)	4.433	4.622	
(U) Total Cost	77.627	96.135	99.606

FY04: Congressional plus ups for V9 radar, 6.000M; and Common Configurable Remote Interface Unit, 3.5000M

FY04: -.843M Congressional rescission

Note: Increase in OFP funding in FY05 results from increased software development effort in new software tape and increase in integration lab testing as a result of previous OFP lessons learned.

(U) C. Other Program Funding Summary (\$ in Millions)									
	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Aircraft Procurement (3010), Line Item 29, F-16 Mods	274.878	307.261	336.289	373.942	327.847	329.290	274.761		TBD
(U) Aircraft Procurement (3010), Line Item 71, Post Production Support	16.161	17.341	11.531	17.504	11.807	17.188	18.827		TBD

(U) D. Acquisition Strategy
RDT&E funds will primarily be executed in developing improved capability, maintenance and safety mods. Operational Flight Program (OFP) software will be continuously updated to complement mod development efforts. The approach to contracting varies by individual project. Lockheed Martin Aeronautics Company (LM Aero) is the prime contractor on all systems except the 110 Engines (General Electric), and the 229 Engines (Pratt & Whitney). Northrop Grumman and LM Aero will work collectively on Blk 50 AN/APG-68(V)9 efforts. Contract types are T&M, CPIF, CPFF, FFP.

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
07 Operational System Development				0207133F F-16 SQUADRONS				2671 F-16 Squadrons				
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to</u>	<u>Total</u>	<u>Target</u>
			<u>Prior to FY</u>	<u>2003</u>	<u>2003</u>	<u>2004</u>	<u>2004</u>	<u>2005</u>	<u>2005</u>	<u>Complete</u>	<u>Cost</u>	<u>Value of</u>
			<u>2003</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>			<u>Contract</u>
			<u>Cost</u>		<u>Date</u>		<u>Date</u>		<u>Date</u>			
(U) <u>Product Development</u>												
OFP Updates	CPIF/T&M	LM Aero	153.746	47.296	Dec-02	44.639	Jan-04	60.278	Jan-05	Continuing	TBD	
Falcon STAR	FFP	LM Aero	0.000	4.433	Dec-02	4.622	Jun-04				9.055	
ALR-56M	PO	WRALC/LN	1.912	0.548	Nov-03	0.497	Dec-03	0.495	Dec-04		3.452	
Weapons Integration	T&M/FFP	LM Aero	1.150	0.382	Jun-03	0.451	Jul-04	0.495	Jul-05		2.478	
AAI Block 40 Congressional Plus Up	CPIF	LM Aero		1.978	Sep-03						1.978	
Blk 50 AN/APG-68(V)9	T&M/CPFF	Northrup Grumman / LM Aero				9.500	Mar-04				9.500	
CCRIU						3.500					3.500	
Subtotal Product Development			156.808	54.637		63.209		61.268		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>											0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Test & Evaluation</u>												
Flight Tests	T&M/CPFF	LM Aero/ Edwards AFB	110.941	22.990	Jan-03	27.735	Jan-04	38.338	Jan-05	Continuing	TBD	
Subtotal Test & Evaluation			110.941	22.990		27.735		38.338		Continuing	TBD	0.000
Remarks:												
(U) <u>Management</u>												
Reprogramming						5.191					5.191	
Subtotal Management			0.000	0.000		5.191		0.000		0.000	5.191	0.000
Remarks:												
(U) <u>Rescission</u>												
(U) Total Cost			267.749	77.627		96.135		99.606		Continuing	TBD	0.000
Remarks:												

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY
07 Operational System Development

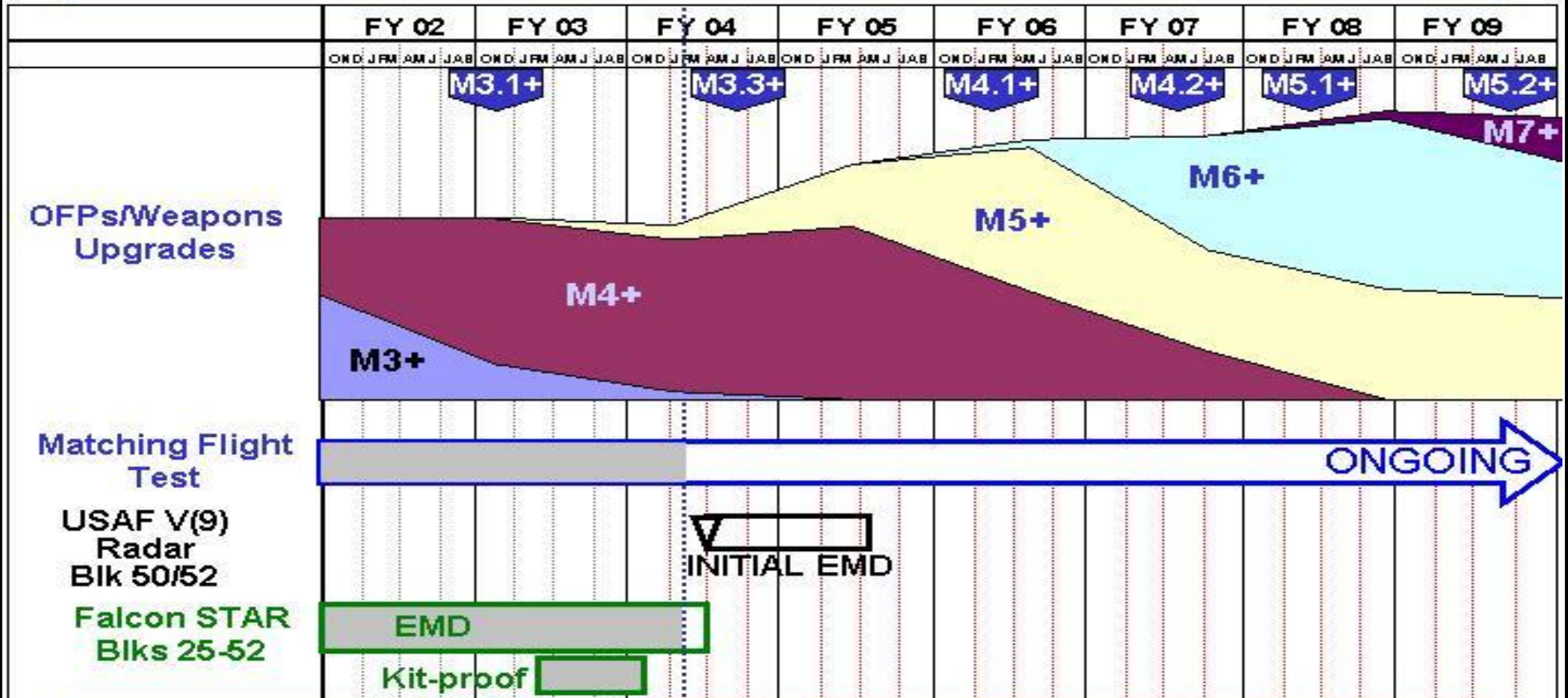
PE NUMBER AND TITLE
0207133F F-16 SQUADRONS

PROJECT NUMBER AND TITLE
2671 F-16 Squadrons



U.S. AIR FORCE

F-16 RDT&E Program Schedule - USAF



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Exhibit R-4a, RDT&E Schedule Detail

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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207133F F-16 SQUADRONS	PROJECT NUMBER AND TITLE 2671 F-16 Squadrons
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(U) <u>Schedule Profile</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Flight Testing	1-4Q	1-4Q	1-4Q
(U) Falcon Star		3Q	
(U) BLK 50 AN/APG-68(V)9			2Q
(U) Flight Software and Weapons Upgrades	1-4Q	1-4Q	1-4Q

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PE NUMBER: 0207134F
 PE TITLE: F-15E SQUADRONS

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207134F F-15E SQUADRONS
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	Cost (\$ in Millions)	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
	Total Program Element (PE) Cost	70.749	122.436	115.246	96.590	100.129	98.085	99.577	Continuing	TBD
0131	Initial Operational Test and Evaluation	70.749	122.436	115.246	96.590	100.129	98.085	99.577	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

The F-15E is the most versatile fighter in the world today. Configured with conformal fuel tanks (CFTs), the F-15E can deploy worldwide with minimal tanker support and arrive combat-ready. The F-15E retains air superiority capability and adds systems, such as Low Altitude Navigation and Targeting Infrared for Night (LANTIRN), to meet the requirement for all-weather, deep penetration, and night/under-the-weather, air-to-surface attack. The F-15E's avionics, armament, airframe, and engines must be improved to maintain its superiority against the threat well into the 21st century. The threat includes a new generation of aircraft possessing all-weather detection and kill capabilities. Avionics updates (exploiting proven technological advances) will be incorporated into the F-15E providing expanded capability and supporting a fully integrated electronic warfare suite. This will increase the offensive and defensive capability and survivability of the F-15E. In addition to funding special studies and proposal prep, the F-15E PE also funds RDT&E activities for PE 0207130F, F-15A-D.

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	60.363	112.085	115.547
(U) Current PBR/President's Budget	70.749	122.436	115.246
(U) Total Adjustments	10.386	10.351	
(U) Congressional Program Reductions	0.000		
Congressional Rescissions		-1.049	
Congressional Increases		11.400	
Reprogrammings	12.725		
SBIR/STTR Transfer	-2.339		

(U) Significant Program Changes:

Funding (FY03):

FY03 increase from reprogramming action for continued EW Development on Miniature Air Launched Decoy Program.

Funding (FY04):

FY04 increase from Congressional Marks in support of F-15 C/D Radar Block Upgrade, Advanced Display Core Processor (ADCP) Development and Radar Warning

Exhibit R-2, RDT&E Budget Item Justification

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207134F F-15E SQUADRONS

Receiver Upgrades.

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Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0207134F F-15E SQUADRONS			PROJECT NUMBER AND TITLE 0131 Initial Operational Test and Evaluation		
Cost (\$ in Millions)	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
0131 Initial Operational Test and Evaluation	70.749	122.436	115.246	96.590	100.129	98.085	99.577	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The F-15E is the most versatile fighter in the world today. Configured with conformal fuel tanks (CFTs), the F-15E can deploy worldwide with minimal tanker support and arrive combat-ready. The F-15E retains air superiority capability and adds systems, such as Low Altitude Navigation and Targeting Infrared for Night (LANTIRN), to meet the requirement for all-weather, deep penetration, and night/under-the-weather, air-to-surface attack. The F-15E's avionics, armament, airframe, and engines must be improved to maintain its superiority against the threat well into the 21st century. The threat includes a new generation of aircraft possessing all-weather detection and kill capabilities. Avionics updates (exploiting proven technological advances) will be incorporated into the F-15E providing expanded capability and supporting a fully integrated electronic warfare suite. This will increase the offensive and defensive capability and survivability of the F-15E. In addition to funding special studies and proposal prep, the F-15E PE also funds RDT&E activities for PE 0207130F, F-15A-D.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Operational Flight Program (OFP) development efforts.	33.039	54.699	82.008
(U) Flight testing of improvements initiated in prior years.	12.522	18.730	19.638
(U) Development of ADCP (formerly OFP effort).	12.480	15.619	
(U) Integration of Joint Helmet Mounted Cueing System (JHMCS).	0.273	0.104	
(U) Development of Tactical Electronic Warfare System (TEWS) Intermediate Support System (TISS) Technology Insertion Program (TTIP)		6.775	6.000
(U) Development of Radar Warning Receiver Upgrade		2.304	5.000
(U) F-15C/D Active Electronically Scanned Array (AESA) Radar Block Upgrade	10.100	21.605	0.000
(U) F-15E AESA Radar Block Upgrade	0.400	0.500	0.500
(U) Mission Support, Other Government Cost	1.935	2.100	2.100
(U) Total Cost	70.749	122.436	115.246

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E									
(U) Other APPN									
(U) Aircraft Procurement (3010F),									

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Exhibit R-2a, RDT&E Project Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207134F F-15E SQUADRONS	PROJECT NUMBER AND TITLE 0131 Initial Operational Test and Evaluation
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(U) C. Other Program Funding Summary (\$ in Millions)

Line Item 5, F-15E (PE27134F) [BP 10] Aircraft Procurement (3010F),										
(U)	Line Item 27, F-15A-E (PEs 27130F and 27134F) [BP 11] Aircraft Procurement (3010F)	272.771	192.493	111.411	108.628	66.930	36.948	5.778	Continuing	TBD
(U)	F-15E (PE84731F) General Skills Training [BP11] Aircraft Procurement (3010F)	1.263								1.263
(U)	F-15 (PE27434F) Link 16 Support and Sustainment [BP11] Aircraft Procurement (3010F)		0.040							
(U)	F-15E (PE89731F) Training Support to Units [BP11] Aircraft Procurement (3010F),				2.061	1.260			Continuing	TBD
(U)	Line Item 66, F-15A-E [BP 13] Aircraft Procurement (3010F)	7.279	7.238	13.407	12.927	103.527	1.001	2.406	Continuing	TBD
(U)	F-15E (PE27445F) Fighter Tactical Data Link [BP11]		7.755	70.191	66.524	40.344				

(U) D. Acquisition Strategy

Program is a continuation of effort which includes the development of all F-15 models. Funds are executed organically in support of equipment improvement, study, analysis, and test.

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207134F F-15E SQUADRONS	PROJECT NUMBER AND TITLE 0131 Initial Operational Test and Evaluation
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(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u> Prior to FY 2003 Cost	<u>FY</u> 2003 Cost	<u>FY</u> 2003 Award Date	<u>FY</u> 2004 Cost	<u>FY</u> 2004 Award Date	<u>FY</u> 2005 Cost	<u>FY</u> 2005 Award Date	<u>Cost to Complete</u>	<u>Total</u> Cost	<u>Target</u> Value of Contract
(U) <u>Product Development</u>												
OFP Suite 4/5/6/7 Development	CPAF	Boeing, St Louis	184.013	33.039		54.699		82.008		Continuing	TBD	
Boeing (JHMCS A-D)	CPAF	Boeing, St Louis	9.483	0.273	Mar-03	0.104	Feb-04			0.000	9.860	
Smart Weapons Integration	CPAF		14.929							0.000	14.929	
ADP(E)	CPAF		2.846							0.000	2.846	
ADCP(E)	CPAF	Boeing, St Louis	23.941	12.480	Mar-03	15.619	Jan-04			0.000	52.040	
NGA (ALQ-135 Band 1.5)	FFP		35.440							0.000	35.440	
Link-16 Data Link	CPAF		19.400							0.000	19.400	
TISS TTIP	CPFF		0.000			6.775	Feb-04	6.000	Feb-05	0.000	12.775	
Boeing/Raytheon ECCM	CPAF		1.194							0.000	1.194	
F-15 C/D AESA Radar Block Upgrade	CPFF	Boeing, St Louis	3.000	10.100	Jul-03	21.605	Feb-04			0.000	34.705	
F-15 E AESA Radar Block Upgrade	CPFF	Boeing, St Louis	3.931	0.400	Jan-04	0.500	Jun-04	0.500	Jan-05		5.331	
Radar Warning Receiver Upgrade	TNM	Boeing, St Louis	0.000			2.304	Jun-04	5.000	Feb-05		7.304	
Subtotal Product Development			298.177	56.292		101.606		93.508		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												
(Msn Spt) Misc.		WPAFB, OH	16.708	1.935		2.100		2.100		0.000	22.843	
Subtotal Support			16.708	1.935		2.100		2.100		0.000	22.843	0.000
Remarks:												
(U) <u>Test & Evaluation</u>												
Boeing (Flt Test)	FFP	Boeing, St Louis	65.472	10.665	Mar-03	12.500	Mar-04	12.500	Mar-05	Continuing	TBD	
Edwards	PO	Edwards AFB, CA	45.357	0.100	Mar-03	0.200	Mar-04	0.200	Mar-05	Continuing	TBD	
Eglin (Flt Test)	PO	Eglin AFB, FL	14.659	1.757	Mar-03	6.030	Feb-04	6.938	Feb-05	Continuing	TBD	
Subtotal Test & Evaluation			125.488	12.522		18.730		19.638		Continuing	TBD	0.000
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												

Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207134F F-15E SQUADRONS

PROJECT NUMBER AND TITLE

0131 Initial Operational Test and Evaluation

(U) Total Cost

440.373 70.749 122.436 115.246 Continuing TBD 0.000

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0207134F F-15E SQUADRONS

PROJECT NUMBER AND TITLE
0131 Initial Operational Test and Evaluation



F-15E Modernization



The Best Fighter, Anytime, Anyplace

Program	Mod #	FY03	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11
ADCP	8357	█	█		█	█	█	█		
ADP	8314	█	█	█	█	█	█			
Band 1.5	8419	█	█							
DMS	8237	█								
DVR *	8705				█	█	█	█		
IFF / AAI *	8746			█	█	█	█			
Link 16 / FDL *	8420	█	█							
PACS-45	8265	█	█	█	█	█	█			
Secondary Power	6106	█	█	█						
TEWS Mods	N/A	█	█							
TISS TIP	8742		█	█	█	█	█			
VHF Radios *	8750		█	█						
BMM *	8757	█	█							
OPF Updates		S4+E		S5E			S6E			
		DEV			Prod		Install		IOC	

Advancing the Legacy

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Exhibit R-4a, RDT&E Schedule Detail

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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207134F F-15E SQUADRONS	PROJECT NUMBER AND TITLE 0131 Initial Operational Test and Evaluation
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(U) <u>Schedule Profile</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Smart Weapons DT&E complete	1Q		
(U) OFP Suite 5 DT&E - start		3Q	
(U) OFP Suite 5 DT&E - complete			1Q
(U) OFP Suite 5 CDR-MSIP	3Q		
(U) OFP Suite 5 CDR-E	2Q		
(U) OFP Suite 6 Phase 1 Start		3Q	
(U) ADCP EMD Flight Test Start	3Q		
(U) ADCP EMD Flight Test Complete		1Q	
(U) ADCP Tech Roll Flight Test Start		4Q	
(U) ADCP Tech Roll Flight Test Complete			1Q
(U) ADCP P3I Start	4Q		
(U) ADCP P3I complete			2Q
(U) ECCM EMD complete	3Q		
(U) Flight Test Radar Instrumentation Upgrade Start	1Q		
(U) Flight Test Radar Instrumentation Upgrade Complete			3Q
(U) TISS Replacement EMD start		2Q	

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PE NUMBER: 0207136F
 PE TITLE: Manned Destructive Suppression

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207136F Manned Destructive Suppression
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Cost (\$ in Millions)	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
Total Program Element (PE) Cost	21.821	20.458	16.976	12.268	0.499	0.000	0.000	0.000	163.366
4595 F-16 Smart Targeting and Identification via Networked Geolocation (STING)	21.821	20.458	16.976	12.268	0.499	0.000	0.000	0.000	163.366

In FY 2002, Project 4595 was renamed Smart Targeting and Identification via Networked Geolocation (formerly HARM Targeting System). This action did not change program content.

(U) A. Mission Description and Budget Item Justification

The overall Manned Destructive Suppression (MDS) program funds the development, procurement, and sustainment of the Air Force's Suppression of Enemy Air Defenses (SEAD) and Destruction of Enemy Air Defenses (DEAD) capabilities. The F-16 HARM Targeting System (HTS) is currently the only programmed reactive SEAD capability and enables targeting the HARM missile in its most lethal 'range known' mode. The program provides F-16 Block 50/52 aircraft with the ability to employ the AN/ASQ-213 Pod. This RDT&E effort continues preplanned product improvements (P3I) and applies technologies similar to those demonstrated in the Advanced Tactical Targeting Technologies (AT3) program. In FY00, P3I development of HTS Revision 7 (R7) began to address evolving threats and to incorporate a precision geolocation capability to target Precision Guided Munitions (PGMs) into the AN/ASQ 213 Pod. To better describe the capability to target PGMs as well as the HARM missile, the HTS R7 P3I program was renamed STING (Smart Targeting and Identification via Networked Geolocation). In FY01, the R7 P3I Program Definition and Risk Reduction (PDRR) was completed and the contract was awarded for System Development and Demonstration (SDD). FY03 marked the start of STING (R7) flight test activities. STING (R7) developed changes will also enable the F-16 to carry both an AN/ASQ-213 STING (R7) Pod and an Advanced Targeting Pod (ATP), by relocating STING (R7) pod to the aircraft's left inlet hard point. These improvements represent the Air Force's near-term solution (capability can be transferred to F-35, Unmanned Combat Air Vehicle (UCAV), or a yet defined system) for reactive time critical targeting for the DEAD mission. STING (R7) will target other PGMs to destroy fixed and mobile enemy air defense elements. STING (R7) precision coordinates will be available to all Joint Forces via Link-16. FY04 continued flight test activities and hardware qualification in preparation for retrofit of HTS pods to STING pods.

This PE is in Budget Activity 7 - Operational System Development because it supports preplanned product improvements and upgrade development of F-16 HTS (R6), a fielded system, to the STING (R7) configuration.

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2004

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207136F Manned Destructive Suppression

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	22.910	20.633	10.320
(U) Current PBR/President's Budget	21.821	20.458	16.976
(U) Total Adjustments	-1.089	-0.175	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.175	
Congressional Increases			
Reprogrammings	-0.379		
SBIR/STTR Transfer	-0.710		

(U) **Significant Program Changes:**

Adjustments in FY05-FY07 required to support a second schedule shift in F-16 integration. Increase necessary to maintain the same level of risk on the STING (R7) SDD contract and to cover increased flight testing costs.

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0207136F Manned Destructive Suppression			PROJECT NUMBER AND TITLE 4595 F-16 Smart Targeting and Identification via Networked Geolocation (STING)		
Cost (\$ in Millions)	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
4595 F-16 Smart Targeting and Identification via Networked Geolocation (STING)	21.821	20.458	16.976	12.268	0.499	0.000	0.000	0.000	163.366
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The overall Manned Destructive Suppression (MDS) program funds the development, procurement, and sustainment of the Air Force's Suppression of Enemy Air Defenses (SEAD) and Destruction of Enemy Air Defenses (DEAD) capabilities. The F-16 HARM Targeting System (HTS) is currently the only programmed reactive SEAD capability and enables targeting the HARM missile in its most lethal 'range known' mode. The program provides F-16 Block 50/52 aircraft with the ability to employ the AN/ASQ-213 Pod. This RDT&E effort continues preplanned product improvements (P3I) and applies technologies similar to those demonstrated in the Advanced Tactical Targeting Technologies (AT3) program. In FY00, P3I development of HTS Revision 7 (R7) began to address evolving threats and to incorporate a precision geolocation capability to target Precision Guided Munitions (PGMs) into the AN/ASQ 213 Pod. To better describe the capability to target PGMs as well as the HARM missile, the HTS R7 P3I program was renamed STING (Smart Targeting and Identification via Networked Geolocation). In FY01, the R7 P3I Program Definition and Risk Reduction (PDRR) was completed and the contract was awarded for System Development and Demonstration (SDD). FY03 marked the start of STING (R7) flight test activities. STING (R7) developed changes will also enable the F-16 to carry both an AN/ASQ-213 STING (R7) Pod and an Advanced Targeting Pod (ATP), by relocating STING (R7) pod to the aircraft's left inlet hard point. These improvements represent the Air Force's near-term solution (capability can be transferred to F-35, Unmanned Combat Air Vehicle (UCAV), or a yet defined system) for reactive time critical targeting for the DEAD mission. STING (R7) will target other PGMs to destroy fixed and mobile enemy air defense elements. STING (R7) precision coordinates will be available to all Joint Forces via Link-16. FY04 continued flight test activities and hardware qualification in preparation for retrofit of HTS pods to STING pods.

This PE is in Budget Activity 7 - Operational System Development because it supports preplanned product improvements and upgrade development of F-16 HTS (R6), a fielded system, to the STING (R7) configuration.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Continue STING (R7) Geolocation Upgrade Development	19.120	17.105	12.241
(U) Continue STING (R7) Upgrade Test and Evaluation Support	1.782	2.826	4.190
(U) Continue Mission Support	0.919	0.527	0.545
(U) Total Cost	21.821	20.458	16.976

Exhibit R-2a, RDT&E Project Justification

DATE

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

**0207136F Manned Destructive
Suppression**

PROJECT NUMBER AND TITLE

**4595 F-16 Smart Targeting and
Identification via Networked
Geolocation (STING)****(U) C. Other Program Funding Summary (\$ in Millions)****(U) D. Acquisition Strategy**

The STING (R7) included accomplishment of risk reduction studies and selection of appropriate contracting strategies for SDD and retrofit of HTS inventory.

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Exhibit R-3, RDT&E Project Cost Analysis										DATE February 2004		
BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0207136F Manned Destructive Suppression				PROJECT NUMBER AND TITLE 4595 F-16 Smart Targeting and Identification via Networked Geolocation (STING)				
<u>(U) Cost Categories</u>	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2003</u>	<u>FY 2003 Cost</u>	<u>FY 2003 Award Date</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(\$ in Millions)												
<u>(U) Product Development</u>												
Raytheon Systems Co.	SS/Various		41.488	18.787		16.879		12.241		9.714	99.109	
Raytheon Systems Co.	SS/CPAF		31.331								31.331	
AFMSS	SS/CPIF		2.098	0.333		0.226					2.657	
Lockheed/Ft Worth	SS/FFP		2.400								2.400	
Subtotal Product Development			77.317	19.120		17.105		12.241		9.714	135.497	0.000
Remarks: STING SDD Contract awarded FY01 (on-going through FY07)												
<u>(U) Support</u>												
Program Mgt. and Mission Support	Various		6.411	0.919		0.527		0.545		0.562	8.964	
Subtotal Support			6.411	0.919		0.527		0.545		0.562	8.964	0.000
Remarks:												
<u>(U) Test & Evaluation</u>												
Eglin	PO		2.175								2.175	
Edwards	PO		4.519	1.782		2.826		4.190		2.491	15.808	
Light Defender			0.922								0.922	
Subtotal Test & Evaluation			7.616	1.782		2.826		4.190		2.491	18.905	0.000
Remarks:												
<u>(U) Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Total Cost</u>			91.344	21.821		20.458		16.976		12.767	163.366	0.000

Exhibit R-4, RDT&E Schedule Profile

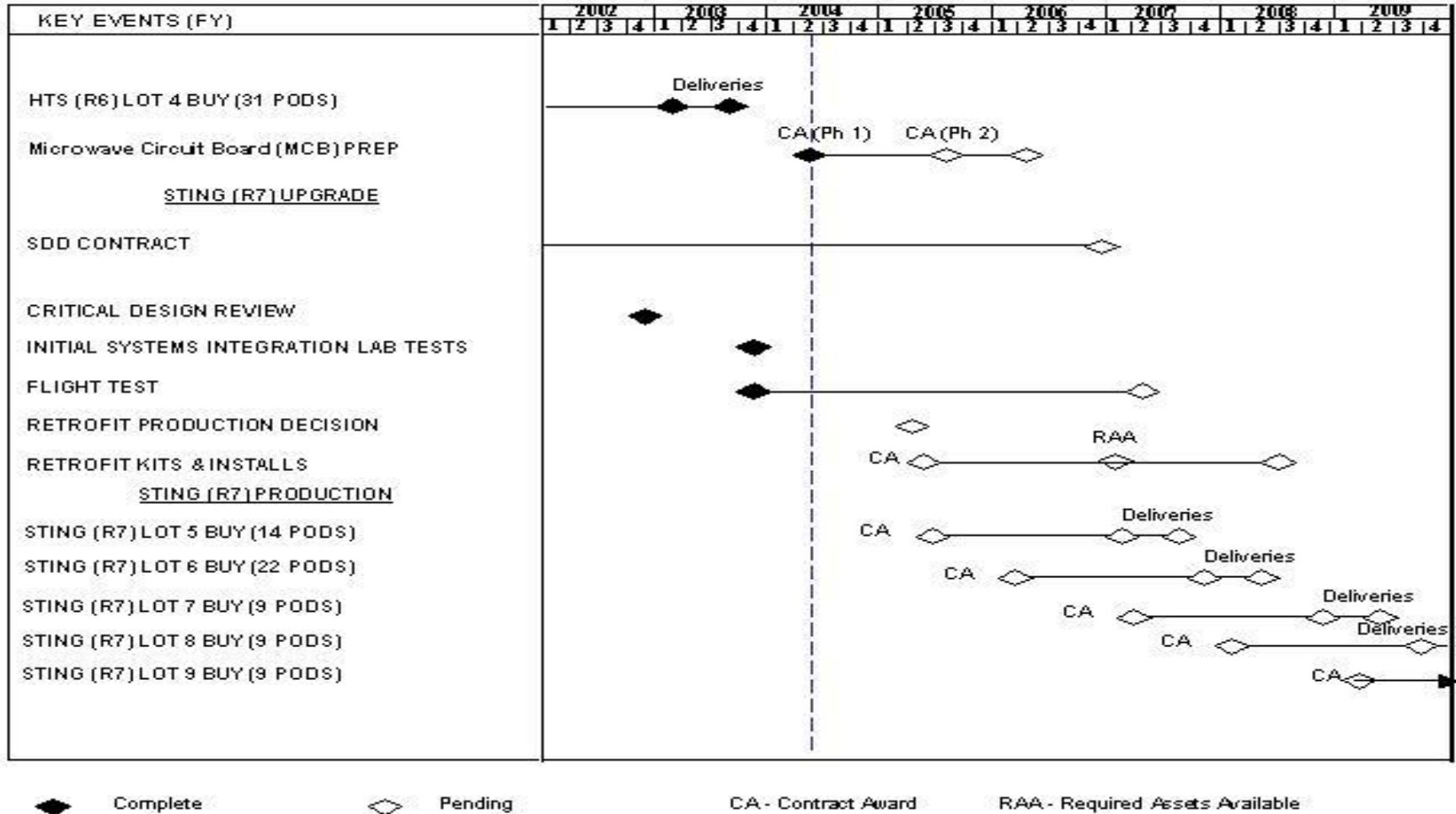
DATE

February 2004

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0207136F Manned Destructive
Suppression

PROJECT NUMBER AND TITLE
4595 F-16 Smart Targeting and
Identification via Networked
Geolocation (STING)



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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207136F Manned Destructive Suppression	PROJECT NUMBER AND TITLE 4595 F-16 Smart Targeting and Identification via Networked Geolocation (STING)
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	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <u>Schedule Profile</u>			
(U) Microwave Circuit Board (MCB) Producibility, Reliability Enhancement Program (PREP) Contract Award -- Ph 1		2Q	
(U) MCB PREP Contract Award -- Ph 2			2Q
(U) Initial F-16 System Integration Lab (SIL) Completed	4Q		
(U) STING Flight Test Begins	4Q		
(U) STING Retrofit Decision			1Q
(U) Retrofit Kits and Installs -- Contract Award			2Q
(U) STING Lot 5 Contract Award			2Q

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PE NUMBER: 0207138F
 PE TITLE: F-22 SQUADRONS

Exhibit R-2, RDT&E Budget Item Justification								February 2004	
BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0207138F F-22 SQUADRONS					
Cost (\$ in Millions)	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
Total Program Element (PE) Cost	65.422	313.101	354.528	431.396	639.376	612.377	562.197	Continuing	TBD
4785 F-22	65.422	313.101	354.528	431.396	639.376	612.377	562.197	Continuing	TBD

(U) **A. Mission Description and Budget Item Justification**

The F/A-22 is designed to penetrate enemy airspace and achieve a first look, first kill capability against multiple targets. The F/A-22 is characterized by a low observable, highly maneuverable airframe, advanced integrated avionics, and aerodynamic performance that allows supersonic cruise without the use of afterburner. The F/A-22 is currently in the Engineering and Manufacturing Development (EMD) phase of acquisition. The Defense Acquisition Board (DAB) approved Low Rate Initial Production (LRIP) Aug 01. This exhibit is for post EMD requirements/developments - which includes hardware and software enhancements to the EMD baseline. These enhancements will upgrade the F/A-22 to enable a more robust air-to-ground target engagement capability.

This program is in Budget Activity 7, Operational System Development, because the F/A-22 Program is developing the next-generation air dominance fighter for the USAF to counter emerging worldwide threats.

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	66.323	315.784	375.428
(U) Current PBR/President's Budget	65.422	313.101	354.528
(U) Total Adjustments	-0.901	-2.683	
(U) Congressional Program Reductions			
Congressional Rescissions		-2.683	
Congressional Increases			
Reprogrammings	-0.901		
SBIR/STTR Transfer			

(U) **Significant Program Changes:**

FY05 funding was realigned from FY05 to FY06 to properly phase funding with planned efforts.

Exhibit R-2a, RDT&E Project Justification

DATE
February 2004

BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0207138F F-22 SQUADRONS			PROJECT NUMBER AND TITLE 4785 F-22			
Cost (\$ in Millions)	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	
4785 F-22	65.422	313.101	354.528	431.396	639.376	612.377	562.197	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

(U) A. Mission Description and Budget Item Justification

The F/A-22 is designed to penetrate enemy airspace and achieve a first look, first kill capability against multiple targets. The F/A-22 is characterized by a low observable, highly maneuverable airframe, advanced integrated avionics, and aerodynamic performance that allows supersonic cruise without the use of afterburner. The F/A-22 is currently in the Engineering and Manufacturing Development (EMD) phase of acquisition. The Defense Acquisition Board (DAB) approved Low Rate Initial Production (LRIP) Aug 01. This exhibit is for post EMD requirements/developments - which includes hardware and software enhancements to the EMD baseline. These enhancements will upgrade the F/A-22 to enable a more robust air-to-ground target engagement capability.

This program is in Budget Activity 7, Operational System Development, because the F/A-22 Program is developing the next-generation air dominance fighter for the USAF to counter emerging worldwide threats.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Continue requirements definition and spiral development activities for planned hardware and software capability upgrades. (NSP)	39.318	254.754	253.117
--Continue Spiral 2 to develop Global Strike Conops basic capabilities.			
--Continue Spiral 3 to develop Global Strike Conops enhanced capabilities.			
(U) Continue Air Vehicle Instrumentation support (SEEK EAGLE Instrumentation).	3.870	12.000	18.000
(U) Continue Post-EMD System Engineering/Program Management Contract Support	22.234	30.711	20.792
(U) Continue Air Vehicle Instrumentation support (Test Instrumentation)		6.270	8.560
(U) Continue Flight test and flight test support at Edwards AFB.		2.200	46.782
(U) Continue Mission support of the SPO; travel, computer costs, misc contracts, etc.		7.166	7.277
(U) Total Cost	65.422	313.101	354.528

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E (PE 64239F)	843.999	615.467	210.000	75.794					24,084.384
(U) PRTV II (6)									1,580.580
(U) F/A-22 Squadrons Procurement (PE 0207138F)	22.427	39.532	96.691	10.079	76.503	134.768	167.521	Continuing	TBD
(U) Military Construction (PE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	39.700

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Exhibit R-2a, RDT&E Project Justification

DATE

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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207138F F-22 SQUADRONS	PROJECT NUMBER AND TITLE 4785 F-22
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(U) C. Other Program Funding Summary (\$ in Millions)

0604239F)										
(U) Military Construction (PE 0207219F)	42.576	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	96.018
(U) Military Construction (PE 0207138F)	0.000	31.164	40.246	54.460	93.324	121.991	80.075	Continuing	TBD	
(U) Aircraft Procurement (PE 0207219F) Advanced Tactical Fighter, P-1 Line Item #003**	4480.149	4109.533	4155.976	4423.214	4220.211	4090.326	3920.002	5,987.570	42,120.610	
(U) Munitions Procurement (PE 0207219F)	6.260	6.410	9.406	10.897	10.763	12.038	12.293	27.805	102.057	
(U) F/A-22 Link 16 Transmit RDT&E (PE 27445F)				27.560	29.059	31.988	32.598	Continuing	TBD	
(U) F/A-22 Link 16 Transmit Procurement (PE 27445F)	28.926	42.318	50.940	55.817	14.026	27.509	28.919	Continuing	TBD	

**NOTE: Includes BP10, 11, 16, 19 and Advance Buy.

(U) D. Acquisition Strategy

The Raptor Enhancement Development & Integration (REDI) contract is an Indefinite Delivery/Indefinite Quantity Ordering contract that maximizes flexibility to start, stop, accelerate and decelerate projects based on funding. The REDI contract was established to be more responsive to evolving war fighter requirements. The REDI contract allows the issuance of orders for the highest priority war fighter capabilities in operationally meaningful capability increments, requirements analysis, contractor cost estimates and studies, development and demonstration of capability enhancements, and unanticipated future war fighter requirements. The first Delivery Order is used to initiate requirements analysis (Phase A) of all spiral development efforts associated with planned capability enhancements. Subsequent Delivery Orders will be issued for the design phase (Phase B) and the development, integration and verification phase (Phase C,D,E) of a specific spiral development effort. Separate delivery orders at these predetermined breakpoints allows the spiral effort to be tailored to the technology maturity, available funding and capability priority during the life of the program.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2004

BUDGET ACTIVITY			PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
07 Operational System Development			0207138F F-22 SQUADRONS					4785 F-22				
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
<u>(U) Product Development</u>												
Spiral development activities	Cost Plus		0.000	39.318	Mar-03	254.754	Dec-03	253.117	Dec-04	Continuing	TBD	
Air Vehicle Instrumentation support (SEEK EAGLE Instr)	Cost Plus		0.000	3.870	Mar-03	12.000	Feb-04	18.000	Dec-04	Continuing	TBD	
Air Vehicle Instrumentation support (Test Instrumentation)	Cost Plus		0.000			6.270	Feb-04	8.560	Feb-04	Continuing	TBD	
System Engineering / Program Management	Cost Plus		0.000	22.234	Mar-03	30.711	Feb-04	20.792	Dec-04	Continuing	TBD	
Not Applicable											0.000	
Subtotal Product Development			0.000	65.422		303.735		300.469		Continuing	TBD	0.000
Remarks:												
<u>(U) Support</u>												
Support Contracts	Various					7.166		7.277		Continuing	TBD	
In House Support										Continuing	TBD	
Not Applicable											0.000	
Subtotal Support			0.000	0.000		7.166		7.277		Continuing	TBD	0.000
Remarks:												
<u>(U) Test & Evaluation</u>												
AFFTC	PO	Edwards AFB, CA				2.200	Jan-04	46.782	Jan-04	Continuing	TBD	
Not Applicable											0.000	
Subtotal Test & Evaluation			0.000	0.000		2.200		46.782		Continuing	TBD	0.000
Remarks:												
<u>(U) Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Total Cost</u>			0.000	65.422		313.101		354.528		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

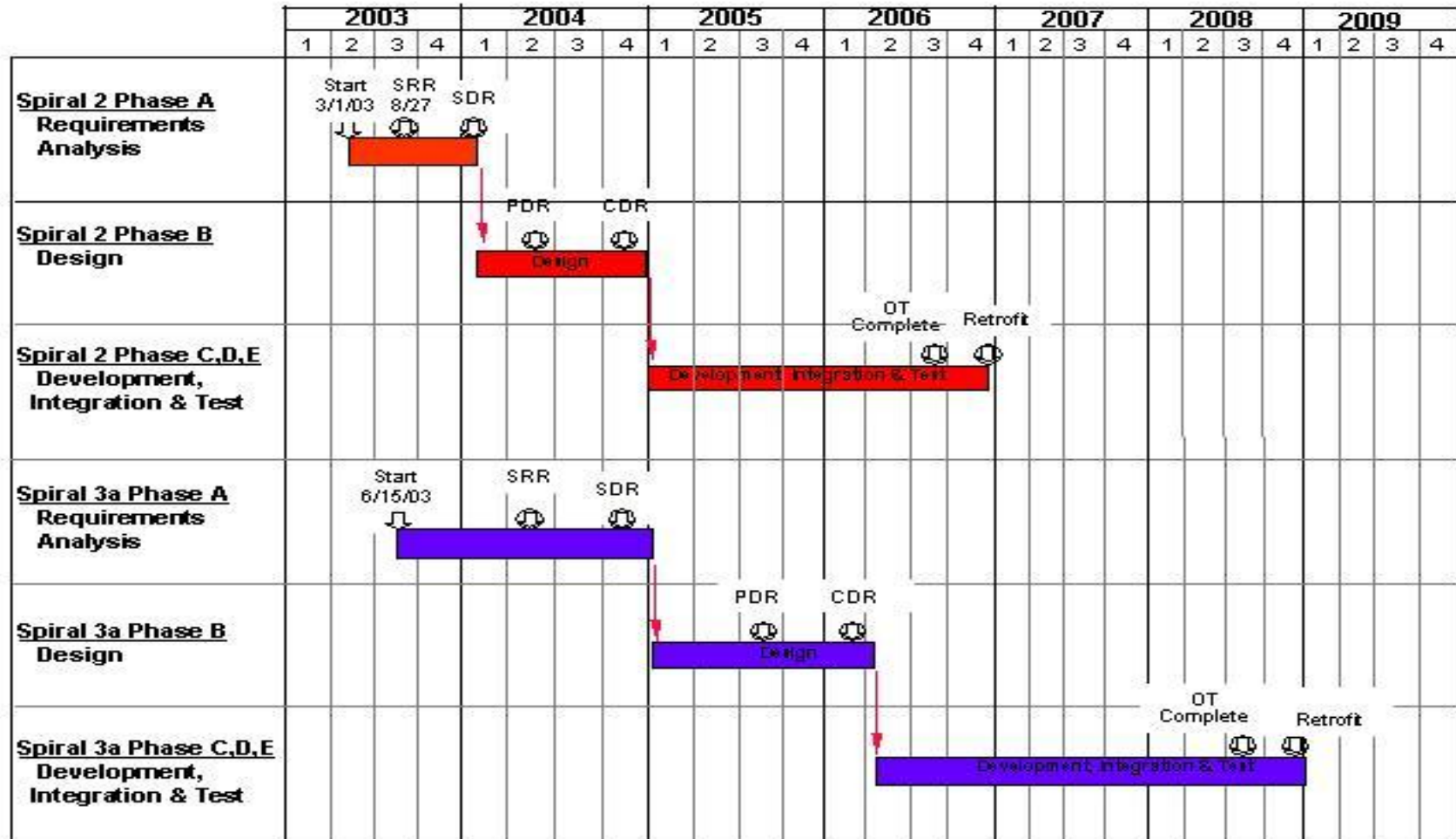
February 2004

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0207138F F-22 SQUADRONS

PROJECT NUMBER AND TITLE
4785 F-22

F/A-22 Modernization Schedule



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Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2004

BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207138F F-22 SQUADRONS	PROJECT NUMBER AND TITLE 4785 F-22
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(U) Schedule Profile	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Initiate Spiral 2 Phase A (Requirements Analysis)	2Q		
(U) Initiate Spiral 2 Phase B (Design)		2Q	
(U) -- Spiral 2 PDR		3Q	
(U) -- Spiral 2 CDR			1Q
(U) Initiate Spiral 2 Phase C, D & E (Development, Integration & Test)			2Q
(U) Initiate Spiral 3a Phase A (Requirements Analysis)	3Q		
(U) -- Spiral 3a SRR		3Q	
(U) -- Spiral 3a SDR			1Q
(U) Initiate Spiral 3a Phase B (Design)			2Q
(U) -- Spiral 3a PDR			3Q

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207141F F-117A SQUADRON
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Cost (\$ in Millions)	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
Total Program Element (PE) Cost	3.710	14.627	29.661	56.914	46.925	31.560	1.633	Continuing	TBD
3956 F-117A Stealth Fighter	3.710	14.627	29.661	56.914	46.925	31.560	1.633	Continuing	TBD

(U) **A. Mission Description and Budget Item Justification**

NOTE: In FY 2005, Weapon System Trainer (WST) Image Generation System, Mission Planning System (MPS) Hardware Upgrade and Modify Flight Test Assets to Conform with Current Modifications of Operational Aircraft are New Start efforts.

The F-117 is the world's first operational low-observable (LO) combat aircraft. Its combination of stealth and precision weapons delivery capability allows the United States Air Force to hold even the most highly defended targets at risk. The program completed production in Jul 1990 with the delivery of the final F-117 (number 59). The single operational F-117 unit is the 49th Fighter Wing stationed at Holloman AFB, NM. The program is now primarily engaged in modernization and sustainment activities for the F-117, which is projected to remain in service through at least 2018.

This project provides research and development funding for multiple modifications to the F-117 weapon system to enhance combat capability while improving safety, reliability and supportability. The MIL-STD-1760 Stores Management Processor (SMP) modification, which completed development in May 01, is an essential prerequisite for integration of advanced weapons on the F-117. Development efforts continue for smart weapons integration. The current program implements full three weapons capability to include EGBU-27, JDAM and WCMD. System Development & Demonstration (SDD) started in FY01.

The Combat Capability Sustainment Program (CCSP) replaces obsolete avionics systems, establishes new vendors and improves reliability and maintainability to keep the F-117 operational through its service life. CCSP began Concept & Technology Development (CTD) in FY00 with Congressional Add funding. Beginning in FY2004, System Development & Demonstration (SDD) starts for Expanded Data Transfer System (EDTS) and Brooklyn Bridge. EDTS is the system that allows data to be transferred from the mission planning environment to the aircraft for operations. The Brooklyn Bridge consists of the F-117 outboard elevon actuator support structure.

The F-117 WST requires a replacement for the imagery computer/image generation (IG) system. The vendor of the current system, SGI no longer manufactures replacement boards for the IG computer. Furthermore, the vendor no longer supports the current maintenance contract. Recently, the IG contributed 80% of the total WST downtime. The downtime impact will likely continue and even increase in severity.

The F-117 Mission Planning System (MPS) requires an operational system upgrade. The National Imaging and Mapping Agency (NIMA) is migrating to DVD format for all mapping database operations and the F-117 MPS operating system cannot be modified to function with this capability. Additionally, the current MPS Solaris operating system and Sybase database product are no longer supported by the Air Force Mission Support System (AFMSS) program office. These obsolescence issues drive the requirement for both hardware and software upgrades.

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2004

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207141F F-117A SQUADRON

Modify flight test assets to conform with current modifications of operational jets.

This program is in budget activity 7, Operational System Development, because all aircraft have been delivered and the program is in its deployment phase.

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	3.417	14.752	31.539
(U) Current PBR/President's Budget	3.710	14.627	29.661
(U) Total Adjustments	0.293	-0.125	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.125	
Congressional Increases			
Reprogrammings	0.394		
SBIR/STTR Transfer	-0.101		
(U) <u>Significant Program Changes:</u>			

Exhibit R-2a, RDT&E Project Justification

DATE

February 2004

BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT NUMBER AND TITLE			
07 Operational System Development				0207141F F-117A SQUADRON			3956 F-117A Stealth Fighter			
Cost (\$ in Millions)	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	
3956 F-117A Stealth Fighter	3.710	14.627	29.661	56.914	46.925	31.560	1.633	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

(U) A. Mission Description and Budget Item Justification

NOTE: In FY 2005, Weapon System Trainer (WST) Image Generation System, Mission Planning System (MPS) Hardware Upgrade and Modify Flight Test Assets to Conform with Current Modifications of Operational Aircraft are New Start efforts.

The F-117 is the world's first operational low-observable (LO) combat aircraft. Its combination of stealth and precision weapons delivery capability allows the United States Air Force to hold even the most highly defended targets at risk. The program completed production in Jul 1990 with the delivery of the final F-117 (number 59). The single operational F-117 unit is the 49th Fighter Wing stationed at Holloman AFB, NM. The program is now primarily engaged in modernization and sustainment activities for the F-117, which is projected to remain in service through at least 2018.

This project provides research and development funding for multiple modifications to the F-117 weapon system to enhance combat capability while improving safety, reliability and supportability. The MIL-STD-1760 Stores Management Processor (SMP) modification, which completed development in May 01, is an essential prerequisite for integration of advanced weapons on the F-117. Development efforts continue for smart weapons integration. The current program implements full three weapons capability to include EGBU-27, JDAM and WCMD. System Development & Demonstration (SDD) started in FY01.

The Combat Capability Sustainment Program (CCSP) replaces obsolete avionics systems, establishes new vendors and improves reliability and maintainability to keep the F-117 operational through its service life. CCSP began Concept & Technology Development (CTD) in FY00 with Congressional Add funding. Beginning in FY2004, System Development & Demonstration (SDD) starts for Expanded Data Transfer System (EDTS) and Brooklyn Bridge. EDTS is the system that allows data to be transferred from the mission planning environment to the aircraft for operations. The Brooklyn Bridge consists of the F-117 outboard elevon actuator support structure.

The F-117 WST requires a replacement for the imagery computer/image generation (IG) system. The vendor of the current system, SGI no longer manufactures replacement boards for the IG computer. Furthermore, the vendor no longer supports the current maintenance contract. Recently, the IG contributed 80% of the total WST downtime. The downtime impact will likely continue and even increase in severity.

The F-117 Mission Planning System (MPS) requires an operational system upgrade. The National Imaging and Mapping Agency (NIMA) is migrating to DVD format for all mapping database operations and the F-117 MPS operating system cannot be modified to function with this capability. Additionally, the current MPS Solaris operating system and Sybase database product are no longer supported by the Air Force Mission Support System (AFMSS) program office. These obsolescence issues drive the requirement for both hardware and software upgrades.

Modify flight test assets to conform with current modifications of operational jets.

Exhibit R-2a, RDT&E Project Justification

DATE

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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207141F F-117A SQUADRON	PROJECT NUMBER AND TITLE 3956 F-117A Stealth Fighter
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This program is in budget activity 7, Operational System Development, because all aircraft have been delivered and the program is in its deployment phase.

(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments/Planned Program	0.000	0.000	0.000
(U) Continue SDD for Smart Weapons Integration	3.710	9.773	13.066
(U) Initiate SDD for CCSP Expanded Data Transfer System (EDTS)		4.634	
(U) Initiate SDD for Brooklyn Bridge		0.220	
(U) Continue SDD for CCSP Expanded Data Transfer System (EDTS)			6.519
(U) Continue Concept Technology and Development (CTD) for CCSP			2.745
(U) Initiate SDD for Weapon System Trainer (WST) Image Generation System			2.917
(U) Initiate Mission Planning System (MPS) HW Upgrade			3.414
(U) Modify flight test assets to conform with current modifications of operational jets			1.000
(U) Total Cost	3.710	14.627	29.661

(U) <u>C. Other Program Funding Summary (\$ in Millions)</u>									
	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Other APPN									
(U) Aircraft Procurement (BA-5), Appn 3010/BP1100, AF F117A Squadrons, PE 27141F	21.853	16.665	13.323	18.223	21.334	83.952	78.190	Continuing	TBD
(U) Aircraft Procurement (BA-5), Appn 3010/BP1200, AF F117A Squadrons, PE 27141F		3.821						Continuing	TBD
(U) Aircraft Procurement (BA-5), Appn 3010/BP1600, AF F117A Squadrons, PE 27141F	0.000	0.000	1.045	0.000	0.000	2.692	2.744	Continuing	TBD

(U) D. Acquisition Strategy
RDT&E funds are executed to develop improved capability, reliability, maintenance and safety modifications. Operational Flight Program (OFP) software is continuously updated as needed to complement modification development efforts. The contracting approach varies by individual effort and involves Cost Plus Fixed Fee (CPFF) and Cost Plus Award Fee (CPAF) contract types.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2004

BUDGET ACTIVITY			PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
07 Operational System Development			0207141F F-117A SQUADRON					3956 F-117A Stealth Fighter				
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u> Prior to FY 2003 Cost	<u>FY</u> 2003 Cost	<u>FY</u> 2003 Award Date	<u>FY</u> 2004 Cost	<u>FY</u> 2004 Award Date	<u>FY</u> 2005 Cost	<u>FY</u> 2005 Award Date	<u>Cost to Complete</u>	<u>Total</u> Cost	<u>Target</u> Value of Contract
<u>(U) Product Development</u>												
Smart Weapon Integration SDD	CPAF	Lockheed Martin, Palmdale CA	3.744	3.710	Apr-00	9.773		13.066		Continuing	TBD	
CCSP CTD	CPFF	Lockheed Martin, Palmdale CA	7.284	0.000		0.000		2.745	Jan-05	Continuing	TBD	
CCSP EDTS SDD	CPFF	Lockheed Martin, Palmdale CA	0.000	0.000		4.634	Jan-04	6.519		Continuing	TBD	
Brooklyn Bridge SDD	CPFF	Lockheed Martin, Palmdale CA	0.000	0.000		0.220	Dec-03	0.000		0.000	0.220	
SDD Weapon System Trianer Image Generation Sys Upgrd	CPFF	Lockheed Martin, Palmdale CA	0.000	0.000		0.000		2.917	Jan-05	Continuing	TBD	
SDD Mission Planning System, Operating System Upgrade	CPFF	Lockheed Martin, Palmdale CA	0.000	0.000		0.000		3.414	Jan-05	Continuing	TBD	
Modify flight test assets to conform with current modifications of operational jets	CPFF	Lockheed Martin, Palmdale CA	0.000	0.000		0.000		1.000	Jan-05		1.000	
Subtotal Product Development			11.028	3.710		14.627		29.661		Continuing	TBD	0.000
Remarks:												
<u>(U) Support</u>												0.000
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Test & Evaluation</u>												0.000
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Management</u>												0.000
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Total Cost</u>			11.028	3.710		14.627		29.661		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207141F F-117A SQUADRON

PROJECT NUMBER AND TITLE

3956 F-117A Stealth Fighter

F-117A Stealth Fighter Investment Program	APPR	FY03	FY04	FY05	FY06	FY07	FY08	FY09
Smart Weapons Integration	3600	Cont.	Cont.	Cont.	Cont.	Cont.		
CCSP Pre-SDD (CTD Phase 1 Jun 00-Dec 03)	3600	Cont.						
CCSP SDD (EDTS)	3600		2Q	Cont.				
Brooklyn Bridge SDD	3600		2Q					
CCSP Pre-SDD (CTD Phase II Continue)	3600			2Q	Cont.			
CCSP SDD	3600					2Q	Cont.	Cont.
SDD for WST	3600			2Q	Cont.	Cont.		
SDD for MPS OS/HW Upgrade	3600			2Q	Cont.			
Modify Right Test Assets	3600			2Q				

Exhibit R-4a, RDT&E Schedule Detail

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207141F F-117A SQUADRON

PROJECT NUMBER AND TITLE

3956 F-117A Stealth Fighter

(U) <u>Schedule Profile</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Smart Weapons Integ Critical Design Review (CDR) (May 03)	3Q		
(U) CCSP Pre-SDD (CTD Phase 1 Jun 00-Dec 03)		1Q	
(U) CCSP SDD (EDTS Jan 04 - Sep 05)		2Q	
(U) Brooklyn Bridge SDD (Dec 03 - Sep 04)		1Q	
(U) Continue CTD for CCSP			2Q
(U) Initiate SDD for WST			2Q
(U) InitiateSDD for MPS			2Q
(U) Modify flight test assets to conform with current modifications of operational jets			2Q

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PE NUMBER: 0207161F
 PE TITLE: Tactical AIM Missiles

Exhibit R-2, RDT&E Budget Item Justification								DATE February 2004	
BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0207161F Tactical AIM Missiles					
Cost (\$ in Millions)	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
Total Program Element (PE) Cost	2.785	0.372	5.558	15.004	5.543	5.631	5.719	Continuing	TBD
4132 AIM-9 Product Improvement	2.785	0.372	5.558	15.004	5.543	5.631	5.719	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

The AIM-9X is a long-term evolution of the AIM-9 series of fielded air-to-air missiles. The AIM-9X (Sidewinder) short range air-to-air missile program provides a launch and leave, air combat munition that uses passive infrared (IR) energy for acquisition and tracking of enemy aircraft and complements the Advanced Medium Range Air-to-Air Missile (AMRAAM). Air superiority in the short range air-to-air missile arena is essential and includes first-shot, first-kill opportunity against an enemy employing IR countermeasures. The AIM-9X employs several components common to the AIM-9M. Anti-Tamper features are being incorporated to protect improvements inherent in AIM-9X design. AIM-9X is an Acquisition Category IC (ACAT IC) joint-service program with Navy lead. As a natural course of program evolution, pre-planned product improvements (P3I) and software updates are being done to meet evolving threats and warfighter requirements.

Acquisition Decision Memorandum (ADM) for LRIP II & III was signed in November 2001. Due to delays in IOT&E completion, the program requested and was granted authorization to change the first production lot (Lot 4) to the fourth LRIP lot. ADM for LRIP IV was signed in August 2003. The joint flight test program completed 18 unguided and 22 guided launches proving revolutionary capabilities well beyond the fielded AIM-9M. Operational Test (OT) completed November 2003. Milestone C (FRP) decision is scheduled for 2ndQtrFY04.

The program is currently in budget activity 7 - Operational System Development because it modifies an existing weapon system.

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	2.912	0.375	5.573
(U) Current PBR/President's Budget	2.785	0.372	5.558
(U) Total Adjustments	-0.127	-0.003	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.003	
Congressional Increases			
Reprogrammings	-0.047		
SBIR/STTR Transfer	-0.080		
(U) <u>Significant Program Changes:</u>			
None.			

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Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development					PE NUMBER AND TITLE 0207161F Tactical AIM Missiles			PROJECT NUMBER AND TITLE 4132 AIM-9 Product Improvement		
Cost (\$ in Millions)		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
4132	AIM-9 Product Improvement	2.785	0.372	5.558	15.004	5.543	5.631	5.719	Continuing	TBD
	Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The AIM-9X is a long-term evolution of the AIM-9 series of fielded air-to-air missiles. The AIM-9X (Sidewinder) short range air-to-air missile program provides a launch and leave, air combat munition that uses passive infrared (IR) energy for acquisition and tracking of enemy aircraft and complements the Advanced Medium Range Air-to-Air Missile (AMRAAM). Air superiority in the short range air-to-air missile arena is essential and includes first-shot, first-kill opportunity against an enemy employing IR countermeasures. The AIM-9X employs several components common to the AIM-9M. Anti-Tamper features are being incorporated to protect improvements inherent in AIM-9X design. AIM-9X is an Acquisition Category IC (ACAT IC) joint-service program with Navy lead. As a natural course of program evolution, pre-planned product improvements (P3I) and software updates are being done to meet evolving threats and warfighter requirements.

Acquisition Decision Memorandum (ADM) for LRIP II & III was signed in November 2001. Due to delays in IOT&E completion, the program requested and was granted authorization to change the first production lot (Lot 4) to the fourth LRIP lot. ADM for LRIP IV was signed in August 2003. The joint flight test program completed 18 unguided and 22 guided launches proving revolutionary capabilities well beyond the fielded AIM-9M. Operational Test (OT) completed November 2003. Milestone C (FRP) decision is scheduled for 2ndQtrFY04.

The program is currently in budget activity 7 - Operational System Development because it modifies an existing weapon system.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments/Planned Program	0.000	0.000	0.000
(U) Continue the EMD contract to include correction of deficiencies found in OT, and EMD contract completion activities	1.680	0.000	0.000
(U) Continue providing government flight test support of activities defined as DT Assist (with operational testers) at multiple test sites	0.537	0.000	0.000
(U) Field engineering support for government flight test activities	0.368	0.000	2.100
(U) Provide program office management support to include supplies and travel	0.118	0.077	0.148
(U) Provide for consulting services, technical engineering, and management support	0.082	0.000	0.100
(U) Continue correcting deficiencies found in OT	0.000	0.211	0.000
(U) Field engineering support for correction of deficiencies found in OT	0.000	0.084	0.800
(U) Start P3I activities and software updates	0.000	0.000	2.410
(U) Total Cost	2.785	0.372	5.558

Exhibit R-2a, RDT&E Project Justification

DATE

February 2004

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207161F Tactical AIM Missiles

PROJECT NUMBER AND TITLE

4132 AIM-9 Product Improvement

(U) C. Other Program Funding Summary (\$ in Millions)(U) D. Acquisition Strategy

After a full and open competition, a Cost Plus Incentive Fee/Award Fee contract was awarded to Hughes Missile Systems Company (now Raytheon Systems Corp (RSC)) to complete missile system development and prepare for production. This EMD contract included three Fixed Price options for Low Rate Initial Production (LRIP) Lots 1, 2, and 3. Per an ADM signed in May 2003, FRP Lot 4 was changed to LRIP 4 which was exercised in Nov 2003. FRP decision, with advice from the Air Force Acquisition Executive, is scheduled for 2ndQFY04. FRP Lots 5 through 7 contracts will be Firm Fixed-Price (FFP) with incentives provided if the contractor meets or beats his Procurement Price Commitment Curve (PPCC), a quantity price curve provided by RSC with the EMD proposal.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2004

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
07 Operational System Development				0207161F Tactical AIM Missiles				4132 AIM-9 Product Improvement				
(U) <u>Cost Categories</u>	<u>Contract Method</u>	<u>Performing Activity &</u>	<u>Total</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to</u>	<u>Total</u>	<u>Target</u>
(Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>& Type</u>	<u>Location</u>	<u>Prior to FY</u>	<u>2003</u>	<u>2003</u>	<u>2004</u>	<u>2004</u>	<u>2005</u>	<u>2005</u>	<u>Complete</u>	<u>Cost</u>	<u>Value of</u>
			<u>2003</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>			<u>Contract</u>
			<u>Cost</u>		<u>Date</u>		<u>Date</u>		<u>Date</u>			
(U) <u>Product Development</u>												
Hughes	C/CPIF		5.694							0.000	5.694	
Raytheon	C/CPIF		5.695							0.000	5.695	
Raytheon	C/CPIF		83.855	1.680	Nov-02					Continuing	TBD	
Boeing	C/CPIF		16.107								16.107	
Engineering Services	Various		14.162					2.410		Continuing	TBD	
Program Management*	PO		8.300							Continuing	TBD	
N/A	N/A		0.000							0.000	0.000	
Subtotal Product Development			133.813	1.680		0.000		2.410		Continuing	TBD	0.000
Remarks:	Note*: Based on a Memorandum of Agreement, RDT&E program costs includes Navy PMA working capital funded personnel funded at 50%/50% ratio per Service.											
(U) <u>Support</u>												
Various Contracts	FFP		1.811	0.118	Nov-02	0.077	Nov-03	0.148		Continuing	TBD	
N/A	N/A		0.000							0.000	0.000	
Subtotal Support			1.811	0.118		0.077		0.148		Continuing	TBD	0.000
Remarks:												
(U) <u>Test & Evaluation</u>												
Field Activities	PO		12.235	0.905	Nov-02	0.084	Nov-03	2.900		Continuing	TBD	
N/A	N/A		0.000							0.000	0.000	
Subtotal Test & Evaluation			12.235	0.905		0.084		2.900		Continuing	TBD	0.000
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.082	Nov-02	0.211	Nov-03	0.100			0.393	0.000
Remarks:												
(U) Total Cost			147.859	2.785		0.372		5.558		Continuing	TBD	0.000

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207161F Tactical AIM Missiles	PROJECT NUMBER AND TITLE 4132 AIM-9 Product Improvement
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	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <u>Schedule Profile</u>			
(U) LRIP 3 Award	1Q		
(U) LRIP 4 Decision	4Q		
(U) LRIP 4 Award		1Q	
(U) RAA/IOC		2Q	
(U) Milestone 3		2Q	
(U) FRP Award (Lots 5-7)			1Q

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PE NUMBER: 0207163F

PE TITLE: Advanced Medium Range Air-to-Air Missile

Exhibit R-2, RDT&E Budget Item Justification								DATE February 2004	
BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0207163F Advanced Medium Range Air-to-Air Missile					
Cost (\$ in Millions)	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
Total Program Element (PE) Cost	39.334	32.154	33.266	35.155	36.131	36.709	37.276	Continuing	TBD
3777 AMRAAM	39.334	32.154	33.266	35.155	36.131	36.709	37.276	Continuing	TBD

(U) **A. Mission Description and Budget Item Justification**

The Air Force and Navy developed the baseline Advanced Medium Range Air-to-Air Missile (AMRAAM) as a high performance, all weather missile to counter existing air vehicle threats operating at high or low altitude and having advanced Electronic Protection (EP) capabilities. The AMRAAM Pre-Planned Product Improvement (P3I) program provides for a continuing, Joint Air Force/Navy research and development program which enables AMRAAM to: (1) be compatible with advanced fighters, (2) enhance AMRAAM capability and operational flexibility against 2005 and beyond threats, (3) incorporate high payoff technology developments, and (4) investigate new variants and/or alternate missions which may use many baseline missile attributes. Currently, improvements under the P3I program include enhanced electronic protection (EP) and electronic attack (EA) capabilities; improved weapon effectiveness through improved fuzing, guidance, and increased kinematics. AMRAAM is a joint Air Force/Navy, Acquisition Category (ACAT) IC program with Air Force as lead service.

This program is in budget activity 7 - Operational System Development, providing upgrades to the AIM-120C missile currently in production.

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	35.537	32.429	33.353
(U) Current PBR/President's Budget	39.334	32.154	33.266
(U) Total Adjustments	3.797	-0.275	
(U) Congressional Program Reductions		-0.275	
Congressional Rescissions			
Congressional Increases			
Reprogrammings	3.970		
SBIR/STTR Transfer	-0.173		
(U) <u>Significant Program Changes:</u>			

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0207163F Advanced Medium Range Air-to-Air Missile			PROJECT NUMBER AND TITLE 3777 AMRAAM		
Cost (\$ in Millions)	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
3777 AMRAAM	39.334	32.154	33.266	35.155	36.131	36.709	37.276	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The Air Force and Navy developed the baseline Advanced Medium Range Air-to-Air Missile (AMRAAM) as a high performance, all weather missile to counter existing air vehicle threats operating at high or low altitude and having advanced Electronic Protection (EP) capabilities. The AMRAAM Pre-Planned Product Improvement (P3I) program provides for a continuing, Joint Air Force/Navy research and development program which enables AMRAAM to: (1) be compatible with advanced fighters, (2) enhance AMRAAM capability and operational flexibility against 2005 and beyond threats, (3) incorporate high payoff technology developments, and (4) investigate new variants and/or alternate missions which may use many baseline missile attributes. Currently, improvements under the P3I program include enhanced electronic protection (EP) and electronic attack (EA) capabilities; improved weapon effectiveness through improved fuzing, guidance, and increased kinematics. AMRAAM is a joint Air Force/Navy, Acquisition Category (ACAT) IC program with Air Force as lead service.

This program is in budget activity 7 - Operational System Development, providing upgrades to the AIM-120C missile currently in production.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Complete P3I Phase 3 improved seeker and advanced EP updates: Perform tasks required to complete EMD testing and verification.	36.482	2.382	
(U) Continue to execute Phase 3 Software Upgrade.	2.500	4.500	5.000
(U) Continue mission support: Provide program management to execute Phase 3 program	0.327	1.361	1.397
(U) Continue test and evaluation: Provide Test Wing support to DOT&E testing	0.025	0.880	1.490
(U) Phase 3 Follow-On (which has been renamed Phase 4): Continue effort to complete qualification of the P3I Phase 4 missile design. Contract was awarded on Dec, 03.		23.031	25.379
(U) Total Cost	39.334	32.154	33.266

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u> <u>Actual</u>	<u>FY 2004</u> <u>Estimate</u>	<u>FY 2005</u> <u>Estimate</u>	<u>FY 2006</u> <u>Estimate</u>	<u>FY 2007</u> <u>Estimate</u>	<u>FY 2008</u> <u>Estimate</u>	<u>FY 2009</u> <u>Estimate</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) Missile Procurement, Budget Activity #2, PE 0207163F, P-1 Line Item, AMRAAM	84.924	104.465	107.354	104.858	102.117	103.568	106.178	0.000	6,946.948
(U) Replenishment Spares, BP25 and Missile Replacement Equipment	0.240	0.188	0.269	0.193	0.193	0.195	0.201	0.000	61.436

Exhibit R-2a, RDT&E Project Justification

DATE

February 2004

BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207163F Advanced Medium Range Air-to-Air Missile	PROJECT NUMBER AND TITLE 3777 AMRAAM
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(U) C. Other Program Funding Summary (\$ in Millions)

(U) Initial Spares, BP26	0.089	0.072	0.072	0.072	0.072	0.072	0.074	0.000	62.322
(U) Seek Eagle	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.607

(U) D. Acquisition Strategy

The AMRAAM Pre-Planned Product Improvement (P3I) program takes advantage of emerging technologies to update and expand the system capabilities to meet new user requirements. The Phase 1 missile allows internal carriage on the F-22 and JSF with clipped wings and fins as well as providing some software enhancements. The Phase 2 AIM-120 C4 missile adds a new warhead which increases lethality and the AIM-120 C5 missile has a +5 inch rocket motor for kinematic improvements. The first Phase 2 AIM-120 C4 missile was delivered in Aug of FY99. The Phase 2 AIM-120 C5 missiles started delivery in Jul of FY00. The Phase 3 missile is the first major upgrade to the seeker hardware and software to meet performance requirements for the FY04 and out time-period. The Phase 3 Cost Plus Award Fee EMD contract was awarded in Oct FY99. This missile will begin deliveries in FY04. Phase 4, awarded Dec 03, is intended to meet the Operational Requirements Document (ORD) requirement to evolve the AMRAAM for improved High-Off-Boresight (HOBS), kinematics, and electronic protection capabilities. The Missile Performance Specification (MPS) and Interface Control Document (ICD) will define the requirement to integrate the Phase 4 AMRAAM onto the F/A-22.

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207163F Advanced Medium Range Air-to-Air Missile	PROJECT NUMBER AND TITLE 3777 AMRAAM
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(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u> Prior to FY 2003 Cost	<u>FY</u> 2003 Cost	<u>FY</u> 2003 Award	<u>FY</u> 2004 Cost	<u>FY</u> 2004 Award	<u>FY</u> 2005 Cost	<u>FY</u> 2005 Award	<u>Cost to Complete</u>	<u>Total</u> Cost	<u>Target</u> Value of Contract
(U) <u>Product Development</u>												
Misc. Contracts	SS/FFP		12.726	1.066		0.600	Mar-04	0.060		5.656	20.108	20.108
F08635-90-C-0201 Hughes	SS/FFP	Hughes	5.200							0.000	5.200	5.200
F08626-91-C-0034 Hughes	SS/CPIF	Hughes	93.506							0.000	93.506	93.506
F08626-93-C-0044 (Phase 2) Hughes	SS/CPAF	Hughes	117.558							0.000	117.558	117.558
Phase 3 Risk Reduction	SS/CPAF	Raytheon Systems	24.484							0.000	24.484	24.484
Phase 3 Improved Fuzing Capability	SS/CPAF	Raytheon	3.937							0.000	3.937	3.937
Phase 3 Improved Seeker and Advanced EP. Raytheon F08626-98-C-0027	SS/CPAF	DCMA Raytheon, Tucson	169.957	35.416	Oct-02	2.382	Dec-03			0.000	207.755	214.137
Phase 3 Software Upgrade	SS/CPAF	DCMA Raytheon, Tucson	0.000	2.500	Jun-03	4.500	May-04	5.000		0.000	12.000	12.000
Phase 4 Contract FA8675-04-C-0001	SS/CPAF	DCMA Raytheon, Tucson	0.000			22.431	Dec-03	25.319	Feb-06	20.188	67.938	62.725
Phase 4 EMD Follow-On Contract	SS/CPAF		0.000							108.553	108.553	108.553
Subtotal Product Development			427.368	38.982		29.913		30.379		134.397	661.039	662.208
Remarks: *Note: Hughes became part of Raytheon Systems effective Dec 97												
(U) <u>Support</u>												
COEA	PO/MIPR		3.358							0.000	3.358	2.358
Contractor Support	REO/PR		18.780			0.741	Sep-03	0.778	Sep-04	2.849	23.148	23.148
JSPO Operations	PR/IMPAC		19.808	0.327		0.620		0.619		2.508	23.882	23.882
Not Applicable											0.000	
Subtotal Support			41.946	0.327		1.361		1.397		5.357	50.388	49.388
Remarks:												
(U) <u>Test & Evaluation</u>												
Government Test	REO/MIPR		34.921	0.025		0.880		1.490		5.517	42.833	42.833
TM/ECM Pods	REO/MIPR		2.818							0.000	2.818	2.818
Subtotal Test & Evaluation			37.739	0.025		0.880		1.490		5.517	45.651	45.651
Remarks:												
(U) <u>Management</u>												

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Exhibit R-3, RDT&E Project Cost Analysis	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207163F Advanced Medium Range Air-to-Air Missile	PROJECT NUMBER AND TITLE 3777 AMRAAM
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		0.000
Subtotal Management	0.000 0.000 0.000	0.000 0.000 0.000
Remarks:		
(U) Total Cost	507.053 39.334 32.154	33.266 145.271 757.078 757.247

Exhibit R-4, RDT&E Schedule Profile

DATE
February 2004

BUDGET ACTIVITY
07 Operational System Development

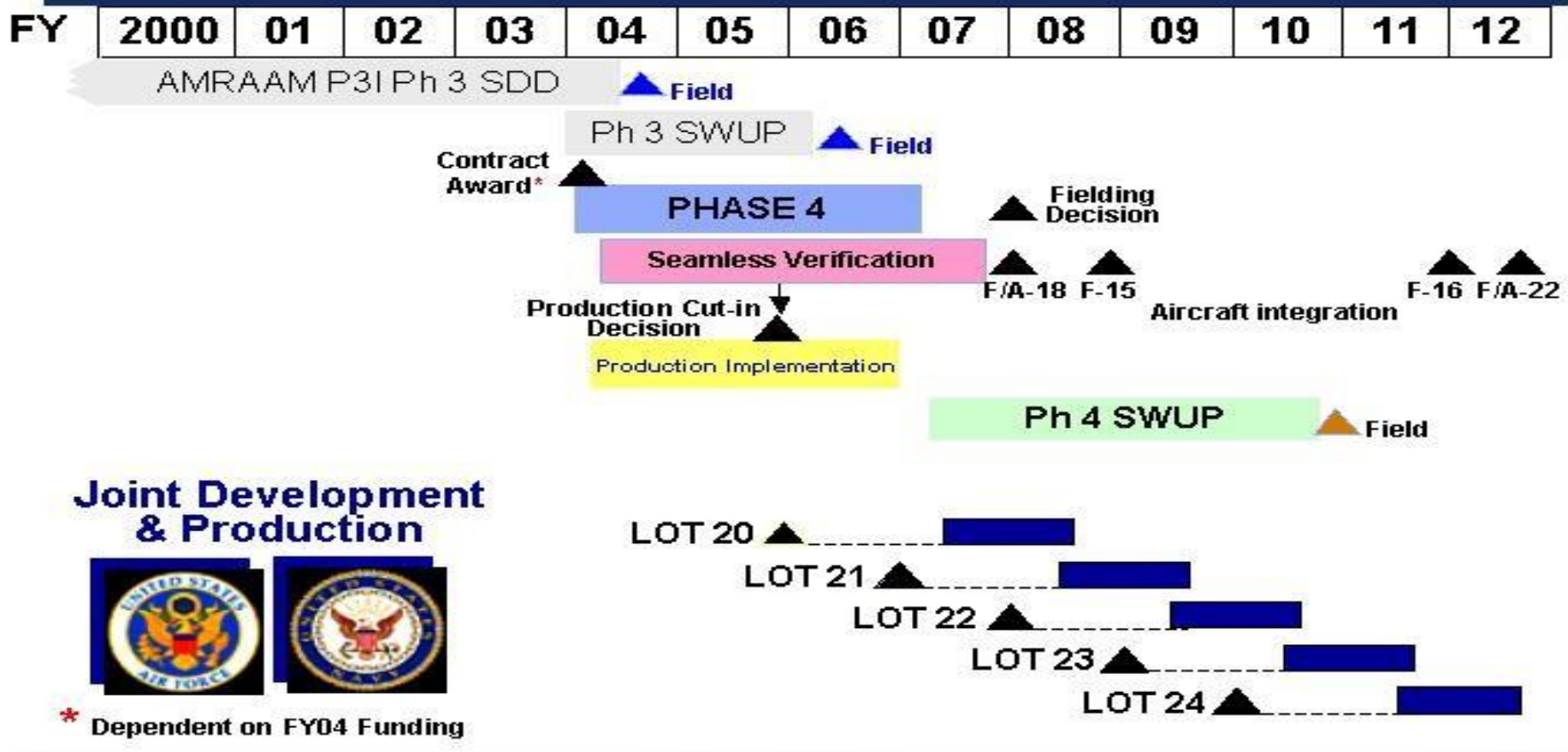
PE NUMBER AND TITLE
0207163F Advanced Medium Range
Air-to-Air Missile

PROJECT NUMBER AND TITLE
3777 AMRAAM

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Phase 4 Program Schedule



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Exhibit R-4a, RDT&E Schedule Detail		DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207163F Advanced Medium Range Air-to-Air Missile	PROJECT NUMBER AND TITLE 3777 AMRAAM
--	--	---

(U) <u>Schedule Profile</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) P3I Phase 3 Seeker Critical Design Review (CDR)	4Q		
(U) P3I Phase 3 ACE Flights Complete		1Q	
(U) P3I Phase 3 Test Readiness Review (TRR)	1Q		
(U) P3I Phase 3 Functional Configuration Audit (FCA)	4Q		
(U) P3I Phase 3 Program Complete		1Q	
(U) P3I Phase 3 Software Upgrade Award	2Q		
(U) P3I Phase 4 Contract Award		1Q	
(U) POD 1st Delivery			1Q
(U) Development Test			2Q

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PE NUMBER: 0207224F
 PE TITLE: COMBAT RESCUE AND RECOVERY

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207224F COMBAT RESCUE AND RECOVERY
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Cost (\$ in Millions)	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
Total Program Element (PE) Cost	0.000	0.000	12.342	139.934	288.865	293.287	328.453	Continuing	TBD
4992 Family of Interoperable Operational Pictures (FIOP)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5125 Personnel Recovery Vehicle	0.000	0.000	12.342	139.934	288.865	293.287	328.453	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

The Personnel Recovery Vehicle (PRV) is the follow-on rescue vehicle to the HH-60G. The PRV is tasked with recovering downed aircrew members and other isolated personnel during war. It is also tasked to perform rescue operations in Military Operations Other Than War (MOOTW), to include civil search and rescue, emergency aeromedical evacuation, disaster relief, international aid, noncombatant evacuation operations, counter-drug operations, and space shuttle support.

The PRV will provide Personnel Recovery (PR) forces with a medium-lift vertical take-off and landing aircraft that is quickly deployable and capable of main base and austere location operations for worldwide PR missions. The PRV will be capable of operating in all environmental regions of the globe (e.g., arctic, desert, mountainous, littoral, tropical, etc.), day or night during adverse weather conditions, and in a variety of spectrums of warfare to include passing through Nuclear, Biological, and Chemical (NBC) environments. On-board defensive capabilities will permit the PRV to operate in an increased threat environment. An in-flight refueling capability will provide an airborne alert capability and extend its combat mission range. The aircraft will be self-supporting to the maximum extent practical.

This RDT&E funding is required for the development of two Test Vehicles (TV) and the design, integration, testing and certification of PRV mission components required by the Operational Requirements Document.

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	0.000	0.000	13.377
(U) Current PBR/President's Budget	0.000	0.000	12.342
(U) Total Adjustments	0.000	0.000	
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			

Exhibit R-2a, RDT&E Project Justification

DATE
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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0207224F COMBAT RESCUE AND RECOVERY			PROJECT NUMBER AND TITLE 5125 Personnel Recovery Vehicle			
Cost (\$ in Millions)	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	
5125 Personnel Recovery Vehicle	0.000	0.000	12.342	139.934	288.865	293.287	328.453	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	2	0	0	0			

(U) A. Mission Description and Budget Item Justification

The Personnel Recovery Vehicle (PRV) is the follow-on rescue vehicle to the HH-60G. The PRV is tasked with recovering downed aircrew members and other isolated personnel during war. It is also tasked to perform rescue operations in Military Operations Other Than War (MOOTW), to include civil search and rescue, emergency aeromedical evacuation, disaster relief, international aid, noncombatant evacuation operations, counter-drug operations, and space shuttle support.

The PRV will provide Personnel Recovery (PR) forces with a medium-lift vertical take-off and landing aircraft that is quickly deployable and capable of main base and austere location operations for worldwide PR missions. The PRV will be capable of operating in all environmental regions of the globe (e.g., arctic, desert, mountainous, littoral, tropical, etc.), day or night during adverse weather conditions, and in a variety of spectrums of warfare to include passing through Nuclear, Biological, and Chemical (NBC) environments. On-board defensive capabilities will permit the PRV to operate in an increased threat environment. An in-flight refueling capability will provide an airborne alert capability and extend its combat mission range. The aircraft will be self-supporting to the maximum extent practical.

This RDT&E funding is required for the development of two Test Vehicles (TV) and the design, integration, testing and certification of PRV mission components required by the Operational Requirements Document.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) SPO support in development of test and evaluation master plan, acquisition strategy, preparation of Milestone B (MS B) documentation and development of request for proposals.			3.500
(U) Propulsion Development			8.792
(U) Test and Evaluation Planning			0.050
(U) Total Cost	0.000	0.000	12.342

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) 3010 BP10 AP, PE 27224							35.635		TBD

(U) D. Acquisition Strategy

Request for proposals (RFP) to be released in FY05. Competitive source selection and contract award to be completed in FY06. Spiral development of PRV is anticipated. Test articles to be delivered in FY08. Milestone C and low-rate initial production decision is expected in FY10. Production aircraft deliveries start in FY12 with initial operational capability (IOC) expected in FY14.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2004

BUDGET ACTIVITY		PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE				
07 Operational System Development		0207224F COMBAT RESCUE AND RECOVERY						5125 Personnel Recovery Vehicle				
(U) <u>Cost Categories</u>	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2003 Cost</u>	<u>FY 2003 Cost</u>	<u>FY 2003 Award Date</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(Tailor to WBS, or System/Item Requirements) (\$ in Millions)												
(U) <u>Product Development</u>	TBD							8.792		Continuing	TBD	
Subtotal Product Development			0.000	0.000		0.000		8.792		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>	TBD							2.000		Continuing	TBD	
Subtotal Support			0.000	0.000		0.000		2.000		Continuing	TBD	0.000
Remarks:												
(U) <u>Test & Evaluation</u>	TBD							0.050		Continuing	TBD	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.050		Continuing	TBD	0.000
Remarks:												
(U) <u>Management</u>	TBD							1.500		Continuing	TBD	
Subtotal Management			0.000	0.000		0.000		1.500		Continuing	TBD	0.000
Remarks:												
(U) Total Cost			0.000	0.000		0.000		12.342		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

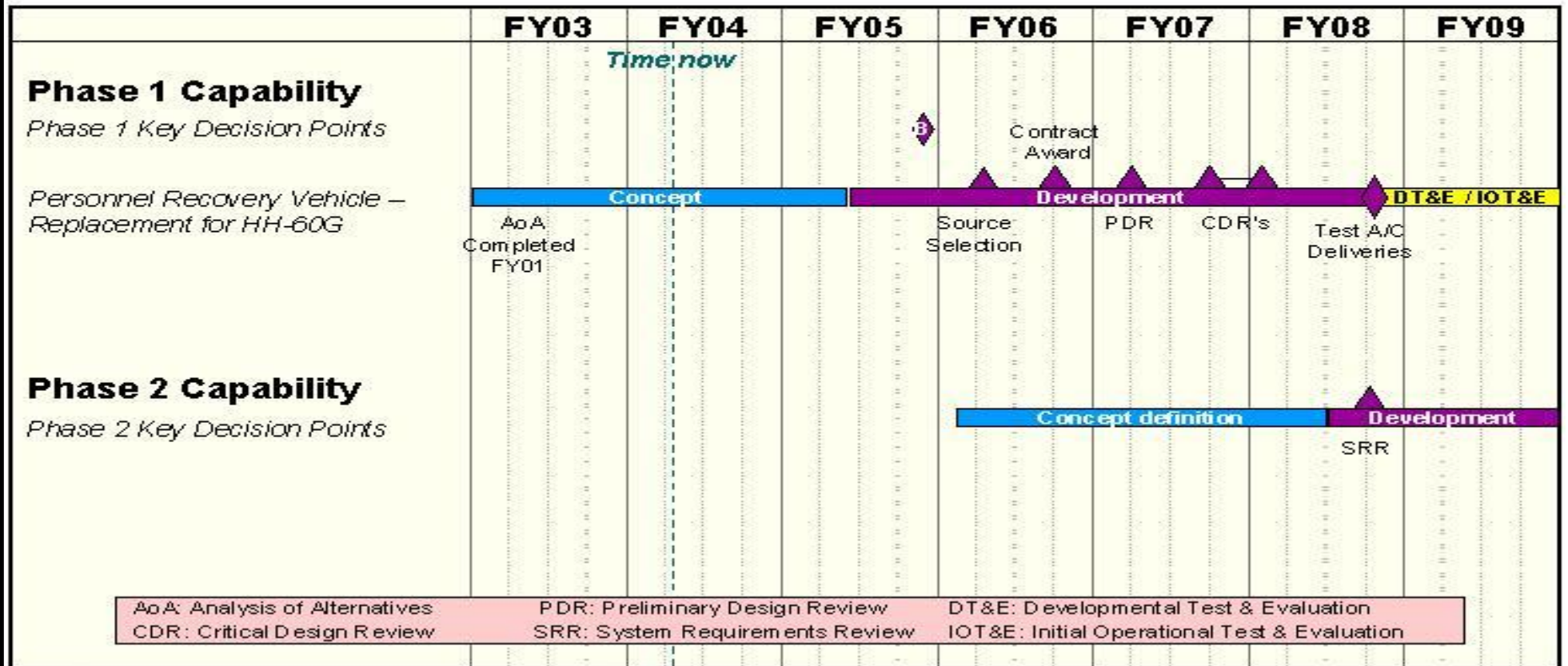
February 2004

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0207224F COMBAT RESCUE AND RECOVERY

PROJECT NUMBER AND TITLE
5125 Personnel Recovery Vehicle

PRV Schedule



- Concept activities
- Design / development
- Integration / test
- Production / fielding
- Operations / Sustainment
- Key events

Exhibit R-4a, RDT&E Schedule Detail

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207224F COMBAT RESCUE AND RECOVERY

PROJECT NUMBER AND TITLE

5125 Personnel Recovery Vehicle

(U) Schedule Profile

FY 2003

FY 2004

FY 2005

(U) Develop RFP

3Q

(U) Develop Acquisition Strategy

2Q

(U) Propulsion Development

4Q

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PE NUMBER: 0207247F
 PE TITLE: Air Force TENCAP

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207247F Air Force TENCAP
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Cost (\$ in Millions)	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
Total Program Element (PE) Cost	14.157	18.818	10.673	10.771	10.962	11.138	11.310	Continuing	TBD
0001 Air Force TENCAP	14.157	18.818	10.673	10.771	10.962	11.138	11.310	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

The Air Force Tactical Exploitation of National Capabilities (AF TENCAP) program was established in 1977 per Congressional direction and is a non-traditional acquisition program. AF TENCAP pursues seamless integration of space systems capabilities into military operations for tactical use by warfighters, expediting improvements to Air Force combat capabilities through rapid-prototyping projects, operational concept demonstrations, and transitions to the warfighter customer. Additionally, AF TENCAP-developed equipment is deployed in support of real-world contingency operations.

AF TENCAP leverages investments in space systems for tactical warfighter use in three ways:

- 1) Exploiting existing space systems for tactical applications, conceiving and demonstrating capabilities to exploit these systems through rapid-prototyping projects.
- 2) Influencing the design and operation of new space systems for warfighters by advocating tactical applications and missions for them (in the form of analyses and integration of space systems into roadmaps and architectures for Air Force weapons and Command, Control, Communications, Computers, Intelligence [C4I] systems).
- 3) Supporting education and training of operational forces in emerging space/space-related technologies and concepts, as well as education of national providers about operational user requirements and environments, through participation in combat and contingency operations, exercises, and project demonstrations.

AF TENCAP efforts described in the individual years FY 2003, FY 2004, and FY 2005 are categorized by project status containing the start, continuation and completion of one-to-two-year projects which are then transitioned to the user. This process is reflected in the Schedule Profile (R-4).

This program is in Budget Activity 7, Operational System Development, due to its efforts supporting fielded units.

Exhibit R-2, RDT&E Budget Item Justification

DATE

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207247F Air Force TENCAP

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	15.066	10.479	10.701
(U) Current PBR/President's Budget	14.157	18.818	10.673
(U) Total Adjustments	-0.909	8.339	
(U) Congressional Program Reductions		-0.161	
Congressional Rescissions			
Congressional Increases		8.500	
Reprogrammings			
SBIR/STTR Transfer	-0.909		

(U) **Significant Program Changes:**

Significant Program Changes (funding, schedule, and/or technical parameter): In FY04, funds were added to continue development of the Global Positioning System (GPS) Jammer Detection and Location (JLOC) and the Finding Obscured Ground objects using Laser Imaging of the Target (FOGLITE) projects.

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0207247F Air Force TENCAP			PROJECT NUMBER AND TITLE 0001 Air Force TENCAP		
Cost (\$ in Millions)	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
0001 Air Force TENCAP	14.157	18.818	10.673	10.771	10.962	11.138	11.310	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The Air Force Tactical Exploitation of National Capabilities (AF TENCAP) program was established in 1977 per Congressional direction and is a non-traditional acquisition program. AF TENCAP pursues seamless integration of space systems capabilities into military operations for tactical use by warfighters, expediting improvements to Air Force combat capabilities through rapid-prototyping projects, operational concept demonstrations, and transitions to the warfighter customer. Additionally, AF TENCAP-developed equipment is deployed in support of real-world contingency operations.

AF TENCAP leverages investments in space systems for tactical warfighter use in three ways:

- 1) Exploiting existing space systems for tactical applications, conceiving and demonstrating capabilities to exploit these systems through rapid-prototyping projects.
- 2) Influencing the design and operation of new space systems for warfighters by advocating tactical applications and missions for them (in the form of analyses and integration of space systems into roadmaps and architectures for Air Force weapons and Command, Control, Communications, Computers, Intelligence [C4I] systems).
- 3) Supporting education and training of operational forces in emerging space/space-related technologies and concepts, as well as education of national providers about operational user requirements and environments, through participation in combat and contingency operations, exercises, and project demonstrations.

AF TENCAP efforts described in the individual years FY 2003, FY 2004, and FY 2005 are categorized by project status containing the start, continuation and completion of one-to-two-year projects which are then transitioned to the user. This process is reflected in the Schedule Profile (R-4).

This program is in Budget Activity 7, Operational System Development, due to its efforts supporting fielded units.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Exploit existing space systems for tactical applications through one-two year rapid-prototyping projects (addresses critical short-term warfighter needs and provides tactical applications to supply otherwise unavailable capabilities); identify, advocate, and influence the design and operation of future space systems for tactical applications and missions; support education and training of operational forces by conducting specialized training that enhances education of warfighters about the capabilities and tactical utility of national systems	8.319	9.945	10.293
(U) Complete GPS Jammer detection and location system (GPS-JLOC)	2.763	3.000	0.000
(U) Complete adverse weather imaging system (FOGLITE)	1.658	5.500	0.000
(U) Completed transition of AF TENCAP concept demonstrations to operational units/acquisition agency (transitioned to O&M under Space Warfare Center)	0.786	0.000	0.000
(U) Provide program support and other government support	0.631	0.373	0.380

Project 0001

R-1 Shopping List - Item No. 135-4 of 135-8

Exhibit R-2a (PE 0207247F)

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Exhibit R-2a, RDT&E Project Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207247F Air Force TENCAP	PROJECT NUMBER AND TITLE 0001 Air Force TENCAP
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(U) Total Cost	14.157	18.818	10.673
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(U) **C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
Other APPN									
Other Procurement, Air Force									
(U) funding in 'Intelligence	0.184	0.193	0.196	0.199	0.204	0.208	0.213	Continuing	TBD
Communications Equipment,'									
WSC 832070, P-47									

(U) **D. Acquisition Strategy**

The AF TENCAP acquisition strategy utilizes a wide variety of solicitation/contract vehicles, to include, but not limited to, Broad Agency Announcement (BAA), General Services Administration (GSA), Cost Plus Fixed Fee (CPFF) and/or Cost Plus Award Fee (CPAF) contracts with Indefinite Delivery/Indefinite Quantity (IDIQ) contracts and existing vehicles typically available to AF TENCAP. Theater MAJCOM mission area plan (MAP) deficiencies provide the requirements for AF TENCAP development projects. Each project must correct a MAP deficiency or deficiencies and be approved by the Space Warfare Center (SWC) Strategic Planning Process. In addition, theater MAJCOMs must be willing to assume future acquisition and logistics responsibilities, and budget for projects in their Program Objective Memorandum submissions.

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
07 Operational System Development				0207247F Air Force TENCAP				0001 Air Force TENCAP				
<u>(U) Cost Categories</u>	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to</u>	<u>Total</u>	<u>Target</u>
(Tailor to WBS, or System/Item Requirements) (\$ in Millions)			<u>Prior to FY</u>	<u>2003</u>	<u>2003</u>	<u>2004</u>	<u>2004</u>	<u>2005</u>	<u>2005</u>	<u>Complete</u>	<u>Cost</u>	<u>Value of</u>
			<u>2003</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>			<u>Contract</u>
			<u>Cost</u>		<u>Date</u>		<u>Date</u>		<u>Date</u>			
<u>(U) Product Development</u>												
Exploiting existing space systems; influencing future systems; supporting education and training	C/CPAF	* EADDS II Contract	10.079	2.640	Dec-02	0.000		0.000		0.000	12.719	
FOGLITE	***	General Atomics, CA	1.395	1.942	Jan-03	5.500	Feb-04	0.000		0.000	8.837	
GPS JLOC	FFP	NAVSYS, CO	1.963	2.711	Mar-03	3.000	Feb-04	0.000		0.000	7.674	
Exploiting existing space systems; influencing future systems; supporting education and training	****Various	Various	32.909	6.233	Dec-02	9.945	Jan-04	10.293	Jan-05	Continuing	TBD	
		*****									0.000	
Subtotal Product Development			46.346	13.526		18.445		10.293		Continuing	TBD	0.000
Remarks:	*Science Applications International Corporation (SAIC), Computer Science Corporation (CSC), and SPARTA (a group of small businesses) are the prime contractors for the Engineering Analysis Design & Development II contract that served as the AF TENCAP primary contract vehicle through FY2003.											
	***Funds obligated on a classified Big Safari contract.											
	****Multiple contracts determined on annual basis in accordance with acquisition strategy and new Broad Area Announcement processes.											
<u>(U) Support</u>												
Program Oversight	Various		5.508	0.631	Dec-02	0.373	Dec-03	0.380	Dec-04	Continuing	TBD	
Subtotal Support			5.508	0.631		0.373		0.380		Continuing	TBD	0.000
Remarks:												
<u>(U) Test & Evaluation</u>												
Not Applicable											0.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Management</u>												
Not Applicable											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Total Cost</u>			51.854	14.157		18.818		10.673		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

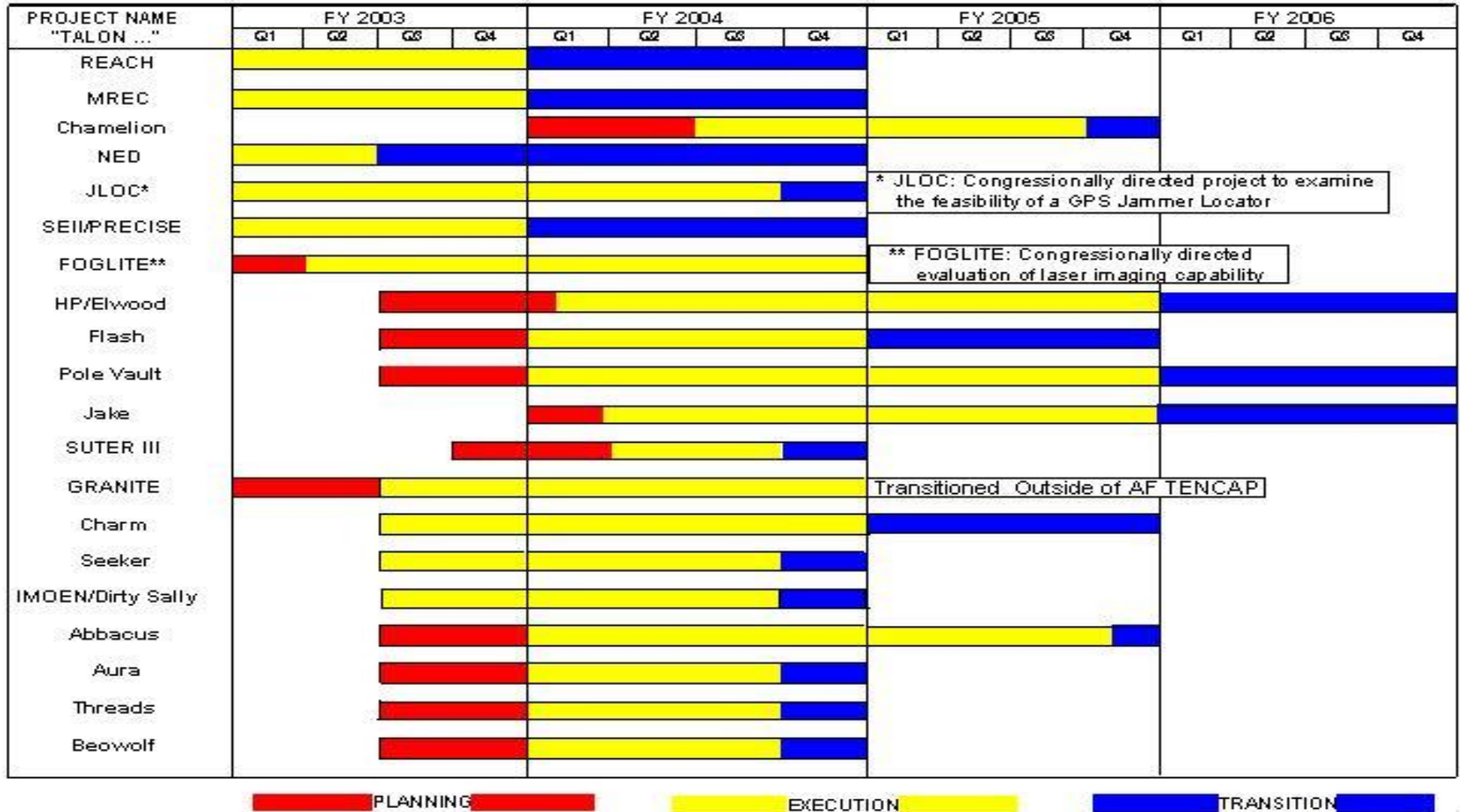
DATE

February 2004

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0207247F Air Force TENCAP

PROJECT NUMBER AND TITLE
0001 Air Force TENCAP



UNCLASSIFIED

Exhibit R-4a, RDT&E Schedule Detail

DATE

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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207247F Air Force TENCAP	PROJECT NUMBER AND TITLE 0001 Air Force TENCAP
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(U) <u>Schedule Profile</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) FY 2003 Projects Evaluated and Approved	1Q		
(U) FY 2003 Projects Authorized to Proceed	1-2Q		
(U) FY 2004 Projects Identified	2Q		
(U) Contractor Proposals for FY 2004 Projects	3Q		
(U) FY 2004 Projects Evaluated and Approved	4Q		
(U) FY 2004 Projects Authorized to Proceed		1-2Q	
(U) FY 2005 Projects Identified		2-3Q	
(U) Contractor Proposals for FY 2005		3Q	
(U) FY 2005 Projects Evaluated and Approved		4Q	
(U) FY 2005 Projects Authorized to Proceed			1-2Q
(U) FY 2006 Projects Identified			2-3Q
(U) Contractor Proposals for FY 2006			3Q
(U) FY 2006 Projects Evaluated and Approved			4Q

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Exhibit R-2, RDT&E Budget Item Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207253F Compass Call
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Cost (\$ in Millions)	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
Total Program Element (PE) Cost	8.786	8.706	3.990	4.845	4.983	0.000	0.000	0.000	0.000
4804 Compass Call	8.786	8.706	3.990	4.845	4.983	0.000	0.000	0.000	0.000

(U) **A. Mission Description and Budget Item Justification**

COMPASS CALL is the USAF's airborne wide area coverage offensive counter information system. It denies, disrupts, degrades and deceives adversary voice and data communications, disrupting their ability to effectively command and control forces in the field. Although COMPASS CALL has been a fielded, operational capability since 1983, it continues to evolve and adapt to counter the constantly changing adversary tactical communications. Most recently, this is reflected in a shift from traditional military communication systems to an increasing reliance on commercial/civil capabilities.

The development to be accomplished by these funds center around the direct incorporation of advanced capabilities into the operational system to include Block 20, Block 30, Block 35 and related integration, testing, training, simulation and deploying systems. The evolution of the adversary threat requires developmental investments in a wide range of activities and ancillary subsystems. These activities include significant effort in the development and operational fielding of the Tactical Radio Acquisition and Countermeasures Subsystem (TRACS) which represents the next evolutionary capability increase in receiver/countermeasure effectivity for COMPASS CALL. Activities are also required in the related areas of human-machine interfaces, software, testing and integration, signals analysis, systems engineering integration, countermeasure development for the evolving threat, mission planning, Concept of Operations (CONOPS) development and program planning for the production of subsystems and capabilities. RDT&E articles for FY00-04 include TRACS engineering and manufacturing development units necessary for this system to evolve to counter emerging threats as well as other subsystems to counter the evolving threats.

This program is categorized as Budget Activity 7 because it provides for development of technologies and capabilities in support of operational system development.

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	3.877	3.790	0.000
(U) Current PBR/President's Budget	8.786	8.706	3.990
(U) Total Adjustments	4.909	4.916	
(U) Congressional Program Reductions	-0.100	-0.010	
Congressional Rescissions		-0.074	
Congressional Increases	5.500	5.000	
Reprogrammings	-0.038		
SBIR/STTR Transfer	-0.453		

(U) **Significant Program Changes:**

Air Force added funds for FY05 to continue Block 35 enhancements.

Exhibit R-2a, RDT&E Project Justification

DATE

February 2004

BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT NUMBER AND TITLE			
07 Operational System Development				0207253F Compass Call			4804 Compass Call			
Cost (\$ in Millions)	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	
4804 Compass Call	8.786	8.706	3.990	4.845	4.983	0.000	0.000	0.000	0.000	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

(U) A. Mission Description and Budget Item Justification

COMPASS CALL is the USAF's airborne wide area coverage offensive counter information system. It denies, disrupts, degrades and deceives adversary voice and data communications, disrupting their ability to effectively command and control forces in the field. Although COMPASS CALL has been a fielded, operational capability since 1983, it continues to evolve and adapt to counter the constantly changing adversary tactical communications. Most recently, this is reflected in a shift from traditional military communication systems to an increasing reliance on commercial/civil capabilities.

The development to be accomplished by these funds center around the direct incorporation of advanced capabilities into the operational system to include Block 20, Block 30, Block 35 and related integration, testing, training, simulation and deploying systems. The evolution of the adversary threat requires developmental investments in a wide range of activities and ancillary subsystems. These activities include significant effort in the development and operational fielding of the Tactical Radio Acquisition and Countermeasures Subsystem (TRACS) which represents the next evolutionary capability increase in receiver/countermeasure effectivity for COMPASS CALL. Activities are also required in the related areas of human-machine interfaces, software, testing and integration, signals analysis, systems engineering integration, countermeasure development for the evolving threat, mission planning, Concept of Operations (CONOPS) development and program planning for the production of subsystems and capabilities. RDT&E articles for FY00-04 include TRACS engineering and manufacturing development units necessary for this system to evolve to counter emerging threats as well as other subsystems to counter the evolving threats.

This program is categorized as Budget Activity 7 because it provides for development of technologies and capabilities in support of operational system development.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments/Planned Program	0.000	0.000	
(U) Develops and integrates classified capabilities using new technologies against emerging/evolving C3I threats	7.386		
(U) System Engineering and Integration, Ground and Flight Test	1.400		
(U) Systems Engineering, development, integration, and test of classified capabilities (to include subsystems added by Congress) such as TRACS, Analysis, and Special Purpose Emitter Array (SPEAR)		8.706	3.990
(U) Total Cost	8.786	8.706	3.990

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u> <u>Actual</u>	<u>FY 2004</u> <u>Estimate</u>	<u>FY 2005</u> <u>Estimate</u>	<u>FY 2006</u> <u>Estimate</u>	<u>FY 2007</u> <u>Estimate</u>	<u>FY 2008</u> <u>Estimate</u>	<u>FY 2009</u> <u>Estimate</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) PE 0207253F, Aircraft Modification (3010)	37.614	16.402	20.880	16.915	15.143	18.060	18.439		TBD
(U) PE 0207253F, Aircraft Initial	13.295	10.519	12.171	13.963	14.243	14.909	15.221		TBD

Exhibit R-2a, RDT&E Project Justification

DATE

February 2004

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207253F Compass Call

PROJECT NUMBER AND TITLE

4804 Compass Call

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

Spares (3010)

(U)	PE 0207253F, Other Charges (3010)	34.735	31.057	TBD
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(U)	PE 0207253F, Support Equipment, (3010)	0.262	0.254	TBD
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(U) **D. Acquisition Strategy**

Managed by BIG SAFARI program office. Program employs multiple contracting strategies.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2004

BUDGET ACTIVITY			PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
07 Operational System Development			0207253F Compass Call					4804 Compass Call				
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
<u>(U) Product Development</u>												
BAE Systems	MIPR/PO	BAE Systems, Nashua NH	11.892	7.386		8.706		3.990		Continuing	TBD	
Subtotal Product Development			11.892	7.386		8.706		3.990		Continuing	TBD	0.000
Remarks:												
<u>(U) Test & Evaluation</u>												
Electronic Proving Grounds (EPG)	MIPR/PO	EPG, Ft Huachuca AZ		1.400							1.400	
Subtotal Test & Evaluation			0.000	1.400		0.000		0.000		0.000	1.400	0.000
Remarks:												
<u>(U) Total Cost</u>			11.892	8.786		8.706		3.990		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE
February 2004

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0207253F Compass Call

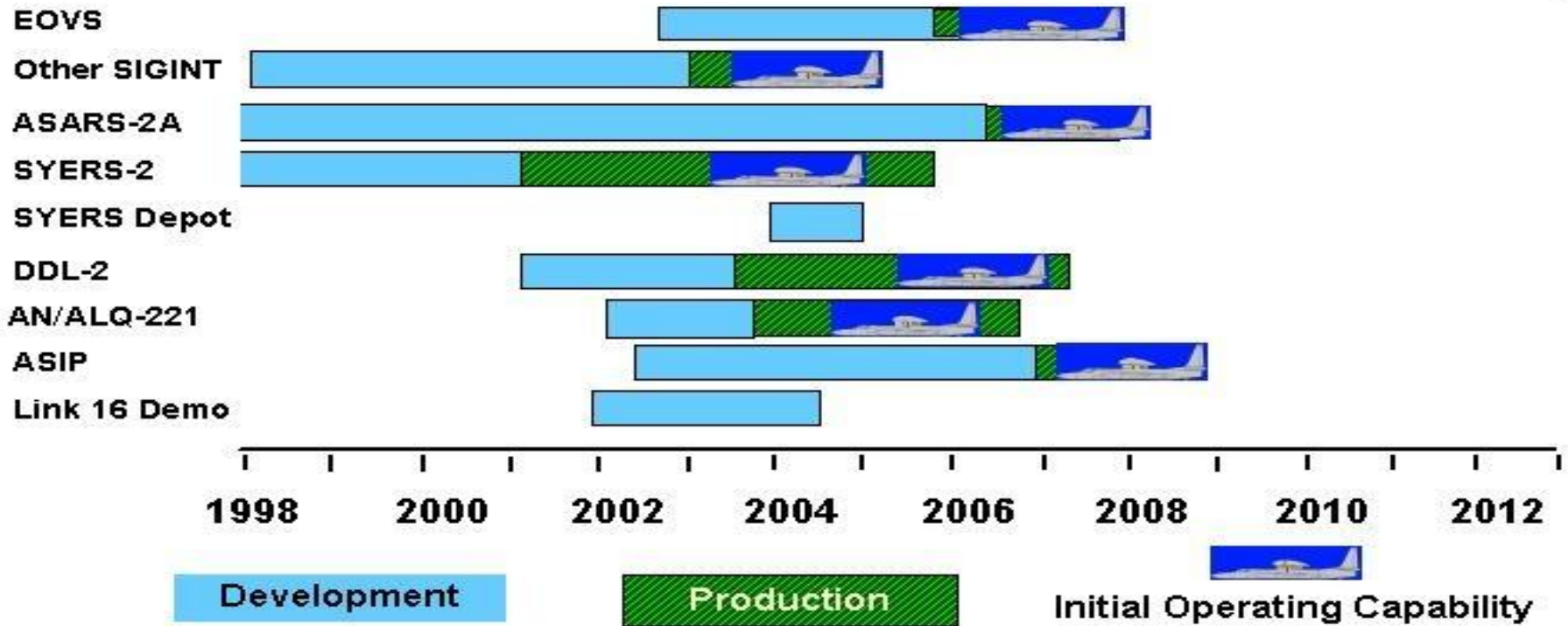
PROJECT NUMBER AND TITLE
4804 Compass Call



U.S. AIR FORCE

U-2

OUTYEARS



Development

Production

Initial Operating Capability

Integrity - Service - Excellence

Exhibit R-4, RDT&E Schedule Profile

DATE

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BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0207253F Compass Call

PROJECT NUMBER AND TITLE
4804 Compass Call

Compass Call PDM/Mod 2 Year

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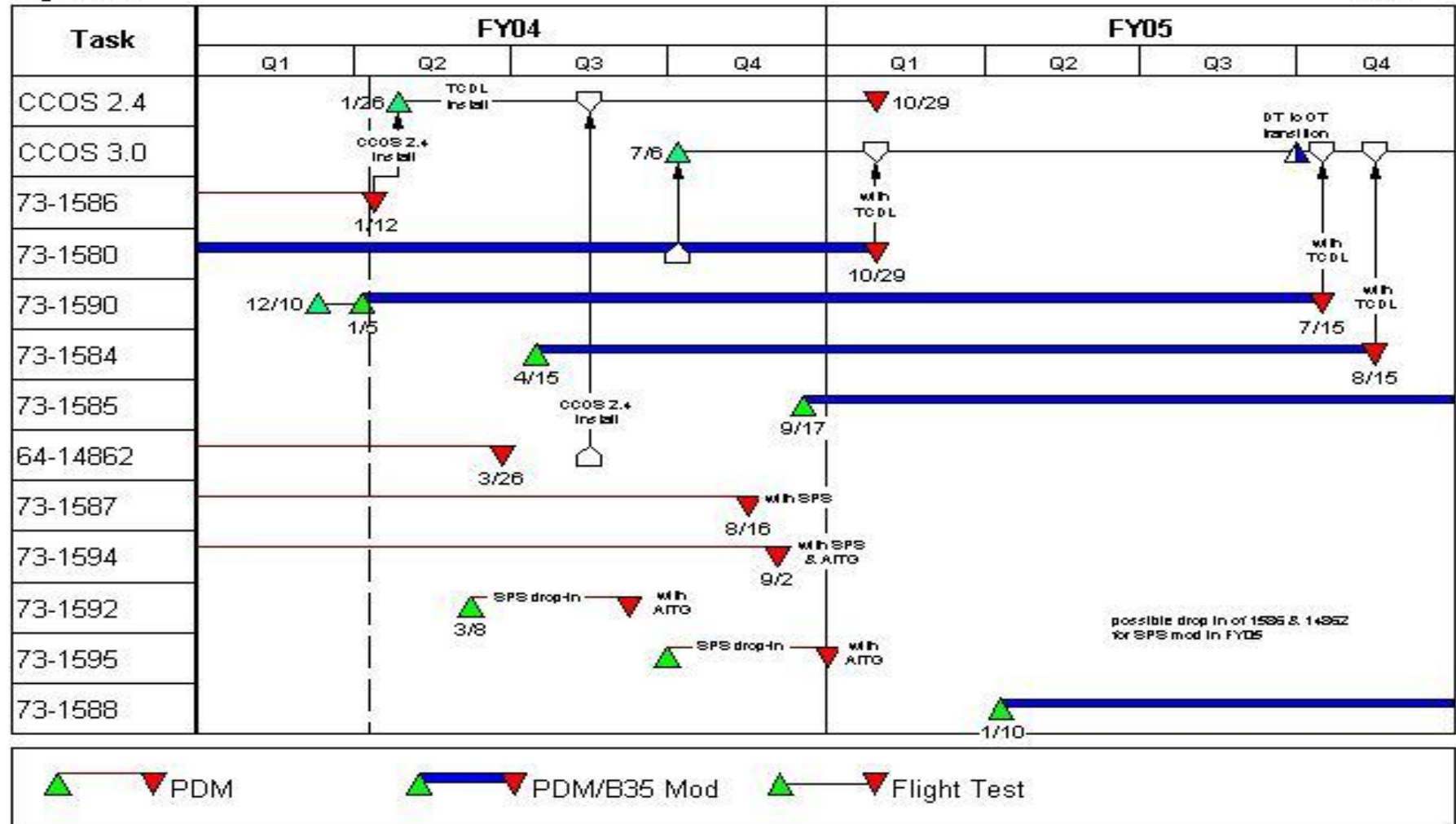


Exhibit R-4, RDT&E Schedule Profile

DATE

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BUDGET ACTIVITY
07 Operational System Development

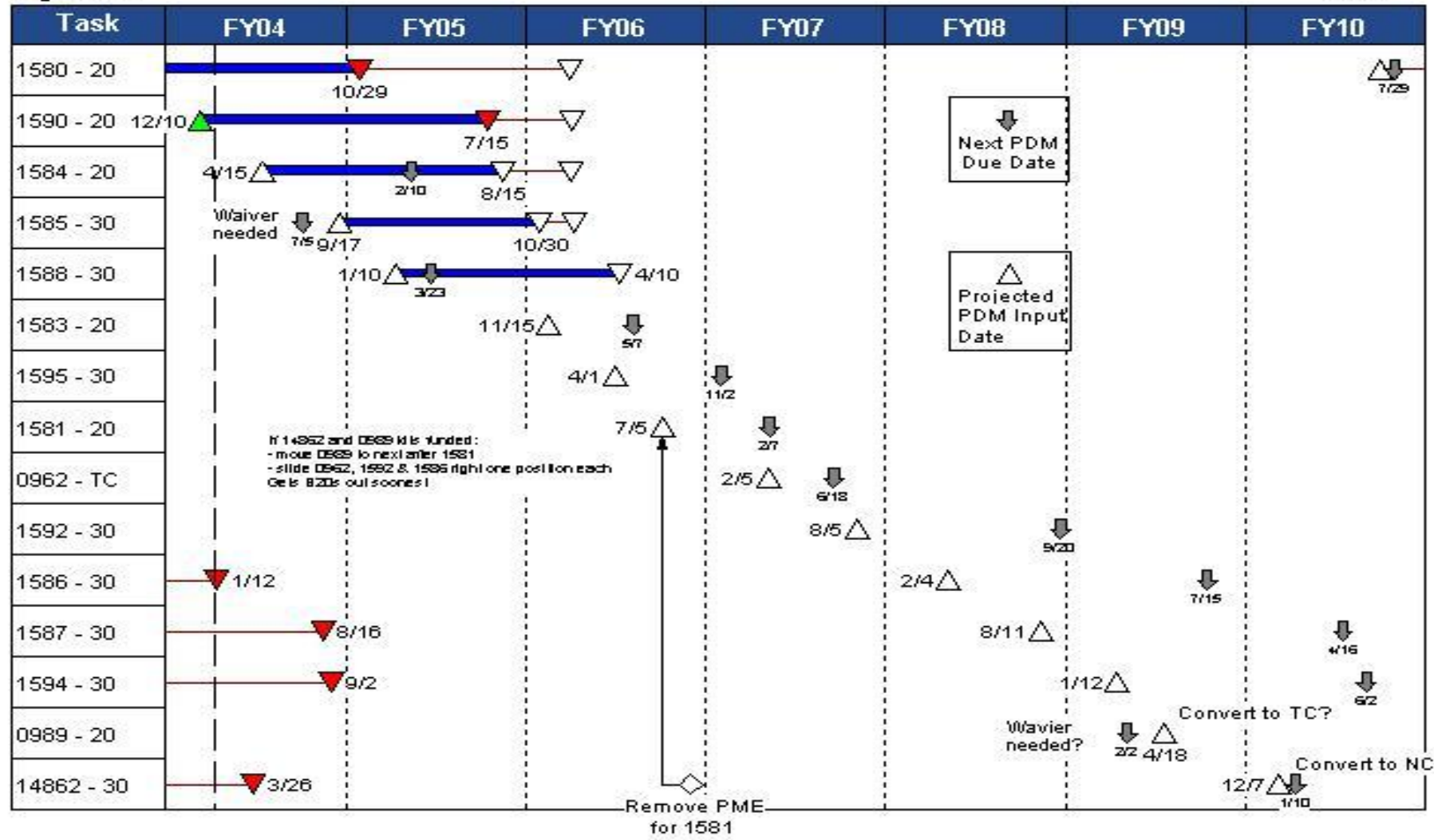
PE NUMBER AND TITLE
0207253F Compass Call

PROJECT NUMBER AND TITLE
4804 Compass Call

Block 35 Upgrade Schedule

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207253F Compass Call	PROJECT NUMBER AND TITLE 4804 Compass Call
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	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <u>Schedule Profile</u>			
(U) TRACS-F Spiral Upgrade	2Q		
(U) TRACS-F Ground Test		3Q	
(U) TRACS-F Flight Test			3Q

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PE NUMBER: 0207268F

PE TITLE: Aircraft Engine Component Improvement Program (CIP)

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207268F Aircraft Engine Component Improvement Program (CIP)
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Cost (\$ in Millions)	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
Total Program Element (PE) Cost	174.205	178.582	165.609	186.996	166.113	170.572	175.265	Continuing	TBD
1012 Aircraft Engine Component Improvement Program	174.205	178.582	165.609	186.996	166.113	170.572	175.265	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

The Aircraft Engine Component Improvement Program (CIP) provides the only source of critical sustaining engineering support for in-service Air Force engines throughout their service life. The program's highest priority is to maintain flight safety. Engine CIP corrects service revealed deficiencies and reduces total ownership costs (RTOC). Additional goals include improved system Operational Readiness (OR) and Reliability and Maintainability (R&M). Historically, aircraft systems change missions, tactics, and environments to meet changing threats throughout their lives. Numerous new problems can develop in the engines through actual use and Engine CIP provides the only funds to develop fixes for these field problems. Engine CIP funding is driven by field events and types/maturity of engines, not by the total engine quantity. Engine CIP starts with delivery of the first production engine purchased with procurement funds, and continues over the engine's life, gradually decreasing to a minimum level (safety/depot repairs) sufficient to keep older inventory engines operational. Engine CIP addresses out-of-warranty usage and life and enables the Air Force to obtain additional warranties when manufacturers incorporate Engine CIP improvements into production engines. Since operational and safety problems arise throughout a system's service life, Engine CIP must be maintained at a level to provide the engineering support to make the changes essential for continued satisfactory system performance at affordable costs. Engine CIP ensures continued improvements in engine R&M factors, which reduce outyear support costs. Historically, R&M related Engine CIP efforts reduce outyear Operations and Maintenance (O&M) and spares costs by a ratio greater than 21 to 1. Air Force Major Commands assume a viable Engine CIP effort is in place when submitting their budget requests for O&M and engine spares. Without the outyear cost avoidance provided by Engine CIP, outyear support funding would have to be significantly increased.

This program is in budget activity 7 - Operational System Development, because all efforts support fielded systems.

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	182.755	180.112	168.771
(U) Current PBR/President's Budget	174.205	178.582	165.609
(U) Total Adjustments	-8.550	-1.530	
(U) Congressional Program Reductions			
Congressional Rescissions		-1.530	
Congressional Increases			
Reprogrammings	-2.986		
SBIR/STTR Transfer	-5.564		

(U) Significant Program Changes:

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0207268F Aircraft Engine Component Improvement Program (CIP)			PROJECT NUMBER AND TITLE 1012 Aircraft Engine Component Improvement Program		
Cost (\$ in Millions)	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
1012 Aircraft Engine Component Improvement Program	174.205	178.582	165.609	186.996	166.113	170.572	175.265	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The Aircraft Engine Component Improvement Program (CIP) provides the only source of critical sustaining engineering support for in-service Air Force engines throughout their service life. The program's highest priority is to maintain flight safety. Engine CIP corrects service revealed deficiencies and reduces total ownership costs (RTOC). Additional goals include improved system Operational Readiness (OR) and Reliability and Maintainability (R&M). Historically, aircraft systems change missions, tactics, and environments to meet changing threats throughout their lives. Numerous new problems can develop in the engines through actual use and Engine CIP provides the only funds to develop fixes for these field problems. Engine CIP funding is driven by field events and types/maturity of engines, not by the total engine quantity. Engine CIP starts with delivery of the first production engine purchased with procurement funds, and continues over the engine's life, gradually decreasing to a minimum level (safety/depot repairs) sufficient to keep older inventory engines operational. Engine CIP addresses out-of-warranty usage and life and enables the Air Force to obtain additional warranties when manufacturers incorporate Engine CIP improvements into production engines. Since operational and safety problems arise throughout a system's service life, Engine CIP must be maintained at a level to provide the engineering support to make the changes essential for continued satisfactory system performance at affordable costs. Engine CIP ensures continued improvements in engine R&M factors, which reduce outyear support costs. Historically, R&M related Engine CIP efforts reduce outyear Operations and Maintenance (O&M) and spares costs by a ratio greater than 21 to 1. Air Force Major Commands assume a viable Engine CIP effort is in place when submitting their budget requests for O&M and engine spares. Without the outyear cost avoidance provided by Engine CIP, outyear support funding would have to be significantly increased.

This program is in budget activity 7 - Operational System Development, because all efforts support fielded systems.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments / Planned Program			
(U) Continuing CIP tasks (such as, but not limited to, improvement, support equipment, and repair tasks)	152.961	142.278	123.708
(U) Continuing engine testing (such as, but not limited to, altitude, sea level, and flight tests)	15.644	31.470	37.000
(U) Continuing mission support	5.600	4.834	4.901
(U)			
(U) Total Cost	174.205	178.582	165.609

Exhibit R-2a, RDT&E Project Justification

DATE

February 2004

BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207268F Aircraft Engine Component Improvement Program (CIP)	PROJECT NUMBER AND TITLE 1012 Aircraft Engine Component Improvement Program
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(U) **C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	

(U) AF RDT&E

(U) Other APPN

RELATED ACTIVITIES:

(U) - PEs # 0604268A and #0604268N, Army/Navy Aircraft Engine CIPs for prior years

(U) - PEs # 0203752A and #0205633N, Army/Navy Aircraft Engine CIPs for FY 1996 and following years

(U) **D. Acquisition Strategy**

Contracts within this Program Element are awarded sole source to engine manufacturers, and CIP tasks are generally assigned to original engine manufacturers based on available funding and prioritization of candidate tasks.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2004

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
07 Operational System Development				0207268F Aircraft Engine Component Improvement Program (CIP)				1012 Aircraft Engine Component Improvement Program				
(U) Cost Categories	<u>Contract Method</u>	<u>Performing Activity &</u>	<u>Total</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to</u>	<u>Total</u>	<u>Target</u>
(Tailor to WBS, or System/Item Requirements)	<u>& Type</u>	<u>Location</u>	<u>Prior to FY</u>	<u>2003</u>	<u>2003</u>	<u>2004</u>	<u>2004</u>	<u>2005</u>	<u>2005</u>	<u>Complete</u>	<u>Cost</u>	<u>Value of</u>
(\$ in Millions)			<u>2003</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>			<u>Contract</u>
			<u>Cost</u>		<u>Date</u>		<u>Date</u>		<u>Date</u>			
(U) <u>Product Development</u>												
GE-Evandale, OH	CPAF			57.308	Jan-03	55.076	Jan-04	48.717	Jan-05	Continuing	TBD	
Pratt & Whitney	CPAF			81.714	Jan-03	72.152	Jan-04	62.248	Jan-05	Continuing	TBD	
GE-Lynn, MA	CPFF			5.961	Jan-03	5.563	Jan-04	5.400	Jan-05	Continuing	TBD	
Rolls Royce/Allison	CPFF			1.955	Jan-03	1.725	Jan-04	1.100	Jan-05	Continuing	TBD	
Teledyne	CPFF			2.064	Jan-03	3.126	Jan-04	2.243	Jan-05	Continuing	TBD	
Honeywell	CPFF			1.193	Jan-03	1.739	Jan-04	1.300	Jan-05	Continuing	TBD	
Williams International	CPFF			2.628	Jan-03	2.695	Jan-04	2.400	Jan-05	Continuing	TBD	
Hamilton/Sundstrand	CPFF			0.138	Jan-03	0.202	Jan-04	0.300	Jan-05	Continuing	TBD	
Subtotal Product Development			0.000	152.961		142.278		123.708		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												
In House Support/ Misc				5.600		4.834		4.901		Continuing	TBD	
Subtotal Support			0.000	5.600		4.834		4.901		Continuing	TBD	0.000
Remarks:												
(U) <u>Test & Evaluation</u>												
AFFTC-Edwards AFB, CA				2.064		3.000		4.000		Continuing	TBD	
AEDC-Arnold AFB, TN				13.580		28.470		33.000		Continuing	TBD	
Subtotal Test & Evaluation			0.000	15.644		31.470		37.000		Continuing	TBD	0.000
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			0.000	174.205		178.582		165.609		Continuing	TBD	0.000

Footnote: Total prior to FY 2003 is not reflected above because the program was funded in procurement through FY 1979 and RDT&E funding began in FY 1980.

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207268F Aircraft Engine Component Improvement Program (CIP)

PROJECT NUMBER AND TITLE

1012 Aircraft Engine Component Improvement Program

Not applicable. CIP is a continuing engineering support program that funds 400 - 500 separate engineering tasks per year.

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207268F Aircraft Engine Component Improvement Program (CIP)	PROJECT NUMBER AND TITLE 1012 Aircraft Engine Component Improvement Program
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(U) <u>Schedule Profile</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Not applicable. CIP is a continuing engineering support program that funds 400-500 separate engineering tasks per year.	1-4Q	1-4Q	1-4Q

UNCLASSIFIED

PE NUMBER: 0207277F
 PE TITLE: Chief's Innovation Program

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207277F Chief's Innovation Program
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Cost (\$ in Millions)	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
Total Program Element (PE) Cost	1.671	2.856	1.879	1.860	1.855	1.880	1.910	Continuing	TBD
4931 Eagle Vision	1.671	2.856	1.879	1.860	1.855	1.880	1.910	Continuing	TBD

Eagle Vision transferred from PE 35208F in FY02.

(U) A. Mission Description and Budget Item Justification

Eagle Vision is a deployable ground station for programming and collecting panchromatic, multispectral, and synthetic aperture radar broad-area imagery from commercial earth remote sensing satellites and processing/merging it with national imagery for mission planning, topographic analysis, and intelligence-gathering purposes. The AF has an operational Eagle Vision system at Ramstein AFB, GE and the ANG has an operating system at Nevada ANG, Reno, NV and one at South Carolina ANG, McEntire ANG, SC and one is being procured for the Hawaii ANG, Hickam AFB, HI. Future acquisitions will include one Eagle Vision system for the Alabama ANG. Program is in Budget Activity 7 because it provides for the development of technologies and capabilities in support of operational system development.

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	1.884	1.880	1.879
(U) Current PBR/President's Budget	1.671	2.856	1.879
(U) Total Adjustments	-0.213	0.976	
(U) Congressional Program Reductions	-0.022	-0.024	
Congressional Rescissions			
Congressional Increases		1.000	
Reprogrammings	-0.019		
SBIR/STTR Transfer	-0.172		

(U) Significant Program Changes:

This effort, previously part of Distributed Common Ground System PE 0305208F, was transferred in FY02 to this PE.

Exhibit R-2a, RDT&E Project Justification

DATE
February 2004

BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0207277F Chief's Innovation Program			PROJECT NUMBER AND TITLE 4931 Eagle Vision		
Cost (\$ in Millions)	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
4931 Eagle Vision	1.671	2.856	1.879	1.860	1.855	1.880	1.910	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

Eagle Vision is a deployable ground station for programming and collecting panchromatic, multispectral, and synthetic aperture radar broad-area imagery from commercial earth remote sensing satellites and processing/merging it with national imagery for mission planning, topographic analysis, and intelligence-gathering purposes. The AF has an operational Eagle Vision system at Ramstein AFB, GE and the ANG has an operating system at Nevada ANG, Reno, NV and one at South Carolina ANG, McEntire ANG, SC and one is being procured for the Hawaii ANG, Hickam AFB, HI. Future acquisitions will include one Eagle Vision system for the Alabama ANG. Program is in Budget Activity 7 because it provides for the development of technologies and capabilities in support of operational system development.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments/Planned Program	0.000	0.000	0.000
(U) Continue to update baselines and reduce footprints on Eagle Vision units	0.142	1.164	0.183
(U) Continue to provide sustaining system engineering and technical support	1.529	1.692	1.696
(U) Total Cost	1.671	2.856	1.879

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E									
(U) Other APPN	3.748	4.171	5.854	6.111	5.245	5.663	5.757	Continuing	TBD

(U) D. Acquisition Strategy

Eagle Vision was approved to use Sole Source procurement via an International Agreement Competitive Restrictions (IACR) for Acquisition and Sustainment.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

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BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
07 Operational System Development				0207277F Chief's Innovation Program				4931 Eagle Vision				
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to</u>	<u>Total</u>	<u>Target</u>
			<u>Prior to FY</u>	<u>2003</u>	<u>2003</u>	<u>2004</u>	<u>2004</u>	<u>2005</u>	<u>2005</u>	<u>Complete</u>	<u>Cost</u>	<u>Value of</u>
			<u>2003</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Contract</u>
			<u>Cost</u>	<u>Date</u>	<u>Date</u>	<u>Date</u>	<u>Date</u>	<u>Date</u>	<u>Date</u>			
(U) <u>Product Development</u>												
TBD	SS/FFP		1.180	0.335		1.821		0.792		Continuing	TBD	
Subtotal Product Development			1.180	0.335		1.821		0.792		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												
MITRE	SS/FFP		0.391	0.920		0.622		0.653		Continuing	TBD	
ITSP	C/FFP		0.300	0.416		0.413		0.434		Continuing	TBD	
Subtotal Support			0.691	1.336		1.035		1.087		Continuing	TBD	0.000
Remarks:												
(U) <u>Test & Evaluation</u>												
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			1.871	1.671		2.856		1.879		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE
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BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0207277F Chief's Innovation Program

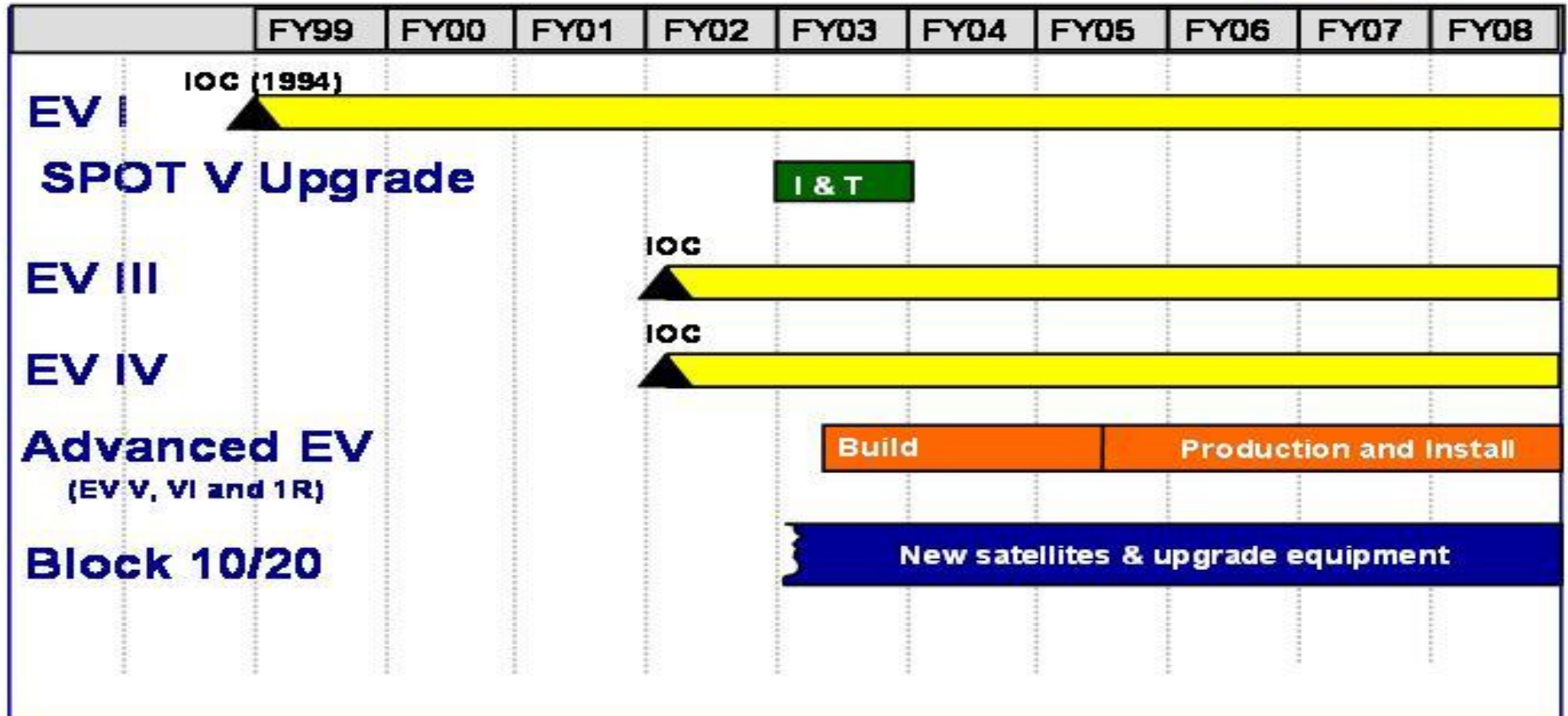
PROJECT NUMBER AND TITLE
4931 Eagle Vision



PROGRAM SCHEDULE (TOP LEVEL)



ISR Integration



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Exhibit R-4a, RDT&E Schedule Detail

DATE

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207277F Chief's Innovation Program

PROJECT NUMBER AND TITLE

4931 Eagle Vision

(U) Schedule Profile

FY 2003

FY 2004

FY 2005

(U) Continue baseline upgrades and footprint reduction

1Q

3Q

3Q

(U) Systems engineering

3Q

2-3Q

2Q

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PE NUMBER: 0207325F

PE TITLE: Joint Air-to-Surface Standoff Missile (JASSM)

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207325F Joint Air-to-Surface Standoff Missile (JASSM)
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Cost (\$ in Millions)	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
Total Program Element (PE) Cost	48.633	25.498	45.777	61.473	13.609	0.000	0.000	0.000	1,032.956
4515 Joint Air-to-Surface Standoff Missile (JASSM)	48.633	25.498	45.777	61.473	13.609	0.000	0.000	0.000	1,032.956

(U) A. Mission Description and Budget Item Justification

JASSM is a joint Air Force/Navy program with the Air Force as the lead Service. Designated ACAT 1C by the Defense Acquisition Board (DAB) during the Low Rate Initial Production (LRIP) decision, this program provides an affordable long range, conventional air-to-surface, autonomous, precision guided, standoff cruise missile compatible with fighter and bomber aircraft able to attack a variety of fixed or relocatable targets. Initial integration efforts are for the B-52H and F-16 (Block 50). Objective aircraft include the B-1, B-2, F-15E, F-16 (Block 40), F-117, and F/A-18E/F. The JASSM-ER increased standoff range will allow us to attack high value targets with precision, deeper into enemy territory while minimizing the threat to the launch aircraft. JASSM is an OSD flagship program under Cost as An Independent Variable (CAIV). This allows the contractor to have maximum trade space to develop an affordable missile that meets the four key performance parameters. The government is buying the JASSM system based on a contractor-developed, government-approved System Performance Specification (SPS) which became contractually binding at downselect. The contractor assumes Total System Performance Responsibility (TSPR) as defined in the SPS and warrants system performance for 15 years.

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	51.047	31.216	45.897
(U) Current PBR/President's Budget	48.633	25.498	45.777
(U) Total Adjustments	-2.414	-5.718	
(U) Congressional Program Reductions	0.000	-5.500	
Congressional Rescissions	0.000	-0.218	
Congressional Increases	0.000	0.000	
Reprogrammings	-0.923	0.000	
SBIR/STTR Transfer	-1.491	0.000	

(U) Significant Program Changes:

Funding: In FY03, Congress added \$10M to start the JASSM-ER program one year earlier. In FY04 Congress reduced JASSM-ER program by \$5.5M.
 Schedule: None.
 Technical: None.

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0207325F Joint Air-to-Surface Standoff Missile (JASSM)			PROJECT NUMBER AND TITLE 4515 Joint Air-to-Surface Standoff Missile (JASSM)		
Cost (\$ in Millions)	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
4515 Joint Air-to-Surface Standoff Missile (JASSM)	48.633	25.498	45.777	61.473	13.609	0.000	0.000	0.000	1,032.956
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

JASSM is a joint Air Force/Navy program with the Air Force as the lead Service. Designated ACAT 1C by the Defense Acquisition Board (DAB) during the Low Rate Initial Production (LRIP) decision, this program provides an affordable long range, conventional air-to-surface, autonomous, precision guided, standoff cruise missile compatible with fighter and bomber aircraft able to attack a variety of fixed or relocatable targets. Initial integration efforts are for the B-52H and F-16 (Block 50). Objective aircraft include the B-1, B-2, F-15E, F-16 (Block 40), F-117, and F/A-18E/F. The JASSM-ER increased standoff range will allow us to attack high value targets with precision, deeper into enemy territory while minimizing the threat to the launch aircraft. JASSM is an OSD flagship program under Cost as An Independent Variable (CAIV). This allows the contractor to have maximum trade space to develop an affordable missile that meets the four key performance parameters. The government is buying the JASSM system based on a contractor-developed, government-approved System Performance Specification (SPS) which became contractually binding at downselect. The contractor assumes Total System Performance Responsibility (TSPR) as defined in the SPS and warrants system performance for 15 years.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) JASSM EMD conclusion and follow-on development activities, including data link studies/development.	33.532	4.668	2.635
(U) JASSM-ER Phase I risk reduction activities and development.	9.628	0.000	0.000
(U) JASSM-ER Phase II development.	0.000	15.332	32.530
(U) Continue flight test support, and live fire test support.	3.432	1.525	1.622
(U) JASSM ER wind tunnel and ground test support.	0.000	2.053	3.816
(U) Conclude baseline aircraft integration.	1.155	0.000	0.000
(U) Begin JASSM-ER aircraft integration on B-1.	0.000	0.000	2.478
(U) Continue mission planning and intelligence systems integration.	0.306	0.742	0.627
(U) Continue program office/mission support.	0.580	1.178	2.069
(U) Total Cost	48.633	25.498	45.777

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Missile Procurement (AF) JASSM	50.095	99.436	145.324	148.271	197.434	303.409	310.034	1,210.395	2,506.536
(U) SEEK EAGLE	3.735	1.433	2.837	0.000	2.842	0.000	0.000	0.000	11.589

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

**0207325F Joint Air-to-Surface
Standoff Missile (JASSM)**

PROJECT NUMBER AND TITLE

**4515 Joint Air-to-Surface Standoff
Missile (JASSM)****(U) C. Other Program Funding Summary (\$ in Millions)**

Total includes prior year not shown.

(U) D. Acquisition Strategy

All major contracts within this Program Element were awarded through full and open competition. The EMD phase option for JASSM is Cost Plus Award Fee (CPAF). JASSM-ER is being developed in two phases: Phase I Risk Reduction contract was awarded June 2003 and is a Firm Fixed Price (FFP) contract, and the Phase II Development contract will be a CPAF contract.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2004

BUDGET ACTIVITY			PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
07 Operational System Development			0207325F Joint Air-to-Surface Standoff Missile (JASSM)					4515 Joint Air-to-Surface Standoff Missile (JASSM)				
<u>(U) Cost Categories</u>	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to</u>	<u>Total</u>	<u>Target</u>
(Tailor to WBS, or System/Item Requirements) (\$ in Millions)			<u>Prior to FY</u>	<u>2003</u>	<u>2003</u>	<u>2004</u>	<u>2004</u>	<u>2005</u>	<u>2005</u>	<u>Complete</u>	<u>Cost</u>	<u>Value of</u>
			<u>2003</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>			<u>Contract</u>
			<u>Cost</u>		<u>Date</u>		<u>Date</u>		<u>Date</u>			
<u>(U) Product Development</u>												
MDA - PDRR I	C/CPFF	McDonnell Douglas Aircraft, MO	120.571	0.000	Jun-96	0.000	N/A	0.000	N/A	0.000	120.571	120.571
LM - PDRR I& II	C/CPFF	Lockheed Martin, FL	151.109	0.000	Jun-96	0.000	N/A	0.000	N/A	0.000	151.109	151.109
LM - EMD & Follow on Development	C/CPAF	Lockheed Martin, FL	374.911	33.510	Nov-98	4.668	Nov-98	2.635	Nov-98	0.000	415.724	415.724
LM - JASSM ER Risk Reduction Phase I	SS/FFP	Lockheed Martin, FL	0.000	9.628	Jun-03	0.000	N/A	0.000	N/A	0.000	9.628	9.628
LM - JASSM ER Development Phase II	SS/CPAF	Lockheed Martin, FL	0.000	0.000		15.332	Feb-04	32.530	Feb-04	41.236	89.098	89.098
Subtotal Product Development			646.591	43.138		20.000		35.165		41.236	786.130	786.130
Remarks:												
<u>(U) Support</u>												
F-16 SPO	PO (in-house)	WPAFB, OH	25.452	1.135	N/A	0.000	N/A	0.000	N/A	0.000	26.587	26.587
B-52 SPO	PO (in-house)	Tinker AFB, OK	31.220	0.020	N/A	0.000	N/A	0.000	N/A	0.000	31.240	31.240
B-1 SPO	PO (in-house)	WPAFB, OH	0.000	0.000	N/A	0.000	N/A	2.478	N/A	10.886	13.364	13.364
Other Acft Integ	PO (in-house)	various	3.463	0.000	N/A	0.000	N/A	0.000	N/A	0.000	3.463	3.463
Sverdrup Inc.	C/CPAF	Eglin AFB, FL	15.951	0.000	Jun-01	0.400	Jun-01	1.283	Jun-01	2.992	20.626	20.626
Other Support	Misc	various	32.792	0.908	N/A	1.520	N/A	1.413	N/A	1.309	37.942	37.942
Subtotal Support			108.878	2.063		1.920		5.174		15.187	133.222	133.222
Remarks:												
<u>(U) Test & Evaluation</u>												
46TW	PO (in-house)	Eglin AFB, FL	74.050	3.432	N/A	1.525	N/A	2.195	N/A	18.659	99.861	99.861
Arnold Eng Dev Center	PO (in-house)	Arnold AFB, TN	0.000	0.000	N/A	2.053	N/A	3.243	N/A	0.000	5.296	5.296
Subtotal Test & Evaluation			74.050	3.432		3.578		5.438		18.659	105.157	105.157
Remarks:												
<u>(U) Total Cost</u>			829.519	48.633		25.498		45.777		75.082	1,024.509	1,024.509

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Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2004

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207325F Joint Air-to-Surface Standoff Missile (JASSM)

PROJECT NUMBER AND TITLE

4515 Joint Air-to-Surface Standoff Missile (JASSM)

(U) Schedule Profile

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) LRIP II Contract Award	1Q		
(U) Last DT/OT Flight Testing	2Q		
(U) JASSM-ER Risk Reduction Phase I Contract Award	3Q		
(U) Complete IOT&E Flight Testing (AFOTEC)	4Q		
(U) RAA B-52	4Q		
(U) Inventory Objective B-2		1Q	
(U) Milestone III		2Q	
(U) JASSM-ER Development Phase II Contract Award		2Q	
(U) RAA F-16		4Q	
(U) Complete engine wind tunnel testing			4Q

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PE NUMBER: 0207410F

PE TITLE: Air and Space Operations Center (AOC)

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207410F Air and Space Operations Center (AOC)
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Cost (\$ in Millions)	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
Total Program Element (PE) Cost	68.890	27.513	27.695	32.763	58.499	82.650	72.551	Continuing	TBD
4372 Time Critical Targeting	22.160	2.233	2.334	2.384	1.287	1.289	27.307	Continuing	TBD
5117 Integration Development	46.730	25.280	25.361	30.379	57.212	81.361	45.244	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

The Air & Space Operations Center-Weapons System (AOC-WS), AN/USQ-163 Falconer, is the lead command element of the Theater Air Control System (TACS). It is the weapon system that the Joint Forces Air Component Commander (JFACC) uses for planning, executing, and assessing theater-wide air and space operations. The AOC-WS develops operational strategy and planning documents. The weapon system also disseminates tasking orders, executes day-to-day peacetime and combat air and space operations, and provides rapid reaction to immediate situations by exercising positive control of friendly forces. The JFACC provides air and space support to the Joint Forces Commander (JFC) by coordinating, deconflicting, and assessing the progress of various weapon systems to advance the JFC's campaign. The AOC-WS also provides Time Critical Targeting Functionality (TCTF), which improves C2 capability to locate and pursue time critical targets. The Air Force must improve the existing C2 capabilities of the AOC-WS by leveraging technology to modernize current systems and automate C2 and Intelligence, Surveillance, and Reconnaissance (ISR) processes.

The AOC-WS program provides system hardware, software, technical documents and technology refresh to make the AOC-WS a viable weapons system. The program consists of five full Falconer AOC-WSs, two Training & Innovation AOC-WSs, six Functional AOC-WSs and six Augmentation Training Suites. The program will upgrade all sites to a standard AOC-WS configuration according to the site's mission. This will also provide a single integrated technical manual package to the user. Block 10.1 will include initial hardware/software development, technical manuals, training, and required technology refresh to the Falconer and Training Suite sites only. To keep the future AOC-WS evolving to meet warfighter needs, the AOC-WS Program plans to develop a series of three Air Force Concept Of Operations (CONOPS) capability increments beginning in FY 05.

This program is Budget Activity 7 - Operation System Development because it provides funding for the modernization of a currently existing and operating system.

Exhibit R-2, RDT&E Budget Item Justification

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207410F Air and Space Operations Center (AOC)

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	71.459	27.887	36.217
(U) Current PBR/President's Budget	68.890	27.513	27.695
(U) Total Adjustments	-2.569	-0.374	
(U) Congressional Program Reductions		-0.374	
Congressional Rescissions			
Congressional Increases			
Reprogrammings	-0.712		
SBIR/STTR Transfer	-1.857		

(U) **Significant Program Changes:**

15 Dec 2003 Acquisition Decision Memorandum, signed by Asst SECAF (Acquisition), provides direction to the AOC-WS Program Director to award a contract, establishing a Lead Systems Integrator no later than FY06.

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0207410F Air and Space Operations Center (AOC)			PROJECT NUMBER AND TITLE 4372 Time Critical Targeting		
Cost (\$ in Millions)	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
4372 Time Critical Targeting	22.160	2.233	2.334	2.384	1.287	1.289	27.307	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

Note: \$9.53M was transferred from BPAC 674372 - Time Critical Targeting to fund BPAC 675117 - Integration Development in FY03

(U) A. Mission Description and Budget Item Justification

The Time Critical Targeting Functionality (TCTF) is an integrated set of automated decision aids / tools that enable successful prosecution of Time Sensitive Targets (TSTs) with key functionalities to include Terrain Analysis (TA), Intelligence Preparation of the Battlespace (IPB), tracking and nominating multiple TSTs, and Weapon Target Pairing (WTP). Current systems do not meet warfighter requirements for identifying TCTs and tasking strike assets within the limited window of vulnerability. TCTF funding supports development of enhanced C2 capabilities to find, fix, track, target, engage, and assess time critical targets (TCTs).

The primary program objective of the TCTF program is to provide capabilities to collect, share and aggregate decision quality data between Command and Control Centers of Operation, ISR assets and attack aircraft; correlate/fuse information; reduce AOC forward footprint; improve deployability; and make improvements in information sharing among coalition partners.

This program is a budget activity 7 - Operation System Development because it provides funding for the modernization of a currently existing and operating system.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Spiral 8 software development and integration of TCT Functionality. Integration, fielding, and training completed in FY03. To better integrate program schedules in the C2 architecture, fielding to operational sites is deferred and combined with Spiral 9 fielding. Spiral 9 Increment functionality started in FY04 will include additional decision aids, situation awareness, and analytical software applications to locate, identify, track, nominate and recommend ISR/strike assignments against TCTs as defined in the TCT Functionality ORD. Spiral 9 provides an interface to the ISR Battle Manager to enable dynamic re-tasking of ISR assets to support prosecution of TCTs.	19.627		
(U) Conduct developmental and operational test and evaluation activities.	2.533		
(U) Complete development of 1st Post Core Increment		1.485	1.553
(U) Conduct test and evaluation activities for Post Core development		0.748	0.781
(U) Total Cost	22.160	2.233	2.334

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207410F Air and Space Operations Center (AOC)

PROJECT NUMBER AND TITLE

4372 Time Critical Targeting

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Other Procurement, AF (3080)	0.000	1.627	1.801	1.825	4.072	1.888	1.935	Continuing	TBD
(U) Operations & Maintenance AF	0.000	0.000	0.930	0.949	0.948	0.966	0.984	Continuing	TBD

(U) D. Acquisition Strategy

The acquisition approach provides for the horizontal integration of legacy C2ISR, the integration of emerging technologies, or the introduction of a revolutionary C2ISR warfighting capability. As a means to evaluate and integrate these applications, AFC2ISR and ESC established a Software Interoperability Facility for TCT (SWIFT,) a TCT capability that will be fielded at designated AOC-WS locations. An 8(a) set aside contract was awarded to design, develop, test, integrate, install, train and support TCT Functionality software. Separate contractors are being used to procure communication and computer hardware. The TCT Functionality is updated using evolutionary acquisition guidelines IAW DoDD 5000.1 and AFI 63-123. The system is supported using existing AOC-WS maintenance support structure (a combination of contract and organic resources). Systems Engineering and Technical Analysis (SETA) contracts are used to support the effort.

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
07 Operational System Development				0207410F Air and Space Operations Center (AOC)				4372 Time Critical Targeting				
<u>(U) Cost Categories</u>	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to</u>	<u>Total</u>	<u>Target</u>
(Tailor to WBS, or System/Item Requirements) (\$ in Millions)			<u>Prior to FY</u>	<u>2003</u>	<u>2003</u>	<u>2004</u>	<u>2004</u>	<u>2005</u>	<u>2005</u>	<u>Complete</u>	<u>Cost</u>	<u>Value of</u>
			<u>2003</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>			<u>Contract</u>
			<u>Cost</u>		<u>Date</u>		<u>Date</u>		<u>Date</u>			
<u>(U) Product Development</u>												
Zel Technologies	CPAF	AFMC/ESC	0.000	12.327	Nov-02	1.485	Oct-03	1.553	Oct-04	Continuing	TBD	
FFRDC	CPFF	AFMC/ESC	0.000	3.280	Nov-02					Continuing	TBD	
Subtotal Product Development			0.000	15.607		1.485		1.553		Continuing	TBD	0.000
Remarks:	Contract for Zel Technologies was awarded in October 2003 and will continue through FY04. TCT-F program slipped 10 months because of technical issues related to hardware interoperability problems with other programs, such as TBMCS, and other AOC programs. Comm and Comp equipment was completed in FY02. TBD (Training & Integration) and TBD (Development) in Dec 03 were erroneous award dates put in the Feb 2003 submittal.											
<u>(U) Support</u>												
FFRDC	FFP	AFMC/ESC	0.000	2.380	Nov-02					Continuing	TBD	
Non-FFRDC	FFP	AFMC/ESC	0.000	3.248	Nov-02					Continuing	TBD	
Subtotal Support			0.000	5.628		0.000		0.000		Continuing	TBD	0.000
Remarks:												
<u>(U) Test & Evaluation</u>												
Non-FFRDC	CPFF	AFMC/ESC	0.000	0.000		0.248	Sep-04	0.281	Sep-05	Continuing	TBD	
46TS	MIPR	AFMC/ESC	0.000	0.500	May-03	0.100	May-04	0.100	May-05	Continuing	TBD	
Zel Technologies	CPAF	AFMC/ESC	0.000	0.425	Jun-03	0.400	Jun-04	0.400	Jun-05		1.225	
Subtotal Test & Evaluation			0.000	0.925		0.748		0.781		Continuing	TBD	0.000
Remarks:												
<u>(U) Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Total Cost</u>			0.000	22.160		2.233		2.334		Continuing	TBD	0.000

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Exhibit R-4a, RDT&E Schedule Detail

DATE

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

**0207410F Air and Space Operations
Center (AOC)**

PROJECT NUMBER AND TITLE

4372 Time Critical Targeting

(U) Schedule Profile

(U) TCT Spiral 8 Core Development

(U) TCT Spiral 9 Core Development

(U) TCT Spiral 8 DT/OT

(U) TCT Spiral 9 DT/OT

(U) TCT Spiral 9 Fielding (1st Site)

(U) TCT Post Core Development

(U) TCT Spiral 9 Fielding (5 Falconer Sites)

FY 2003

4Q

FY 2004

2Q

3Q

2Q

4Q

3Q

FY 2005

2Q

Exhibit R-2a, RDT&E Project Justification

DATE
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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0207410F Air and Space Operations Center (AOC)			PROJECT NUMBER AND TITLE 5117 Integration Development		
Cost (\$ in Millions)	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
5117 Integration Development	46.730	25.280	25.361	30.379	57.212	81.361	45.244	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

AOC-WS program received an FY03 Congressional Plus-Up of \$37.2M for the purpose of integration development (BPAC 675117 Integration Development). In addition, \$9.53M was transferred from BPAC 674372 - Time Critical Targeting to fund BPAC 675117 in FY03.

(U) A. Mission Description and Budget Item Justification

Air and Space Operations Center - Weapon System (AOC-WS) PROGRAM: The AOC-WS program provides system hardware, software, technical documents and technology refresh to make the AOC-WS a viable weapons system. The program consists of five full Falconer AOC-WSs, two Training & Innovation AOC-WSs, six Functional AOC-WSs and six Augmentation Training Suites. The program will develop and integrate C2ISR capabilities to upgrade all sites to a standard AOC-WS configuration according to mission. To keep the future AOC weapon system evolving to meet warfighter needs, the AOC-WS Program plans to spirally develop a series of three Air Force (AF) Concept Of Operations (CONOPS) capability increments beginning in FY 07. The Government will use a Lead System Integrator to support development efforts beginning as early as November 2004. The AOC-WS will also expand capabilities for countering all threats. The AOC-WS program provides a necessary structure to transition and act as the focal point for a singular technical 'center of mass' for systems integration, technical transition, and process refinement for rapidly evolving C2 programs, process and concepts. Numerous independent systems inherent in the entire spectrum of command, control, and communications and Intelligence, Surveillance and Reconnaissance (ISR) battle management encompass a robust fully functioning AOC-WS.

The program is budget activity 7 - Operation System Development because it provides funding for the modernization of a currently existing and operating system.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments/Planned Program	0.000	0.000	0.000
(U) Conduct further research and engineering, lay the groundwork, and establish weapon system infrastructure for the standardization of Block upgrades and systems architecture. Work continues and will be complete in FY04 using FY03 funding.	10.000		
(U) Continue AOC development and integration of legacy systems, multi-level security, visualization, and coalition interoperability.	14.365	12.280	12.361
(U) Developed and Fielded prototype AOC Formal Training Unit to support AOC operator initial qualification training and prototype Help Desk.	22.365		
(U) Spiral Development leading to Block 30 (10.2, 10.3, 10.4)		5.000	5.000
(U) System Engineering/Integration		3.500	3.500
(U) Program Management Support		4.500	4.500
(U) Total Cost	46.730	25.280	25.361

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207410F Air and Space Operations
Center (AOC)

PROJECT NUMBER AND TITLE

5117 Integration Development

(U) C. Other Program Funding Summary (\$ in Millions)(U) D. Acquisition Strategy

The acquisition strategy builds on existing capabilities, using evolutionary acquisition and spiral development to standardize, modernize and sustain AOC-WSs. On December 15, 2003, the Acquisition Decision Memorandum (ADM) directed the AOC-WS program office to award a contract to a Lead Systems Integrator no later than FY06. This acquisition approach provides for the horizontal integration of legacy C2ISR, the integration of emerging technologies, and the transformation to a revolutionary C2ISR warfighting capability. Evolutionary acquisition and spiral development IAW DoDD 5000.1 provide the opportunity to introduce advanced technologies into the AOC-WS. The system is supported using existing AOC-WS maintenance support structure (a combination of contract and organic resources). Systems Engineering and Technical Analysis (SETA) contracts are used to support the effort.

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
07 Operational System Development				0207410F Air and Space Operations Center (AOC)				5117 Integration Development				
(U) Cost Categories	<u>Contract Method</u>	<u>Performing Activity &</u>	<u>Total</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to</u>	<u>Total</u>	<u>Target</u>
(Tailor to WBS, or System/Item Requirements)	<u>& Type</u>	<u>Location</u>	<u>Prior to FY</u>	<u>2003</u>	<u>2003</u>	<u>2004</u>	<u>2004</u>	<u>2005</u>	<u>2005</u>	<u>Complete</u>	<u>Cost</u>	<u>Value of</u>
(\$ in Millions)			<u>2003</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>			<u>Contract</u>
			<u>Cost</u>		<u>Date</u>		<u>Date</u>		<u>Date</u>			
(U) <u>Product Development</u>												
Lockheed Martin Mission Systems	CPAF	AFMC/ESC	0.000	9.400	Apr-03					Continuing	TBD	TBD
Training	MIPR	AFMC/ESC	0.000	1.500	Apr-03	9.000	Jan-04	6.700	Jan-05	Continuing	TBD	TBD
Other Contracts (GSA, ETC)	MIPR	AFMC/ESC	0.000	17.400	Mar-03	4.700	Nov-03	2.200	Nov-04	Continuing	TBD	TBD
Block 10.1 and 10.2 AOC Development	MIPR	AFMC/ESC	0.000	9.363	Apr-03					Continuing	TBD	TBD
AF CONOPS Spiral	MIPR	AFMC/ESC	0.000					4.300	Jan-05	Continuing	TBD	TBD
Subtotal Product Development			0.000	37.663		13.700		13.200		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u>												
MITRE	CPFF	AFMC/ESC	0.000	2.500	Oct-02	3.500	Dec-03	3.700	Oct-04	Continuing	TBD	TBD
Non-FFRDC	FFP	AFMC/ESC	0.000	5.567	Dec-02	6.580	Feb-04	6.961	Dec-04	Continuing	TBD	TBD
Program Office Support	Various	AFMC/ESC	0.000	0.500	Oct-02	0.900	Oct-03	0.900	Oct-04	Continuing	TBD	TBD
Subtotal Support			0.000	8.567		10.980		11.561		Continuing	TBD	TBD
Remarks:												
(U) <u>Test & Evaluation</u>												
46TS	MIPR	AFMC/ESC	0.000	0.500	Feb-03	0.600	Dec-03	0.600	Nov-04	Continuing	TBD	TBD
Subtotal Test & Evaluation			0.000	0.500		0.600		0.600		Continuing	TBD	TBD
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	TBD
Remarks:												
(U)												
Subtotal			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			0.000	46.730		25.280		25.361		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

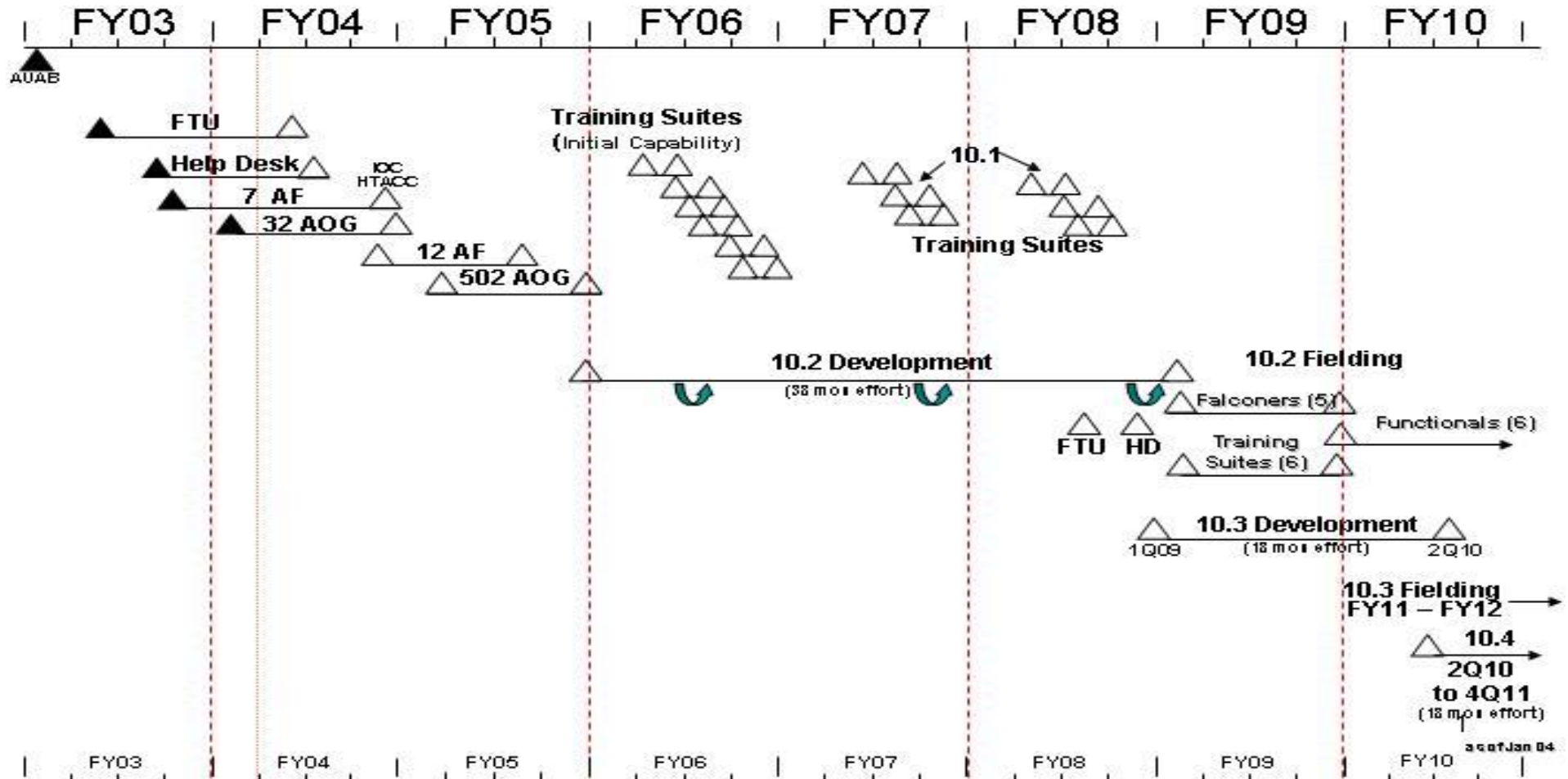
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BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0207410F Air and Space Operations
Center (AOC)

PROJECT NUMBER AND TITLE
5117 Integration Development

AOC WS Integrated Master Schedule



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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207410F Air and Space Operations Center (AOC)	PROJECT NUMBER AND TITLE 5117 Integration Development
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	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <u>Schedule Profile</u>			
(U) Initiated evaluation of current applications and technologies	1Q		
(U) Initiated/continued Block 10.1 Spiral Development	1Q		
(U) Field prototype FTU and Help Desk		1Q	
(U) Fielded Block 10.1 increment Falconer Site 1-AI Udeid AB, Qatar (AUAB)	1Q		
(U) Field Block 10.1 increment Falconer Site 2-7th AF		4Q	
(U) Initiate Block 10.2 Spiral Development			4Q
(U) Field Block 10.1 increment Falconer Site 3- 32nd AOG			1Q
(U) Field Block 10.1 increment Falconer Site 4- 12th AF			3Q
(U) Field Block 10.1 increment Falconer Site 5- 502nd AOG			4Q

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PE NUMBER: 0207412F
 PE TITLE: Modular Control System

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207412F Modular Control System
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Cost (\$ in Millions)	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
Total Program Element (PE) Cost	6.099	15.868	11.634	9.412	9.360	14.553	14.503	Continuing	TBD
485L Theater Air Control System Imp (TACSI)	6.099	15.868	11.634	9.412	9.360	14.553	14.503	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

Battle Control System (BCS) Family of Systems (FOS) is comprised of fixed sites for Homeland Defense (HLD) [Region/Sector Operation Control Center, PE 0102326F, referred to herein as Battle Control System-Fixed {BCS-F}] and mobile Theater Battle Management (TBM) Command and Control (C2) nodes [Modular Control system, PE 0207412F (referred to herein as Battle Control System-Mobile {BCS-M})]. The BCS-M is the modernization activity for the Modular Control System (MCS). The BCS-M is a low density/high demand rapidly deployable ground C2 asset conducting both deployed theater operations and homeland defense. The BCS-M is the tactical C2 execution element supporting the Joint Forces Air Component Commander (JFACC) and the North American Aerospace Defense/Combatant Commander (NORAD/CC) providing connectivity and interoperability among elements of the Theater Air Control System (TACS) to include United States Air Force, Navy, Marine Corps, Army and allied/coalition assets. It is the execution arm of the Air and Space Operations Center (AOC). BCS modernization is using an acquisition strategy designed to ensure technical coordination with the Airborne Warning And Control System (AWACS) 40/45 upgrade, interoperability with BCS-F and AOC, and to further advance C2 concepts supporting current and emerging aerospace operations. BCS acquisition activities will include, but not be limited to requirements analysis, modeling and simulation, risk reduction, acquisition planning, enterprise integration, prototype development (i.e., productizing, development suite, radio/radar/data link remoting, software development), incorporating the fixed and mobile radar requirements for the air picture under one Operational Requirements Document (ORD) for BCS, transitioning the Area Cruise Missile Defense (ACMD) technologies into BCS Modernization, and leveraging capabilities from BCS-F and AWACS 40/45.

The program is in Budget Activity 7 because Modular Control System (MCS) is a fielded, operational system.

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	6.652	16.083	24.664
(U) Current PBR/President's Budget	6.099	15.868	11.634
(U) Total Adjustments	-0.553	-0.215	
(U) Congressional Program Reductions	-0.044	-0.079	
Congressional Rescissions	-0.070	-0.136	
Congressional Increases			
Reprogrammings	-0.131		
SBIR/STTR Transfer	-0.308		

(U) Significant Program Changes:

Exhibit R-2, RDT&E Budget Item Justification

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207412F Modular Control System

FY 2004/2005 reductions to fund other Air Force requirements.

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0207412F Modular Control System			PROJECT NUMBER AND TITLE 485L Theater Air Control System Imp (TACSI)		
Cost (\$ in Millions)	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
485L Theater Air Control System Imp (TACSI)	6.099	15.868	11.634	9.412	9.360	14.553	14.503	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

Battle Control System (BCS) Family of Systems (FOS) is comprised of fixed sites for Homeland Defense (HLD) [Region/Sector Operation Control Center, PE 0102326F, referred to herein as Battle Control System-Fixed {BCS-F}] and mobile Theater Battle Management (TBM) Command and Control (C2) nodes [Modular Control system, PE 0207412F (referred to herein as Battle Control System-Mobile {BCS-M})]. The BCS-M is the modernization activity for the Modular Control System (MCS). The BCS-M is a low density/high demand rapidly deployable ground C2 asset conducting both deployed theater operations and homeland defense. The BCS-M is the tactical C2 execution element supporting the Joint Forces Air Component Commander (JFACC) and the North American Aerospace Defense/Combatant Commander (NORAD/CC) providing connectivity and interoperability among elements of the Theater Air Control System (TACS) to include United States Air Force, Navy, Marine Corps, Army and allied/coalition assets. It is the execution arm of the Air and Space Operations Center (AOC). BCS modernization is using an acquisition strategy designed to ensure technical coordination with the Airborne Warning And Control System (AWACS) 40/45 upgrade, interoperability with BCS-F and AOC, and to further advance C2 concepts supporting current and emerging aerospace operations. BCS acquisition activities will include, but not be limited to requirements analysis, modeling and simulation, risk reduction, acquisition planning, enterprise integration, prototype development (i.e., productizing, development suite, radio/radar/data link remoting, software development), incorporating the fixed and mobile radar requirements for the air picture under one Operational Requirements Document (ORD) for BCS, transitioning the Area Cruise Missile Defense (ACMD) technologies into BCS Modernization, and leveraging capabilities from BCS-F and AWACS 40/45.

The program is in Budget Activity 7 because Modular Control System (MCS) is a fielded, operational system.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U)			
(U) Continue Concept Definition/Development of evolutionary upgrades to the BCS to include, but not be limited to, advanced planning, MCS Upgrades, enhanced radio/radar/data link remoting, transition of ACMD technology into BCS-M, leveraging capabilities from BCS-F and AWACS 40/45, integrating evolutionary upgrades into BCS-M, and misc.	5.273	14.685	10.422
(U) Continue Program Support (i.e., travel, supplies, equipment, miscellaneous)	0.612	0.646	0.675
(U) Continue Systems Engineering	0.214	0.537	0.537
(U)			
(U) Total Cost	6.099	15.868	11.634

Exhibit R-2a, RDT&E Project Justification

DATE

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207412F Modular Control System

PROJECT NUMBER AND TITLE

485L Theater Air Control System Imp
(TACSI)(U) C. Other Program Funding Summary (\$ in Millions)(U) D. Acquisition Strategy

The Battle Control System (BCS) Program Family of Systems is utilizing a spiral development acquisition strategy to further advance C2 concepts supporting future aerospace operations by transitioning the Area Cruise Missile Defense (ACMD) Advanced Capabilities Technology Demonstration (ACTD) capabilities, leveraging capabilities from the BCS-Fixed (BCS-F) and AWACS 40/45, and integrating evolutionary upgrades from the legacy Modular Control System (MCS) into BCS-M.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2004

BUDGET ACTIVITY			PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
07 Operational System Development			0207412F Modular Control System					485L Theater Air Control System Imp (TACSI)				
<u>(U) Cost Categories</u>	<u>Contract Method</u>	<u>Performing Activity &</u>	<u>Total</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to</u>	<u>Total</u>	<u>Target</u>
(Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>& Type</u>	<u>Location</u>	<u>Prior to FY</u>	<u>2003</u>	<u>2003</u>	<u>2004</u>	<u>2004</u>	<u>2005</u>	<u>2005</u>	<u>Complete</u>	<u>Cost</u>	<u>Value of</u>
			<u>2003</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>			<u>Contract</u>
			<u>Cost</u>		<u>Date</u>		<u>Date</u>		<u>Date</u>			
<u>(U) Product Development</u>												
Rome Labs & Naval Air Warfare Center/Aircraft Division (NAWC/AD) - Concept Definition/Development of Evolutionary Upgrades	MIPR	Naval Air Warfare Center/Aircraft Division, Patuxent River, MD	10.755	5.273	Dec-02	1.575	Nov-03	0.500	Dec-04	Continuing	TBD	TBD
TBD - BCS-M	TBD	TBD	0.000			13.110	Mar-04	9.922	Dec-04	Continuing	TBD	TBD
Subtotal Product Development			10.755	5.273		14.685		10.422		Continuing	TBD	TBD
Remarks:												
<u>(U) Support</u>												
Program Office Support	Various	Various	1.613	0.612	Nov-02	0.646	Nov-03	0.675	Nov-04	Continuing	TBD	TBD
Systems Engineering.	Various	Various	1.020	0.214	Mar-03	0.537	Feb-04	0.537	Feb-05	Continuing	TBD	TBD
Subtotal Support			2.633	0.826		1.183		1.212		Continuing	TBD	TBD
Remarks:												
<u>(U) Total Cost</u>			13.388	6.099		15.868		11.634		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0207412F Modular Control System

PROJECT NUMBER AND TITLE
485L Theater Air Control System Imp (TACSI)

Exhibit R-4 – PE 0207412F –Modular Control System

Fiscal Year	FY03				FY 04				FY 05				FY 06				FY 07				FY 08				FY 09			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
RR Spiral 2 Kt Award	▲	▲																										
RR Spiral 2 DT&E							△																					
RR Spiral 2 OT&E							△																					
RR Design Review							▲																					
RR Spiral 3 Kt Award							☆																					
BCS-M Concept Evaluation																												
BCS-M Development																												
BCS-M Kt Award							☆																					
BCS-M Test												△																
BCS-M IOC																△												

- ☆ Major Event or Milestone
- ▬ Ongoing Activity that is on-going
- ▬ Ongoing Activity that is Complete
- ▲ Completed Event
- △ Planned Task(s)

RR - Remote Radio
BCS-M - Battle Control System - Mobile

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Exhibit R-4a, RDT&E Schedule Detail		DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207412F Modular Control System	PROJECT NUMBER AND TITLE 485L Theater Air Control System Imp (TACSI)
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(U) <u>Schedule Profile</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Remote Radio Spiral 2 Contract Award	1Q		
(U) Remote Radio Critical Design Review		1Q	
(U) Remote Radio Spiral 2 Developmental Test & Evaluation (DT&E)		2Q	
(U) Remote Radio Spiral 2 Operational Test & Evaluation (OT&E)		2Q	
(U) Remote Radio Spiral 3 Contract Award		2Q	
(U) Battle Control System - Mobile Concept Evaluation	2-4Q		
(U) Battle Control System - Mobile Contract Award		2Q	
(U) Battle Control System - Mobile Test			2Q

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Exhibit R-2, RDT&E Budget Item Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207417F Airborne Warning and Control System (AWACS)
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Cost (\$ in Millions)	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
Total Program Element (PE) Cost	163.725	267.846	288.787	131.308	85.578	83.257	74.450	Continuing	TBD
411L Airborne Warning & Control System (AWACS)	163.725	267.846	288.787	131.308	85.578	83.257	74.450	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

A. Mission Description

The funding set forth in this document investigates, develops, and integrates system improvements to enable the E-3 AWACS to remain an effective Battle Management airborne surveillance system for command and control of combat forces and for strategic defense of the U.S. This PE funds the following efforts:

Modernization Programs: (RDT&E, AF)

1) The Integrated DAMA (Demand Assigned Multiple Access) / GATM (Global Air Traffic Management) Program seeks to make communications and navigation improvements required to meet current mandated DAMA SATCOM (Satellite Communication) and Air Traffic Control (ATC) requirements.

A) DAMA SATCOM is a CJCS mandated Ultra-High Frequency (UHF) satellite communications upgrade consisting of two new UHF DAMA terminals and new Radio Frequency (RF) components, to mitigate co-site interference, replacing the two non-DAMA UHF SATCOM radios on each aircraft. The DAMA enhancements will expand user availability of severely limited DoD UHF SATCOM channels, improving the interoperability and efficiency of DoD UHF SATCOM systems.

B) GATM is an FAA/International Civil Aviation Organization (ICAO)/EUROCONTROL mandated ATC upgrade consisting of new VHF radios with 8.33 kHz channel spacing, Aircraft Collision Avoidance System (ACAS)/Mode-S IFF and Reduced Vertical Separation Minimum (RVSM) capability. The ATC enhancements will permit more aircraft to fly closer together in congested airspace worldwide, particularly in European airspace. Non-compliance already results in airspace restrictions and denials, impacting AWACS' ability to support worldwide response in situations requiring immediate on-scene command and control (C2) battle management.

2) Block 40/45 is replacing AWACS 1970's vintage mission systems that are experiencing Diminishing Manufacturing Sources (DMS) issues, are difficult and expensive to upgrade, and limit overall AWACS system performance. The Block 40/45 upgrade will improve quality and timeliness of sensor data to the shooter, improve Combat Identification (CID), provide sensor fusion capability in support of the Single Integrated Air Picture (SIAP) via multi-sensor integration (MSI), improve AWACS contribution to Time Critical Targeting via Data Link Infrastructure, resolve radar electronics DMS, and enable more effective, faster upgrades via an open systems architecture. The Block 40/45 risk reduction effort, which was completed in FY03, reduced the risk of utilizing new technology to meet the AWACS Block 40/45 Operational Requirements Document (ORD). Block 40/45 transitioned from the risk reduction phase into the System Development and Demonstration (SD&D) phase during FY03.

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0207417F Airborne Warning and Control System (AWACS)

3) Command & Control, Intelligence, Surveillance and Reconnaissance (C2ISR): C2ISR System Architecture Improvements provide timely enhancements to improve critical areas of the AWACS mission system, primarily in three areas:

A) Mission Capable (MC) rate improvement: Reliability, Maintainability & Availability (RM&A) analysis and development projects provide system improvements that boost the below-standard MC rate of this critical C2 platform and increase airframe longevity in order to support its flight commitment to end of operational life. Such efforts focus on increasing reliability of the air vehicle, command, control, computer, sensor systems and infrastructure improvements as well as providing solutions to diminishing manufacturing sources. Efforts will also focus on reduction of maintenance man-hours along with periodic depot maintenance improvements to increase aircraft availability. Programs will focus on risk reduction, development and fielding.

B) C2ISR enhancement and integration: AWACS seeks to fulfill the requirements of Joint Vision 2020 as well as Expeditionary Air Force (EAF) and other Task Force Concept of Operations to meet the needs of the operator. AWACS seeks to enhance network-centric warfare capabilities with other C2ISR systems by horizontally integrating machine-to-machine interfaces into AWACS in order to digitize the kill chain. Sensor and communications improvements, such as IFF interrogator/transponder and the ability to send, receive and fuse the air (and ground) picture via data link to fighter aircraft, will be developed through rapid prototyping, modeling, simulation and participation in live and simulated Joint exercises (e.g., Joint Combat Identification Evaluation Team (JCIET) and Joint Distributed Engineering Plant (JDEP). Collaborative efforts with other sensor platforms through capabilities such as network-centric operations will also enhance horizontal integration efforts. Certain near-term efforts, required by the operator to improve the timeliness and accuracy of information passed to/from fighter aircraft in the engagement zone and to provide consistent and re-playable mission data once the mission is complete, are quick reaction capabilities that can be developed & fielded to support the next air war. The program includes concept exploration, technology development and demonstration efforts that support continuous improvements to C2ISR capabilities of manned & unmanned platforms, space, data links and advanced Battle Management decision tools. C2ISR continues to support and develop self-protection capabilities to enable current and future threat deterrence. Fielding strategies will provide for immediate field retrofit when able, otherwise fielding will occur in subsequent modernization programs. All programs are designed to integrate with & transitions into the next C2ISR Platform. The E-3 will serve as lead platform to support the development of the Mark XXIIA Mode 5 IFF capability carried out in PE 63742F, Comabt ID Technology.

4) The Training, Support, and Infrastructure programs cover an array of cross cutting programs and activities in support of AWACS modification and enhancement programs. These programs include managing the AWACS developmental infrastructure, support equipment development, modernization planning/analysis, and trainer/simulator integration and concurrency. The Radar Systems Integration Lab/Software Development Facility must be maintained, operated and supported by contract to provide customers with a functioning APY 1/2 radar configuration in support of AWACS radar development, production and sustainment support equipment technologies and test strategies to ensure concurrent capability to sustain current, modified and upgraded E-3 equipment. Trainer/simulator concurrency analysis and definition is required to ensure trainers and simulators are kept current with the AWACS baseline. Associate contractor agreements are needed to establish concurrency between prime integrators and training service providers.

5) Test System 3/Integration Labs: The E-3 AWACS testbed aircraft, Test System 3 (TS-3, tail number 73-1674), the Avionics Integration Laboratory (AIL) and the AWACS Development Laboratory (ADL) are Government owned/contractor managed, maintained and operated assets. These test-ready assets support AWACS modernization and sustainment programs, including advanced projects, and allow AWACS to participate in live-fly and ground-based simulation exercises such as Joint Expeditionary Force Experiment (JEFX) and JDEP. They also support multiple international projects on a fee basis, including French, RSAF and NATO.

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0207417F Airborne Warning and Control System (AWACS)

6) NAVWAR (Navigation Warfare) is mandated by CJCSI 6140.01 (15 Nov 98) and requires all DoD GPS users to incorporate NSA Selective Availability Anti-Spoofing Module (SAASM), make provisions for the transition to 'black keys', eliminate requirements to acquire GPS satellites using the civil signal (C/A) incorporate new technology into the navigation sensor. AMP (Avionics Modernization Program) completes the FAA/ICAO/EUROCONTROL mandated air traffic control system upgrades and equips the E-3 fleet with flight deck and other avionics capabilities that will allow AWACS to comply with mandated global Required Navigation Performance (RNP) surveillance and communication standards. Non-compliance will result in airspace restrictions and denials, which will impact AWACS' ability to support worldwide responses to situations requiring immediate on-scene C2 battle management. The AMP modifications to the flight deck include the addition of data link communications, voice and data link digital radios, improved visual displays and flight management system, as well as automatic position reporting via data link. Replacement of critical avionics subsystems, unsustainable beyond 2010, will be included in the AMP. The program will focus on risk reduction, development and fielding.

7) Comm projects provide the AWACS system with an effective method for electronically transmitting and receiving critical mission information such as the Air Tasking Order (ATO). Comm projects will focus on engineering and retrofitting the entire fleet.

This program is in Budget Activity 7, Operational Systems Development, due to efforts supporting a fielded, post Milestone III operational weapon system.

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	169.649	270.397	289.544
(U) Current PBR/President's Budget	163.725	267.846	288.787
(U) Total Adjustments	-5.924	-2.551	
(U) Congressional Program Reductions			
Congressional Rescissions		-2.551	
Congressional Increases			
Reprogrammings	-5.924		
SBIR/STTR Transfer			

(U) **Significant Program Changes:**

Funds were reduced in FY03 and FY05 to support other Air Force efforts. Increase from FY03 to FY04 reflects Block 40/45 ramp-up from Risk Reduction to SDD.

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0207417F Airborne Warning and Control System (AWACS)			PROJECT NUMBER AND TITLE 411L Airborne Warning & Control System (AWACS)		
Cost (\$ in Millions)	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
411L Airborne Warning & Control System (AWACS)	163.725	267.846	288.787	131.308	85.578	83.257	74.450	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) **A. Mission Description and Budget Item Justification**

A. Mission Description

The funding set forth in this document investigates, develops, and integrates system improvements to enable the E-3 AWACS to remain an effective Battle Management airborne surveillance system for command and control of combat forces and for strategic defense of the U.S. This PE funds the following efforts:

Modernization Programs: (RDT&E, AF)

1) The Integrated DAMA (Demand Assigned Multiple Access) / GATM (Global Air Traffic Management) Program seeks to make communications and navigation improvements required to meet current mandated DAMA SATCOM (Satellite Communication) and Air Traffic Control (ATC) requirements.

A) DAMA SATCOM is a CJCS mandated Ultra-High Frequency (UHF) satellite communications upgrade consisting of two new UHF DAMA terminals and new Radio Frequency (RF) components, to mitigate co-site interference, replacing the two non-DAMA UHF SATCOM radios on each aircraft. The DAMA enhancements will expand user availability of severely limited DoD UHF SATCOM channels, improving the interoperability and efficiency of DoD UHF SATCOM systems.

B) GATM is an FAA/International Civil Aviation Organization (ICAO)/EUROCONTROL mandated ATC upgrade consisting of new VHF radios with 8.33 kHz channel spacing, Aircraft Collision Avoidance System (ACAS)/Mode-S IFF and Reduced Vertical Separation Minimum (RVSM) capability. The ATC enhancements will permit more aircraft to fly closer together in congested airspace worldwide, particularly in European airspace. Non-compliance already results in airspace restrictions and denials, impacting AWACS' ability to support worldwide response in situations requiring immediate on-scene command and control (C2) battle management.

2) Block 40/45 is replacing AWACS 1970's vintage mission systems that are experiencing Diminishing Manufacturing Sources (DMS) issues, are difficult and expensive to upgrade, and limit overall AWACS system performance. The Block 40/45 upgrade will improve quality and timeliness of sensor data to the shooter, improve Combat Identification (CID), provide sensor fusion capability in support of the Single Integrated Air Picture (SIAP) via multi-sensor integration (MSI), improve AWACS contribution to Time Critical Targeting via Data Link Infrastructure, resolve radar electronics DMS, and enable more effective, faster upgrades via an open systems architecture. The Block 40/45 risk reduction effort, which was completed in FY03, reduced the risk of utilizing new technology to meet the AWACS Block 40/45 Operational Requirements Document (ORD). Block 40/45 transitioned from the risk reduction phase into the System Development and Demonstration (SD&D) phase during FY03.

3) Command & Control, Intelligence, Surveillance and Reconnaissance (C2ISR): C2ISR System Architecture Improvements provide timely enhancements to improve

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411L Airborne Warning & Control System (AWACS)

critical areas of the AWACS mission system, primarily in three areas:

A) Mission Capable (MC) rate improvement: Reliability, Maintainability & Availability (RM&A) analysis and development projects provide system improvements that boost the below-standard MC rate of this critical C2 platform and increase airframe longevity in order to support its flight commitment to end of operational life. Such efforts focus on increasing reliability of the air vehicle, command, control, computer, sensor systems and infrastructure improvements as well as providing solutions to diminishing manufacturing sources. Efforts will also focus on reduction of maintenance man-hours along with periodic depot maintenance improvements to increase aircraft availability. Programs will focus on risk reduction, development and fielding.

B) C2ISR enhancement and integration: AWACS seeks to fulfill the requirements of Joint Vision 2020 as well as Expeditionary Air Force (EAF) and other Task Force Concept of Operations to meet the needs of the operator. AWACS seeks to enhance network-centric warfare capabilities with other C2ISR systems by horizontally integrating machine-to-machine interfaces into AWACS in order to digitize the kill chain. Sensor and communications improvements, such as IFF interrogator/transponder and the ability to send, receive and fuse the air (and ground) picture via data link to fighter aircraft, will be developed through rapid prototyping, modeling, simulation and participation in live and simulated Joint exercises (e.g., Joint Combat Identification Evaluation Team (JCIET) and Joint Distributed Engineering Plant (JDEP). Collaborative efforts with other sensor platforms through capabilities such as network-centric operations will also enhance horizontal integration efforts. Certain near-term efforts, required by the operator to improve the timeliness and accuracy of information passed to/from fighter aircraft in the engagement zone and to provide consistent and re-playable mission data once the mission is complete, are quick reaction capabilities that can be developed & fielded to support the next air war. The program includes concept exploration, technology development and demonstration efforts that support continuous improvements to C2ISR capabilities of manned & unmanned platforms, space, data links and advanced Battle Management decision tools. C2ISR continues to support and develop self-protection capabilities to enable current and future threat deterrence. Fielding strategies will provide for immediate field retrofit when able, otherwise fielding will occur in subsequent modernization programs. All programs are designed to integrate with & transitions into the next C2ISR Platform. The E-3 will serve as lead platform to support the development of the Mark XXIIA Mode 5 IFF capability carried out in PE 63742F, Comabt ID Technology.

4) The Training, Support, and Infrastructure programs cover an array of cross cutting programs and activities in support of AWACS modification and enhancement programs. These programs include managing the AWACS developmental infrastructure, support equipment development, modernization planning/analysis, and trainer/simulator integration and concurrency. The Radar Systems Integration Lab/Software Development Facility must be maintained, operated and supported by contract to provide customers with a functioning APY 1/2 radar configuration in support of AWACS radar development, production and sustainment support equipment technologies and test strategies to ensure concurrent capability to sustain current, modified and upgraded E-3 equipment. Trainer/simulator concurrency analysis and definition is required to ensure trainers and simulators are kept current with the AWACS baseline. Associate contractor agreements are needed to establish concurrency between prime integrators and training service providers.

5) Test System 3/Integration Labs: The E-3 AWACS testbed aircraft, Test System 3 (TS-3, tail number 73-1674), the Avionics Integration Laboratory (AIL) and the AWACS Development Laboratory (ADL) are Government owned/contractor managed, maintained and operated assets. These test-ready assets support AWACS modernization and sustainment programs, including advanced projects, and allow AWACS to participate in live-fly and ground-based simulation exercises such as Joint Expeditionary Force Experiment (JEFX) and JDEP. They also support multiple international projects on a fee basis, including French, RSAF and NATO.

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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207417F Airborne Warning and Control System (AWACS)	PROJECT NUMBER AND TITLE 411L Airborne Warning & Control System (AWACS)
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6) NAVWAR (Navigation Warfare) is mandated by CJCSI 6140.01 (15 Nov 98) and requires all DoD GPS users to incorporate NSA Selective Availability Anti-Spoofing Module (SAASM), make provisions for the transition to 'black keys', eliminate requirements to acquire GPS satellites using the civil signal (C/A) incorporate new technology into the navigation sensor. AMP (Avionics Modernization Program) completes the FAA/ICAO/EUROCONTROL mandated air traffic control system upgrades and equips the E-3 fleet with flight deck and other avionics capabilities that will allow AWACS to comply with mandated global Required Navigation Performance (RNP) surveillance and communication standards. Non-compliance will result in airspace restrictions and denials, which will impact AWACS' ability to support worldwide responses to situations requiring immediate on-scene C2 battle management. The AMP modifications to the flight deck include the addition of data link communications, voice and data link digital radios, improved visual displays and flight management system, as well as automatic position reporting via data link. Replacement of critical avionics subsystems, unsustainable beyond 2010, will be included in the AMP. The program will focus on risk reduction, development and fielding.

7) Comm projects provide the AWACS system with an effective method for electronically transmitting and receiving critical mission information such as the Air Tasking Order (ATO). Comm projects will focus on engineering and retrofitting the entire fleet.

This program is in Budget Activity 7, Operational Systems Development, due to efforts supporting a fielded, post Milestone III operational weapon system.

(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments/Planned Programs	0.000	0.000	
(U) Continuing Test System-3/AITS support and program sustaining efforts	21.034	17.906	26.720
(U) Completing Block 40/45 Risk Reduction effort, continuing SD&D effort	114.369	219.315	249.020
(U) Completing Integrated DAMA/GATM (IDG) SD&D (combination of ATC Compliance & SATCOM DAMA)	22.996	26.817	
(U) Continuing C2ISR System Architecture Improvements, Advanced Projects, MC Rate Improvements	5.326	3.808	5.267
(U) Starting Navigational Warfare (NAVWAR) SD&D			7.780
(U) Total Cost	163.725	267.846	288.787

(U) <u>C. Other Program Funding Summary (\$ in Millions)</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E									
(U) Other APPN									
(U) Aircraft Procurement, AF, E-3	28.093	52.842	36.025	57.457	145.848	186.340	173.355	Continuing	TBD
(U) Mods									
(U) E-3 Initial Spares, AF	5.393	8.324	8.862	6.965	7.161	7.415	7.609	Continuing	TBD
(U) Replacement Supt Equip									

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0207417F Airborne Warning and
Control System (AWACS)

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411L Airborne Warning & Control
System (AWACS)(U) **D. Acquisition Strategy**

Most major programs (IDG, Block 40/45, NAVWAR, TS-3 and lab support) will be sole source to Boeing aircraft in Seattle, Wa.

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
07 Operational System Development				0207417F Airborne Warning and Control System (AWACS)				411L Airborne Warning & Control System (AWACS)				
<u>(U) Cost Categories</u>	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to</u>	<u>Total</u>	<u>Target</u>
(Tailor to WBS, or System/Item Requirements) (\$ in Millions)			<u>Prior to FY</u>	<u>2003</u>	<u>2003</u>	<u>2004</u>	<u>2004</u>	<u>2005</u>	<u>2005</u>	<u>Complete</u>	<u>Cost</u>	<u>Value of</u>
			<u>Cost</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>			<u>Contract</u>
					<u>Date</u>		<u>Date</u>		<u>Date</u>			
<u>(U) Product Development</u>												
(U) Boeing (Block 40/45 Risk Reduction)	SS/CPAF	Boeing - Seattle, WA	37.509	90.558	Oct-01					0.000	128.067	
(U) Boeing (Block 40/45 SD&D)	SS/CPAF	Boeing - Seattle, WA	0.000	22.286	Jul-03	216.627	Oct-03	245.957	Oct-04	Continuing	TBD	
(U) Boeing (PDMA)*	SS/Multiple	Boeing - Seattle, WA	58.149		N/A					Continuing	TBD	
(U) Boeing (C2ISR Sys Arch Imp)	SS/FPIF & CPAF	Boeing - Seattle, WA	35.876	3.154	N/A	1.538	Nov-03	3.118	Nov-03	Continuing	TBD	
(U) Boeing (IDG)	SS/Multiple	Boeing - Seattle, WA	6.467	20.846	Apr-02	24.602	Oct-03			0.000	51.915	
(U) Boeing NAVWAR/AMP	SS/Multiple	Boeing - Seattle, WA	0.000					7.188	Nov-04	Continuing	TBD	
Subtotal Product Development			138.001	136.844		242.767		256.263		Continuing	TBD	0.000
* N/A based on Program Depot Maintenance Airframe (PDMA) Acquisition Strategy which includes multiple contracts with multiple organizations with overlapping and continuing performance periods.												
Remarks: Note: Total Program does not include NATO funds.												
<u>(U) Support</u>												
(U)Support/ITSP	Competitive	AWACS Program										
MITRE, travel, other	Multiple	Office - Hanscom AFB, MA	583.138	14.746	N/A	11.276	N/A	10.164	N/A	Continuing	TBD	
Subtotal Support			583.138	14.746		11.276		10.164		Continuing	TBD	0.000
Remarks:												
<u>(U) Test & Evaluation</u>												
(U) Test System-3 ADAPT Contract/AITS Contract / Other test activities	SS/Multiple	Boeing - Seattle, WA	379.607	12.135	N/A	13.803	N/A	22.360	N/A	Continuing	TBD	
Subtotal Test & Evaluation			379.607	12.135		13.803		22.360		Continuing	TBD	0.000
Remarks:												
<u>(U) Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			1,100.746	163.725		267.846		288.787		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY
07 Operational System Development

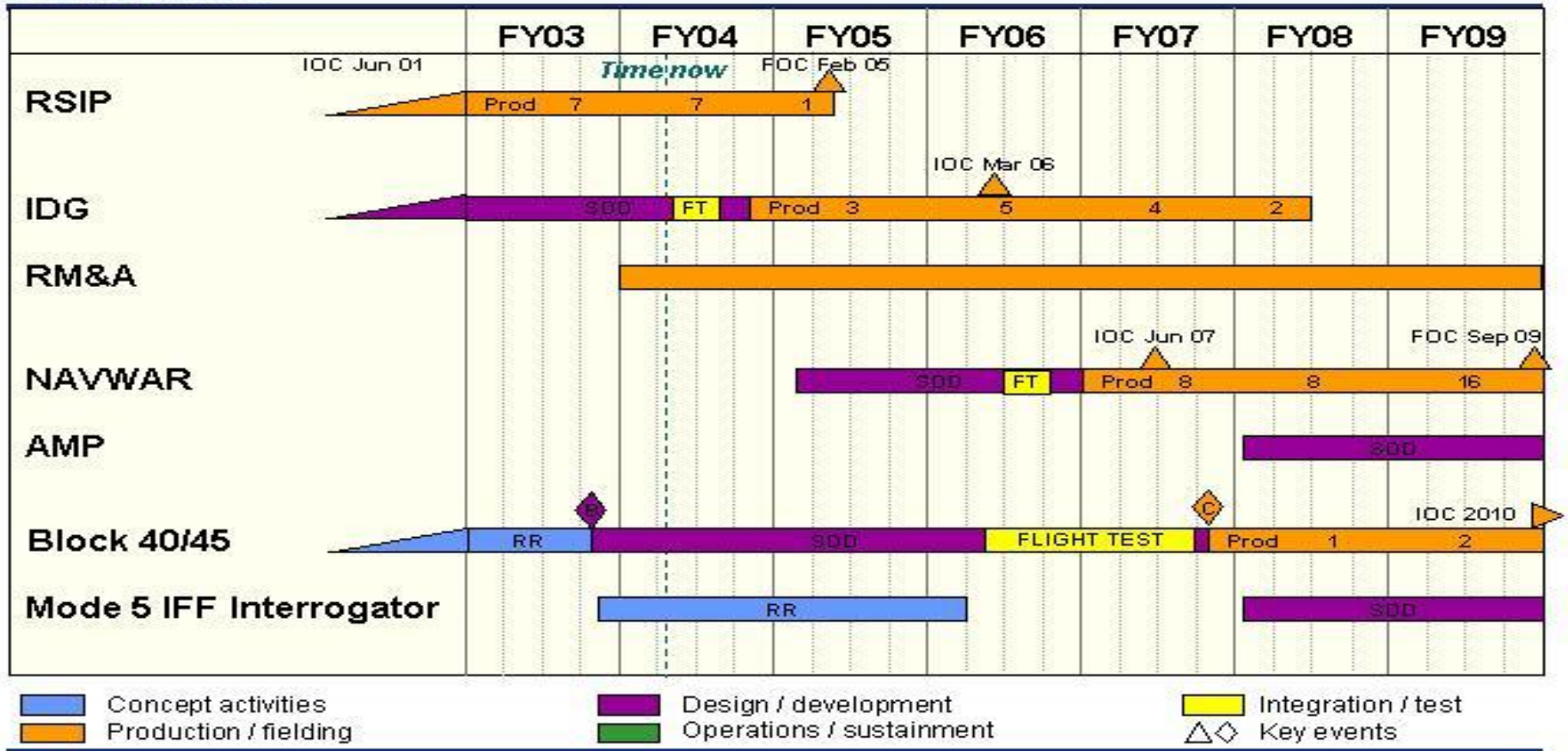
PE NUMBER AND TITLE
0207417F Airborne Warning and Control System (AWACS)

PROJECT NUMBER AND TITLE
411L Airborne Warning & Control System (AWACS)



U.S. AIR FORCE

AWACS Major Modification Schedule



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Exhibit R-4a, RDT&E Schedule Detail

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(U) <u>Schedule Profile</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) BLOCK 40/45 MILESTONE B Decision	4Q		
(U) BLOCK 40/45 SD&D Contract Award	4Q		
(U) BLOCK 40/45 Risk Reduction Complete	4Q		
(U) IDG AIL Integration & Testing Start		1Q	
(U) IDG Test Aircraft Modification Start		1Q	
(U) 40/45 Initial Design & Manufacturing Review (IDMR)		2Q	
(U) IDG Ground & Flight Testing		3Q	
(U) IDG Production Contract Award		4Q	
(U) 40/45 Final Design & Manufacturing Review (FDMR)		4Q	
(U) NAVWAR SD&D Contract Award			1Q
(U) RSIP FOC			1Q
(U) 40/45 Test Aircraft Modification Start			2Q
(U) NAVWAR Software Development Progress Review			3Q
(U) IDG Production Aircraft Modification Start			4Q

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PE NUMBER: 0207423F

PE TITLE: Advanced Communications Systems

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207423F Advanced Communications Systems
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Cost (\$ in Millions)	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
Total Program Element (PE) Cost	27.326	12.208	18.198	5.479	0.000	5.920	6.380	0.000	TBD
4934 Tactical Air Control Party (TACP)	27.326	12.208	18.198	5.479	0.000	5.920	6.380	0.000	TBD

(U) A. Mission Description and Budget Item Justification

The Tactical Air Control Party Modernization Program (TACP-M) is on the Chief of Staff of the Air Force (CSAF) Kill Chain Enhancement Priority List--ranked #5. TACPs deploy with Army maneuver units and provide a command and control (C2) link for Close Air Support (CAS), airlift and reconnaissance missions. TACPs are equipped with various communications and ancillary equipment needed to interface with ground maneuver forces, aircraft conducting air operations, aerospace Command and Control (C2) aircraft/agencies and Intelligence, Surveillance and Reconnaissance (ISR) aircraft/agencies. The TACP-Modernization (TACP-M) Program is intended to improve situational awareness (SA), increase targeting accuracy, reduce kill chain decision time, provide more mobility and flexibility, improve data flows/information exchange and increase joint and multinational interoperability and reduce fratricide. Its first phase provides a modernized dismounted capability via a streamlined acquisition using non-developmental, off-the-shelf (OTS) manpack radios (MPR), laser range finders (LRF), and ruggedized mission computers combined with TACP SA software. Its second phase will provide a vehicular-mounted capability, named Vehicular Communications System (VCS), through the Army's Cluster 1 Joint Tactical Radio System (JTRS) program.

This is a budget activity 7, Operational System Development RDT&E, AF since it examines appropriate emerging technologies for the continuing spirral development of commercial (COTS) equipment; provide software development, and determines and resolves integration issues pertaining to COTS.

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	29.133	12.312	2.619
(U) Current PBR/President's Budget	27.326	12.208	18.198
(U) Total Adjustments	-1.807	-0.104	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.104	
Congressional Increases			
Reprogrammings	-1.807		
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			
Not Applicable			

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0207423F Advanced Communications Systems			PROJECT NUMBER AND TITLE 4934 Tactical Air Control Party (TACP)			
Cost (\$ in Millions)	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	
4934 Tactical Air Control Party (TACP)	27.326	12.208	18.198	5.479	0.000	5.920	6.380	0.000	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

(U) A. Mission Description and Budget Item Justification

The Tactical Air Control Party Modernization Program (TACP-M) is on the Chief of Staff of the Air Force (CSAF) Kill Chain Enhancement Priority List--ranked #5. TACPs deploy with Army maneuver units and provide a command and control (C2) link for Close Air Support (CAS), airlift and reconnaissance missions. TACPs are equipped with various communications and ancillary equipment needed to interface with ground maneuver forces, aircraft conducting air operations, aerospace Command and Control (C2) aircraft/agencies and Intelligence, Surveillance and Reconnaissance (ISR) aircraft/agencies. The TACP-Modernization (TACP-M) Program is intended to improve situational awareness (SA), increase targeting accuracy, reduce kill chain decision time, provide more mobility and flexibility, improve data flows/information exchange and increase joint and multinational interoperability and reduce fratricide. Its first phase provides a modernized dismounted capability via a streamlined acquisition using non-developmental, off-the-shelf (OTS) manpack radios (MPR), laser range finders (LRF), and ruggedized mission computers combined with TACP SA software. Its second phase will provide a vehicular-mounted capability, named Vehicular Communications System (VCS), through the Army's Cluster 1 Joint Tactical Radio System (JTRS) program.

This is a budget activity 7, Operational System Development RDT&E, AF since it examines appropriate emerging technologies for the continuing spiral development of commercial (COTS) equipment; provide software development, and determines and resolves integration issues pertaining to COTS.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Continue JTRS compliant TACP Vehicular Communication System (VCS) hardware in conjunction with Army's JTRS Cluster 1.	21.016	7.559	14.047
(U) Software development and System integration.	5.792	4.067	1.735
(U) Operational and interoperability test planning.	0.518	0.582	2.416
(U) Total Cost	27.326	12.208	18.198

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Other Procurement	7.870	2.595	18.941	22.937	20.998	65.010	66.330	Continuing	TBD

PE 0207423F Note: Official database reflects \$4.063M less for Project TACP-M in FY03. TACP-M is executing \$11.933M in FY03.

(U) D. Acquisition Strategy

All major contracts within this Program Element and program have been awarded after full and open competition.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

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BUDGET ACTIVITY			PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
07 Operational System Development			0207423F Advanced Communications Systems					4934 Tactical Air Control Party (TACP)				
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
<u>(U) Product Development</u>												
Boeing Cluster 1	C/PAF	Army Tactical Command & Control Sys, Ft Monmouth, NJ	4.059	18.381	Mar-03	4.753	Feb-04	13.668	Jan-05	Continuing	TBD	
ESC Sys Int Software Dev't	T&M	MultiMax, Inc. Largo, Maryland	2.205	5.792	Nov-02	4.067	Jul-04	1.735	Jun-05	Continuing	TBD	
Subtotal Product Development			6.264	24.173		8.820		15.403		Continuing	TBD	0.000
Remarks:												
<u>(U) Support</u>												
ESC	C/FFP	Titan Corp., Odyssey Consulting Group, BTAS, Inc.Hanscom AFB, MA	2.408	2.635	Aug-03	2.806	Aug-04	0.379	Aug-05	Continuing	TBD	
Subtotal Support			2.408	2.635		2.806		0.379		Continuing	TBD	0.000
Remarks:												
<u>(U) Test & Evaluation</u>												
Test Agency Support	MIPR	Various	0.713	0.518	Jan-03	0.582	Oct-03	2.416	Nov-04	Continuing	TBD	
Subtotal Test & Evaluation			0.713	0.518		0.582		2.416		Continuing	TBD	0.000
Remarks:												
<u>(U) Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Total Cost</u>			9.385	27.326		12.208		18.198		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

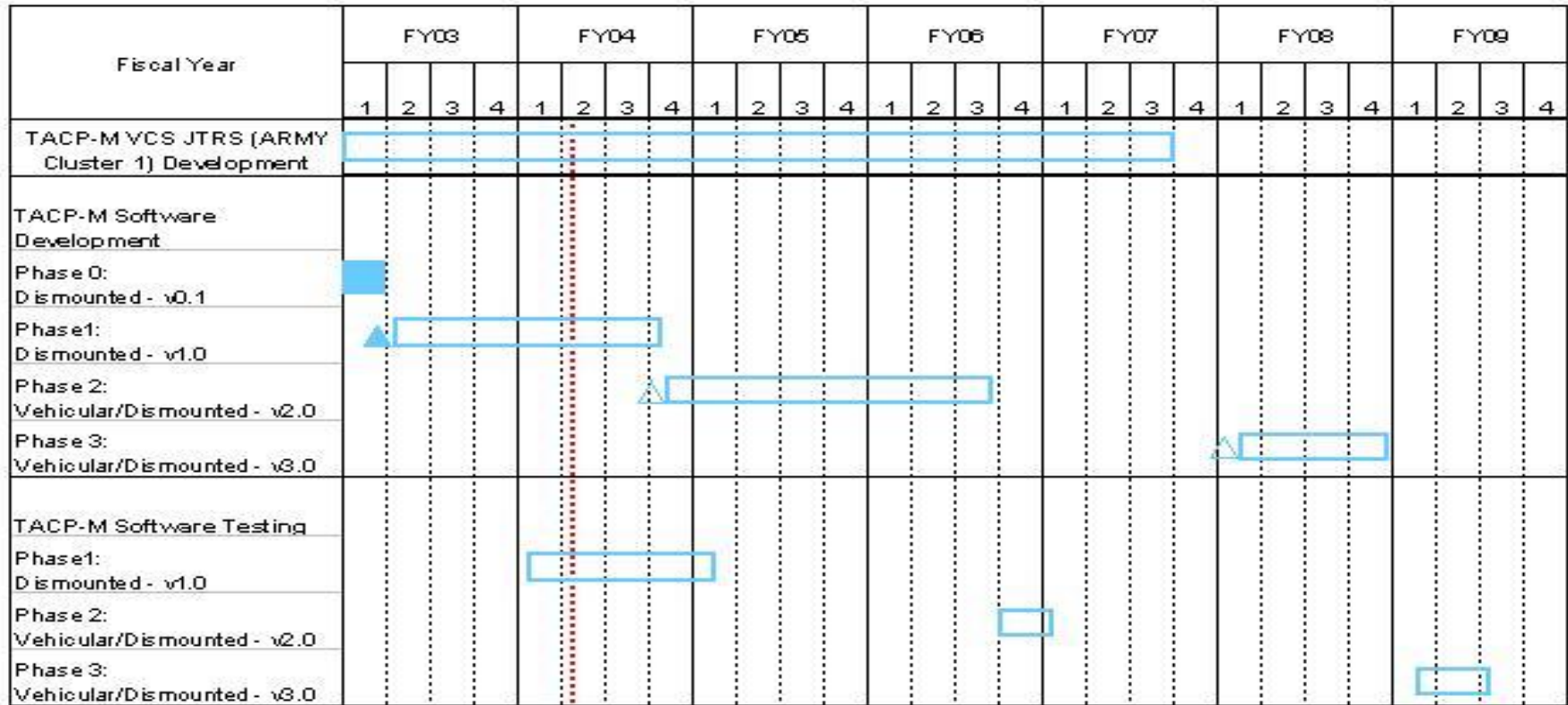
February 2004

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0207423F Advanced Communications Systems

PROJECT NUMBER AND TITLE
4934 Tactical Air Control Party (TACP)

TACP-M (Jan 04)



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Exhibit R-4a, RDT&E Schedule Detail

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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207423F Advanced Communications Systems	PROJECT NUMBER AND TITLE 4934 Tactical Air Control Party (TACP)
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(U) <u>Schedule Profile</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) VCS JTRS Radio Development (FY02-07)	1-4Q	1-4Q	1-4Q
(U) Phase 0 Completed	1Q		
(U) Phase 1 Contract Award	1Q		
(U) Phase 1 Development	1-4Q	1-3Q	
(U) Phase 1 Testing		1-4Q	1Q
(U) Phase 2 Contract Award		4Q	
(U) Phase 2 Development		4Q	1-4Q

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PE NUMBER: 0207438F

PE TITLE: Theater Battle Management (TBM) C4I

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207438F Theater Battle Management (TBM) C4I
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Cost (\$ in Millions)	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
Total Program Element (PE) Cost	33.304	32.505	37.210	37.990	34.079	34.579	35.287	Continuing	TBD
3330 Cmd Cntrl Info Process Sys (C2IPS)	1.730	0.000	0.000	0.000	0.000	0.000	0.000	0.000	50.808
4790 Theater Battle Management Core System (TBMCS)	21.358	22.400	22.748	23.318	23.302	23.490	24.000	Continuing	TBD
4802 Deliberate and Crisis Action Planning and Execution Segment (DCAPES)	10.216	10.105	14.462	14.672	10.777	11.089	11.287	Continuing	TBD

Note: TBMCS received an FY04 Congressional Plus up of \$1.3M to provide for new Air Force Special Operations Command (AFSOC) levied Command and Control Mission Manager (C2MM) requirements arising from Operation Enduring Freedom (OEF)/Operation Iraqi Freedom (OIF) lessons learned. C2MM provides planning, decision-making and information management support for Special Operations Forces in day-to-day, exercise and wartime environments.

(U) A. Mission Description and Budget Item Justification

TBM C4I develops force-level and wing-level command, control, and intelligence systems which utilize DoD's 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 and Space 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), Theater Battle Management Core Systems (TBMCS) (including the Family of Interoperable Operational Pictures (FIOP) initiative), and Deliberate and Crisis Action Planning and Execution Segment (DCAPES).

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

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2004

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207438F Theater Battle Management (TBM) C4I

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	33.828	31.647	31.303
(U) Current PBR/President's Budget	33.304	32.505	37.210
(U) Total Adjustments	-0.524	0.858	
(U) Congressional Program Reductions	0.000	-0.442	
Congressional Rescissions	0.000		
Congressional Increases		1.300	
Reprogrammings	0.388		
SBIR/STTR Transfer	-0.912		

(U) **Significant Program Changes:**

In FY04, FIOP funding was transferred to PE 0207438F and contained in project 4790 TBMCS. FIOP funds transferred out of this PE 0207438F, TBMCS project and into PE 0207443 for FY05-09 placing it with other FIOP funded projects.

Transferred funding across TBMCS appropriations to synchronize development with equipment and sustainment activities and to properly fund test and contractor support which explains the increase in FY05 for Systems engineering and Test Support.

Exhibit R-2a, RDT&E Project Justification

DATE
February 2004

BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0207438F Theater Battle Management (TBM) C4I			PROJECT NUMBER AND TITLE 3330 Cmd Cntrl Info Process Sys (C2IPS)			
Cost (\$ in Millions)	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	
3330 Cmd Cntrl Info Process Sys (C2IPS)	1.730	0.000	0.000	0.000	0.000	0.000	0.000	0.000	50.808	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

(U) A. Mission Description and Budget Item Justification

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) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments/Planned Programs	0.000		
(U) Increment 4 software deficiency reports cleanup	1.730		
(U) Total Cost	1.730	0.000	0.000

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) N/A									

(U) D. Acquisition Strategy

The C2IPS was developed and installed in four increments. A spiral development process was used to produce consecutive software releases within each increment. 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 continued the final year work on migration-interoperability between C2IPS-TBMCS within project 673330.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2004

BUDGET ACTIVITY			PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
07 Operational System Development			0207438F Theater Battle Management (TBM) C4I					3330 Cmd Cntrl Info Process Sys (C2IPS)				
<u>(U) Cost Categories</u>	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to</u>	<u>Total</u>	<u>Target</u>
(Tailor to WBS, or System/Item Requirements) (\$ in Millions)			<u>Prior to FY</u>	<u>2003</u>	<u>2003</u>	<u>2004</u>	<u>2004</u>	<u>2005</u>	<u>2005</u>	<u>Complete</u>	<u>Cost</u>	<u>Value of</u>
			<u>2003</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>			<u>Contract</u>
			<u>Cost</u>		<u>Date</u>		<u>Date</u>		<u>Date</u>			
<u>(U) Product Development</u>												
CSC	FPIF	El Segundo, CA (HQ)	29.612	1.730						0.000	31.342	
Unisys	IDIQ	DISA, Scott AFB	7.925							0.000	7.925	
Subtotal Product Development			37.537	1.730		0.000		0.000		0.000	39.267	0.000
Remarks:												
<u>(U) Support</u>												
MITRE	T&M	MITRE, Bedford, MA	7.275							0.000	7.275	
TEMS/ITSP	Various		2.324							0.000	2.324	
ESC (government organization)	n/a		1.942							0.000	1.942	
Subtotal Support			11.541	0.000		0.000		0.000		0.000	11.541	0.000
Remarks:												
<u>(U) Test & Evaluation</u>												
N/A											0.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Total Cost</u>			49.078	1.730		0.000		0.000		0.000	50.808	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

**0207438F Theater Battle Management
(TBM) C4I**

PROJECT NUMBER AND TITLE

**3330 Cmd Cntrl Info Process Sys
(C2IPS)**

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Exhibit R-4a, RDT&E Schedule Detail		DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207438F Theater Battle Management (TBM) C4I	PROJECT NUMBER AND TITLE 3330 Cmd Cntrl Info Process Sys (C2IPS)
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(U) <u>Schedule Profile</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Completed C2IPS-TBMCS interoperability (resolve outstanding reports)	2Q		

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0207438F Theater Battle Management (TBM) C4I			PROJECT NUMBER AND TITLE 4790 Theater Battle Management Core System (TBMCS)		
Cost (\$ in Millions)	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
4790 Theater Battle Management Core System (TBMCS)	21.358	22.400	22.748	23.318	23.302	23.490	24.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

Note: TBMCS received an FY04 Congressional Plus up of \$1.3M to provide for new Air Force Special Operations Command (AFSOC) levied Command and Control Mission Manager (C2MM) requirements arising from Operation Enduring Freedom (OEF)/Operation Iraqi Freedom (OIF) lessons learned. C2MM provides planning, decision-making and information management support for Special Operations Forces in day-to-day, exercise and wartime environments.

(U) **A. Mission Description and Budget Item Justification**

The Theater Battle Management Core Systems (TBMCS) develops force-level and wing-level command, control, and intelligence systems which utilize DoD's 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 command 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 and Space 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 integrated functionality of the following legacy systems: Contingency Theater Automated Planning System (CTAPS), Wing Command & Control System (WCCS), and Combat Intelligence System (CIS).

(U) **B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Continue TBMCS Increment 1.1 baseline Spirals (including Force Level, Unit Ops & Unit Intel Spirals, effort continues into FY05)	18.379	7.089	9.792
(U) Continue TBMCS Increment 2.0 planning and development	1.000	5.749	6.289
(U) TBMCS System engineering and interoperability with US, NATO, or other coalition systems	1.849	2.121	5.167
(U) TBMCS Test Support for Force Level and Unit Level Spirals	0.130	0.418	1.500
(U) TBMCS/AFSOC Command and Control Mission Manager		1.300	
(U) Family of Interoperable Operational Pictures (FIOP) Requirements and Engineering Management		1.072	
(U) FIOP Execution Management Capability.		3.256	
(U) FIOP COE Support for Joint Variable Message format.		1.395	
(U) Total Cost	21.358	22.400	22.748

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

**0207438F Theater Battle Management
(TBM) C4I**

PROJECT NUMBER AND TITLE

**4790 Theater Battle Management
Core System (TBMCS)****(U) C. Other Program Funding Summary (\$ in Millions)****(U) D. Acquisition Strategy**

TBMCS - 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 DoD's 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.

FIOP - Implement Spiral development, integration and sustain web-enable Common Operating Picture (COP) capabilities that are interoperable with existing Service systems by identifying execution-level requirements and candidate solutions which will be tested and then be migrated to the fielded Service systems for sustainment.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE
February 2004

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
07 Operational System Development				0207438F Theater Battle Management (TBM) C4I				4790 Theater Battle Management Core System (TBMCS)				
(U) Cost Categories	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2003 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) Product Development												
TBMCS - Increment/Spiral development	C/CPAF	LMMS, Colorado Springs CO		16.899	Dec-02	11.388	Nov-03	14.381	Nov-04	Continuing	TBD	
TBMCS Joint Targetting Toolbox	C/CPFF	Northrup Grumman, Reston VA		1.000	Feb-02	0.750	Mar-04	1.000	Feb-05	Continuing	TBD	
TBMCS ADOCS	C/CPFF	General Dynamics C4, Taunton MA		0.400	Jul-03	0.200	Feb-04	0.200	Feb-05	Continuing	TBD	
TBMCS Training	MIPR	GSA, Kansas City MO		0.630	Dec-02	0.300	Feb-04	0.300	Feb-05	Continuing	TBD	
TBMCS IMOM	MIPR	Depart of Energy, Idaho Falls ID		0.450	Nov-02	0.200	Feb-04	0.200	Jan-05	Continuing	TBD	
TBMCS/AFSOC C2 Mission Manager	MIPR	SAIC, Florida and West Virginia				1.300	Apr-04			0.000	1.300	
FIOP Requirements & Engineering Mgmt	MIPR	Various				1.072	Dec-03			0.000	1.072	
FIOP Execution Mgmt Capability Development	C/CPFF	LMMS, Colorado Springs CO				2.116	Jan-04			0.000	2.116	
FIOP COE Support for Joint Variable Message format	MIPR	PEO-C3T, Ft Monmouth NJ				1.395	Apr-04			0.000	1.395	
Subtotal Product Development			0.000	19.379		18.721		16.081		Continuing	TBD	0.000
Remarks:												
(U) Support												
TBMCS - System Engineering	C/CPAF	MITRE, Bedford MA		1.849	Nov-02	2.121	Nov-03	5.167	Nov-04	Continuing	TBD	
FIOP Execution Mgmt Capability Test and Support	MIPR	Various				1.140	Dec-03			0.000	1.140	
Subtotal Support			0.000	1.849		3.261		5.167		Continuing	TBD	0.000
Remarks:												
(U) Test & Evaluation												
TBMCS Test Support	MIPR	46TS, Eglin AFB FL		0.130	Dec-02	0.418	Feb-04	1.500	Nov-04	Continuing	TBD	
Subtotal Test & Evaluation			0.000	0.130		0.418		1.500		Continuing	TBD	0.000
Remarks:												

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

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

(U) Management

						0.000
Subtotal Management	0.000	0.000	0.000	0.000	0.000	0.000
Remarks:						
(U) Total Cost	0.000	21.358	22.400	22.748	Continuing	TBD 0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

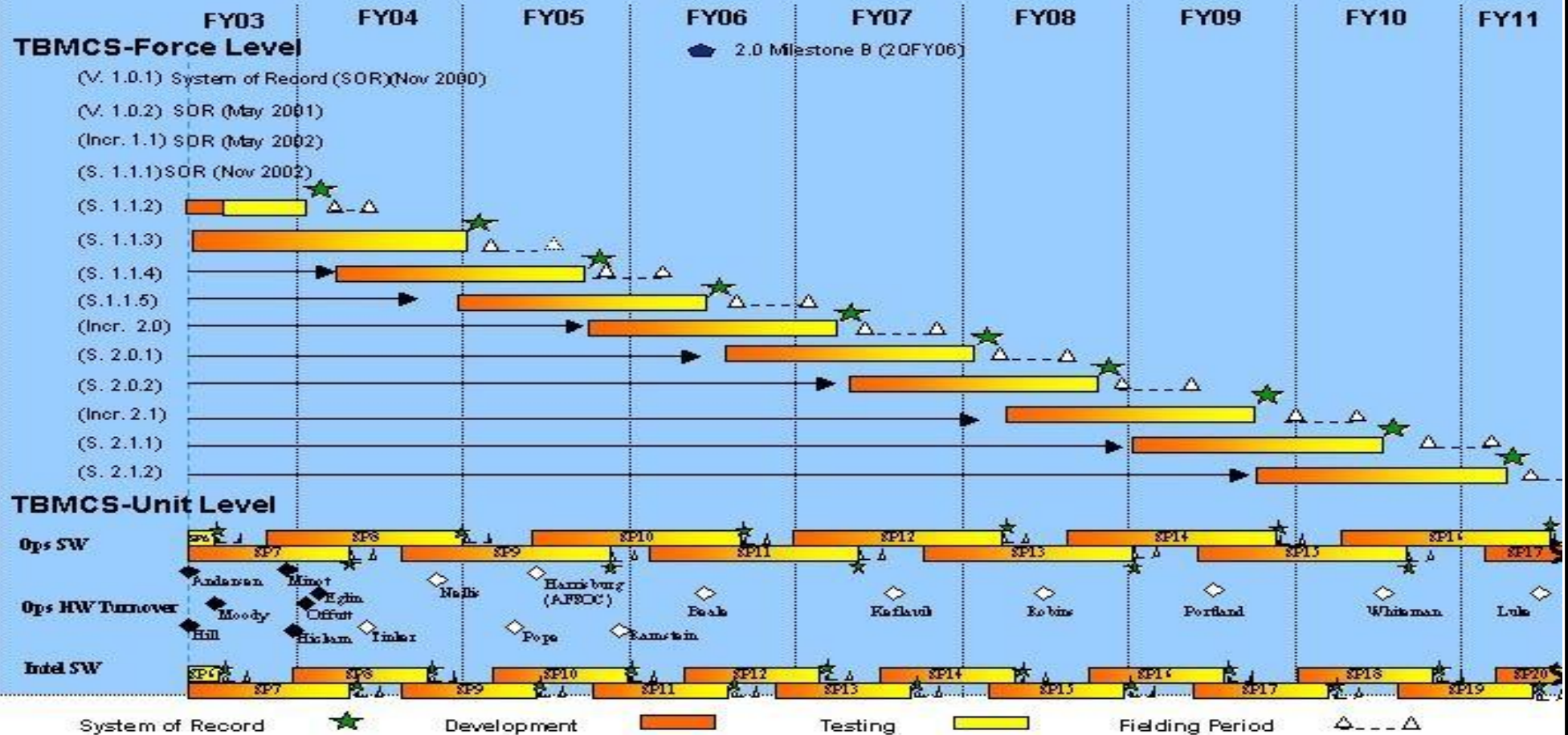
BUDGET ACTIVITY
07 Operational System Development

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

PROJECT NUMBER AND TITLE
4790 Theater Battle Management
Core System (TBMCS)

TBMCS Schedule

As of: 14 Jan 04



Project 4790

R-1 Shopping List - Item No. 147-12 of 147-18

Exhibit R-4 (PE 0207438F)

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207438F Theater Battle Management (TBM) C4I	PROJECT NUMBER AND TITLE 4790 Theater Battle Management Core System (TBMCS)
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(U) <u>Schedule Profile</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Continuing TBMCS Force Level Software Inc 1.1 Baseline spirals	1Q	2Q	1-4Q
(U) Continuing TBMCS Unit Level Ops Spirals	1Q	2Q4Q	4Q
(U) Continuing TBMCS Unit Level Intel Spirals	1Q	2Q4Q	2Q
(U) TBMCS/AFSOC C2MM		2Q4Q	
(U) FIOP Rqmts/Engr Management*		2Q	
(U) FIOP Execution Management Capability*		2-3Q	
(U) FIOP COE Spt for Joint VMF*		3Q	

*In FY04, FIOP funding was transferred to PE 0207438F and contained in project 4790 TBMCS. For FY05-FY09, FIOP funds transferred out of this PE 0207438F, TBMCS project and into PE 0207443 placing it with other FIOP funded projects.

Exhibit R-2a, RDT&E Project Justification

DATE
February 2004

BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0207438F Theater Battle Management (TBM) C4I			PROJECT NUMBER AND TITLE 4802 Deliberate and Crisis Action Planning and Execution Segment (DCAPES)		
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Cost (\$ in Millions)	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
4802 Deliberate and Crisis Action Planning and Execution Segment (DCAPES)	10.216	10.105	14.462	14.672	10.777	11.089	11.287	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

Deliberate and Crisis Action Planning and Execution Segments (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). DCAPES replaced the operational tasking and priorities functionality of COMPES with modern relational databases, integrated-distributed database, and common and shared data consistent with the Joint vision for integrated Command and Control. 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 Combatant Commanders. It matches people and airframes/weapon systems to the Combatant Commander's warfighting requirements.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments/Planned Programs	0.000	0.000	
(U) Continue DCAPES Increment 2 contractor development, requirements definition, prototyping, coding, and testing. Consists of Logistics Feasibility Analysis Capability (LOGFAC), Logistics Module/Manpower and Personnel Module-Base (LOGMOD/MANPER B), War and Mobilization Planning (WMP), Enhanced Combat Scheduling System (ECSS), Web Enablement, and JOPES Modernization Migration	7.163	6.922	11.528
(U) DCAPES Increment 2b requirements definition (formerly known as Incr 3). Complete in FY 2004.	0.331	0.331	
(U) Continue DCAPES Increment 2 Program Management/Engineering Support	1.909	1.998	2.052
(U) Continue Government deployment operational testing and interoperability support	0.813	0.854	0.882
(U) Total Cost	10.216	10.105	14.462

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u> <u>Actual</u>	<u>FY 2004</u> <u>Estimate</u>	<u>FY 2005</u> <u>Estimate</u>	<u>FY 2006</u> <u>Estimate</u>	<u>FY 2007</u> <u>Estimate</u>	<u>FY 2008</u> <u>Estimate</u>	<u>FY 2009</u> <u>Estimate</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) Other APPN N/A									

(U) D. Acquisition Strategy

DCAPES is managed by HQ Systems Support Group, Gunter Annex, AL. Computer Sciences Corporation, and Science Applications International Corporation team

Exhibit R-2a, RDT&E Project Justification

DATE

February 2004

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

**0207438F Theater Battle Management
(TBM) C4I**

PROJECT NUMBER AND TITLE

**4802 Deliberate and Crisis Action
Planning and Execution Segment
(DCAPES)**

under Command and Control Product Line (CCPL) contracts awarded and maintained by HQ Systems Support Group. Computer Sciences Corporation and Science Applications International Corporation were awarded the follow-on support contract. The program uses an evolutionary acquisition strategy with incremental spiral development with one or multiple software releases. This approach accommodates refinement and prioritization of user requirements and improves adaptability with commercial technology.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE
February 2004

BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0207438F Theater Battle Management (TBM) C4I				PROJECT NUMBER AND TITLE 4802 Deliberate and Crisis Action Planning and Execution Segment (DCAPES)				
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u> Prior to FY 2003 Cost	<u>FY</u> 2003 Cost	<u>FY</u> 2003 Award Date	<u>FY</u> 2004 Cost	<u>FY</u> 2004 Award Date	<u>FY</u> 2005 Cost	<u>FY</u> 2005 Award Date	<u>Cost to Complete</u>	<u>Total</u> Cost	<u>Target</u> Value of Contract
<u>(U) Product Development</u>												
Raytheon/ CSC/ SAIC	FP/LH with award fee	Falls Church, VA	18.471							Continuing	TBD	
SSG/SW	T&M	Maxwell AFB, Gunter Annex, AL	2.112	1.000	Oct-02					Continuing	TBD	
CSC/SAIC	CPFF	Falls Church, VA	5.648	6.494	Apr-03	7.413	Dec-03	11.528	Dec-04	Continuing	TBD	
Subtotal Product Development			26.231	7.494		7.413		11.528		Continuing	TBD	0.000
Remarks:												
<u>(U) Support</u>												
ITSP	T&M	AC Technologies, Fairfax, VA	0.901	0.932	Sep-03	0.130	Jan-04	0.136	Jan-05	Continuing	TBD	
Other	Various		0.201	0.355						Continuing	TBD	
Subtotal Support			1.102	1.287		0.130		0.136		Continuing	TBD	0.000
Remarks:												
<u>(U) Test & Evaluation</u>												
46 Test Sqdn/JITC	PO	Eglin AFB, FL/Ft Huachuca, AZ	0.468	0.813	Oct-02	0.840	Oct-03	0.882	Oct-04	Continuing	TBD	
Subtotal Test & Evaluation			0.468	0.813		0.840		0.882		Continuing	TBD	0.000
Remarks:												
<u>(U) Management</u>												
PMO						1.373		1.549		Continuing	TBD	
FFRDC	CPAF	MITRE, Hanscom AFB, MA	0.857	0.622	Oct-02	0.349	Oct-03	0.367	Oct-04		2.195	
Subtotal Management			0.857	0.622		1.722		1.916		Continuing	TBD	0.000
Remarks:												
<u>(U) Total Cost</u>			28.658	10.216		10.105		14.462		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

BUDGET ACTIVITY
07 Operational System Development

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

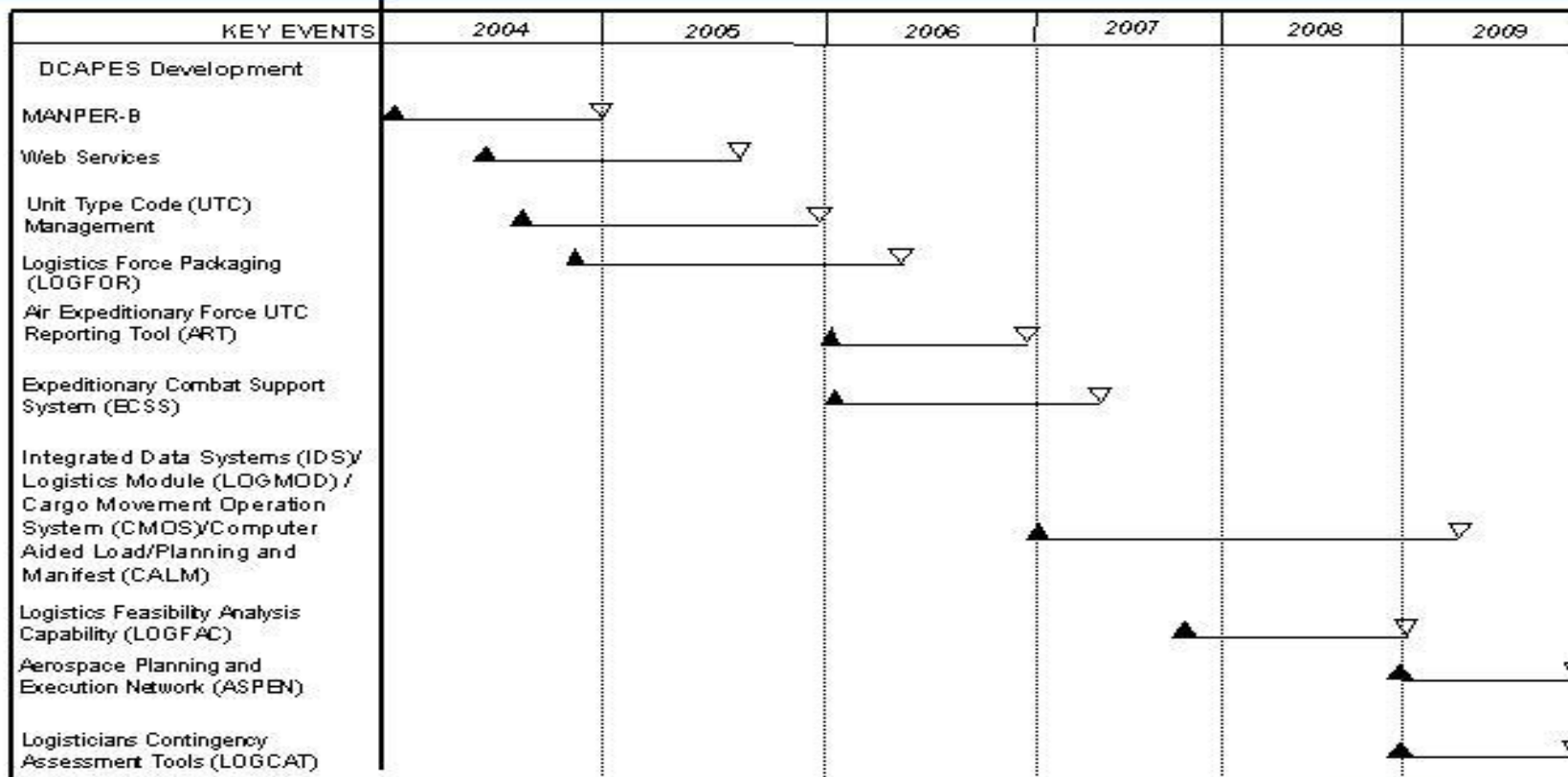
PROJECT NUMBER AND TITLE
4802 Deliberate and Crisis Action
Planning and Execution Segment
(DCAPES)



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DCAPES Schedule

U.S. AIR FORCE



Integrity - Service - Excellence

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207438F Theater Battle Management (TBM) C4I	PROJECT NUMBER AND TITLE 4802 Deliberate and Crisis Action Planning and Execution Segment (DCAPES)
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(U) <u>Schedule Profile</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Complete Increment 2, Spiral 1 Requirements Analysis (Note 1)	1Q		
(U) Increment 2, Spiral 1 Fielding (Note 2)		2Q	
(U) Complete LOGFAC web-based Requirements Analysis (Note 3)	1Q		
(U) Deliver LOGFAC web-based to Government		2Q	
(U) Test and Field LOGFAC web-based		2Q	
(U) Continue DCAPES-LOGFAC Requirements Analysis (Note 4)	4Q	4Q	
(U) Increment 2b requirements Analysis (Note 5)			1Q
(U) Increment 2b development			3Q
<p>Note 1: Increment 2 contains 3 Spirals. Requirements analysis slipped due to required Incr 1 performance enhancements taking precedence over future Incr analysis. Completed 1st Qtr, FY 2003.</p> <p>Note 2: After completing Incr 1 performance issues and the delay of GCCS 4.X released from June 02 to Mar 04 resulted in Incr 2 spiral being reprioritized and a new development approach for LOGFAC web-based.</p> <p>Note 3: LOGFAC web-based is a limited capability only. Completed 1st Qtr, FY 2003.</p> <p>Note 4: DCAPES-LOGFAC is the modernized version rebaselined to FY07.</p> <p>Note 5: DCAPES requirements analysis completed 4th Qtr, FY 2004.</p>			

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PE NUMBER: 0207445F
 PE TITLE: FIGHTER TACTICAL DATA LINK

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207445F FIGHTER TACTICAL DATA LINK
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Cost (\$ in Millions)	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
Total Program Element (PE) Cost	28.955	42.318	50.976	67.805	27.439	55.473	51.179	0.000	0.000
5043 Fighter Tactical Data Link	28.955	42.318	50.976	67.805	27.439	55.473	51.179	0.000	0.000

On 17 April 2001, the Chief of Staff of the Air Force (CSAF) approved the management of Tactical Data Links (TDL) as a Major System Acquisition Program. In order to effectively manage the program, the Tactical Data Links System Program Office (SPO) was stood up at Electronic Systems Center (ESC), Hanscom AFB, MA on 29 May 2001. Four new program elements were created in FY03 to consolidate the platform integration funding. This includes PE 0207445F, Fighter Tactical Data Link; PE 0207446F, Bomber Tactical Data Link; PE 0207448F, Command, Control, Intelligence, Surveillance, and Reconnaissance (C2ISR) Tactical Data Link; and PE 0401839F, Airlift/Other Tactical Data Link. Funding from platform PEs was transferred to the appropriate TDL platform PE.

(U) A. Mission Description and Budget Item Justification

Tactical Data Links (TDL) are used in a combat environment to exchange information such as messages, data, radar tracks, target information, platform status, imagery, and command assignments. TDLs provide interoperability, local and global connectivity, and situational awareness to the user when operating under rapidly changing operational conditions. TDLs are used by the Air Force, Army, Navy, and Marine Corps Theater Command and Control (C2) elements, weapons platforms, and sensors. TDLs include, but are not limited to: Link 16, Link 11, Situational Awareness Data Link (SADL), and Variable Message Format (VMF).

This effort provides for common development, integration, and interoperability of tactical data link capability to all Air Force fighter platforms to include, but not limited to, A/OA-10, F-15A-E, F-16 Blocks 30/40/50, F/A-22, F-117, and F-35 aircraft. Keeps all fighter platforms current and compatible with the USAF Global Strike Task Force (GSTF) concept through 2020. Link 16 provides a jam-resistant, secure digital data transfer network capability with a standardized waveform and data format allowing intra- and inter-flight communications. Link 16 will increase mission effectiveness, provide situational awareness, and provide positive identification of aircraft in the network, correlate on- and off-board sensor data sharing, target, and threat information, and provide the datalink to accomplish time critical targeting and other mission update functions. Link 16 efforts include incorporating MIL-STD-6016 additions and changes, and applicable Interface Change Proposals (ICPs), and interoperability certification testing with the Joint Interoperability Test Center (JITC). Continues to support future development, integration, and verification of Operational Flight Program (OFP) upgrades due to TDL integration and supports data gathering processes for future network centric assessments for all fighter platforms.

Fighter Tactical Data Link program is in Budget Activity 7, Operational System Development, since it supports integration of tactical data links into operational systems.

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2004

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207445F FIGHTER TACTICAL DATA LINK

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	38.168	42.877	67.617
(U) Current PBR/President's Budget	28.955	42.318	50.976
(U) Total Adjustments	-9.213	-0.559	
(U) Congressional Program Reductions		-0.194	
Congressional Rescissions		-0.365	
Congressional Increases			
Reprogrammings	-9.213		
SBIR/STTR Transfer			

(U) **Significant Program Changes:**

FY03 program changes reflect reprogrammings to support higher Air Force priorities. FY05 program changes are due to the delay of the initiation of F-117 Link 16 integration by one year, allowing better synchronization with Joint Tactical Radio System (JTRS) terminal availability.

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0207445F FIGHTER TACTICAL DATA LINK			PROJECT NUMBER AND TITLE 5043 Fighter Tactical Data Link		
Cost (\$ in Millions)	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
5043 Fighter Tactical Data Link	28.955	42.318	50.976	67.805	27.439	55.473	51.179	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

Tactical Data Links (TDL) are used in a combat environment to exchange information such as messages, data, radar tracks, target information, platform status, imagery, and command assignments. TDLs provide interoperability, local and global connectivity, and situational awareness to the user when operating under rapidly changing operational conditions. TDLs are used by the Air Force, Army, Navy, and Marine Corps Theater Command and Control (C2) elements, weapons platforms, and sensors. TDLs include, but are not limited to: Link 16, Link 11, Situational Awareness Data Link (SADL), and Variable Message Format (VMF).

This effort provides for common development, integration, and interoperability of tactical data link capability to all Air Force fighter platforms to include, but not limited to, A/OA-10, F-15A-E, F-16 Blocks 30/40/50, F/A-22, F-117, and F-35 aircraft. Keeps all fighter platforms current and compatible with the USAF Global Strike Task Force (GSTF) concept through 2020. Link 16 provides a jam-resistant, secure digital data transfer network capability with a standardized waveform and data format allowing intra- and inter-flight communications. Link 16 will increase mission effectiveness, provide situational awareness, and provide positive identification of aircraft in the network, correlate on- and off-board sensor data sharing, target, and threat information, and provide the datalink to accomplish time critical targeting and other mission update functions. Link 16 efforts include incorporating MIL-STD-6016 additions and changes, and applicable Interface Change Proposals (ICPs), and interoperability certification testing with the Joint Interoperability Test Center (JITC). Continues to support future development, integration, and verification of Operational Flight Program (OFP) upgrades due to TDL integration and supports data gathering processes for future network centric assessments for all fighter platforms.

Fighter Tactical Data Link program is in Budget Activity 7, Operational System Development, since it supports integration of tactical data links into operational systems.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments/Planned Programs	0.000	0.000	
(U) Perform Tactical Data Link studies	2.250	1.510	3.000
(U) Develop and integrate Link 16 capability across all fighter platforms	23.705	37.808	44.976
(U) Provide Link 16 system engineering, testing, and technical support	3.000	3.000	3.000
(U) Total Cost	28.955	42.318	50.976

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u> <u>Actual</u>	<u>FY 2004</u> <u>Estimate</u>	<u>FY 2005</u> <u>Estimate</u>	<u>FY 2006</u> <u>Estimate</u>	<u>FY 2007</u> <u>Estimate</u>	<u>FY 2008</u> <u>Estimate</u>	<u>FY 2009</u> <u>Estimate</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) AF RDT&E									
(U) 0207434F (Link 16 Sup & Sus)	50.535	70.481	141.012	218.743	228.009	161.909	153.606		

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Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207445F FIGHTER TACTICAL DATA LINK	PROJECT NUMBER AND TITLE 5043 Fighter Tactical Data Link
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(U) C. Other Program Funding Summary (\$ in Millions)

(U) 0207446F (Bomber TDL)	0.000	12.849	120.256	166.082	88.827	0.000	0.000
(U) 0207448F (C2ISR TDL)	0.000	26.503	25.441	7.234	0.743	0.000	0.000
(U) 0401839F (Airlift TDL)	0.000	0.000	0.000	0.000	31.466	0.000	0.000
(U) 0604754F (TDL Integration)	0.000	14.550	0.000	0.000	0.000	0.000	0.000
(U) Other APPN							
(U) Procurement (3010)							
(U) 0207434F (Link 16 Sup & Sus)	36.013	0.040	6.550	2.980	2.683	0.000	9.486
(U) 0207445F (Fighter TDL)	0.000	29.300	97.417	122.079	94.050	44.218	32.598
(U) 0207446F (Bomber TDL)	0.000	0.000	44.929	21.827	33.149	30.586	28.219
(U) 0207448F (C2ISR TDL)	0.000	0.000	0.000	0.000	0.000	0.000	0.000
(U) 0401839F (Airlift TDL)	0.000	0.000	28.087	42.270	52.767	29.583	24.765
(U) O&M (3400)							
(U) 0207434F (Link 16 Sup & Sus 3400)	13.357	12.873	12.613	13.916	14.056	14.606	15.131
(U) 0401839F (Airlift 3400)	0.000	0.000	2.230	2.972	5.964	12.067	16.853
(U) Other Procurement (3080)							
(U) 0207434F (Link 16 Sup & Sus)	0.000	0.000	25.805	28.433	25.668	7.423	6.435

(U) D. Acquisition Strategy

The Air Force Tactical Data Links System Program Office (SPO) provides for common development of integration and interoperability across all Air Force platforms and ensures that Link 16 is procured and maintained as a joint, end-to-end, command and control system.

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Exhibit R-3, RDT&E Project Cost Analysis										DATE February 2004		
BUDGET ACTIVITY 07 Operational System Development					PE NUMBER AND TITLE 0207445F FIGHTER TACTICAL DATA LINK					PROJECT NUMBER AND TITLE 5043 Fighter Tactical Data Link		
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
<u>(U) Product Development</u>												
Link 16 EMD Terminal Purchases	MIPR	SPAWAR, San Diego CA		0.000		1.500	Jan-04	3.000	May-05	Continuing	TBD	
Fighter Link 16 Development Contractors **	MIPR	ASC, WPAFB OH		23.705	Jan-03	37.808	Jan-04	44.976	Jan-05	Continuing	TBD	
MITRE	SS/FFP	MITRE, Bedford MA		1.300	Dec-02	1.400	Dec-03	1.330		Continuing	TBD	
Subtotal Product Development			0.000	25.005		40.708		49.306		Continuing	TBD	0.000
Remarks: **MIPR funding to Fighter Platform System Program Offices for scheduled contract awards and development efforts.												
<u>(U) Test & Evaluation</u>												
46th Development Test Facility	MIPR	46th Development Test Facility, Eglin AFB FL		2.500	Sep-03						2.500	
Subtotal Test & Evaluation			0.000	2.500		0.000		0.000		0.000	2.500	0.000
Remarks:												
<u>(U) Management</u>												
Program Office and Contractor Support	C/FFP	Various		1.450	Dec-02	1.610	Dec-03	1.670	Dec-04		4.730	
Subtotal Management			0.000	1.450		1.610		1.670		0.000	4.730	0.000
Remarks:												
<u>(U) Total Cost</u>			0.000	28.955		42.318		50.976		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0207445F FIGHTER TACTICAL DATA LINK

PROJECT NUMBER AND TITLE
5043 Fighter Tactical Data Link

FIGHTER TACTICAL DATA LINK
SCHEDULE

SCHEDULE PROFILE	FY03				FY04				FY05				FY06				FY07				FY08				FY09			
FIGHTER PLATFORMS	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
F/A-22 Link 16				▲																								
Contract Award				▲																								
MIDS/LVT1 Delivery																▲												
Development					—	—	—	—	—	—	—	—	—	—	—	—												
MIDS/JTRS Test									—	—	—	—	—	—	—	—												
Terminal Deliveries																	—	—	—	—	—	—	—	—	—	—	—	—
Integration/Field																									—	—	—	—
A/O-10 Link 16																												
Contract Award								▲																				
Development					—	—	—	—	—	—	—	—																
Terminal Deliveries																	—	—	—	—	—	—	—	—	—	—	—	—
Integration/Field																												

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207445F FIGHTER TACTICAL DATA LINK	PROJECT NUMBER AND TITLE 5043 Fighter Tactical Data Link
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	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <u>Schedule Profile</u>			
(U) F/A-22 Link 16 Transmit Contact Award Date	4Q		
(U) F/A-22 Link 16 Transmit Development		1-4Q	1-4Q
(U) A/O-10 Link 16 Contract Award		2Q	
(U) A/O-10 Link 16 Development		2-4Q	1-4Q

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PE NUMBER: 0207446F
 PE TITLE: Bomber Tactical Data Link

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207446F Bomber Tactical Data Link
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Cost (\$ in Millions)	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
Total Program Element (PE) Cost	0.000	12.849	120.256	166.082	88.827	0.000	0.000	0.000	0.000
5041 Bomber Tactical Data Link	0.000	12.849	120.256	166.082	88.827	0.000	0.000	0.000	0.000

On 17 April 2001, the Chief of Staff of the Air Force (CSAF) approved the management of Tactical Data Links (TDL) as a Major System Acquisition Program. In order to effectively manage the program, the Tactical Data Links System Program Office (SPO) was stood up at Electronic Systems Center (ESC), Hanscom AFB, MA on 29 May 2001. Four new program elements were created in FY03 to consolidate the platform integration funding. This includes PE 0207445F, Fighter Tactical Data Link; PE 0207446F, Bomber Tactical Data Link; PE 0207448F, Command, Control, Intelligence, Surveillance, and Reconnaissance (C2ISR) Tactical Data Link; and PE 0401839F, Airlift/Other Tactical Data Link. Funding from platform PEs was transferred to the appropriate TDL platform PE.

(U) A. Mission Description and Budget Item Justification

Tactical Data Links (TDL) are used in a combat environment to exchange information such as messages, data, radar tracks, target information, platform status, imagery, and command assignments. TDLs provide interoperability, local and global connectivity, and situational awareness to the user when operating under rapidly changing operational conditions. TDLs are used by the Air Force, Army, Navy, and Marine Corps theater Command and Control (C2) elements, weapons platforms, and sensors. TDLs include, but are not limited to: Link-16, Link-11, Situational Awareness Data Link (SADL), and Variable Message Format (VMF).

This effort provides for common development, integration and interoperability of Tactical Data Link capability to all Air Force bomber platforms to include, but not limited to B1-B, B-2, and B-52 aircraft. Keeps all bomber platforms current and compatible with the USAF Global Strike Task Force (GSTF) concept through 2020. Adds Link 16 line-of-sight (LOS) and beyond line-of-sight (BLOS) datalink capabilities. Link 16 provides a jam-resistant, secure digital data transfer network capability with a standardized waveform and data format allowing LOS intra- and inter-flight communications. Link 16 will increase mission effectiveness, provide situational awareness, provide positive identification of aircraft in the network, correlate on- and off-board sensor data sharing, target, and threat information, and provide the datalink to accomplish time critical targeting and other mission update functions. The BLOS datalink capability works with Link 16 to extend the range of local Link 16 network to other areas/theaters. Link 16 efforts include incorporating MIL-STD-6016 additions and changes, and applicable Interface Change Proposals (ICPs), and interoperability certification testing with the Joint Interoperability Test Center (JITC). Continues to support future development, integration, and verification of Operational Flight Programs (OFP) upgrades due to TDL integration and supports data gathering processes for future network centric assessments for all bomber platforms.

Bomber Tactical Data Link program is in Budget Activity 7, Operational System Development, since it supports integration of tactical data links into operational systems.

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2004

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207446F Bomber Tactical Data Link

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	0.000	12.959	120.571
(U) Current PBR/President's Budget	0.000	12.849	120.256
(U) Total Adjustments	0.000	-0.110	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.110	
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			
Not Applicable			

Exhibit R-2a, RDT&E Project Justification

DATE
February 2004

BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0207446F Bomber Tactical Data Link			PROJECT NUMBER AND TITLE 5041 Bomber Tactical Data Link			
Cost (\$ in Millions)	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	
5041 Bomber Tactical Data Link	0.000	12.849	120.256	166.082	88.827	0.000	0.000	0.000	0.000	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

(U) A. Mission Description and Budget Item Justification

Tactical Data Links (TDL) are used in a combat environment to exchange information such as messages, data, radar tracks, target information, platform status, imagery, and command assignments. TDLs provide interoperability, local and global connectivity, and situational awareness to the user when operating under rapidly changing operational conditions. TDLs are used by the Air Force, Army, Navy, and Marine Corps theater Command and Control (C2) elements, weapons platforms, and sensors. TDLs include, but are not limited to: Link-16, Link-11, Situational Awareness Data Link (SADL), and Variable Message Format (VMF).

This effort provides for common development, integration and interoperability of Tactical Data Link capability to all Air Force bomber platforms to include, but not limited to B1-B, B-2, and B-52 aircraft. Keeps all bomber platforms current and compatible with the USAF Global Strike Task Force (GSTF) concept through 2020. Adds Link 16 line-of-sight (LOS) and beyond line-of-sight (BLOS) datalink capabilities. Link 16 provides a jam-resistant, secure digital data transfer network capability with a standardized waveform and data format allowing LOS intra- and inter-flight communications. Link 16 will increase mission effectiveness, provide situational awareness, provide positive identification of aircraft in the network, correlate on- and off-board sensor data sharing, target, and threat information, and provide the datalink to accomplish time critical targeting and other mission update functions. The BLOS datalink capability works with Link 16 to extend the range of local Link 16 network to other areas/theaters. Link 16 efforts include incorporating MIL-STD-6016 additions and changes, and applicable Interface Change Proposals (ICPs), and interoperability certification testing with the Joint Interoperability Test Center (JITC). Continues to support future development, integration, and verification of Operational Flight Programs (OFP) upgrades due to TDL integration and supports data gathering processes for future network centric assessments for all bomber platforms.

Bomber Tactical Data Link program is in Budget Activity 7, Operational System Development, since it supports integration of tactical data links into operational systems.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments/Planned Program	0.000	0.000	0.000
(U) No Activity	0.000		
(U) Contract for LOS Link 16 terminals and BLOS radios for development labs and aircraft.		1.800	3.066
(U) Provide Link 16 system engineering, testing, and technical support		0.500	12.230
(U) Develop and integrate of LOS and BLOS datalink capability		10.549	104.960
(U) Total Cost	0.000	12.849	120.256

Exhibit R-2a, RDT&E Project Justification

DATE

February 2004

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207446F Bomber Tactical Data Link

PROJECT NUMBER AND TITLE

5041 Bomber Tactical Data Link

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E									
(U) 0207434F (Link 16 Sup & Sus)	50.535	70.481	141.012	218.743	228.009	161.909	153.606		
(U) 0207445F (Fighter TDL)	28.955	42.318	50.976	67.805	27.437	55.473	41.179		
(U) 0207448F (C2ISR TDL)	0.000	26.503	25.441	7.234	0.743	0.000	0.000		
(U) 0401839F (Airlift TDL)	0.000	0.000	0.000	0.000	31.466	0.000	0.000		
(U) 0604754F (TDL Integration)	0.000	14.550	0.000	0.000	0.000	0.000	0.000		
(U) Other APPN									
(U) Procurement (3010)									
(U) 0207434F (Link 16 Sup & Sus)	36.013	0.040	6.555	2.980	2.683	0.000	9.486		
(U) 0207445F (Fighter TDL)	0.000	29.300	97.417	122.079	94.050	44.218	32.598		
(U) 0207446F (Bomber TDL)	0.000	0.000	44.929	21.827	33.149	30.586	28.219		
(U) 0207448F (C2ISR TDL)	0.000	0.000	0.000	0.000	0.000	0.000	0.000		
(U) 0401839F (Airlift TDL)	0.000	0.000	28.087	42.270	52.767	29.583	24.765		
(U) O&M (3400)									
(U) 0207434F (Link 16 Sup & Sus)	13.357	12.873	12.613	13.916	14.056	14.606	15.131		
(U) 0401839F (Airlift 3400)			2.230	2.972	5.964	12.067	16.853		
(U) Other Procurement (3080)									
(U) 0207434F (Link 16 Sup & Sus)	0.000	0.000	25.805	28.433	25.668	7.423	6.435		

(U) **D. Acquisition Strategy**

The Air Force Tactical Data Links System Program Office (SPO) provides for common development of integration and interoperability across all Air Force platforms and ensures that Link 16 is procured and maintained as a joint, end-to-end, command and control system.

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
07 Operational System Development				0207446F Bomber Tactical Data Link				5041 Bomber Tactical Data Link				
(U) <u>Cost Categories</u>	<u>Contract Method</u>	<u>Performing Activity &</u>	<u>Total</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to</u>	<u>Total</u>	<u>Target</u>
(Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>& Type</u>	<u>Location</u>	<u>Prior to FY</u>	<u>2003</u>	<u>2003</u>	<u>2004</u>	<u>2004</u>	<u>2005</u>	<u>2005</u>	<u>Complete</u>	<u>Cost</u>	<u>Value of</u>
			<u>2003</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>			<u>Contract</u>
			<u>Cost</u>		<u>Date</u>		<u>Date</u>		<u>Date</u>			
(U) <u>Product Development</u>												
Link 16 Terminal EMD Terminal Purchases	MIPR	SPAWAR, San Diego CA				2.500	Jan-04	3.066	May-05	Continuing	TBD	
Bomber Development Contractors**	MIPR	ASC, WPAFB, OH				9.539	Mar-04	116.380	Mar-05	Continuing	TBD	
MITRE	SS/FFP	MITRE, Bedford MA				0.200	Dec-03	0.200	Dec-04	Continuing	TBD	
Subtotal Product Development			0.000	0.000		12.239		119.646		Continuing	TBD	0.000
Remarks: **MIPR funding to Bomber Platform System Program Offices for scheduled contract awards and development efforts.												
(U) <u>Management</u>												
Program Office and Contractor Support	C/FFP	Various				0.610	Dec-03	0.610	Dec-04		1.220	
Subtotal Management			0.000	0.000		0.610		0.610		0.000	1.220	0.000
Remarks:												
(U) Total Cost			0.000	0.000		12.849		120.256		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0207446F Bomber Tactical Data Link

PROJECT NUMBER AND TITLE
5041 Bomber Tactical Data Link

BOMBER TACTICAL DATA LINK SCHEDULE

SCHEDULE PROFILE	FY03				FY04				FY05				FY06				FY07				FY08				FY09							
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q				
BOMBER PLATFORMS																																
<u>B-1 Fully Integrated Data Link</u>																																
Contract Award						▲																										
Development						—																										
Test														—																		
Integration/Field																																
<u>B-52 Integrated Data Link</u>																																
Contract Award										▲																						
Development										—																						
Test																																
Integration/Field																																

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207446F Bomber Tactical Data Link	PROJECT NUMBER AND TITLE 5041 Bomber Tactical Data Link
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	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <u>Schedule Profile</u>			
(U) B-1 Fully Integrated Data Link Contract Award		2Q	
(U) B-1 Fully Integrated Data Link Development		2-4Q	1-4Q
(U) B-52 Integrated Data Link Contract Award			2Q
(U) B-52 Integrated Data Link Development			2-4Q

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Exhibit R-2, RDT&E Budget Item Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207448F C2ISR Tactical Data Link
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Cost (\$ in Millions)	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
Total Program Element (PE) Cost	0.000	26.503	25.441	7.234	0.743	0.000	0.000	0.000	0.000
5045 C2ISR Tactical Data Link	0.000	26.503	25.441	7.234	0.743	0.000	0.000	0.000	0.000

On 17 April 2001, the Chief of Staff of the Air Force (CSAF) approved the management of Tactical Data Links (TDL) as a Major System Acquisition Program. In order to effectively manage the program, the Tactical Data Links System Program Office (SPO) was stood up at Electronic Systems Center (ESC), Hanscom AFB, MA on 29 May 2001. Four new program elements were created in FY03 to consolidate the platform integration funding. This includes PE 0207445F, Fighter Tactical Data Link; PE 0207446F, Bomber Tactical Data Link; PE 0207448F, Command, Control, Intelligence, Surveillance, and Reconnaissance (C2ISR) Tactical Data Link; and PE 0401839F, Airlift/Other Tactical Data Link. Funding from platform PEs was transferred to the appropriate TDL platform PE.

(U) A. Mission Description and Budget Item Justification

Tactical Data Links (TDL) are used in a combat environment to exchange information such as messages, data, radar tracks, target information, platform status, imagery, and command assignments. TDLs provide interoperability, local and global connectivity, and situational awareness to the user when operating under rapidly changing operational conditions. TDLs are used by the Air Force, Army, Navy, and Marine Corps theater Command and Control (C2) elements, weapons platforms, and sensors. TDLs include, but are not limited to: Link-16, Link-11, Situational Awareness Data link (SADL), Variable Message Format (VMF).

This effort provides for common development, upgrade, integration, and interoperability of tactical data link capability to ground and air C2 platforms including, but not limited to, Airborne Warning and Control System (AWACS), Joint Surveillance Target Attack Radar System (JSTARS), the Air and Space Operations Center (AOC), Global Hawk, Rivet Joint, Combat Sent, Cobra Ball, Multi-Sensor Command and Control Aircraft (MC2A), and the North Atlantic Treaty Organization (NATO) Iceland Air Defense System (IADS). Link 16 provides a jam-resistant, secure digital data transfer network capability with a standardized waveform and data format allowing intra- and inter-flight communications. Link 16 will increase mission effectiveness, provide situational awareness, and provide positive identification of aircraft in the network, correlate on- and off-board sensor data sharing, target, and threat information, and provide the datalink to accomplish time critical targeting and other mission update functions. Link 16 efforts include incorporating MIL-STD-6016 additions and changes, and applicable Interface Change Proposals (ICPs), and interoperability certification testing with the Joint Interoperability Test Center (JITC). Continues to support future development, integration, and verification of Operational Flight Program (OFF) upgrades due to TDL integration and supports data gathering processes for future network centric assessments for all C2 platforms.

C2ISR Tactical Data Link program is in Budget Activity 7, Operational System Development, since it supports integration of tactical data links into operational systems.

Exhibit R-2, RDT&E Budget Item Justification

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February 2004

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207448F C2ISR Tactical Data Link

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget		26.927	26.713
(U) Current PBR/President's Budget	0.000	26.503	25.441
(U) Total Adjustments	0.000	-0.424	
(U) Congressional Program Reductions		-0.195	
Congressional Rescissions		-0.229	
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0207448F C2ISR Tactical Data Link			PROJECT NUMBER AND TITLE 5045 C2ISR Tactical Data Link		
Cost (\$ in Millions)	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
5045 C2ISR Tactical Data Link	0.000	26.503	25.441	7.234	0.743	0.000	0.000	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

Tactical Data Links (TDL) are used in a combat environment to exchange information such as messages, data, radar tracks, target information, platform status, imagery, and command assignments. TDLs provide interoperability, local and global connectivity, and situational awareness to the user when operating under rapidly changing operational conditions. TDLs are used by the Air Force, Army, Navy, and Marine Corps theater Command and Control (C2) elements, weapons platforms, and sensors. TDLs include, but are not limited to: Link-16, Link-11, Situational Awareness Data link (SADL), Variable Message Format (VMF).

This effort provides for common development, upgrade, integration, and interoperability of tactical data link capability to ground and air C2 platforms including, but not limited to, Airborne Warning and Control System (AWACS), Joint Surveillance Target Attack Radar System (JSTARS), the Air and Space Operations Center (AOC), Global Hawk, Rivet Joint, Combat Sent, Cobra Ball, Multi-Sensor Command and Control Aircraft (MC2A), and the North Atlantic Treaty Organization (NATO) Iceland Air Defense System (IADS). Link 16 provides a jam-resistant, secure digital data transfer network capability with a standardized waveform and data format allowing intra- and inter-flight communications. Link 16 will increase mission effectiveness, provide situational awareness, and provide positive identification of aircraft in the network, correlate on- and off-board sensor data sharing, target, and threat information, and provide the datalink to accomplish time critical targeting and other mission update functions. Link 16 efforts include incorporating MIL-STD-6016 additions and changes, and applicable Interface Change Proposals (ICPs), and interoperability certification testing with the Joint Interoperability Test Center (JITC). Continues to support future development, integration, and verification of Operational Flight Program (OFP) upgrades due to TDL integration and supports data gathering processes for future network centric assessments for all C2 platforms.

C2ISR Tactical Data Link program is in Budget Activity 7, Operational System Development, since it supports integration of tactical data links into operational systems.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments/Planned Program	0.000	0.000	0.000
(U) No Activity	0.000		
(U) AWACS Blocks 40/45 Upgrades		1.228	1.986
(U) Support system integration for JSTARS Link 16 Attack Support Upgrade (ASU) capability		21.923	23.098
(U) Support C2ISR Integration		3.352	0.357
(U) Total Cost	0.000	26.503	25.441

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207448F C2ISR Tactical Data Link

PROJECT NUMBER AND TITLE

5045 C2ISR Tactical Data Link

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E									
(U) 0207434F (Link 16 Sup & Sus)	50.535	70.481	141.012	218.743	228.009	161.909	153.606		
(U) 0207445F (Fighter TDL)	28.955	42.318	50.976	67.805	27.437	55.473	41.179		
(U) 0207446F (Bomber TDL)	0.000	12.849	120.256	166.082	88.827	0.000	0.000		
(U) 0401839F (Airlift/Other TDL)	0.000	0.000	0.000	0.000	31.466	0.000	0.000		
(U) 0604754F (TDL Integration)	0.000	14.550	0.000	0.000	0.000	0.000	0.000		
(U) Aircraft Procurement, AF (3010)									
(U) 0207434F (Link 16 Sup & Sus)	36.013	0.040	6.555	2.980	2.683	0.000	9.486		
(U) 0207445F (Fighter TDL)	0.000	29.300	97.417	122.079	94.050	44.218	32.598		
(U) 0207446F (Bomber TDL)	0.000	0.000	44.929	21.827	33.149	30.586	28.219		
(U) 0207448F (C2ISR TDL)	0.000	0.000	0.000	0.000	0.000	0.000	0.000		
(U) 0401839F (Airlift TDL)	0.000	0.000	28.087	42.270	52.767	29.583	24.765		
(U) O&M (3400)									
(U) 0207434F (Link 16 Sup & Sus)	13.357	12.873	12.613	13.916	14.056	14.606	15.131		
(U) 0401839F (Airlift 3400)			2.230	2.972	5.964	12.067	16.853		
(U) Other Procurement, AF (3080)									
(U) 0207434F (Link 16 Sup & Sus)	0.000	0.000	25.805	28.433	25.668	7.423	6.435		

(U) **D. Acquisition Strategy**

The Air Force Tactical Data Links System Program Office (SPO) provides for common development of integration and interoperability across all Air Force platforms and ensures that Link 16 is procured and maintained as a joint, end-to-end, command and control system.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2004

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
07 Operational System Development				0207448F C2ISR Tactical Data Link				5045 C2ISR Tactical Data Link				
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to</u>	<u>Total</u>	<u>Target</u>
			<u>Prior to FY</u>	<u>2003</u>	<u>2003</u>	<u>2004</u>	<u>2004</u>	<u>2005</u>	<u>2005</u>	<u>Complete</u>	<u>Cost</u>	<u>Value of</u>
			<u>2003</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>			<u>Contract</u>
			<u>Cost</u>		<u>Date</u>		<u>Date</u>		<u>Date</u>			
(U) <u>Product Development</u>												
Joint STARS	SS/CPAF	Northrop Grumman, Melbourne FL	0.000			19.393	Nov-03	22.896	Nov-04	31.493	73.782	
AWACS	SS/FPIF/CPAF	Boeing, Seattle WA	0.000			1.228	Jan-04	1.991	Dec-04	4.325	7.544	
C2ISR / NATO IADS	C/FFP	Various	0.000			2.030	Dec-03	0.364	Dec-04	0.000	2.394	
Subtotal Product Development			0.000	0.000		22.651		25.251		35.818	83.720	0.000
Remarks:												
(U) <u>Test & Evaluation</u>												
46th Test Squadron	MIPR	46th Test Sqdn, Eglin AFB FL				1.246	Dec-03				1.246	
605th Test Squadron	MIPR	605th Test Sqdn, Hurlburt Field, FL				0.106	Dec-03				0.106	
Subtotal Test & Evaluation			0.000	0.000		1.352		0.000		0.000	1.352	0.000
Remarks:												
(U) <u>Management</u>												
Program Office and Contractor Support	C/FFP	Various	0.000			2.500	Dec-03	0.190	Dec-04		2.690	
Subtotal Management			0.000	0.000		2.500		0.190		0.000	2.690	0.000
Remarks:												
(U) Total Cost			0.000	0.000		26.503		25.441		35.818	87.762	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

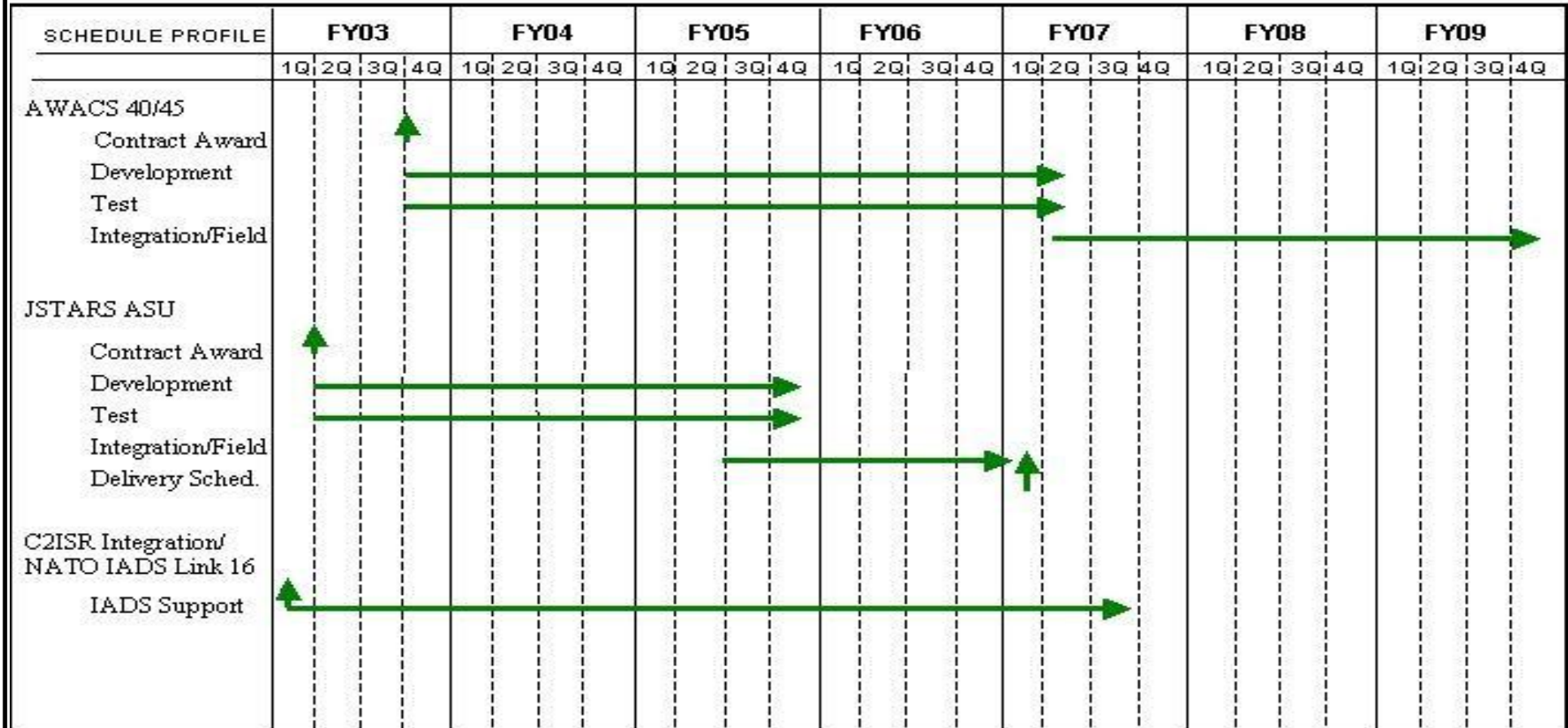
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BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0207448F C2ISR Tactical Data Link

PROJECT NUMBER AND TITLE
5045 C2ISR Tactical Data Link

C2ISR Schedule



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Exhibit R-4a, RDT&E Schedule Detail

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207448F C2ISR Tactical Data Link

PROJECT NUMBER AND TITLE

5045 C2ISR Tactical Data Link

(U) <u>Schedule Profile</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) AWACS Block 40/45 Upgrade Contract Award	4Q		
(U) AWACS Block 40/45 Upgrade Development	4Q	1-4Q	1-4Q
(U) AWACS Block 40/45 Upgrade Test	4Q	1-4Q	1-4Q
(U) JSTARS ASU Contract Award	2Q		
(U) JSTARS ASU Development	2-4Q	1-4Q	1-3Q
(U) JSTARS ASU Test	2-4Q	1-4Q	1-3Q
(U) JSTARS ASU Integration / Fielding			3-4Q
(U) NATO IADS Integration / Fielding	1-4Q	1-4Q	1-4Q

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PE NUMBER: 0207449F
 PE TITLE: C2 Constellation

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207449F C2 Constellation
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Cost (\$ in Millions)	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
Total Program Element (PE) Cost	337.764	360.051	44.035	42.250	46.570	58.511	59.171	Continuing	TBD
5064 Airframe	129.395	206.045	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5065 Sensors	208.369	154.006	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5078 Horizontal Integration	0.000	0.000	12.840	10.908	13.830	25.328	25.006	Continuing	TBD
5140 Joint Expeditionary Force Experiments	0.000	0.000	31.195	31.342	32.740	33.183	34.165	Continuing	TBD

1. In Fiscal Year (FY) 2005, this Program Element (PE) was renamed Command and Control (C2) Constellation (formerly Multi-sensor Command and Control Constellation (MC2C)). Furthermore, Project 5064-Airframe and Project 5065-Sensor transferred to PE 0207450F, Multi-sensor Command and Control Aircraft (MC2A), Project 5131 MC2A-Airframe and Project 5132-MC2A Sensors. Both actions were accomplished to eliminate the programmatic confusion between the Multi-sensor Command and Control Aircraft (MC2A) and the MC2C.

Project 675078, Horizontal Integration, is established to continue Horizontal Integration efforts begun in FY03 in Project 5064 to develop an integrated intelligence, surveillance, and reconnaissance capability to support network centric operations. The C2 Constellation will build horizontal integration among its elements through (1) Systems Engineering, and Architecture Development, (2) Modeling and Simulation (M&S) Infrastructure and Experimentation, and (3) Horizontal Integration Enablers.

Project 675140 work transferred from PE 0207028F, Joint Expeditionary Force Experiments to continue the exploration of horizontal integration (HI) capabilities of the C2 Constellation with a primary focus on the integration of an Advanced Technology Air Operations Center (AT-AOC) and Advanced Technology Distributed Ground System, with Command and Control, Intelligence, Surveillance, Reconnaissance (C2ISR). This will enable future capabilities of the E-10A aircraft, BMC2, Family of Interoperable Operational Pictures, Battle Control System, Persistent Battlespace ISR, and the Deployable Theater Information Grid to be reviewed. The outcome will be a future architecture designed to achieve C2ISR capabilities required to support GSTF and C2ISR concepts of operations.

2. In FY 2003, the Multi-sensor Command and Control Constellation (MC2C) PE 0207449F and associated Project Numbers 5064-Airframe and 5065-Sensors absorbed, and continued, the Multi-Platform Radar Technology Insertion Program (MP-RTIP) previously reported in PE 0207581F Joint STARS, Project Number 4995-MP-RTIP. Additionally, it supported hosting the MP-RTIP sensor on a 767-400ER testbed aircraft with funding transferred from PE 0207581F Joint STARS, Project Number 0003-JSTARS.

3. In FY 2003, MC2C received \$147M FY 2003 Defense Emergency Response Fund (DERF) funding which is included in the above Total Program Element Cost table as follows: \$64.8M to Project 675064-Airframe; \$61.7M for the acceleration of MP-RTIP sensor development (Project 5065-Sensors); and \$20.5M for MC2 Constellation horizontal integration efforts (accounted for in the Project 675064-Airframe, in addition to the \$64.8M). The DERF funding was used to initiate the incrementally funded purchase of a 767-400ER testbed aircraft, begin system engineering design efforts for the testbed modifications, accelerate MP-RTIP sensor development and initiate the MC2 Constellation's horizontal integration architecture development.

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207449F C2 Constellation

(U) **A. Mission Description and Budget Item Justification**

The C2 Constellation will be a horizontally integrated architecture of Command and Control (C2), Intelligence, Surveillance, and Reconnaissance (ISR) capabilities. The C2 Constellation will be Task Forces' critical enabling function to achieve persistent battlespace awareness. This vision integrates current, developmental, and future manned/unmanned space, air and ground sensors, data links, ground stations, exploitation tools, communication/information dissemination systems and C2/ battle management elements to give the warfighter real-time, decision quality information to prosecute the full range of military operations. C2 Constellation will achieve horizontal integration through the development of a network centric architecture, use of rapidly maturing modeling and simulation techniques, and application of rapid reaction, high leverage technology initiatives.

A key element of C2 Constellation is the E-10A aircraft -- the 'hub' of the constellation's architecture. The E-10A activity transferred to the MC2A PE 0207450F beginning in FY 2005 (see cost table footnote 1) and is fully discussed in that PE.

The MP-RTIP radar program funding was originally categorized as BA-7 to reflect a technology insertion program within the Joint STARS (PE 0207581F) program. The program retained its technology insertion character when MP-RTIP's funding transferred into program element 0207449F Project 5065, and remained in the BA-7 category.

This program is in Budget Activity 7 - Operational System Development because it provides a vehicle for horizontal integration and allows developers, testers and warfighters to experiment, analyze, and explore operational concepts and new technologies to enhance operational system developments and improve capabilities of the 21st century aerospace force.

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	333.864	363.630	550.860
(U) Current PBR/President's Budget	337.764	360.051	44.035
(U) Total Adjustments	3.900	-3.579	
(U) Congressional Program Reductions			
Congressional Rescissions		-3.579	
Congressional Increases			
Reprogrammings	3.900		
SBIR/STTR Transfer			

(U) **Significant Program Changes:**

The only significant program change that occurred between the FY04 and FY05 PB was the realignment of MC2A funding into a new PE (see cost table footnote 1). FY03 \$3.9M reprogrammed to DARPA for classified project.

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT NUMBER AND TITLE		
07 Operational System Development				0207449F C2 Constellation			5064 Airframe		
Cost (\$ in Millions)	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
5064 Airframe	129.395	206.045	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

1. In FY 2005, this PE was renamed C2 Constellation (formerly Multi-sensor Command and Control Constellation (MC2C)). Furthermore, Project 5064-Airframe and Project 5065-Sensor transferred to PE 0207450F, MC2A, Project 5131 MC2A-Airframe and Project 5132-MC2A Sensors. Both actions were accomplished to eliminate the programmatic confusion between the Multi-sensor Command and Control Aircraft (MC2A) and the MC2C.
2. In FY 2003, this was a new PE. This new Multi-sensor Command and Control Constellation (MC2C) PE 0207449F and associated Project Numbers 5064-Airframe and 5065-Sensors absorbed, and continued, the Multi-Platform Radar Technology Insertion Program (MP-RTIP) previously reported in PE 0207581F Joint STARS, Project Number 4995-MP-RTIP. Additionally, it supported hosting the MP-RTIP sensor on a 767-400ER testbed aircraft with funding transferred from PE 0207581F Joint STARS, Project Number 0003-JSTARS.
3. In FY 2003, MC2C received \$147M FY2003 Defense Emergency Response Fund (DERF) funding which is included in the above Total Program Element Cost table as follows: \$64.8M to Project 5064-Airframe; \$61.7M for the acceleration of MP-RTIP sensor development (Project 5065-Sensors); and \$20.5M for MC2 Constellation horizontal integration efforts (accounted for in the Project 5064-Airframe, in addition to the \$64.8M). The DERF funding was used to initiate the incrementally funded purchase of a 767-400ER testbed aircraft, begin system engineering design efforts for the testbed modifications, accelerate MP-RTIP sensor development and initiate the MC2 Constellation's horizontal integration architecture development.

(U) A. Mission Description and Budget Item Justification

This project is established to design, develop, and integrate a wide-body aircraft to host multiple sensor configurations. The E-10 is a key node of the C2 Constellation (see PE 0207449F) bringing operational command and control to the joint warfighter through the use of advanced sensors, sensor fusion, network-centric warfare and high-speed, wide band communications systems. The E-10 aircraft series will employ both on-board and off-board sensors, communications, data links, and battle management integration software to execute the full range of military operations. The E-10 will interface with multi-Service ground/air/space-based sensors, intelligence and communications assets to shorten the decision cycle for combat operations. The E-10 will enable the detection, designation, and prosecution of time critical targets by providing battlespace situational awareness. The result is weapons-quality target cueing for joint and coalition shooters to engage time sensitive cruise missiles and other fleeting high-priority targets.

The E-10A, based on the Multi-Platform Radar Technology Insertion Program (MP-RTIP), will deliver a focused Air Moving Target Indicator (AMTI) capability for Cruise Missile Defense (CMD); an advanced, next-generation Ground Moving Target Indicator (GMTI) wide-area surveillance radar; and the open system architecture to facilitate dynamic Battle Management, Command and Control (BMC2) with growth potential for Unmanned Aerial Vehicle (UAV) control, space-based radar interface and Intelligence, Surveillance and Reconnaissance (ISR) management functions, integrated onto a 767-400ER testbed. A decision on the target wide-body platform for E-10A production will be made at the E-10A Milestone B review. E-10A Increment 1 will deliver the core capability to perform the focused AMTI and GMTI missions to include

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207449F C2 Constellation	PROJECT NUMBER AND TITLE 5064 Airframe
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data processing and advanced communications links. Future spirals within E-10A Increment 1 are envisioned to incorporate sensor fusion, advanced battle management functions, UAV control, space-based radar integration and laser communications, while future E-10 increments are envisioned to incorporate advanced sensors for air surveillance operations.

Funds in this project will be used to: (1) incrementally fund the purchase of a Boeing 767-400ER aircraft to serve as the testbed for the wide-area surveillance "large sized" variant of the MP-RTIP radar system, (2) design, develop, and execute the transformation of the 'green'/commercial 767-400ER platform into the E-10A testbed for Increment 1 capabilities (3) develop the E-10A Increment 1 BMC2 architectures to include, communications and computing applications, (4) support Weapon Systems Integration activities, and (5) pursue horizontal integration efforts to support continuous improvement and implementation of the C2 Constellation.

This program is Budget Activity 7 because it provides a vehicle for horizontal integration and allows developers, testers and warfighters to experiment, analyze, and explore operational concepts and new technologies to enhance operational system developments and improve capabilities of the 21st century aerospace force.

(U) B. Accomplishments/Planned Program (\$ in Millions)	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Horizontal Integration Efforts (FY04 plan to BTR funds to continue Horizontal Integration efforts, FY05 will transfer activity to Project 5078 in this PE)	20.500		
(U) Incremental funding of a 767-400ER testbed	20.000	5.000	
(U) Systems engineering associated with the modification of the commercial testbed	22.227	22.166	
(U) BMC2 efforts	1.500	20.000	
(U) Weapons Systems Integration (WSI) efforts	64.500	142.500	
(U) SPO Ops Effort	0.668	1.079	
(U) Sensor Lab/Test Hardware		15.000	
(U) Conduct Future Studies/Spiral Development--includes concept exploration, program definition/risk reduction, and spiral development efforts supporting continuous improvement and implementation of Command & Control, Intelligence, Surveillance, and Reconnaissance (C2ISR) capabilities enabling the joint air and cruise missile defense architecture, joint decisive operations and the AEF Task Force CONOPS.		0.300	
(U) Total Cost	129.395	206.045	0.000

Remark: In FY 2005, activity transferred to program element 0207450F-MC2A, Project 5131-Airframe

(U) C. Other Program Funding Summary (\$ in Millions)	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E									
(U) PE 0207449F/Project 5065	208.369	154.006	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
(U) Sensors									
(U) PE 0207450F/Project 5132	0.000	0.000	205.848	194.120	135.452	108.505	94.020	Continuing	TBD

Exhibit R-2a, RDT&E Project Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207449F C2 Constellation	PROJECT NUMBER AND TITLE 5064 Airframe
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(U) **C. Other Program Funding Summary (\$ in Millions)**

MC2A Sensors										
(U)	PE 0207450F/Project 5131	0.000	0.000	333.012	336.338	303.048	312.495	138.480	Continuing	TBD
MC2A Airframe										
APAF										
(U)	PE 0207450F (MC2A	0.000	0.000	0.000	0.000	0.000	567.504	706.243	Continuing	TBD
Production)										

(U) **D. Acquisition Strategy**

The E-10A acquisition strategy approved by USD/AT&L on 22 Apr 03, permitted the program to enter the pre-System Development & Demonstration phase. In FY 2003 the following events occurred: (1) the E-10A Weapon System Integration contract was awarded (14 May 03), (2) the incrementally funded purchase order for the 767-400ER testbed was placed (15 Aug 03), (3) system design engineering was initiated to transform the 'green'/commercial 767-400ER into a testbed for the "large" MP-RTIP radar variant, and (4) a competitive selection for an BMC2 provider began with "down-select" contracts awarded to three industry teams.

The Multi-Platform Radar Technology Insertion Program (MP-RTIP) Acquisition Decision Memorandum (ADM), dated 4 Dec 03, delayed the E-10A MS B date from July 2004 to July 2005. This allows for the completion of several trade studies regarding GMTI and elevated sensors for the integrated theater air and missile defense architecture to support cruise missile defense.

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Exhibit R-3, RDT&E Project Cost Analysis										DATE February 2004		
BUDGET ACTIVITY 07 Operational System Development					PE NUMBER AND TITLE 0207449F C2 Constellation					PROJECT NUMBER AND TITLE 5064 Airframe		
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
<u>(U) Product Development</u>												
Weapon System Integration (WSI)	SS/CPAF	Northrop Grumman Systems Corporation; Melbourne, FL	0.000	64.500	May-03	142.500	May-03	0.000		Continuing	TBD	
Systems Engineering	Various	Various	0.000	13.316	Oct-02	21.309	Oct-03	0.000		Continuing	TBD	
AFOTEC	MIPR	Various	0.000	0.000		0.154	Jan-04	0.000		Continuing	TBD	
JTF	SS/T&M	Titan Systems Corporation; Melbourne, FL	0.000	0.259	Apr-03	0.703	Jan-04				0.962	
DARPA	Allotment	Various	0.000	8.652	Jan-03	0.000		0.000			8.652	
BMC2-Winner	C/TBD	TBD	0.000			9.500	Jun-04	0.000		Continuing	TBD	
BMC2-Competition Team A	C/FFP	The Boeing Company; Seattle, WA	0.000	0.500	Sep-03	3.500	Oct-03	0.000			4.000	
BMC2-Competition Team B	C/FFP	Northrop-Grumman, Melbourne, FL	0.000	0.500	Sep-03	3.500	Oct-03	0.000			4.000	
BMC2-Competition Team C	C/FFP	Lockheed-Martin; Colorado Springs, CO	0.000	0.500	Sep-03	3.500	Oct-03	0.000			4.000	
767-400ER Testbed	SS/FFP	The Boeing Company; Seattle, WA	0.000	20.000	Aug-03	5.000	Oct-03	0.000		Continuing	TBD	
Sensor Lab/Test Hardware	SS/CPAF	Northrop Grumman Systems Corporation (MP-RTIP); El Segundo, CA	0.000	0.000		15.000	Mar-04	0.000		Continuing	TBD	
Horizontal Integration	Various	Various	0.000	20.500	Feb-03	0.000		0.000			20.500	
Future Studies/Spiral Development	Various	Various	0.000	0.000		0.300	Mar-04			Continuing	TBD	
Subtotal Product Development			0.000	128.727		204.966		0.000		Continuing	TBD	0.000
Remarks:	Where Various Contract Method & Types take place, earliest date funds will obligated is noted. * Note: Awaiting competition results to determine contract award.											
<u>(U) Management</u>												
Program Office Support	Various	Various	0.000	0.668	Oct-02	1.079	Oct-03			Continuing	TBD	

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Exhibit R-3, RDT&E Project Cost Analysis						DATE February 2004		
BUDGET ACTIVITY			PE NUMBER AND TITLE			PROJECT NUMBER AND TITLE		
07 Operational System Development			0207449F C2 Constellation			5064 Airframe		
Subtotal Management	0.000	0.668	1.079	0.000	Continuing	TBD	0.000	
Remarks: Where Various Contract Method & Types take place, earliest date funds will obligated is noted.								
(U) Total Cost	0.000	129.395	206.045	0.000	Continuing	TBD	0.000	
Remark: FY 2003 funding includes: \$85.3M DERF to E-10A airframe (BPAC 5064); which includes \$20.5M for the horizontal integration efforts. FY 2005 funding activity transferred to program element 0207450F-MC2A, Project 5131-Airframe								

Exhibit R-4, RDT&E Schedule Profile

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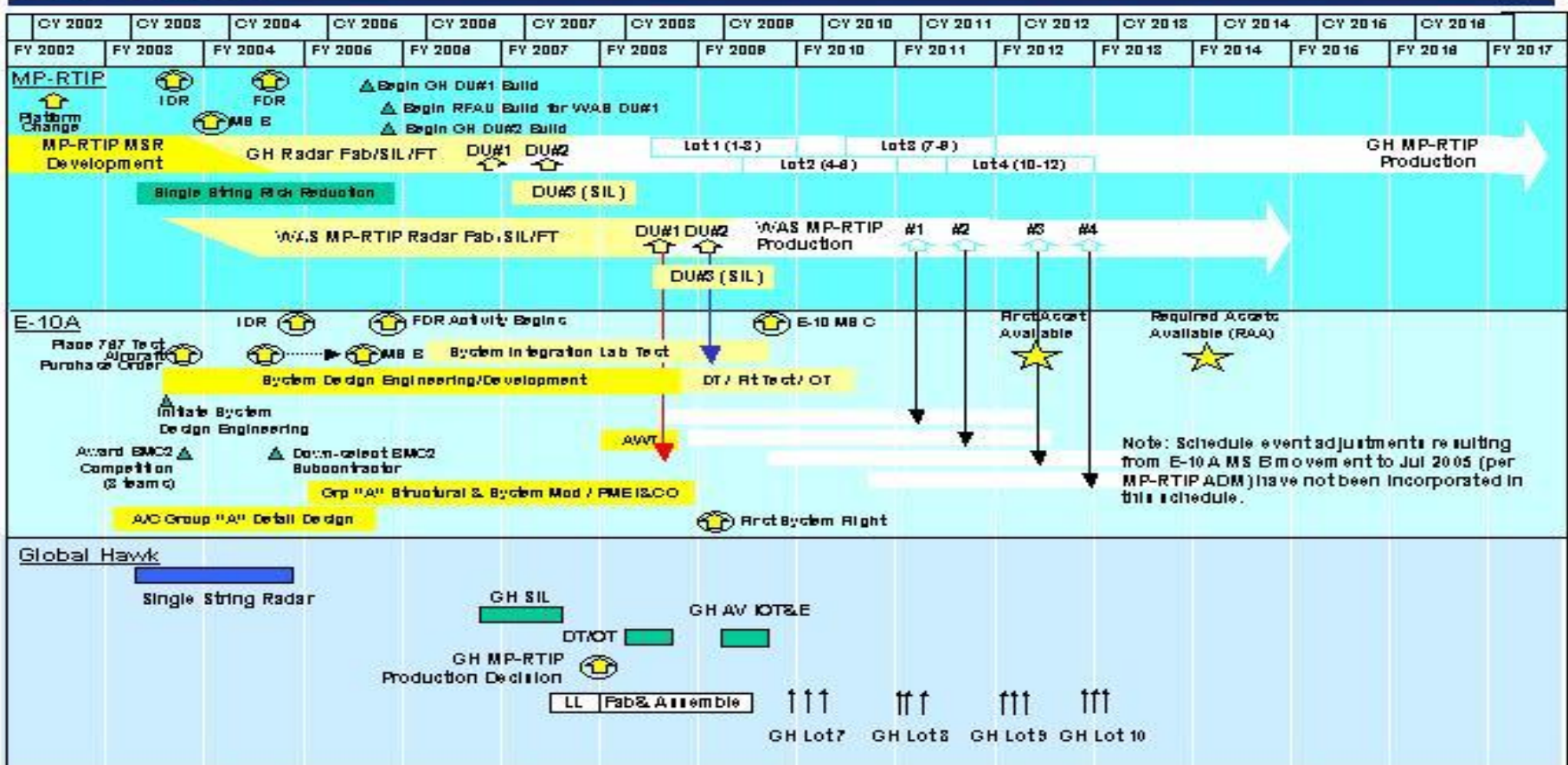
PE NUMBER AND TITLE
0207449F C2 Constellation

PROJECT NUMBER AND TITLE
5064 Airframe



E-10A/MP-RTIP Summary Program Schedule

U.S. AIR FORCE



2-Feb-04

Integrity - Service - Excellence

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Exhibit R-4a, RDT&E Schedule Detail

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PE NUMBER AND TITLE

0207449F C2 Constellation

PROJECT NUMBER AND TITLE

5064 Airframe

(U) Schedule Profile

FY 2003

FY 2004

FY 2005

(U) Initiated System Design Engineering

3Q

(U) Placed incrementally funded purchase order for a 767-400ER

4Q

(U) System Requirements Review

2Q

(U) Initial Design Review (IDR)

4Q

Remark: In FY 2005, activity transferred to program element 0207450F-MC2A, Project 5131-Airframe

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT NUMBER AND TITLE		
07 Operational System Development				0207449F C2 Constellation			5065 Sensors		
Cost (\$ in Millions)	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
5065 Sensors	208.369	154.006	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

1. In FY 2005, this PE was renamed C2 Constellation (formerly Multi-sensor Command and Control Constellation (MC2C)). Furthermore, Project 5064-Airframe and Project 5065-Sensor transferred to PE 0207450F, MC2A, Project 5131 MC2A-Airframe and Project 5132-MC2A Sensors. Both actions were accomplished to eliminate the programmatic confusion between the Multi-sensor Command and Control Aircraft (MC2A) and the MC2C.
2. In FY 2003, this was a new PE. This new Multi-sensor Command and Control Constellation (MC2C) PE 0207449F and associated Project Numbers 5064-Airframe and 5065-Sensors absorbed, and continued, the Multi-Platform Radar Technology Insertion Program (MP-RTIP) previously reported in PE 0207581F Joint STARS, Project Number 4995-MP-RTIP. Additionally, it supported hosting the MP-RTIP sensor on a 767-400ER testbed aircraft with funding transferred from PE 0207581F Joint STARS, Project Number 0003-JSTARS.
3. In FY 2003, MC2C received \$147M FY2003 Defense Emergency Response Fund (DERF) funding which is included in the above Total Program Element Cost table as follows: \$64.8M to Project 5064-Airframe; \$61.7M for the acceleration of MP-RTIP sensor development (Project 5065-Sensors); and \$20.5M for MC2 Constellation horizontal integration efforts (accounted for in the Project 5064-Airframe, in addition to the \$64.8M). The DERF funding was used to initiate the incrementally funded purchase of a 767-400ER testbed aircraft, begin system engineering design efforts for the testbed modifications, accelerate MP-RTIP sensor development and initiate the MC2 Constellation's horizontal integration architecture development.

(U) **A. Mission Description and Budget Item Justification**

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Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207449F C2 Constellation	PROJECT NUMBER AND TITLE 5065 Sensors
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(U) Continue Multi-Platform RTIP radar design and development for integration on the E-10A and Global Hawk target platforms	198.433	152.076	
(U) Continue Test Efforts (examples include: Operator-In-The-Loop [OITL]; Joint Test Force Support; AFOTEC Support, and Independent Verification & Validation IV&V).	1.455	1.031	
(U) Continue SPO Operations	0.733	0.799	
(U) Continue Future Studies/Spiral Development--includes concept exploration, program definition/risk reduction, sensor technology development and spiral development efforts supporting continuous improvements and implementation of Command & Control, Intelligence, Surveillance, and Reconnaissance (C2ISR) capabilities enabling the joint air and cruise missile defense architecture, joint decisive operations and the AEF Task Force CONOPS.	7.748	0.100	
(U) Total Cost Remark: In FY 2005, activity transferred to program element 0207450F-MC2A, Project 5132-Sensor	208.369	154.006	0.000

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E									
(U) PE 0207449F/Project 5064 Airframe	129.395	206.045	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
(U) PE 0207450F/Project 5132 MC2A Sensor	0.000	0.000	205.848	194.120	135.452	108.505	94.020	Continuing	TBD
(U) PE 0207450F/Project 5131 MC2A Airframe	0.000	0.000	333.012	336.338	303.048	312.495	138.480	Continuing	TBD
(U) PE 0305205F/Project 4799 (Global Hawk MP-RTIP Sensor)	11.000	32.000	34.000	18.000	8.000	0.000	0.000	Continuing	TBD
(U) APAF									
(U) PE 0207450F (MC2A Production)	0.000	0.000	0.000	0.000	0.000	567.504	706.243	Continuing	TBD

(U) D. Acquisition Strategy

The MP-RTIP Acquisition Decision Memorandum (ADM), dated 4 Dec 03, approved Global Hawk MP-RTIP entry into SDD and continued platform integration efforts for other platforms. MP-RTIP SDD activities will begin in FY 2004.

The MP-RTIP program currently plans to provide sensors for five aircraft (1 test bed and 4 production aircraft) and 12 Global Hawk air vehicles. LRIP quantities for Global Hawk (6 radars) were established at the MP-RTIP Milestone B in FY 2003. LRIP quantities for a widebody aircraft will be addressed at the E-10A MS B in FY 2005.

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
07 Operational System Development				0207449F C2 Constellation				5065 Sensors				
<u>(U) Cost Categories</u>	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to</u>	<u>Total</u>	<u>Target</u>
(Tailor to WBS, or System/Item Requirements) (\$ in Millions)			<u>Prior to FY</u>	<u>2003</u>	<u>2003</u>	<u>2004</u>	<u>2004</u>	<u>2005</u>	<u>2005</u>	<u>Complete</u>	<u>Cost</u>	<u>Value of</u>
			<u>2003</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>			<u>Contract</u>
			<u>Cost</u>		<u>Date</u>		<u>Date</u>		<u>Date</u>			
<u>(U) Product Development</u>												
Multi-Platform Radar Technology Insertion Program (MP-RTIP)	SS/CPAF	Northrop Grumman Systems Corporation; El Segundo, CA	112.405	189.854	Jan-02	136.063	Dec-03			Continuing	TBD	
Systems Engineering associated with MP-RTIP	Various	Various	7.778	8.579	Oct-02	16.013	Oct-03			Continuing	TBD	
DARPA	Allotment	Various	0.000	7.748	Jan-03						7.748	
Future Studies/Spiral Development	Various	Various				0.100	Mar-04				0.100	
Subtotal Product Development			120.183	206.181		152.176		0.000		Continuing	TBD	0.000
Remarks: For "Various" earliest date funds will be obligated is noted.												
<u>(U) Test & Evaluation</u>												
OITL	SS/T&M	Hanscom AFB, MA	0.800	0.500	Mar-03	0.000				Continuing	TBD	
JTF Support	SS/T&M	Titan Systems Corporation; Melbourne, FL	0.012	0.409	Apr-03	0.556	Jan-04			Continuing	TBD	
AFOTEC Support	MIPR	Various	0.270	0.096	Apr-03	0.000				Continuing	TBD	
IV&V	MIPR	Various	0.000	0.450	Jul-03	0.475	Jan-04			Continuing	TBD	
Subtotal Test & Evaluation			1.082	1.455		1.031		0.000		Continuing	TBD	0.000
Remarks:												
<u>(U) Management</u>												
Program Office Support	Various	Various	0.625	0.733	Oct-02	0.799	Oct-03			Continuing	TBD	
Subtotal Management			0.625	0.733		0.799		0.000		Continuing	TBD	0.000
Remarks: For "Various" earliest date funds will be obligated is noted.												
<u>(U) Total Cost</u>			121.890	208.369		154.006		0.000		Continuing	TBD	0.000
Remarks: FY 2002 and prior funds are reflected in JSTARS/PE 0207581F FY 2003 and FY2004 funds are reflected in C2 Constellation/PE 0207449F FY 2005 funding activity transfers to program element 0207450F-MC2A, Project 5132-Sensor												

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY
07 Operational System Development

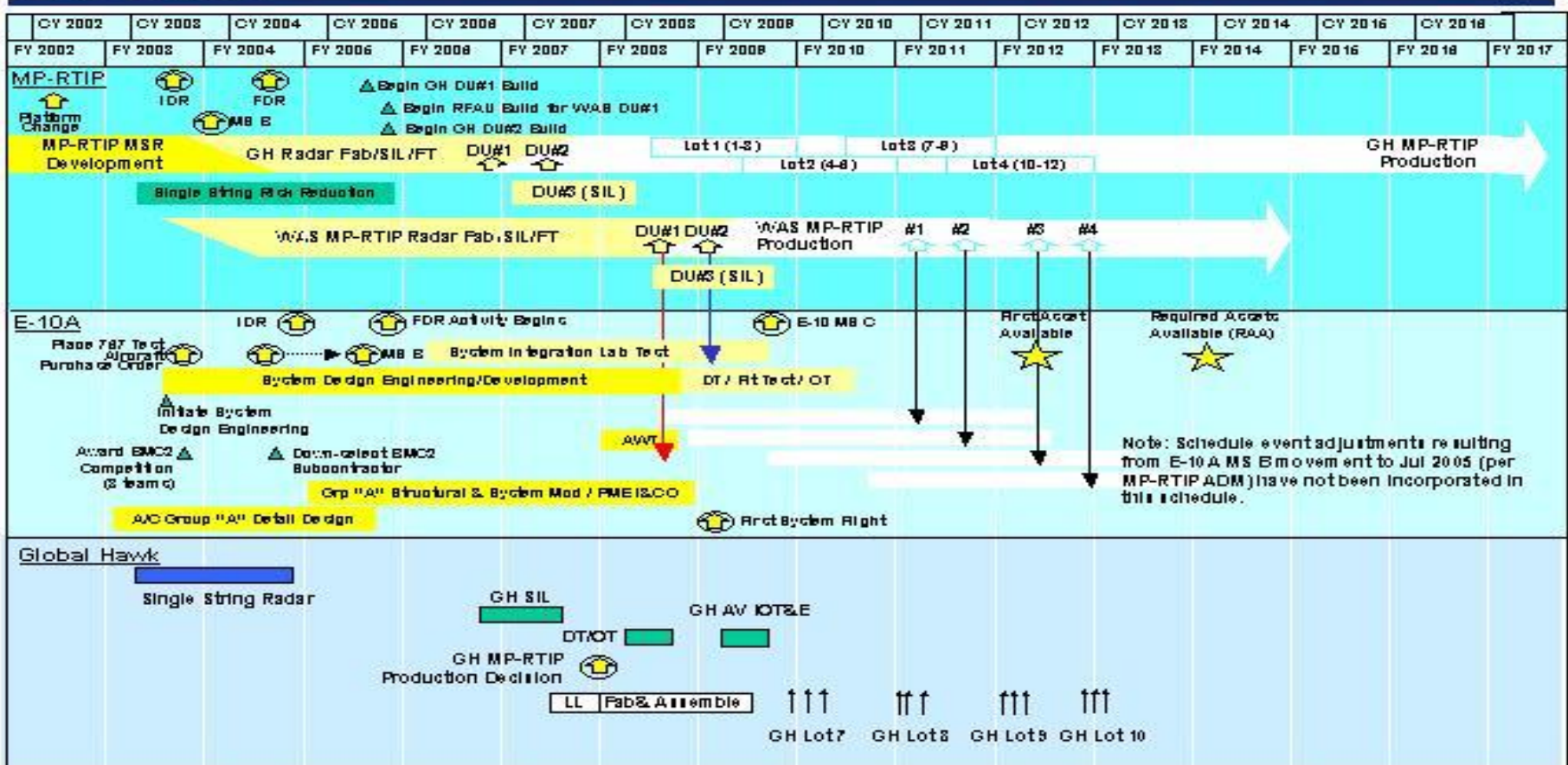
PE NUMBER AND TITLE
0207449F C2 Constellation

PROJECT NUMBER AND TITLE
5065 Sensors



E-10A/MP-RTIP Summary Program Schedule

U.S. AIR FORCE



2-Feb-04

Integrity - Service - Excellence

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207449F C2 Constellation	PROJECT NUMBER AND TITLE 5065 Sensors
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	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Schedule Profile			
(U) INITIAL DESIGN REVIEW	3Q		
(U) MILESTONE B		1Q	
(U) FINAL DESIGN REVIEW (FDR)		3Q	
Remark: In FY 2005, activity transferred to program element 0207450F-MC2A, Project 5132-Sensor			

Exhibit R-2a, RDT&E Project Justification

DATE

February 2004

BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT NUMBER AND TITLE		
07 Operational System Development				0207449F C2 Constellation			5078 Horizontal Integration		
Cost (\$ in Millions)	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
5078 Horizontal Integration	0.000	0.000	12.840	10.908	13.830	25.328	25.006	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

In FY 2003, the Air Force established a program element called the Multi-sensor Command and Control Constellation (MC2C). The MC2 Constellation is a horizontally integrated architecture of Command and Control (C2) and Intelligence, Surveillance, and Reconnaissance (ISR) capabilities. The horizontal integration effort included in this project will develop the system architecture foundation upon which all other MC2 Constellation elements will be established. The MC2 Constellation horizontal integration effort is captured in three main areas: Systems Engineering and Architecture Development, Modeling and Simulation (M&S) capabilities; development/fielding of rapid reaction, high leverage horizontal integration initiatives. This project's FY03 \$20.5M horizontal integration activities were funded with FY03 DERF dollars.

In FY04, Horizontal Integration efforts continue in Project Number 675064, Airframe.

In FY05, to clarify the programmatic confusion between the MC2 Aircraft (MC2A) and the MC2 Constellation, the Air Force revised its budgeting structure to clearly delineate separate Program Elements to support these two efforts. This Program Element (PE) 0207449F, was retitled as C2 Constellation, and a new PE 0207450F, MC2A, was constructed. In addition, Project Number 675064, Airframe's horizontal integration work transferred to Project Number 675078, Horizontal Integration.

(U) **A. Mission Description and Budget Item Justification**

Project 675078, Horizontal Integration, is established to develop an integrated intelligence, surveillance, and reconnaissance capability to support network centric operations. The C2 Constellation will build horizontal integration among its elements through (1) Systems Engineering, and Architecture Development, (2) Modeling and Simulation (M&S) Infrastructure and Experimentation, and (3) Horizontal Integration Enablers.

(1) Systems Engineering and Architecture Development is the 'glue' which will hold the constellation elements together, and close the seams in the C4ISR architecture. C2 Constellation system and technical architectures, cross program requirements allocation, key cost drivers, risk assessment and corresponding risk mitigation strategy will be examined. Existing/planned industry efforts and high payoff demonstrations/exercises will be leveraged for maximum benefit.

(2) M&S Infrastructure and Experimentation will leverage existing government/industry development and simulation sites to allow 'virtual' assessments of the C2 Constellation, as it is developed/refined. Facility network architecture management, new or improved communications linkages between the various government and industry simulation sites, with the required accreditation and encryption systems will be developed. A series of experiments, exercises and simulations will provide insight into the constellation architecture alternatives and identify targets of opportunity for further engineering and integration.

(3) Horizontal Integration Enablers will capitalize on near-term opportunities to eliminate known horizontal integration deficiencies in the seamless Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) network vision. Specific initiatives will focus on network centric warfare capabilities, air and space C2 integration, improved management and tasking of existing and forecast ISR systems, and correlation/fusion tools to improve our time critical targeting capabilities. These initiatives will become integral to the weapon system configuration controlled baseline.

Exhibit R-2a, RDT&E Project Justification

DATE

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207449F C2 Constellation

PROJECT NUMBER AND TITLE

5078 Horizontal Integration

This program is in Budget Activity 7 - Operational System Development because it provides a vehicle for horizontal integration, developers, testers and warfighters to experiment, analyze, and explore operational concepts and new technologies to enhance operational system developments and improve capabilities of the 21st century aerospace force.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Systems Engineering and Architecture Development, M&S Infrastructure and Experimentation, and Horizontal Integration Enablers	0.000	0.000	12.840
(U) Total Cost	0.000	0.000	12.840

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Not Applicable									

(U) D. Acquisition Strategy

The C2 Constellation horizontal integration effort embraces full and open competition for one or more systems engineering and architect approaches, coupled with M&S experiments and exercises. Long-term plan includes continued systems engineering, architecture refinement and maturing of the M&S infrastructure and experimentation to facilitate horizontal integration enablers. These enablers, performed toward a target end-state defined by architectural products, will allow the C2 Constellation to continuously spiral capabilities.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2004

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
07 Operational System Development				0207449F C2 Constellation				5078 Horizontal Integration				
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to</u>	<u>Total</u>	<u>Target</u>
			<u>Prior to FY</u>	<u>2003</u>	<u>2003</u>	<u>2004</u>	<u>2004</u>	<u>2005</u>	<u>2005</u>	<u>Complete</u>	<u>Cost</u>	<u>Value of</u>
			<u>2003</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>			<u>Contract</u>
			<u>Cost</u>		<u>Date</u>		<u>Date</u>		<u>Date</u>			
(U) <u>Product Development</u>												
Lockheed Martin	C/CPAF	ESC Hanscom AFB, MA	0.000	0.000		0.000		3.900	Dec-04		3.900	
ACS Defense	C/CPAF	ESC Hanscom AFB, MA	0.000	0.000		0.000		0.331	Apr-05		0.331	
ESC/SR	SPO Managed	ESC Hanscom AFB, MA	0.000	0.000		0.000		0.700	Dec-04		0.700	
ESC/JS	C/T&M	ESC Hanscom AFB, MA	0.000	0.000		0.000		0.286	Dec-04		0.286	
GSA	MIPR	Various	0.000	0.000		0.000		0.182	Dec-04		0.182	
AFRL	MIPR	Various	0.000	0.000		0.000		0.286	Dec-04		0.286	
NAVAIR/DPPS	MIPR	Various	0.000	0.000		0.000		0.081	Dec-04		0.081	
Various	Various	Various	0.000	0.000		0.000		5.994	Dec-04		5.994	
Subtotal Product Development			0.000	0.000		0.000		11.760		0.000	11.760	0.000
Remarks:												
(U) <u>Support</u>												0.000
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Test & Evaluation</u>												
46th Test Squadron	PO	Various	0.000	0.000		0.000		0.248	Dec-04		0.248	
605th Test Squadron	PO	Various	0.000	0.000		0.000		0.032	Dec-04		0.032	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.280		0.000	0.280	0.000
Remarks:												
(U) <u>Management</u>												
MITRE	FFRDC	ESC Hanscom AFB, MA						0.800	Dec-04		0.800	
Subtotal Management			0.000	0.000		0.000		0.800		0.000	0.800	0.000
Remarks:												
(U) Total Cost			0.000	0.000		0.000		12.840		0.000	12.840	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

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BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0207449F C2 Constellation

PROJECT NUMBER AND TITLE
5078 Horizontal Integration

Horizontal Integration Summary Program Schedule

	FY03				FY04				FY05				FY06				FY07				FY08				FY09			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
System Eng/Architecture Analysis	_____																											
Experimentation	_____																											
Horizontal Integration Initiatives			★				★				★				★				★				★				★	
Infrastructure		★				★				★				★				★				★				★		
Key:																												
Major Events	★																											
On Going	_____																											

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207449F C2 Constellation	PROJECT NUMBER AND TITLE 5078 Horizontal Integration
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	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <u>Schedule Profile</u>			
(U) Develop a simulation architecture to facilitate C2 Enterprise integration.			1-4Q
(U) Perform C2 Enterprise integrated architecture experimentation/analysis			1-4Q
(U) Implement HI Enabler			1-4Q

Exhibit R-2a, RDT&E Project Justification

DATE
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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0207449F C2 Constellation			PROJECT NUMBER AND TITLE 5140 Joint Expeditionary Force Experiments		
Cost (\$ in Millions)	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
5140 Joint Expeditionary Force Experiments	0.000	0.000	31.195	31.342	32.740	33.183	34.165	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

In FY05, work transferred in from PE 0207028F, Joint Expeditionary Force Experiment, Project Number 674373.

(U) A. Mission Description and Budget Item Justification

The Joint Expeditionary Force Experiments (JEFX) are large-scale warfighter experiments that address emerging operational challenges and are part of the total Air Force (AF) experimentation effort. We will explore significant capability gaps across the range of AF CONOPS and address critical lessons learned from recent operations. They combine live-fly forces and simulations into an operationally representative warfighter environment. These experiments provide a vehicle for experimentation with operational concepts and attendant new technologies to evolve and transform our aerospace forces and capabilities for the 21st century. They are part of a broader effort to implement the Joint Vision 2020, exploit the Revolution in Military Affairs, demonstrate emerging Air Force capabilities to deploy and employ decisive aerospace power for the Joint Force Commander, and are important enablers of innovation and transformation.

This program is in Budget Activity 7 - Operational System Development because it provides a vehicle for horizontal integration, developers, testers and warfighters to experiment, analyze, and explore operational concepts and new technologies to enhance operational system developments and improve capabilities of the 21st century aerospace force.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Develop systems architecture, systems engineering, and integration of initiatives into a cohesive system of systems. Integration of systems and process is the major reason JEFX is an experiment and not simply a demonstration or exercise.	0.000	0.000	5.160
(U) Plan, design, coordinate, assess and report the APTX 05 experiment. Provide expertise to support SPO functions of initiative selection, acquisition, program management, communications and systems planning.	0.000	0.000	7.000
(U) Develop initiatives to introduce new technologies and operational capabilities into the Aerospace Expeditionary Force (AEF) Concept of Operations (CONOPS) and develop and install Command and Control (C2) center upgrades.	0.000	0.000	6.861
(U) Implement architectural configuration, conduct M&S, install and test the communications infrastructure and execute the APTX 05 experiment	0.000	0.000	3.700
(U) Transition the integration of new initiatives and legacy systems into an integrated C2ISR baseline.	0.000	0.000	8.474
(U) Total Cost	0.000	0.000	31.195

Exhibit R-2a, RDT&E Project Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207449F C2 Constellation	PROJECT NUMBER AND TITLE 5140 Joint Expeditionary Force Experiments
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(U) C. Other Program Funding Summary (\$ in Millions)

<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	

(U) Not Applicable

(U) D. Acquisition Strategy

Electronic Systems Center (ESC), Hanscom AFB, MA and Air Force Command and Control, Intelligence, Surveillance and Reconnaissance (AFC2ISRC) Center, Langley AFB, VA will manage the acquisition and development for the experimentation, integration and fielding of selected technologies and process with legacy systems into an integrated C2ISR baseline.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE
February 2004

BUDGET ACTIVITY 07 Operational System Development			PE NUMBER AND TITLE 0207449F C2 Constellation					PROJECT NUMBER AND TITLE 5140 Joint Expeditionary Force Experiments				
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
<u>(U) Product Development</u>												
MITRE	FFRDC	AFC2ISRC, Langely AFB, VA	0.000	0.000		0.000		2.360	Dec-04	Continuing	TBD	
Lockheed Martin	C/CPAF	ESC Hanscom AFB, MA	0.000	0.000		0.000		1.800	Dec-04	Continuing	TBD	
ACS Defense	C/IDIQ	AFC2ISRC, Langely AFB, VA	0.000	0.000		0.000		1.575	Apr-05	Continuing	TBD	
Northrup Grumann	C/T&M	ESC Hanscom AFB, MA	0.000	0.000		0.000		0.200	Dec-04	Continuing	TBD	
Logicon	C/T&M	AFC2ISRC, Langely AFB, VA	0.000	0.000		0.000		0.500	Dec-04	Continuing	TBD	
GSA	MIPR	Various	0.000	0.000		0.000		1.706	Dec-04	Continuing	TBD	
AFRL	MIPR	Various	0.000	0.000		0.000		0.500	Dec-04	Continuing	TBD	
General Dynamics	C/T&M	AFC2ISRC, Langely AFB, VA	0.000	0.000		0.000		0.450	Dec-04	Continuing	TBD	
ESC	Various	Various	0.000	0.000		0.000		0.180	Dec-04	Continuing	TBD	
Various	MIPR	Various	0.000	0.000		0.000		14.739	Dec-04	Continuing	TBD	
L3 Comm	MIPR	Various	0.000	0.000		0.000		1.000	Dec-04	Continuing	TBD	
Sverdrup	C/GSA	Various	0.000	0.000		0.000		0.175	Oct-04	Continuing	TBD	
TRW	C/GSA	Various	0.000	0.000		0.000		0.250	Oct-04	Continuing	TBD	
AFC2TIG	MIPR	AFC2ISRC, Langely AFB, VA	0.000	0.000		0.000		0.575	Feb-05	Continuing	TBD	
Alion	C/GSA	Various	0.000	0.000		0.000		1.850	Dec-04	Continuing	TBD	
ACS Defense	C/GSA	Various	0.000	0.000		0.000		0.500	Dec-04	Continuing	TBD	
SAIC	C/GSA	Various	0.000	0.000		0.000		1.058	Dec-04	Continuing	TBD	
L3 Comm	C/GSA	Various	0.000	0.000		0.000		1.207	Dec-04	Continuing	TBD	
TRW	C/GSA	Various	0.000	0.000		0.000		0.300	Dec-04	Continuing	TBD	
Zel Tech	C/GSA	Various	0.000	0.000		0.000		0.220	Dec-04	Continuing	TBD	
Subtotal Product Development			0.000	0.000		0.000		31.145		Continuing	TBD	0.000

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

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BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE
07 Operational System Development	0207449F C2 Constellation	5140 Joint Expeditionary Force Experiments
Remarks:		
(U) <u>Support</u>		0.000
Subtotal Support	0.000 0.000 0.000	0.000 0.000 0.000
Remarks:		
(U) <u>Test & Evaluation</u>		
46th Test Squadron PO Various	0.000 0.000 0.000	0.050 Dec-04 Continuing TBD
Subtotal Test & Evaluation	0.000 0.000 0.000	0.050 Continuing TBD 0.000
Remarks:		
(U) <u>Management</u>		0.000
Subtotal Management	0.000 0.000 0.000	0.000 0.000 0.000
Remarks:		
(U) Total Cost	0.000 0.000 0.000	31.195 Continuing TBD 0.000

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0207449F C2 Constellation

PROJECT NUMBER AND TITLE
5140 Joint Expeditionary Force Experiments

Joint Expeditionary Force Experiments Summary Program Schedule

	FY03				FY04				FY05				FY06				FY07				FY08				FY09							
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Perform Assessment , JEFX	★								★								★												★			
Commence integration of selected initiative	★								★								★												★			
Call for Integration, APTX			★								★								★												★	
Initiative selection, APTX			★								★								★												★	
Architecture development				★								★								★												★
Conduct APTX																★																★
Call for initiatives JEFX	★								★								★												★			
Initiative Selection JEFX			★								★								★												★	
Architecture development JEFX				★								★								★												★
Conduct Spiral I							★								★								★									
Conduct Spiral II								★								★								★								
Conduct Spiral III												★												★								
Conduct JEFX Experiments																★																★
Key:																																
Major Events	★																															

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Exhibit R-4a, RDT&E Schedule Detail

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207449F C2 Constellation

PROJECT NUMBER AND TITLE

5140 Joint Expeditionary Force Experiments

(U) Schedule Profile

FY 2003

FY 2004

FY 2005

(U) JEFX 04 Assessment

1Q

(U) Integration of Initiatives

1Q

(U) APTX 05 Integration

2Q

(U) APTX Initiative Selection

2Q

(U) Architecture Development

3Q

(U) APTX 05

4Q

(U) JEFX 06 Call for Initiatives

1Q

(U) JEFX 06 Selection

2Q

(U) JEFX 06 Architecture Developed

3Q

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Exhibit R-2, RDT&E Budget Item Justification								DATE February 2004	
BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0207581F JOINT STARS					
Cost (\$ in Millions)	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
Total Program Element (PE) Cost	62.103	57.760	89.247	128.415	79.361	71.838	59.371	0.000	0.000
0003 JSTARS	62.103	57.760	89.247	128.415	79.361	71.838	59.371	0.000	0.000

(U) **A. Mission Description and Budget Item Justification**

The Joint Surveillance Target Attack Radar System (Joint STARS) program produces the world's premier airborne ground surveillance platform, meeting joint combat capability requirements. The 707-based E-8C Joint STARS aircraft provides radar-derived all-weather surveillance and targeting information on moving and stationary ground targets, slowly moving rotary and fixed wing aircraft, and rotating antennas. Joint STARS provides target information for matching direct attack aircraft, standoff weapons, and ground-based attack assets against selected targets, and can be cued by other intelligence, surveillance, and reconnaissance (ISR) and target acquisition systems. This capability enables air and ground commanders to effectively make and execute battle decisions.

This program element enhances the warfighter's ability to achieve the joint vision of combat operations. It develops advanced battle management aids and information fusion to enable rapid decisions in tracking and killing time-critical targets, and helps achieve predictive battlespace awareness. Concept exploration, program definition/risk reduction efforts, and studies support continuous improvements in Command/ Control and ISR (C2ISR) capabilities. These efforts include, but are not limited to, manned and unmanned platforms, space data links, advanced Battle-Management Command, Control and Communications (BMC3) concepts, ISR Constellation, Air Moving Target Indicator (AMTI), Ground Moving Target Indicator (GMTI), Mode 5/S and other large airborne platform integration efforts. The result is greater mission capability, higher mission reliability, and maximum weapon system availability.

This program is in Budget Activity 7, Operational Systems Development, due to efforts supporting a post-Milestone III operational weapon system.

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	60.317	58.431	89.481
(U) Current PBR/President's Budget	62.103	57.760	89.247
(U) Total Adjustments	1.786	-0.671	
(U) Congressional Program Reductions		-0.497	
Congressional Rescissions		-0.174	
Congressional Increases			
Reprogrammings	3.453		
SBIR/STTR Transfer	-1.667		

(U) **Significant Program Changes:**

- Airborne Battlefield Command and Control Center (ABCCC) project name changed to Airborne Battlefield Command and Control Center (ABCCC) Capability

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2004

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207581F JOINT STARS

Integration (ACI)

- Wing Structural Integrity Program (WSIP) accounts for FY04 increase in test costs. It is a one-time wing structure upgrade of the dedicated test aircraft. The remaining fleet is receiving the same modification via APAF funds.
- In FY04, the majority of ASU funding was transferred to the centrally controlled Tactical Data Link program element (PE #0207448F)

Exhibit R-2a, RDT&E Project Justification

DATE

February 2004

BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0207581F JOINT STARS			PROJECT NUMBER AND TITLE 0003 JSTARS		
Cost (\$ in Millions)	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
0003 JSTARS	62.103	57.760	89.247	128.415	79.361	71.838	59.371	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The Joint Surveillance Target Attack Radar System (Joint STARS) program produces the world's premier airborne ground surveillance platform, meeting joint combat capability requirements. The 707-based E-8C Joint STARS aircraft provides radar-derived all-weather surveillance and targeting information on moving and stationary ground targets, slowly moving rotary and fixed wing aircraft, and rotating antennas. Joint STARS provides target information for matching direct attack aircraft, standoff weapons, and ground-based attack assets against selected targets, and can be cued by other intelligence, surveillance, and reconnaissance (ISR) and target acquisition systems. This capability enables air and ground commanders to effectively make and execute battle decisions.

This program element enhances the warfighter's ability to achieve the joint vision of combat operations. It develops advanced battle management aids and information fusion to enable rapid decisions in tracking and killing time-critical targets, and helps achieve predictive battlespace awareness. Concept exploration, program definition/risk reduction efforts, and studies support continuous improvements in Command/ Control and ISR (C2ISR) capabilities. These efforts include, but are not limited to, manned and unmanned platforms, space data links, advanced Battle-Management Command, Control and Communications (BMC3) concepts, ISR Constellation, Air Moving Target Indicator (AMTI), Ground Moving Target Indicator (GMTI), Mode 5/S and other large airborne platform integration efforts. The result is greater mission capability, higher mission reliability, and maximum weapon system availability.

This program is in Budget Activity 7, Operational Systems Development, due to efforts supporting a post-Milestone III operational weapon system.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) SATCOM EMD (FY03 only), connectivity, Airborne Battlefield Command & Control Center Capability Insertion (ACI), etc.	15.932	8.100	
(U) Spiral Development and Kill Chain (examples: Advanced Radar Modes, Automatic Target Recognition, Find-Fix-Target-Track-Engage-Assess (F2T2EA), SPO operations, etc.)	3.562	4.859	8.024
(U) Global Air Traffic Mgmt (GATM) (i.e.; TCAS, Mode 5/S, etc.) and Joint Services Work Station (JSWS in FY03 only)	6.391	8.666	42.911
(U) Training & Support Systems development (examples: Weapon System Trainer Motion/Visual, Navigation Trainer, etc.)	0.748	0.473	0.330
(U) Link 16 ASU support, connectivity efforts, etc.	8.517	0.050	7.892
(U) Test effort (examples: Joint Test Force, JSTARS Extended Test Support contract, range support, PL-2 security, support of T-3 test aircraft, test labs, etc.)	26.953	35.612	30.090
(U) Total Cost	62.103	57.760	89.247

Exhibit R-2a, RDT&E Project Justification

DATE

February 2004

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207581F JOINT STARS

PROJECT NUMBER AND TITLE

0003 JSTARS

(U) C. Other Program Funding Summary (\$ in Millions)(U) D. Acquisition Strategy

FY03 was the last year APAF (BP10) funding was received. The AF will continue various fleetwide modifications throughout the life of the Joint STARS weapon system.

In FY03 PB marks, Congress directed DoD to decide on Joint STARS production status and to submit reprogramming to implement that decision. The Department will cease Joint STARS production at 17 aircraft.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE
February 2004

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
07 Operational System Development				0207581F JOINT STARS				0003 JSTARS				
<u>(U) Cost Categories</u>	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to</u>	<u>Total</u>	<u>Target</u>
(Tailor to WBS, or System/Item Requirements) (\$ in Millions)			<u>Prior to FY</u>	<u>2003</u>	<u>2003</u>	<u>2004</u>	<u>2004</u>	<u>2005</u>	<u>2005</u>	<u>Complete</u>	<u>Cost</u>	<u>Value of</u>
			<u>2003</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>			<u>Contract</u>
			<u>Cost</u>		<u>Date</u>		<u>Date</u>		<u>Date</u>			
<u>(U) Product Development</u>												
Weapon System Trainer (WST)	Various	HAFB, MA	12.088	0.748	Feb-03	0.473	Oct-03	0.330	Oct-04	Continuing	TBD	TBD
SATCOM EMD	SS/CPFF	HAFB, MA	94.487	3.367	Dec-02						97.854	TBD
ASU	SS/CPAF	HAFB, MA	0.000	8.517	Jan-03	0.050	Nov-03	7.892	Nov-04	Continuing	TBD	60.161
GATM	Various	HAFB, MA	10.353	3.350	Apr-03	8.666	Feb-04	42.911	Nov-04	Continuing	TBD	TBD
Spiral Development	Various	Various	2.831	0.946	Jan-03	1.799	Feb-04	3.423	Nov-04	Continuing	TBD	TBD
Joint Service Work Station (JSWS)	Various	Various		3.041	Jun-03						3.041	TBD
ACI Migration (formally ABCCC)	SS/CPAF	HAFB, MA	0.000	12.565	Jun-03	8.100	Jan-04				20.665	TBD
Subtotal Product Development			119.759	32.534		19.088		54.556		Continuing	TBD	TBD
Remarks: Where Various Contract Method & Types take place, earliest date funds will be obligated is noted.												
<u>(U) Support</u>												
SPO Ops Support	Various	HAFB, MA	100.500	2.616	Oct-02	3.060	Oct-03	4.601	Oct-04	Continuing	TBD	TBD
Subtotal Support			100.500	2.616		3.060		4.601		Continuing	TBD	TBD
Remarks: Where Various Contract Method & Types take place, earliest date funds will be obligated is noted.												
<u>(U) Test & Evaluation</u>												
E-8C JSTARS Ext. Test Spt (JETS)	SS/FFP/CPFF	Various	338.136	20.860	Nov-02	27.970	Nov-03	22.384	Nov-04	Continuing	TBD	TBD
JTF Range/Support	Various	Various	33.204	6.093	Nov-02	7.642	Nov-03	7.706	Nov-04	Continuing	TBD	TBD
Subtotal Test & Evaluation			371.340	26.953		35.612		30.090		Continuing	TBD	TBD
Remarks: Where Various Contract Method & Types take place, earliest date funds will be obligated is noted.												
<u>(U) Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Total Cost</u>			591.599	62.103		57.760		89.247		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

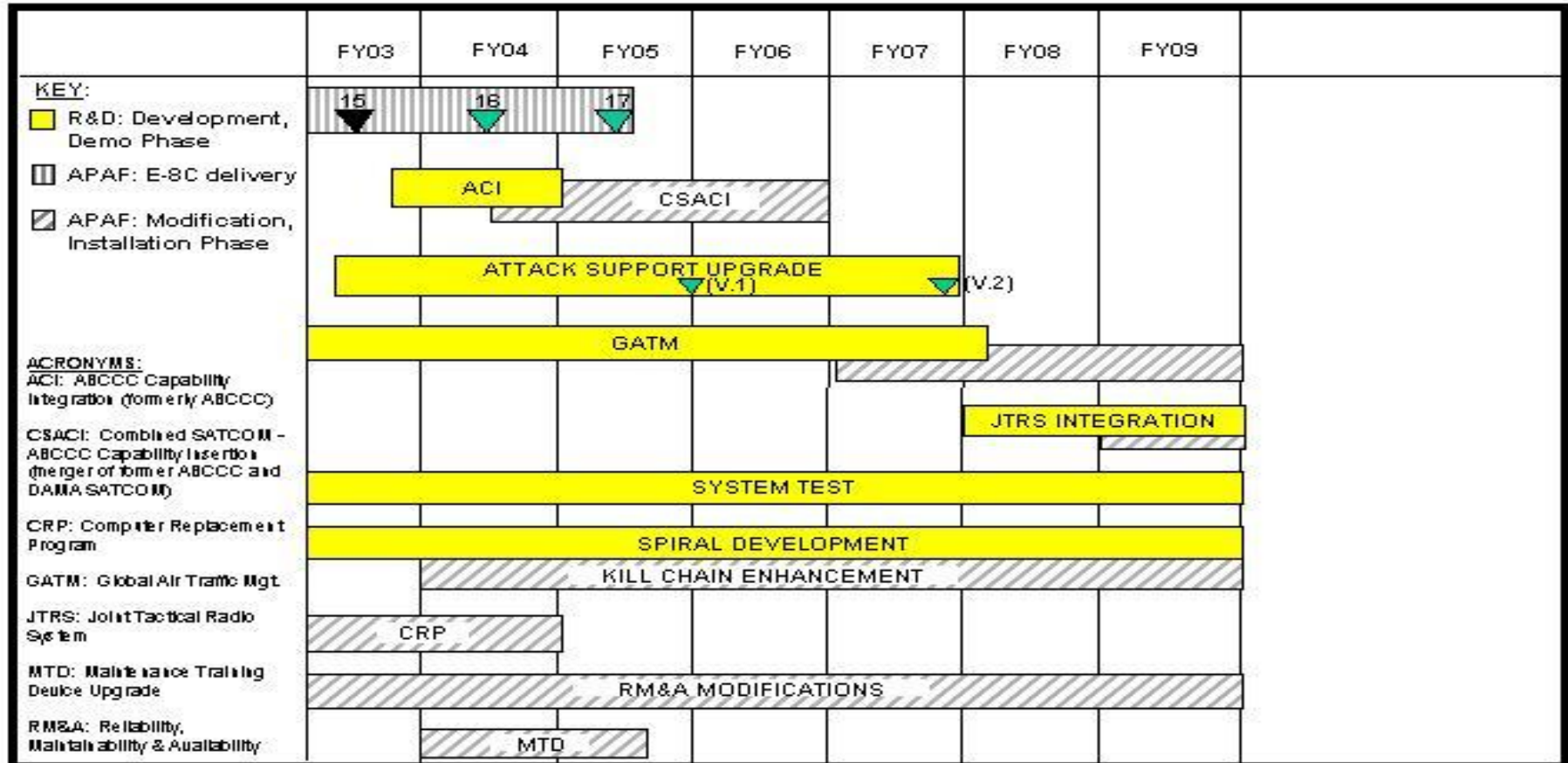
DATE
February 2004

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0207581F JOINT STARS

PROJECT NUMBER AND TITLE
0003 JSTARS

Joint STARS Schedule



As of 30 Jan 04

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Exhibit R-4a, RDT&E Schedule Detail

DATE

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207581F JOINT STARS

PROJECT NUMBER AND TITLE

0003 JSTARS

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Schedule Profile			
(U) Support & Training Sys. EMD Complete	1Q		
(U) SATCOM Development Complete	2Q		
(U) ASU Contract Award	2Q		
(U) Flight Crew Training System (FCTS) Delivered	2Q		
(U) ACI Contract Award (formally ABCCC)	3Q		
(U) Weapon System Trainer Delivered (WST)		2Q	
(U) GATM RFP Release		2Q	
(U) ACI Development Complete (formally ABCCC)		4Q	
(U) ASU Air Control/Theater Missile Defense capability delivered			2Q

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PE NUMBER: 0207590F
 PE TITLE: Seek Eagle

Exhibit R-2, RDT&E Budget Item Justification								DATE February 2004	
BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0207590F Seek Eagle					
Cost (\$ in Millions)	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
Total Program Element (PE) Cost	16.080	19.421	23.159	21.152	18.319	21.712	22.047	0.000	0.000
4037 SEEK EAGLE Certifications	16.080	19.421	23.159	21.152	18.319	21.712	22.047	0.000	0.000

(U) **A. Mission Description and Budget Item Justification**

The Air Force has a variety of combat aircraft and numerous stores (munitions, missiles, fuel tanks, electronic countermeasures pods, etc.). Aircraft carry these stores in countless different loading combinations determined by operational scenarios, missions, and tactics. Loading configurations change as operational plans and tactics change, and as new aircraft and stores are developed and produced. Before operational use, the Air Force must certify these configurations for safe loading, carriage, and separation (jettison and normal release), and must verify ballistics accuracy under the user-certified carriage and employment parameters. The Air Force SEEK EAGLE program completes these certifications through any combination of ground and flight testing, wind tunnel testing, modeling and simulation, and engineering analysis. Over 700 aircraft-store combinations exist to be certified, with new ones added on a regular basis. Depending upon the complexity, certification takes from months to years. The SEEK EAGLE program is also responsible for insertion of new and emerging technologies into the SEEK EAGLE process and providing resources for sustainment of a viable Air Force aircraft-store certification capability. Electronic Technical Orders are developed through the Combat Weapons Delivery Software (CWDS), creating cost savings by eliminating paper technical orders. SEEK EAGLE funds are currently budgeted to support certification for new weapons programs including Wind Corrected Munitions Dispenser (WCMD), Joint Direct Attack Munition (JDAM), Joint Air to Surface Standoff Missile (JASSM), Joint Standoff Weapon (JSOW), AIM-9X, AIM-120 C5 (AMRAAM), and many other inventory stores on inventory aircraft. Planning and budgeting estimations are in progress for future certifications of weapons on F/A-22 and the Joint Strike Fighter (JSF).

The RDT&E Budget Activity is 7, Operational System Development, because the program supports fielded systems.

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	16.792	19.587	23.220
(U) Current PBR/President's Budget	16.080	19.421	23.159
(U) Total Adjustments	-0.712	-0.166	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.166	
Congressional Increases			
Reprogrammings	-0.226		
SBIR/STTR Transfer	-0.486		
(U) <u>Significant Program Changes:</u>			

Exhibit R-2a, RDT&E Project Justification

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February 2004

BUDGET ACTIVITY 07 Operational System Development					PE NUMBER AND TITLE 0207590F Seek Eagle			PROJECT NUMBER AND TITLE 4037 SEEK EAGLE Certifications		
Cost (\$ in Millions)	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	
4037 SEEK EAGLE Certifications	16.080	19.421	23.159	21.152	18.319	21.712	22.047	0.000	0.000	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

(U) A. Mission Description and Budget Item Justification

The Air Force has a variety of combat aircraft and numerous stores (munitions, missiles, fuel tanks, electronic countermeasures pods, etc.). Aircraft carry these stores in countless different loading combinations determined by operational scenarios, missions, and tactics. Loading configurations change as operational plans and tactics change, and as new aircraft and stores are developed and produced. Before operational use, the Air Force must certify these configurations for safe loading, carriage, and separation (jettison and normal release), and must verify ballistics accuracy under the user-certified carriage and employment parameters. The Air Force SEEK EAGLE program completes these certifications through any combination of ground and flight testing, wind tunnel testing, modeling and simulation, and engineering analysis. Over 700 aircraft-store combinations exist to be certified, with new ones added on a regular basis. Depending upon the complexity, certification takes from months to years. The SEEK EAGLE program is also responsible for insertion of new and emerging technologies into the SEEK EAGLE process and providing resources for sustainment of a viable Air Force aircraft-store certification capability. Electronic Technical Orders are developed through the Combat Weapons Delivery Software (CWDS), creating cost savings by eliminating paper technical orders. SEEK EAGLE funds are currently budgeted to support certification for new weapons programs including Wind Corrected Munitions Dispenser (WCMD), Joint Direct Attack Munition (JDAM), Joint Air to Surface Standoff Missile (JASSM), Joint Standoff Weapon (JSOW), AIM-9X, AIM-120 C5 (AMRAAM), and many other inventory stores on inventory aircraft. Planning and budgeting estimations are in progress for future certifications of weapons on F/A-22 and the Joint Strike Fighter (JSF).

The RDT&E Budget Activity is 7, Operational System Development, because the program supports fielded systems.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments/Planned Program	0.000	0.000	0.000
(U) Continue development of F/A-22 data and engineering models to use for follow-on F/A-22 weapons certification	0.500	1.000	2.000
(U) Conduct various automation projects and automated Technical Orders/mission planning projects using CWDS	2.850	3.300	3.300
(U) Continue/complete various technology process improvement projects and aircraft load/separation prediction capabilities using ACFD (Applied Computational Fluid Dynamics)	2.661	2.768	2.950
(U) Conduct various aircraft-store certifications on USAF fighter and bomber aircraft	10.069	12.353	14.909
(U) Total Cost	16.080	19.421	23.159

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E									
(U) Other APPN									

Exhibit R-2a, RDT&E Project Justification

DATE

February 2004

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207590F Seek Eagle

PROJECT NUMBER AND TITLE

4037 SEEK EAGLE Certifications

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

(U) Proc of Ammunition, AF*

(U) - JDAM (PE 0207327F)	0.297	0.143	0.000	0.000	0.103	0.000	0.000	Continuing	TBD
(U) - WCMD (PE 0207600F)	0.000	0.133	0.000	0.000	0.096	0.000	0.000	Continuing	TBD
(U) Missile Procurement, AF*									
(U) - JSOW (PE 0207324F)	0.000	0.964	0.000	0.958	0.000	0.000	0.000	Continuing	TBD
(U) - AIM-120 C5 (AMRAAM) (PE 0207163F)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
(U) - AIM-9X (PE 0207161F)	1.751	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
(U) - JASSM (PE 0207325F)	3.735	1.433	2.837	0.000	2.842	0.000	0.000	Continuing	TBD

* Note: The SEEK EAGLE procurement dollars shown above are appropriated in each weapon's P-1 line.

(U) **D. Acquisition Strategy**

Budget authorization for procurement funds are given directly to the weapon system program offices, who then procure the required certification test articles through the weapon production contract.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2004

BUDGET ACTIVITY			PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
07 Operational System Development			0207590F Seek Eagle					4037 SEEK EAGLE Certifications				
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to</u>	<u>Total</u>	<u>Target</u>
			<u>Prior to FY</u>	<u>2003</u>	<u>2003</u>	<u>2004</u>	<u>2004</u>	<u>2005</u>	<u>2005</u>	<u>Complete</u>	<u>Cost</u>	<u>Value of</u>
			<u>2003</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Contract</u>
			<u>Cost</u>	<u>Date</u>	<u>Date</u>	<u>Date</u>	<u>Date</u>	<u>Date</u>	<u>Date</u>			
(U) <u>Product Development</u>												
Lockheed Martin	C/CPFF	Marietta, GA	5.045	0.500		1.000		2.000		7.103	15.648	
Leigh Aerosystems	FFP	Carlsbad, CA	0.943	0.000		0.000		0.000		0.000	0.943	
Subtotal Product Development			5.988	0.500		1.000		2.000		7.103	16.591	0.000
Remarks:												
(U) <u>Support</u>												
Mission Support	PO/REO	Eglin AFB, FL	11.154	0.700		0.800		0.900		Continuing	TBD	
Subtotal Support			11.154	0.700		0.800		0.900		Continuing	TBD	0.000
Remarks:												
(U) <u>Test & Evaluation</u>												
46th Test Wing	PO/REO	Eglin AFB, FL	117.348	8.871		10.921		12.159		Continuing	TBD	
AEDC	PO/REO	Eglin AFB, FL	16.857	0.909		1.100		1.500		Continuing	TBD	
Various	PO/REO	Eglin AFB, FL	59.868	5.100		5.600		6.600		Continuing	TBD	
Subtotal Test & Evaluation			194.073	14.880		17.621		20.259		Continuing	TBD	0.000
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			211.215	16.080		19.421		23.159		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207590F Seek Eagle

PROJECT NUMBER AND TITLE

4037 SEEK EAGLE Certifications

The SEEK EAGLE program does not execute in accordance with established acquisition program milestones. Each aircraft-store configuration requested by the user goes through the SEEK EAGLE process by the designated user priority.

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207590F Seek Eagle	PROJECT NUMBER AND TITLE 4037 SEEK EAGLE Certifications
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	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <u>Schedule Profile</u>			
(U) JDAM	1-4Q	1-4Q	
(U) WCMD		1-4Q	
(U) AIM-9X (Sidewinder)	1-4Q		
(U) JSOW		1-4Q	
(U) JASSM	1-4Q	1-4Q	1-4Q

Note: The SEEK EAGLE program does not execute in accordance with established acquisition program milestones. Each aircraft-store configuration requested by the user goes through the SEEK EAGLE process by the designated user priority.

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PE NUMBER: 0207601F
 PE TITLE: USAF Modeling and Simulation

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207601F USAF Modeling and Simulation
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Cost (\$ in Millions)	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
Total Program Element (PE) Cost	25.540	12.873	18.693	11.475	11.583	11.932	12.062	Continuing	TBD
1008 National Air and Space Warfare Model (NASM)	17.980	0.000	0.000	0.000	0.000	0.000	0.000	0.000	97.510
4567 Joint Synthetic Battlespace (JSB) Environment	6.250	11.563	6.190	6.280	6.390	6.972	7.132	Continuing	TBD
4991 Joint Distributed Engineering Plant (JDEP)	0.000	0.000	6.530	4.810	4.790	4.960	4.930	Continuing	TBD
5004 Joint Model Transition (JMT)	0.400	0.400	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5005 Executive Agent For Air /Space Natural Environment	0.910	0.910	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5122 C4ISR Warfighting Integration	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	TBD
5133 Joint Distribute Engineering Plant (JDEP)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
5135 Distributed Mission Operations (DMO)	0.000	0.000	5.973	0.385	0.403	0.000	0.000	Continuing	TBD

In FY05, Project Number 675135, Distributed Mission Operations (DMO), includes new start efforts.

(U) A. Mission Description and Budget Item Justification

Provides RDT&E funding for major USAF Modeling and Simulation (M&S) efforts such as Distributed Mission Operations (DMO), Joint Synthetic Battlespace-AF (JSB-AF), and Joint Distributed Engineering Plant (JDEP). DMO leverages JDEP, JSB-AF and Distributed Mission Training (DMT) programs to create the most efficient robust, collaborative M&S environment available. JSB-AF provides realistic representations of friendly and threat warfighting capabilities, realistic representations of the natural environment where the warfighting capabilities exists, and an architecture framework to support developing representations that allow the easy and rapid integration of those representations into synthetic battlespaces. JDEP connects combat system engineering sites and replicates the Joint Force Combat system to create a network test-bed to assess Joint Battle Management, Command, Control, Communication, Computers and Intelligence. Its objective is to improve interoperability of weapons systems and platforms through more rigorous interoperability evaluation in a replicated battlefield environment. JDEP will provide the capability both to improve Service and Joint system performance in a system-of-systems environment.

This Program Element (PE) also supports the Joint Model Transition (JMT) project (formerly known as the Legacy Model Transition). JMT is incorporated into the DMO project which funds the upgrades of selected R&D models through a board process. JMT fully supports the next generation of modeling and simulation (M&S) systems as the Air Force during transition from legacy M&S and fulfills emerging models/architecture capabilities. Numerous models exist and are being modified or developed for a broad range of areas including acquisition, analysis, test and evaluation, and training.

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2004

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207601F USAF Modeling and Simulation

Air Force is the Executive Agent for Air & Space Natural Environment (ASNE) which serves the M&S community as subject matter expert for ASNE M&S databases (including relevant standards), dynamic processes, and other applications. ASNE is incorporated into the JSB Environment project and enables the major Joint simulation systems (i.e., Joint Warfare Simulation (JWARS), Joint Simulation System (JSIMS), Joint Modeling and Simulation System (JMASS), and Joint and Service component programs (i.e., Joint Strike Fighter (JSF), Missile Defense Agency (MDA), etc.) to represent the air and space natural environment rapidly, thoroughly, and consistently in a manner that promotes cost-effectiveness, ready access, interoperability, re-use, and confidence.

In addition, this PE enables the development of the Synthetic Theater Operations Research Model (STORM). STORM will replace the current Air Force theater level campaign model, THUNDER, with enhanced capability to feed aerospace representation in the Joint Warfare System (JWARS) and support Quadrennial Defense Reviews. In addition, the Intelligent Flight Control System Simulation Research and Oklahoma City Air Logistics Command (ALC) M&S projects are in this PE.

This program is in Budget Activity 7 - Operational System Development because it provides RDT&E funding for major USAF Modeling and Simulation efforts.

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	22.396	8.483	8.577
(U) Current PBR/President's Budget	25.540	12.873	18.693
(U) Total Adjustments	3.144	4.390	
(U) Congressional Program Reductions		-0.110	
Congressional Rescissions			
Congressional Increases		4.500	
Reprogrammings	3.850	0.374	
SBIR/STTR Transfer	-0.706	-0.374	

(U) **Significant Program Changes:**

In FY04, Congress added \$1 million for STORM and \$3.5 million for Joint Synthetic Battlespace. The Congressional funds are in Project Number 674567.

In FY05, Project 674567 incorporates \$0.910 M project 675005 efforts. \$6.530 M of Project 674991 work transferred in from PE 0207028F. Project 675135 incorporates \$0.400 M of project 675004 work. These changes support best management practices to ensure the highest quality of work for the next generation of Modeling & Simulation (M&S) in USAF M&S.

Exhibit R-2a, RDT&E Project Justification

DATE
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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0207601F USAF Modeling and Simulation			PROJECT NUMBER AND TITLE 1008 National Air and Space Warfare Model (NASM)		
Cost (\$ in Millions)	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
1008 National Air and Space Warfare Model (NASM)	17.980	0.000	0.000	0.000	0.000	0.000	0.000	0.000	97.510
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

In FY03, the Joint Simulation System (JSIMS) was cancelled which caused the Air Force to terminate the National Air & Space Warfare Model (NASM) project.

(U) A. Mission Description and Budget Item Justification

This project provided funds for Air Force and Joint wargaming architecture and model development, primarily in support of battlestaff training, education, and military operations. New simulation federate components are being developed by the NASM program to replace the existing Air Force standard Air Warfare Simulation (AWSIM) within the JSIMS system. NASM will expand the use and role of modeling and simulation (M&S) in support of operational and acquisition decision making, and increase the interoperability between Air Force and joint efforts such as Joint Synthetic Battlespace (JSB). NASM includes, but is not limited to, representation of the full range of AFM 1-1 missions to meet the needs of USAF MAJCOMs and Unified/Specified Command air components to train Air Component Commanders and their battlestaffs. Additionally, NASM provides the JSIMS Civil Environment for accurate portrayal of strategic and cascading effects. Also, NASM is providing additional common components under JSIMS Alliance resources. Primary users will be the unified command air components, Combatant Commanders, Joint Forces Air Component Commander's (JFACC), and Service components, as supported by the Command and Control Technology Interoperability Group, the Korean Air Simulation Center (KASC), and the Warrior Preparation Center (WPC) for use in Joint exercises involving air, ground, and sea campaigns.

This program is in Budget Activity 7 - Operational System Development because it provides RDT&E funding for major USAF Modeling and Simulation efforts.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Completed Version Release Milestone (VRM) 1.0 Validation Test; continue development of VRM 2.0 air and space objects and process models to meet JSIMS integrated master development schedule; initial development of VRM 3.0 air and space objects and process models	15.722	0.000	0.000
(U) Continued NASM integration effort and operate the program management office	2.258	0.000	0.000
(U) Total Cost	17.980	0.000	0.000

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Not applicable									

(U) D. Acquisition Strategy

NASM provides the Air and Space software components of the Joint Simulation System (JSIMS). Resources are reviewed and measured against an Alliance program baseline, with the Earned Value and Performance Measurement reporting against the baseline accomplished on a monthly basis. The contract was selected by source

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207601F USAF Modeling and Simulation

PROJECT NUMBER AND TITLE

1008 National Air and Space Warfare Model (NASM)

selection and is a Cost Plus Award Fee (CPAF).

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY			PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
07 Operational System Development			0207601F USAF Modeling and Simulation					1008 National Air and Space Warfare Model (NASM)				
<u>(U) Cost Categories</u>	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to</u>	<u>Total</u>	<u>Target</u>
(Tailor to WBS, or System/Item Requirements) (\$ in Millions)			<u>Prior to FY</u>	<u>2003</u>	<u>2003</u>	<u>2004</u>	<u>2004</u>	<u>2005</u>	<u>2005</u>	<u>Complete</u>	<u>Cost</u>	<u>Value of</u>
			<u>2003</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>			<u>Contract</u>
			<u>Cost</u>		<u>Date</u>		<u>Date</u>		<u>Date</u>			
<u>(U) Product Development</u>												
Raytheon (NASM)	C/CPAF	Various	17.135	16.722	Mar-97	0.000		0.000		0.000	33.857	
Raytheon (AWSIM/R)	C/CPAF	ESC Hanscom AFB, MA	11.454	0.000	Apr-94	0.000		0.000		0.000	11.454	
Hughes (AWSIM/R)	C/CPAF	ESC Hanscom AFB, MA	4.059	0.000	Jun-94	0.000		0.000		0.000	4.059	
TRW (AFSOM)	C/CPAF	Various	0.039	0.000	Dec-97	0.000		0.000		0.000	0.039	
SysSimSolutions (STORM)	C/FFP	Various	0.000	0.000	Mar-03	0.000		0.000		0.000	0.000	
Oklahoma City ALC Modeling and Simulation Task	Various	Tinker AFB, OK	0.000	0.000	Mar-03	0.000		0.000		0.000	0.000	
Subtotal Product Development			32.687	16.722		0.000		0.000		0.000	49.409	0.000
Remarks:												
<u>(U) Support</u>												
Tech Eng Mgt Spt (TEMS) /ITSP	Del Order	ESC Hanscom AFB, MA	8.082	1.008	Dec-02	0.000		0.000		0.000	9.090	
MITRE	Contract Mod	ESC Hanscom AFB, MA	5.869	0.250	Dec-02	0.000		0.000		0.000	6.119	
Other*	Various	Various	17.112	0.000		0.000		0.000		0.000	17.112	
Subtotal Support			31.063	1.258		0.000		0.000		0.000	32.321	0.000
Remarks: *Includes Prototype Contracts												
<u>(U) Test & Evaluation</u>												
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Total Cost</u>			63.750	17.980		0.000		0.000		0.000	81.730	0.000

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0207601F USAF Modeling and Simulation

PROJECT NUMBER AND TITLE
1008 National Air and Space Warfare Model (NASM)

Acquisiton Milestones	FY03	FY04	FY05	FY06	FY07	FY09	FY10	FY11
IOC Vs 1.0	1Q							
Vs 1.0 Validation Table	3Q							

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207601F USAF Modeling and Simulation	PROJECT NUMBER AND TITLE 1008 National Air and Space Warfare Model (NASM)
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	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <u>Schedule Profile</u>			
(U) Initial Operating Capability (IOC) Version 1.0 Release	1Q		
(U) Version 1.0 Validation Test	3Q		

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY		PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
07 Operational System Development		0207601F USAF Modeling and Simulation					4567 Joint Synthetic Battlespace (JSB) Environment			
Cost (\$ in Millions)	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	
4567 Joint Synthetic Battlespace (JSB) Environment	6.250	11.563	6.190	6.280	6.390	6.972	7.132	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

In FY05, the project was renamed to the Joint Synthetic Battlespace (JSB) Environment (formerly the Joint Modeling and Simulation System) to incorporate work being accomplished in the Joint Synthetic Battlespace-Air Force (JSB-AF), the Joint Modeling and Simulation Systems (JMASS), and Air and Space Natural Environment (ASNE).

(U) **A. Mission Description and Budget Item Justification**

The Joint Synthetic Battlespace (JSB) Environment incorporates the Joint Modeling and Simulation System (JMASS) and Air and Space Natural Environment (ASNE) programs to add additional capability by applying the techniques in support of distributed simulations, including Distributed Mission Operations (DMO). Individual users will continue to develop models, simulations and documents based on Joint Synthetic Battlespace-Air Force (JSB-AF) standards definition and interfaces. JSB-AF will provide the capability to rapidly create realistic and accurate synthetic operational battlespaces to support the full spectrum of activities associated with mission preparation and acquisition of warfighting capabilities by providing appropriate component representations. Users will access readily available repositories of reusable, validated, and integrated synthetic components. Synthetic components will include representations of operational battlespace entities such as friendly and enemy assets and representations of the natural environment that include the terrain, atmospheric and space weather effects, and energy and signal propagation effects. The rapid composition will be based on a durable common architecture framework and common standards. JSB-AF will also provide mechanisms to capture and distribute information generated by the JSB-AF to support training, mission rehearsal, decision support, acquisition, deployment, operations, tactics/strategy development for deployment, security, and the sustainment of warfighting capabilities.

Air Force Director of Weather (AF/XIW) is designated as the DoD Modeling and Simulation Executive Agent (MSEA) for Air and Space Natural Environment (ASNE). This program also provides funds for MSEA joint wargaming architecture, data base, model development support for Joint Warfare Simulation (JWARS), Joint Simulation System (JSIMS), Joint Modeling and Simulation System (JMASS), and other joint M&S program offices. Primary users will be unified commanders and service components for use in joint exercises involving air, ground, sea, and space campaigns. ASNE MSEA enables Joint and Service M&S customers to present weather rapidly, thoroughly, and consistently. Promotes cost-effectiveness, ready access, interoperability, re-use, and confidence. ASNE MSEA provides leadership and initiative crucial to provision of authoritative representation of the natural environment in M&S. Manages programs that provide air and space environmental data for DoD M&S. Strong support from AF/XI and OSD/PA&E for environmental M&S programs. Environmental scenarios necessary for robust "What-if" mission planning & rehearsal. Realistic data essential for valid Training, Analysis, and Acquisition simulations. Integral component of JWARS--supports expanding Combatant Commanders and customer base. Imperative for accurate JSIMS Verification, Validation and Accreditation (VV&A)-key part of SECDEF-directed Analysis of Alternatives (AoA). Keen interest from Defense Threat Reduction Agency (DTRA)--ready to enhance high-resolution HAZMAT dispersion model. Provides no-cost environmental scenarios for DoD simulations/exercises/wargames. Adheres to, develops, and promotes environmental database standards. Leads development/execution of DoD Integrated Natural Environment Authoritative Representation Process (INEARP) Concept of Operations (CONOPS).

Joint Modeling & Simulation System (JMASS) is a simulation support environment for the development, configuration, execution, and analysis of high fidelity, repeatable

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207601F USAF Modeling and Simulation

PROJECT NUMBER AND TITLE

4567 Joint Synthetic Battlespace (JSB) Environment

simulations with re-usable models-focus is tactical/engagement level simulations with the present concentration on electronic combat. JMASS is a full system software implementation of a modern object based simulation architecture. JMASS provides users with the tools to develop objects, assemble these objects into models, and configuration controls.

This program is in Budget Activity 7 - Operational System Development because it provides RDT&E funding for major USAF Modeling and Simulation efforts.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Continued model transition and development	4.145	6.713	0.000
(U) Continued architecture development (environment, terrain, human interaction, background models and simulation)	2.105	0.350	0.000
(U) JSB-AF concept exploration/development	0.000	3.500	5.234
(U) STORM implementation	0.000	1.000	0.000
(U) Develop ASNE natural environment representations	0.000	0.000	0.956
(U) Total Cost	6.250	11.563	6.190

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Not Applicable									

(U) D. Acquisition Strategy

All major contracts for model development will be awarded after full and open competition.

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207601F USAF Modeling and Simulation	PROJECT NUMBER AND TITLE 4567 Joint Synthetic Battlespace (JSB) Environment
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(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to</u>	<u>Total</u>	<u>Target</u>
			<u>Prior to FY</u>	<u>2003</u>	<u>2003</u>	<u>2004</u>	<u>2004</u>	<u>2005</u>	<u>2005</u>	<u>Complete</u>	<u>Cost</u>	<u>Value of</u>
			<u>2003</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>			<u>Contract</u>
			<u>Cost</u>		<u>Date</u>		<u>Date</u>		<u>Date</u>			
(U) <u>Product Development</u>												
JSB-AF	Various	ESC, Hanscom AFB, MA	0.000	0.000		2.670	Jun-04	3.434	Oct-04	Continuing	TBD	
JMASS	Various	ASC, Wright Patterson AFB, OH	6.830	6.250	Oct-02	7.063	Oct-03	0.000		Continuing	TBD	
STORM	Various	Pentagon, Washington DC	0.000	0.000		1.000	Apr-04	0.000		Continuing	TBD	
ASNE	Various	Various	0.000	0.000		0.000		0.956	Oct-04	Continuing	TBD	
Subtotal Product Development			6.830	6.250		10.733		4.390		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												
Subtotal Support			0.000	0.000			Mar-04	0.900	Mar-05	Continuing	TBD	
Remarks:			0.000	0.000		0.000		0.900		Continuing	TBD	0.000
(U) <u>Test & Evaluation</u>												
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000			0.000	0.000
Remarks:												
(U) <u>Management</u>												
JSB SPO Support	Various	ESC Hanscom AFB, MA				0.830	Mar-04	0.900	Mar-05		1.730	
Subtotal Management			0.000	0.000		0.830		0.900		0.000	1.730	0.000
Remarks:												
(U) Total Cost			6.830	6.250		11.563		6.190		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

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February 2004

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0207601F USAF Modeling and Simulation

PROJECT NUMBER AND TITLE
4567 Joint Synthetic Battlespace (JSB) Environment

Exhibit R-4: Joint Synthetic Battlespace (JSB)

	FY04				FY05				FY06				FY07				FY08				FY09				FY10				FY11			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Acquisition Milestones	██████████																															
			△	☆																												
Concept Refinement			☆																													
Technology Development				██████████	☆				☆				☆				☆				☆				☆				☆			
Test & Eval									△				△				△				△				△				△			
Delivery									☆				☆				☆				☆				☆				☆			
Support											██████████	██████████	██████████	██████████	██████████	██████████	██████████	██████████	██████████	██████████	██████████	██████████	██████████	██████████	██████████	██████████	██████████	██████████	██████████	██████████		

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Exhibit R-4a, RDT&E Schedule Detail

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207601F USAF Modeling and Simulation

PROJECT NUMBER AND TITLE

4567 Joint Synthetic Battlespace (JSB) Environment

(U) Schedule Profile

FY 2003

FY 2004

FY 2005

(U) Final delivery of JMASS

1Q

(U) Develop/Extend enhanced AF system models

1-4Q

1-4Q

1-4Q

(U) JSB-AF Concept Exploration/Development

1-4Q

1-3Q

(U) JSB-AF IOC Block 1

4Q

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0207601F USAF Modeling and Simulation			PROJECT NUMBER AND TITLE 4991 Joint Distributed Engineering Plant (JDEP)		
Cost (\$ in Millions)	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
4991 Joint Distributed Engineering Plant (JDEP)	0.000	0.000	6.530	4.810	4.790	4.960	4.930	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

In FY05, work transferred in from PE 0207028F, Joint Expeditionary Force Experiment, project number 674991, Joint Distributed Engineering Plant (JDEP).

(U) A. Mission Description and Budget Item Justification

The Joint Distributed Engineering Plant (JDEP) connects combat system engineering sites and replicates Joint Force Combat Systems to create a network testbed to assess Joint Battle Management, Command, Control, Communication, Computers and Intelligence (C4I). Its objective is to improve interoperability of weapons systems and platforms through more rigorous interoperability evaluation in a replicated battlefield environment. JDEP will provide the capability to improve both Service and Joint system performance in a System-of-Systems environment.

JDEP will link existing Service and Joint combat system engineering and test sites, such as Command, Control, Communications, Computers, & Intelligence (C4I) hardware in the loop and computer-program-in-the-loop engineering sites (including Design Activities, software support activities, test & evaluation facilities and training commands) located around the country.

This project is in Budget Activity 7 - Operational System Development because it enhances operational system developments.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Continue site activation and operations support; includes hardware, software and activation cost for each site	0.000	0.000	0.840
(U) Continue communication architectures, links, and engineering and support for site activities	0.000	0.000	2.462
(U) Continue existing JDEP support activities to include operations & maintenance support along with contracted personnel to assist in event activities	0.000	0.000	1.151
(U) Continue experiment implementation and analysis to participant in various events	0.000	0.000	1.677
(U) Continue development/operation of a simulation/stimulation environment for JDEP events	0.000	0.000	0.400
(U) Total Cost	0.000	0.000	6.530

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Not Applicable									

(U) D. Acquisition Strategy

The Electronic Systems Center (ESC) at Hanscom AFB, MA, will manage the acquisition and development process for the experimentation, integration and site activation

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207601F USAF Modeling and Simulation

PROJECT NUMBER AND TITLE

4991 Joint Distributed Engineering Plant (JDEP)

activities for all Air Force JDEP activities. JDEP will provide an opportunity to perform integration activities with joint users from a single location for system integration, development and risk reduction activities. All major contracts for model development will be awarded after full and open competition.

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY			PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
07 Operational System Development			0207601F USAF Modeling and Simulation					4991 Joint Distributed Engineering Plant (JDEP)				
<u>(U) Cost Categories</u>	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to</u>	<u>Total</u>	<u>Target</u>
(Tailor to WBS, or System/Item Requirements) (\$ in Millions)			<u>Prior to FY</u>	<u>2003</u>	<u>2003</u>	<u>2004</u>	<u>2004</u>	<u>2005</u>	<u>2005</u>	<u>Complete</u>	<u>Cost</u>	<u>Value of</u>
			<u>2003</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>			<u>Contract</u>
			<u>Cost</u>		<u>Date</u>		<u>Date</u>		<u>Date</u>			
<u>(U) Product Development</u>												
ESC	Various	Various	0.000	0.000		0.000		0.800	Mar-05	Continuing	TBD	
BOEING	Various	ESC Hanscom AFB, MA	0.000	0.000		0.000		0.350	Nov-04	Continuing	TBD	
NORTHROP GRUMMAN	T&M	ESC Hanscom AFB, MA	0.000	0.000		0.000		0.300	Feb-05	Continuing	TBD	
Defense Information Systems Agency (DISA)	MIPR	Various	0.000	0.000		0.000		1.250	Nov-04	Continuing	TBD	
Aeronautical Systems Center (ASC)	ITSP	Various	0.000	0.000		0.000		1.200	Dec-04	Continuing	TBD	
Defense Advanced Research Projects Agency (DARPA)	MIPR	Various	0.000	0.000		0.000		2.315	Jan-05	Continuing	TBD	
RAYTHEON	C/CPFF	ESC Hanscom AFB, MA	0.000	0.000		0.000		0.315	Dec-04	Continuing	TBD	
Subtotal Product Development			0.000	0.000		0.000		6.530		Continuing	TBD	0.000
Remarks:												
<u>(U) Support</u>												0.000
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Test & Evaluation</u>												0.000
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Management</u>												0.000
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Total Cost</u>			0.000	0.000		0.000		6.530		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

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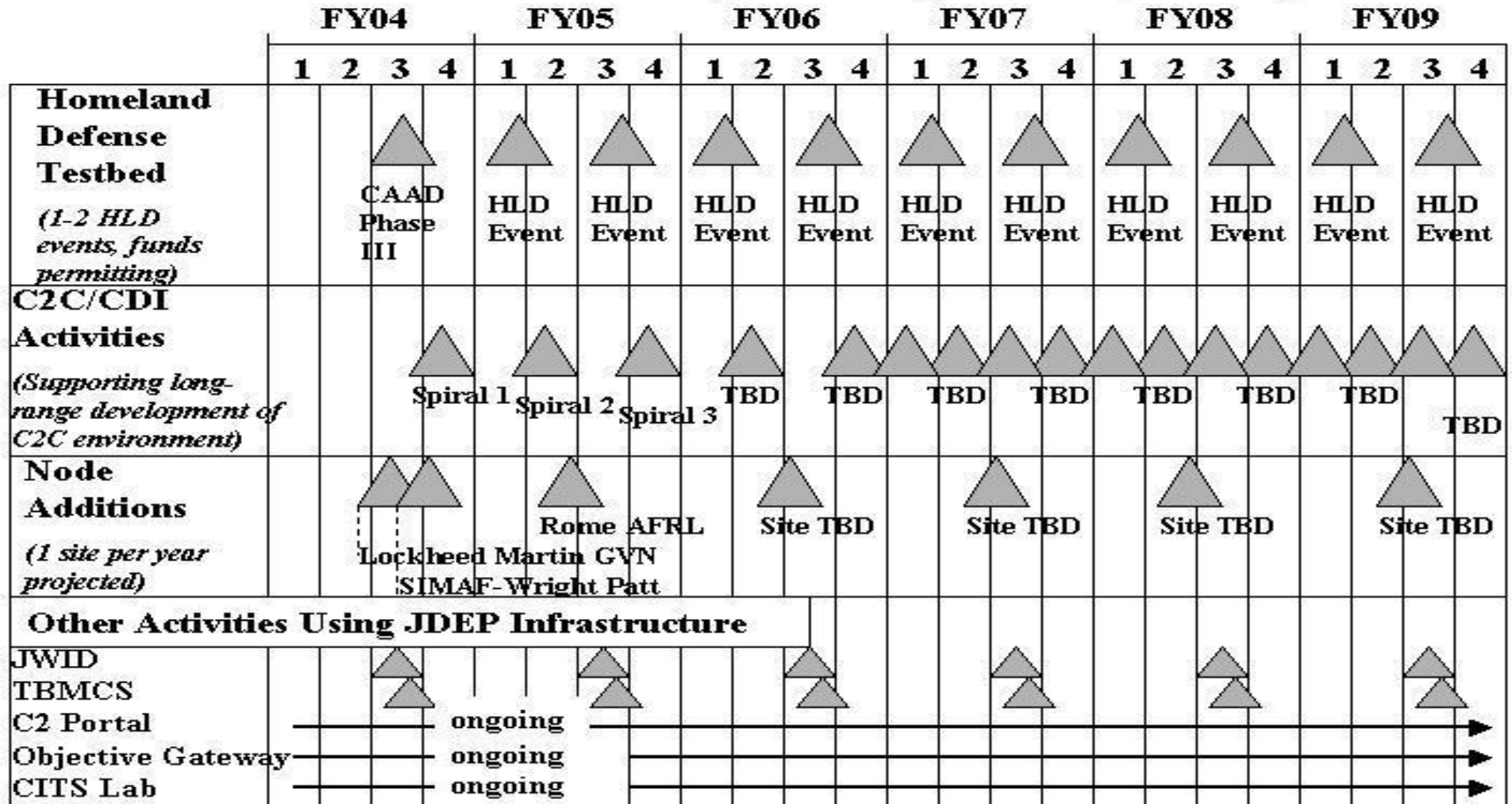
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BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0207601F USAF Modeling and Simulation

PROJECT NUMBER AND TITLE
4991 Joint Distributed Engineering Plant (JDEP)

Joint Distributed Engineering Plant (JDEP)



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Exhibit R-4a, RDT&E Schedule Detail

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207601F USAF Modeling and Simulation

PROJECT NUMBER AND TITLE

4991 Joint Distributed Engineering Plant (JDEP)

(U) Schedule Profile

FY 2003

FY 2004

FY 2005

(U) Event Planning

1Q

(U) Conduct Center for Domain Integration (CDI) Interoperability Event

1-4Q

(U) Implement JDEP connectivity at Hanscom and other Air Force sites

3Q

(U) Critical Area Air Defense (CAAD) Event (Phase V)

4Q

(U) Command and Control (C2) Constellation Event

1Q

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0207601F USAF Modeling and Simulation			PROJECT NUMBER AND TITLE 5004 Joint Model Transition (JMT)		
Cost (\$ in Millions)	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
5004 Joint Model Transition (JMT)	0.400	0.400	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

Numerous models are being developed for a broad range of areas including acquisition, analysis, test and evaluation, and training. The Joint Model Transition (JMT) project (formerly known as Legacy Model Transition) supports the development and upgrade of R&D models selected through a board process. The selection process allows the board to influence the direction of model development and integration for the modeling and simulation community. Emphasis is placed on joint applicability and acceptance.

Digital System Models (DSM) digitally represent weapon system platforms and are used to evaluate existing platform capabilities against new threats, ability to upgrade weapon systems to satisfy new requirements, etc. Results of Analysis of Alternatives (AoA) using DSM are used as a decision tool to determine future weapon system developments and/or upgrades.

This program is in Budget Activity 7 - Operational System Development, Research Category because it provides RDT&E funding for major USAF Modeling and Simulation efforts.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Developed and integrated service models according to M&S architecture roadmap	0.100	0.100	0.000
(U) Developed cost benefit analysis for Next Generation Mission Model	0.218	0.215	0.000
(U) Developed comprehensive Digital System Models (DSMs) and Simulations to support potential development programs	0.082	0.085	0.000
(U) Total Cost	0.400	0.400	0.000

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to Complete</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>		
(U) Not Applicable									

(U) D. Acquisition Strategy

The funds are provided to the Office of Aerospace Studies (OAS) and various vendors for the advancement and capability extension of Digital System Models (DSM) and simulations. All major contracts for model development will be awarded after full and open competition.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

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BUDGET ACTIVITY			PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
07 Operational System Development			0207601F USAF Modeling and Simulation					5004 Joint Model Transition (JMT)				
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
(U) <u>Product Development</u>												
Various	Various	Various	0.000	0.400	Mar-04	0.400	Mar-05	0.000		0.000	0.800	0.000
Subtotal Product Development			0.000	0.400		0.400		0.000		0.000	0.800	0.000
Remarks:												
(U) <u>Support</u>											0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Test & Evaluation</u>											0.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u>											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			0.000	0.400		0.400		0.000		0.000	0.800	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

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BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0207601F USAF Modeling and Simulation

PROJECT NUMBER AND TITLE
5004 Joint Model Transition (JMT)

Exhibit R-4: Joint Model Transition (JMT)

	FY05				FY06				FY07				FY08				FY09				FY10				FY11			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Architecture	██████████																											
Interfaces			Δ																									
DSMs			Δ																									

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Exhibit R-4a, RDT&E Schedule Detail

DATE

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207601F USAF Modeling and Simulation

PROJECT NUMBER AND TITLE

5004 Joint Model Transition (JMT)

(U) **Schedule Profile**

- (U) Develop Digital System Models (DSM)
- (U) Develop/Extend Enhance AF Models
- (U) Develop/Implement M&S Architecture

FY 2003

- 1-4Q
- 3Q
- 2Q

FY 2004

- 1-4Q
- 3Q
- 2Q

FY 2005

Exhibit R-2a, RDT&E Project Justification

DATE

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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0207601F USAF Modeling and Simulation			PROJECT NUMBER AND TITLE 5005 Executive Agent For Air /Space Natural Environment		
Cost (\$ in Millions)	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
5005 Executive Agent For Air /Space Natural Environment	0.910	0.910	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

In FY05, work transferred to project 674567.

(U) A. Mission Description and Budget Item Justification

Air Force Director of Weather (AF/XIW) is designated as the Department of Defense (DoD) Modeling and Simulation Executive Agent (MSEA) for Air and Space Natural Environment (ASNE). This program provides funds for MSEA joint wargaming architecture, data base, model development support for Joint Warfare Simulation (JWARS), Joint Simulation System (JSIMS), Joint Modeling and Simulation System (JMASS), and other joint M&S program offices. Primary users will be unified commanders and service components for use in joint exercises involving air, ground, sea, and space campaigns.

This program is in Budget Activity 7 - Operational System Development because it provides RDT&E funding for major USAF Modeling and Simulation efforts.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Complete Space Weather Prototyping and Integration	0.350	0.357	0.000
(U) Complete Production Center Integration	0.350	0.343	0.000
(U) Complete Air/Land Battlefield Integration	0.210	0.210	0.000
(U) Total Cost	0.910	0.910	0.000

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Not Applicable									

(U) D. Acquisition Strategy

All major contracts under ASNE will be awarded after full and open competition.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

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BUDGET ACTIVITY			PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
07 Operational System Development			0207601F USAF Modeling and Simulation					5005 Executive Agent For Air /Space Natural Environment				
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
(U) <u>Product Development</u>												
Various	Various	Various	0.821	0.910	Oct-02	0.910	Oct-03	0.000		Continuing	TBD	0.000
Subtotal Product Development			0.821	0.910		0.910		0.000		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												0.000
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Test & Evaluation</u>												0.000
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u>												0.000
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			0.821	0.910		0.910		0.000		Continuing	TBD	0.000

Exhibit R-4a, RDT&E Schedule Detail

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207601F USAF Modeling and Simulation

PROJECT NUMBER AND TITLE

5005 Executive Agent For Air /Space Natural Environment

(U) Schedule Profile

(U) Weather Scenario Production Initial Operating Capability (IOC)

(U) Weather Scenario Production Final Operating Capability (FOC)

(U) Space Environmental Effects IOC

(U) Ionospheric Effects FOC

FY 2003

FY 2004

FY 2005

1Q

1Q

3Q

2Q

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0207601F USAF Modeling and Simulation			PROJECT NUMBER AND TITLE 5135 Distributed Mission Operations (DMO)		
Cost (\$ in Millions)	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
5135 Distributed Mission Operations (DMO)	0.000	0.000	5.973	0.385	0.403	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

Distributive Mission Operations (DMO) is the Air Force's contribution to the Joint National Training Concept (JNTC). The Air Force Modeling & Simulation Training Toolkit (AFMSTT) is the constructive engine for DMO.

In Dec 02, the Joint Simulation System (JSIMS) program decision memorandum cancelled JSIMS, which resulted in the funding being removed at the end of Fiscal Year (FY) 2003. As a result, AFMSTT capabilities need to be modernized to fulfill the Modeling & Simulation (M&S) capability that would have been provided by JSIMS/NASM. AFMSTT has not been updated since 1998. The enhancements will support current and future battlestaff training and Air Force (AF) Title X requirements.

AFMSTT is the AF's contribution to the Joint Training confederation's battlestaff training environment used to support Combatant Commanders, Joint Task Force, and component commander staff readiness training. AFMSTT includes: the Air Warfare Simulation (AWSIM) which interfaces to Command, Control, Communications, Computers, and Intelligence (C4I)-AWSIM to the Theater Battle Management Core System (TBMCS) and the Graphical Input Aggregate Control (GIAC), the Logistics Simulation (LOGSIM), the Intelligence Management Controller Node (IMCN), the AWSIM Analysis Tool (AAT), and the Air Force Synthetic Environment for Reconnaissance and Surveillance (AFSERS). Also, AFMSTT supports Joint/Service exercises; such as: Joint National Training Concept (JNTC), Ulchi Focus Lens, Roving Sands, Union Flash, and Blue Flag. It also supports the Joint Expeditionary Force Experiment (JEFX) and the Distributed Continuous Experimentation Environment (DCEE).

In addition, project 675135 supports the Joint Model Transition (formerly known as Legacy Model Transition) which supports the development and upgrade of models selected through a board process. The selection process allows the board to influence the direction of model development and integration for the modeling and simulation community. Emphasis is placed on standardization, integration, capabilities improvement, joint applicability and acceptance.

This program is in Budget Activity 7 - Operational System Development because it provides RDT&E funding for major USAF Modeling and Simulation efforts.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) AFMSTT Modernization	0.000	0.000	5.600
(U) Perform JMT cost-benefit analysis, develop and integrate models, simulations and interface standards	0.000	0.000	0.373
(U) Total Cost	0.000	0.000	5.973

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207601F USAF Modeling and Simulation

PROJECT NUMBER AND TITLE

5135 Distributed Mission Operations (DMO)

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

(U) **D. Acquisition Strategy**

All contracts awarded with full and open competition.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2004

BUDGET ACTIVITY			PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
07 Operational System Development			0207601F USAF Modeling and Simulation					5135 Distributed Mission Operations (DMO)				
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to</u>	<u>Total</u>	<u>Target</u>
			<u>Prior to FY 2003</u>	<u>2003</u>	<u>2003</u>	<u>2004</u>	<u>2004</u>	<u>2005</u>	<u>2005</u>	<u>Complete</u>	<u>Cost</u>	<u>Value of</u>
			<u>Cost</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Date</u>	<u>Date</u>	<u>Contract</u>
(U) <u>Product Development</u>												
AFMSTT	Various	ESC, Hanscom AFB, MA	0.000	0.000		0.000		5.600	Dec-04	Continuing		TBD
JMT	Various	General Services Administration (GSA) and Office of Aerospace Studies (OAS), Kirtland AFB, NM	0.000	0.000		0.000		0.373	Feb-05	Continuing		TBD
Subtotal Product Development			0.000	0.000		0.000		5.973		Continuing		TBD
Remarks:												0.000
(U) <u>Support</u>												0.000
Subtotal Support			0.000	0.000		0.000		0.000			0.000	0.000
Remarks:												0.000
(U) <u>Test & Evaluation</u>												0.000
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000			0.000	0.000
Remarks:												0.000
(U) <u>Management</u>												0.000
Subtotal Management			0.000	0.000		0.000		0.000			0.000	0.000
Remarks:												0.000
(U) Total Cost			0.000	0.000		0.000		5.973		Continuing		TBD

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207601F USAF Modeling and Simulation

PROJECT NUMBER AND TITLE

5135 Distributed Mission Operations (DMO)

Exhibit R-4: Joint Model Transition (JMT)

	FY05				FY06				FY07				FY08				FY09				FY10				FY11			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Architecture	██████████																											
Interfaces			△																									
DSMs			△																									

Exhibit R-4a, RDT&E Schedule Detail	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207601F USAF Modeling and Simulation	PROJECT NUMBER AND TITLE 5135 Distributed Mission Operations (DMO)
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	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <u>Schedule Profile</u>			
(U) AFMSTT Modernization			1-4Q
(U) JMT-perform cost-benefit analysis, develop and integrate models, simulations and interface standards according to Modeling & Simulation Strategic Plan (MSSP) and architecture.			1-4Q

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PE NUMBER: 0207605F

PE TITLE: Wargaming and Simulation Centers

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207605F Wargaming and Simulation Centers
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Cost (\$ in Millions)	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
Total Program Element (PE) Cost	7.894	7.201	6.377	6.435	6.551	6.740	6.846	Continuing	TBD
2888 Distributed Mission Operations Center (DMOC)	7.894	7.201	6.377	6.435	6.551	6.740	6.846	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

In FY04, the Air Force's Distributed Mission Operations Center (DMOC) (formerly known as the Theater Air Command & Control Simulation Facility (TACCSF)) stood up. DMOC effectively models the integration of aerospace Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) capabilities in the development of Modeling & Simulation (M&S) tools required to support training, experimentation, and analysis events.

These programs are in Budget Activity 7 - Operational System Development because they continue the development and upgrades of the Air Force's premier warfighter-in-the-loop simulation facility.

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	8.323	6.262	6.377
(U) Current PBR/President's Budget	7.894	7.201	6.377
(U) Total Adjustments	-0.429	0.939	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.061	
Congressional Increases		1.000	
Reprogrammings	-0.074		
SBIR/STTR Transfer	-0.355		
(U) <u>Significant Program Changes:</u>			

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Exhibit R-2a, RDT&E Project Justification

DATE
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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0207605F Wargaming and Simulation Centers			PROJECT NUMBER AND TITLE 2888 Distributed Mission Operations Center (DMOC)		
Cost (\$ in Millions)	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
2888 Distributed Mission Operations Center (DMOC)	7.894	7.201	6.377	6.435	6.551	6.740	6.846	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

In FY04, the Air Force's Distributed Mission Operations Center (DMOC) (formerly known as the Theater Air Command & Control Simulation Facility (TACCSF)) stood up. DMOC effectively models the integration of aerospace Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) capabilities in the development of Modeling & Simulation (M&S) tools required to support training, experimentation, and analysis events.

These programs are in Budget Activity 7 - Operational System Development because they continue the development and upgrades of the Air Force's premier warfighter-in-the-loop simulation facility.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Continue to maintain core structure to support users conducting RDT&E, mission rehearsal, and concepts of operation development.	6.860	5.093	5.183
(U) Continue to support requirements definition, test support, scenario development, analysis, system engineering support, and Verification, Validation and Accreditation (VV&A) of core systems.	0.675	0.675	0.680
(U) Program management.	0.259	0.259	0.305
(U) Communications connectivity between DMOC and various other M&S facilities.	0.100	0.202	0.209
(U) C4ISR Warfighting Integration efforts	0.000	0.972	0.000
(U) Total Cost	7.894	7.201	6.377

In FY05, C4ISR Warfighting integration work was transferred to PE 0207449F, C2 Constellation, Project 675078, Horizontal Integration.

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Not Applicable									

(U) D. Acquisition Strategy

Provides funds for development and upgrade of virtual simulators. Simulators include: Airborne Warning and Control Systems (AWACS), Joint Surveillance Attack Radar Systems (JSTARS), Advanced Airborne Sensor, Airborne Laser (ABL), TSQ-73 Fire Direction Center, Remotely Piloted Aircraft, and the F-15C.

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY			PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
07 Operational System Development			0207605F Wargaming and Simulation Centers					2888 Distributed Mission Operations Center (DMOC)				
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to</u>	<u>Total</u>	<u>Target</u>
			<u>Prior to FY</u>	<u>2003</u>	<u>2003</u>	<u>2004</u>	<u>2004</u>	<u>2005</u>	<u>2005</u>	<u>Complete</u>	<u>Cost</u>	<u>Value of</u>
			<u>2003</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Contract</u>
			<u>Cost</u>		<u>Date</u>		<u>Date</u>		<u>Date</u>			
(U) <u>Product Development</u> Det 4, AFC2TIG	CPFF	Lockheed Martin, Kirtland AFB, NM	6.860	7.214	Oct-02	7.201	Oct-03	6.377	Oct-04	Continuing	TBD	
Subtotal Product Development			6.860	7.214		7.201		6.377		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												0.000
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Test & Evaluation</u>												0.000
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u> Det 4, AFC2TIG	CPFF	Scientific Research Corp., Kirtland AFB, NM	0.680	0.680	Mar-02	0.000		0.000		Continuing	TBD	
Subtotal Management			0.680	0.680		0.000		0.000		Continuing	TBD	0.000
Remarks:												
(U) Total Cost			7.540	7.894		7.201		6.377		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

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February 2004

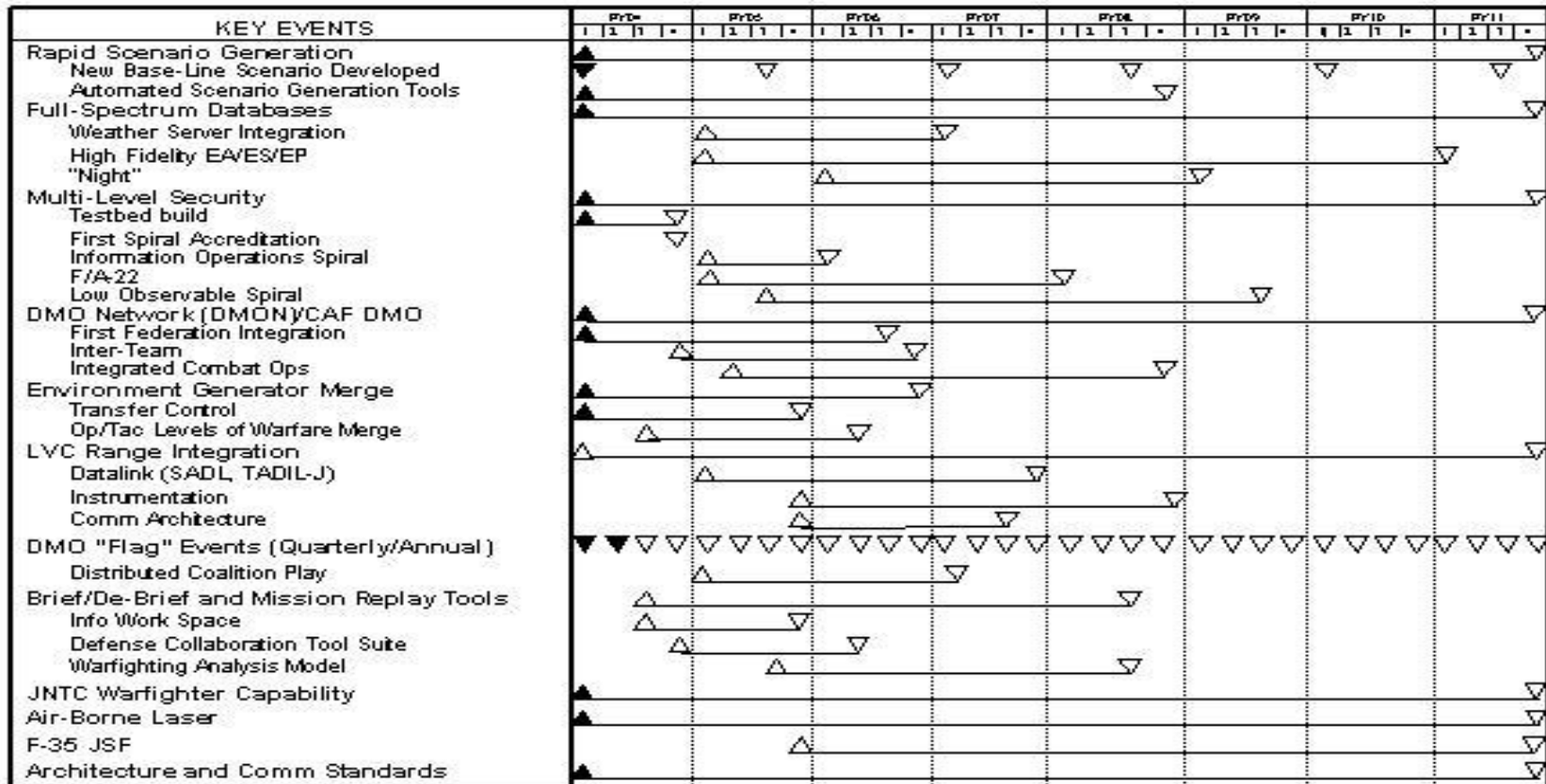
BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0207605F Wargaming and Simulation Centers

PROJECT NUMBER AND TITLE
2888 Distributed Mission Operations Center (DMOC)

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DMOC Schedule



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Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0207605F Wargaming and Simulation Centers

PROJECT NUMBER AND TITLE
2888 Distributed Mission Operations Center (DMOC)

Horizontal Integration
Summary Program Schedule

	FY03				FY04				FY05				FY06				FY07				FY08				FY09			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
System Eng/Architecture Analysis																												
Experimentation																												
Horizontal Integration Initiatives			★				★					★																★
Infrastructure			★				★					★																★
Key:																												
Major Events	★																											
On Going	—																											

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207605F Wargaming and Simulation Centers	PROJECT NUMBER AND TITLE 2888 Distributed Mission Operations Center (DMOC)
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	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <u>Schedule Profile</u>			
(U) Develop Joint Synthetic Battlespace (JSB)		4Q	1-4Q
(U) Distributed Training / Integration (Desert Pivots / Blue Flags)	1-4Q	1-4Q	1-4Q
(U) C4ISR Warfighting Integration Efforts		1-4Q	

Exhibit R-2, RDT&E Budget Item Justification								DATE February 2004	
BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0208006F Mission Planning Systems					
Cost (\$ in Millions)	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
Total Program Element (PE) Cost	19.795	51.645	136.701	143.154	196.749	148.541	96.314	Continuing	TBD
3858 Mission Planning Systems (MPS)	19.795	51.645	136.701	143.154	196.749	148.541	96.314	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

The Mission Planning Systems (formally Air Force Mission Support System (AFMSS)) program was established in 1990 to consolidate mission planning system development efforts into a single unit-level mission planning system. Today's program maintains combat capabilities on existing legacy planning systems while migrating these capabilities and developing new ones to a USAF-wide standard mission planning system for all aircraft and weapons. Integrating military and commercial software on Commercial-Off-The-Shelf (COTS) hardware, Mission Planning Systems encompasses evolutionary software and hardware development in an open systems architecture to take advantage of the rapid growth of personal computer (PC) technology on increasingly smaller devices. Mission Planning Systems looks to integrate mission planning with other systems. Mission Planning Systems is a family of products that consists of the Mission Planning System (MPS), a robust UNIX-based system; the Portable Flight Planning Software (PFPS), a PC-based system; and the Joint Mission Planning System (JMPS), the next-generation, PC-based system, built to provide the interoperability needed by today's warfighter.

The MPS provides comprehensive mission planning tools to conduct missions ranging from day-to-day training, peacetime operations/exercises to complex operations supporting conventional and nuclear armed conflict. The MPS currently supports or will support the following aircraft and associated weapons: B-1, B-2, B-52, F-15, F-16, F-117, F/A-22, U-2, Air to Ground Munition (AGM)-130, AGM-142, Joint Direct Attack Munition (JDAM), Joint Stand Off Weapon (JSOW), Wind Corrected Munition Dispenser (WCMD), Joint Air-to-Surface, Stand off Munition (JASSM), Miniature Air Launched Decoy (MALD), and Global Hawk. Platforms use tailored software called an Aircraft/Weapons/Electronics (A/W/E) that integrate with the MPS core software to specialize the software for their mission.

The PFPS provides flight planning tools that support a broad range of mission needs and operational environments including day-to-day training, peacetime operations/exercises, and conventional armed conflict. The PFPS currently supports or will support the following aircraft: F-16, MC-130, EC-130, HC-130H/N/P, AC-130, E-3, E-8, C-130E/H/J, LC-130, WC-130, C-27, C-17, E-4, T-38, C-141, RC-135, KC-10, KC-135R/E, C-5, C-9, A-10, Airborne Laser (ABL), UH-1, MH-53, MH-47, AH/MH-6J, MH/HH-60, and Predator.

The JMPS is a continuation effort to move the Air Force's MPS and PFPS to the Global Command and Control System (GCCS). JMPS consists of a framework, common capabilities, and unique planning components. The framework effort is co-developed with the USN and USA and will provide the services with a core of mission planning capabilities, common to all Services' aircraft and weapons. It is scaleable, extensible, and configurable. Common capabilities are those that are required by more than one aircraft (within the AF or between services) and can be co-developed to meet the full range of mission planning needs from basic flight planning to planning precision guided munitions on low observable aircraft. A Unique Planning Component (UPC) is software specifically tailored to an aircraft or weapon. Beginning in FY04, total responsibility for Air Force JMPS UPC development for all aircraft programs was consolidated in the Mission Planning Systems program element. The Mission Planning Systems System Program Office (SPO) contracts for system engineering and integration support, framework, common capabilities, and UPCs. JMPS will meet

Exhibit R-2, RDT&E Budget Item Justification

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0208006F Mission Planning Systems

interoperability requirements through compliance with the Network Centric Enterprise Services (NCES). The SPO investigates new technologies to remain current and keep pace with evolving threats.

Mission Planning Systems is in Budget Activity 7, Operational System Development, because the program currently supports fielded MPS and PFPS which include transportable, non-deployable, and portable laptop workstations. MPS C2.0, C2.1, C2.2, C2.2d and PFPS 3.0, 3.1, 3.2, 3.3 are operationally fielded to the Combat Air Forces. JMPS v1.0 began development in Jun 99 and delivered in Apr 03. Development of four JMPS common capabilities began in FY02 and continued in FY03. Two additional common capabilities began development in FY03. Many more capabilities begin development in FY04. Two JMPS UPC developments began in FY03 and three more JMPS UPCs started in FY04. Development of framework, common capabilities, and aircraft UPCs will continue in the out years.

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	17.002	62.348	144.059
(U) Current PBR/President's Budget	19.795	51.645	136.701
(U) Total Adjustments	2.793	-10.703	
(U) Congressional Program Reductions	-0.114	-10.258	
Congressional Rescissions	-0.180	-0.445	
Congressional Increases	0.000		
Reprogrammings	2.508		
SBIR/STTR Transfer	0.579		

(U) **Significant Program Changes:**

Beginning in FY04, total responsibility for Air Force JMPS UPC development for all legacy aircraft programs was consolidated in the Mission Planning System program.

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0208006F Mission Planning Systems			PROJECT NUMBER AND TITLE 3858 Mission Planning Systems (MPS)			
Cost (\$ in Millions)	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	
3858 Mission Planning Systems (MPS)	19.795	51.645	136.701	143.154	196.749	148.541	96.314	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

(U) A. Mission Description and Budget Item Justification

The Mission Planning Systems (formally Air Force Mission Support System (AFMSS)) program was established in 1990 to consolidate mission planning system development efforts into a single unit-level mission planning system. Today's program maintains combat capabilities on existing legacy planning systems while migrating these capabilities and developing new ones to a USAF-wide standard mission planning system for all aircraft and weapons. Integrating military and commercial software on Commercial-Off-The-Shelf (COTS) hardware, Mission Planning Systems encompasses evolutionary software and hardware development in an open systems architecture to take advantage of the rapid growth of personal computer (PC) technology on increasingly smaller devices. Mission Planning Systems looks to integrate mission planning with other systems. Mission Planning Systems is a family of products that consists of the Mission Planning System (MPS), a robust UNIX-based system; the Portable Flight Planning Software (PFPS), a PC-based system; and the Joint Mission Planning System (JMPS), the next-generation, PC-based system, built to provide the interoperability needed by today's warfighter.

The MPS provides comprehensive mission planning tools to conduct missions ranging from day-to-day training, peacetime operations/exercises to complex operations supporting conventional and nuclear armed conflict. The MPS currently supports or will support the following aircraft and associated weapons: B-1, B-2, B-52, F-15, F-16, F-117, F/A-22, U-2, Air to Ground Munition (AGM)-130, AGM-142, Joint Direct Attack Munition (JDAM), Joint Stand Off Weapon (JSOW), Wind Corrected Munition Dispenser (WCMD), Joint Air-to-Surface, Stand off Munition (JASSM), Miniature Air Launched Decoy (MALD), and Global Hawk. Platforms use tailored software called an Aircraft/Weapons/Electronics (A/W/E) that integrate with the MPS core software to specialize the software for their mission.

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The JMPS is a continuation effort to move the Air Force's MPS and PFPS to the Global Command and Control System (GCCS). JMPS consists of a framework, common capabilities, and unique planning components. The framework effort is co-developed with the USN and USA and will provide the services with a core of mission planning capabilities, common to all Services' aircraft and weapons. It is scaleable, extensible, and configurable. Common capabilities are those that are required by more than one aircraft (within the AF or between services) and can be co-developed to meet the full range of mission planning needs from basic flight planning to planning precision guided munitions on low observable aircraft. A Unique Planning Component (UPC) is software specifically tailored to an aircraft or weapon. Beginning in FY04, total responsibility for Air Force JMPS UPC development for all aircraft programs was consolidated in the Mission Planning Systems program element. The Mission Planning Systems System Program Office (SPO) contracts for system engineering and integration support, framework, common capabilities, and UPCs. JMPS will meet interoperability requirements through compliance with the Network Centric Enterprise Services (NCES). The SPO investigates new technologies to remain current and

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0208006F Mission Planning Systems	PROJECT NUMBER AND TITLE 3858 Mission Planning Systems (MPS)
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keep pace with evolving threats.

Mission Planning Systems is in Budget Activity 7, Operational System Development, because the program currently supports fielded MPS and PFPS which include transportable, non-deployable, and portable laptop workstations. MPS C2.0, C2.1, C2.2, C2.2d and PFPS 3.0, 3.1, 3.2 , 3.3 are operationally fielded to the Combat Air Forces. JMPS v1.0 began development in Jun 99 and delivered in Apr 03. Development of four JMPS common capabilities began in FY02 and continued in FY03. Two additional common capabilities began development in FY03. Many more capabilities begin development in FY04. Two JMPS UPC developments began in FY03 and three more JMPS UPCs started in FY04. Development of framework, common capabilities, and aircraft UPCs will continue in the out years.

(U) B. Accomplishments/Planned Program (\$ in Millions)	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments/Planned Programs			
(U) Continue A/W/E development/support/integration for the platforms listed above (legacy system work) until they transition to UPCs	0.123	0.000	
(U) Continue Mission Planning Systems development effort (including but not limited to JMPS development)	6.337	7.365	13.299
(U) Continue Mission Planning Systems (PC-based) Common Capabilities, which could include but is not limited to Global Positioning System (GPS) crypto key, Global Air Traffic Management (GATM), Precision Guided Munition (PGM) migration, Conventional Weapons Planning, Automated Target Data Transfer, Airdrop Planning, Auto Routing, Low Observable Planning, Computer Based Training (CBT), Single Integrated Operational Plan (SIOP), Vertical Profile, Weather Planning, Sensor Prediction, Mission Rehearsal, Electronic Warfare (EW) Planning, and System Security	12.472	19.000	24.000
(U) Continue Responsible Test Organization support	0.863	2.000	4.098
(U) Commence UPC (transitioning from A/W/E listed above) development/support/integration for the platforms listed above to include all UPCs required for JMPS. Specific effort for FY04 includes but is not limited to UPCs for the F-15, F-16, F/A-22, A-10, and JASSM. This work continues through FY05. Starting in FY05 could include, but not limited to bombers, tankers, airlift and special mission aircraft.		23.280	95.304
(U) Total Cost	19.795	51.645	136.701

(U) C. Other Program Funding Summary (\$ in Millions)	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Other Procurement, AF WSC 833040, Theater Air Control System Improvement (TACSI)	13.310	10.781	13.926	14.838	15.457	12.637	13.137	Continuing	TBD
(U) Other Procurement, AF, WSC	0.746	0.510	0.364	0.000	0.000	0.000	0.000	Continuing	TBD

Exhibit R-2a, RDT&E Project Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0208006F Mission Planning Systems	PROJECT NUMBER AND TITLE 3858 Mission Planning Systems (MPS)
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(U) C. Other Program Funding Summary (\$ in Millions)

86190A, Initial Spares

(U) Operations & Maintenance (O&M) AF, 0208006F	26.931	75.889	34.642	37.175	35.968	37.081	38.150	Continuing	TBD
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O&M funds for PE 0208006F support the software and hardware maintenance costs of the Mission Planning Systems. These funds also support the maintenance of the following existing operational systems until replaced: Mission Data Preparation System (MDPS) supports conventional and nuclear mission planning, aircraft/weapons avionics loading, compatibility between evolving B-52H avionics, its weapons systems, and USSTRATCOM. O&M funding supported approximately 240 older systems in FY94. By FY05, a similar amount of funding will support over 2,900 mission planning systems worldwide.

(U) D. Acquisition Strategy

The Mission Planning Systems SPO manages Mission Planning Systems at the Electronic Systems Center, Hanscom AFB, Massachusetts. The Mission Planning Systems acquisition strategy integrates military and commercial software hosted on COTS hardware.

JMPS is following an evolutionary acquisition approach. Development began in FY99 and continues from FY02 to FY11. The initial delivery of JMPS occurred in FY03. The Navy is evolving the initial delivery to add components needed to retire the Navy's UNIX-based Tactical Air Mission Planning System in FY04. The Air Force and Navy are further evolving JMPS by continuing to co-develop the framework and development of software components called common capabilities. Common capabilities plug into JMPS and meet the combat mission planning requirements of multiple Air Force, Navy, Marine Corps, and Army platforms. The SPO will tailor each common capability acquisition to meet the joint requirements. Before a platform can migrate to JMPS, the required common capabilities must be built along with the platform's UPC. Beginning in FY04, the SPO picked up responsibility for and executes all AF UPC development for JMPS. The combination of JMPS, required common capabilities, and platform UPC makes up a complete mission planning environment for a platform. The development and integration of JMPS, common capabilities, and UPCs across multiple platforms require a significant systems engineering, integration, and test effort. Consequently, in FY03 the SPO awarded a one year contract to perform systems engineering and support integration across all JMPS related development efforts. In FY04, a 5 year competition Indefinite Delivery Indefinite Quantity (IDIQ) contract will be awarded for framework, UPCs, and common capabilities. A long-term Systems Engineering and Integration contract for integration of the framework, common capabilities, and UPCs will also be awarded.

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Exhibit R-3, RDT&E Project Cost Analysis										DATE February 2004		
BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0208006F Mission Planning Systems				PROJECT NUMBER AND TITLE 3858 Mission Planning Systems (MPS)				
<u>(U) Cost Categories</u>	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2003 Cost</u>	<u>FY 2003 Cost</u>	<u>FY 2003 Award Date</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Northrop Grumman Information Technology (NGIT, formerly Logicon) (JMPS)	C/CPIF	San Pedro, CA	27.443	3.406	Jun-99	6.542	Dec-03	0.000		Continuing	TBD	
BAE Systems (formerly Sanders)	C/CPAF	Nashua, NH	93.300	0.000	Dec-92	0.000		0.000		Continuing	TBD	
Tybrin Corporation	PO	Fort Walton Beach, FL	3.080	0.000	Dec-98	0.000		0.000		Continuing	TBD	
A/W/E and/or UPC development and integration activity	Various	Various	0.615	0.063		11.375	Dec-03	0.000		Continuing	TBD	
SPO Misc* (*Prior year total includes past, inactive contracts)			20.412	1.926		3.219	Nov-03	1.451	Nov-04	Continuing	TBD	
Mission Planning Systems Common Capabilities	C/Various	Various	6.553	6.048		4.656	Dec-03	0.000		Continuing	TBD	
Mission Planning Enterprise Contract Systems Engineering and Integration Support (includes both short and long Term contracts)	C/Various C/TBD	TBD TBD	0.000	0.000		14.732	May-04	109.332		Continuing	TBD	
N/A											0.000	
Subtotal Product Development			151.403	13.271		43.286		128.439		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												
Miscellaneous			15.949	0.000		0.000		0.000		Continuing	TBD	
Software Engineering Institute (SEI)	C/T&M	Pittsburgh, PA	0.100	0.000		0.179	Feb-04	0.187	Feb-05	Continuing	TBD	
Tecolote	C/T&M	Bedford, MA	1.750	0.340		0.375	Nov-03	0.394	Nov-04	Continuing	TBD	
Subtotal Support			17.799	0.340		0.554		0.581		Continuing	TBD	0.000
Remarks:												
(U) <u>Test & Evaluation</u>												
46TW (Eglin AFB)	PO	Eglin AFB, FL	3.445	0.863		2.000	Oct-03	4.098	Oct-04	Continuing	TBD	
N/A											0.000	
Subtotal Test & Evaluation			3.445	0.863		2.000		4.098		Continuing	TBD	0.000

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY	PE NUMBER AND TITLE		PROJECT NUMBER AND TITLE							
07 Operational System Development	0208006F Mission Planning Systems		3858 Mission Planning Systems (MPS)							
Remarks:										
(U) <u>Management</u>										
FFRDC (MITRE)	SS/T&M	Bedford, MA	27.066	3.685	3.378	Oct-03	1.450	Oct-04	Continuing	TBD
SPO Support	C/T&M			1.636	2.427	Oct-03	2.133	Oct-04	Continuing	TBD
Subtotal Management			27.066	5.321	5.805		3.583		Continuing	TBD 0.000
Remarks:										
(U) Total Cost	199.713	19.795	51.645	136.701		Continuing	TBD	0.000		

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Exhibit R-4a, RDT&E Schedule Detail		DATE February 2004		
BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0208006F Mission Planning Systems	PROJECT NUMBER AND TITLE 3858 Mission Planning Systems (MPS)		
	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	
(U) Schedule Profile	3Q			
(U) PFPS 3.3 OT&E timeframe (completed)	3Q			
(U) PFPS 4.0 OT&E (completed)			2Q	
(U) MPS C2.3 Release (planned)		4Q		
(U) JMPS v1.0 Beta S/W Releases (completed)	2Q			
(U) JMPS v1.0 release (completed)	3Q			
(U) Precision Guided Munition Planning System (PGMPS) Common Capability Start	1Q			
(U) Airdrop Planning Common Capability Complete (planned)		4Q		
(U) Integration and Engineering Support Contract Award (planned)		3Q		
(U) F-15 A-D, E UPC Complete (planned)			4Q	
(U) F-16 Blk 30/40/50 UPC Start		2Q		
(U) A-10 UPC Start		2Q		
(U) Autorouting Common Capability Start		3Q		
(U) F/A-22 UPC Start		2Q		
(U) JASSM UPC Start		3Q		
(U) Refueling Common Capability Start (planned)		1Q		
(U) U-2 UPC Start (planned)		2Q		
(U) Global Hawk UPC Start (planned)			1Q	
(U) Tanker, Airlift, Special Mission (AMC platforms) UPC Start (planned)			1Q	
(U) Bomber UPC Start (planned)			1Q	
(U) Predator UPC Start (planned)			1Q	
(U) HH 60 UPC Start (planned)			3Q	

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PE NUMBER: 0208021F
 PE TITLE: Information Warfare Support

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0208021F Information Warfare Support
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Cost (\$ in Millions)	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
Total Program Element (PE) Cost	8.998	11.988	7.230	7.221	6.838	7.947	8.068	Continuing	TBD
0374 Electronic Combat Spt, C3 Protection/Multi-Mission, Technology and Spt	8.998	11.988	7.230	7.221	6.838	7.947	8.068	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

Joint Expeditionary Force Exercise (JEFX) emphasizes efforts based operations and predictive battlespace awareness, but exploration also occurs in managing intelligence, surveillance, and reconnaissance assets; global mobility; and dynamic battle control. JEFX and other Air Force funding was reprogrammed from existing command and control, global power, global reach, and space Program Elements.

The Information Warfare Planning Capability (IWPC) is a full-spectrum, offensive and defensive, planning capability. IWPC is an Aerospace Operations Center (AOC) weapon system component which will enable operators will develop IO courses of action for the Joint Forces Air Component Commander (JFACC) and nominate IO "targets" for inclusion into the Master Air Attack and the Joint Integrated Prioritized Target List (JIPTL).

This program is in Budget Activity 7, Operational System Development, because it studies, develops, and demonstrates IO prototypes to provide warning, self-protection, and support to personnel and equipment against combat systems employed by enemy forces. It identifies existing military and commercial research and development efforts which can satisfy unfulfilled operational requirements as identified by the Unified Command, and quickly bridge the gap between technology developments and meld the technology into the warfighter's operational requirements.

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	7.625	12.091	7.230
(U) Current PBR/President's Budget	8.998	11.988	7.230
(U) Total Adjustments	1.373	-0.103	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.103	
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer	1.373		
(U) <u>Significant Program Changes:</u>			

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0208021F Information Warfare Support			PROJECT NUMBER AND TITLE 0374 Electronic Combat Spt, C3 Protection/Multi-Mission, Technology and Spt		
Cost (\$ in Millions)	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
0374 Electronic Combat Spt, C3 Protection/Multi-Mission, Technology and Spt	8.998	11.988	7.230	7.221	6.838	7.947	8.068	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) **A. Mission Description and Budget Item Justification**

Joint Expeditionary Force Exercise (JEFX) emphasizes efforts based operations and predictive battlespace awareness, but exploration also occurs in managing intelligence, surveillance, and reconnaissance assets; global mobility; and dynamic battle control. JEFX and other Air Force funding was reprogrammed from existing command and control, global power, global reach, and space Program Elements.

The Information Warfare Planning Capability (IWPC) is a full-spectrum, offensive and defensive, planning capability. IWPC is an Aerospace Operations Center (AOC) weapon system component which will enable operators will develop IO courses of action for the Joint Forces Air Component Commander (JFACC) and nominate IO "targets" for inclusion into the Master Air Attack and the Joint Integrated Prioritized Target List (JIPTL).

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(U) **B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) IWPC Software Development and Integration	4.784	3.378	3.416
(U) AOC Integration	0.000	0.000	1.464
(U) IWPC Software Testing and Evaluation	0.743	0.720	0.680
(U) JEFX System integration	3.471	2.993	1.670
(U) IOTA Testing and Development	0.000	4.897	0.000
(U) Total Cost	8.998	11.988	7.230

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0208021F Information Warfare Support	PROJECT NUMBER AND TITLE 0374 Electronic Combat Spt, C3 Protection/Multi-Mission, Technology and Spt
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(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) IWPC Operations & Maintenance, AF (3400)	1.036	1.045	1.061	1.210	1.154	1.176	1.198	Continuing	TBD

(U) D. Acquisition Strategy

All major contracts within this Program were awarded after full and open competition.

Electronic Systems Center (ESC), Hanscom AFB, MA will manage the acquisition and development for evolving suite of interoperable IW planning and decision support capabilities comprised of, as required, software, hardware, and communications products. ESC will identify and implement an open, scalable system architecture that will accommodate growth in functionality; allow functional modules to interact, achieve early data sharing capability with TBMCS, with the goal of interoperability as security policy permits; and be compliant with evolving GCCS and DII COE standards. An IWPC spiral will be released once a year. Requirements for the next spiral will be developed by the IWPC Spiral Development Integrated Process Team (IWPC SD IPT), chaired by ACC. Spirals within the acquisition cycle allow deficiencies to be identified and considered for future spirals as well as the next experiment or applied to current capabilities. Integration efforts will capitalize on the synergy between evolving technologies and on-going system program modifications to maximize the return on investment.

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0208021F Information Warfare Support	PROJECT NUMBER AND TITLE 0374 Electronic Combat Spt, C3 Protection/Multi-Mission, Technology and Spt
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(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
				<u>2003</u> <u>Cost</u>	<u>2003</u> <u>Award</u> <u>Date</u>	<u>2004</u> <u>Cost</u>	<u>2004</u> <u>Award</u> <u>Date</u>	<u>2005</u> <u>Cost</u>	<u>2005</u> <u>Award</u> <u>Date</u>			
(U) <u>Product Development</u>												
JEFX - Various	Various	Lackland AFB TX/Mountain View CA	0.000	2.941		2.993		1.990		Continuing	TBD	
ITSP II	AF Form 9	Lackland AFB TX	0.000	0.000		0.000		0.740		0.000	0.740	
General Dynamics	AF Form 9	Lackland AFB TX/Mountain View CA	1.667	5.193		3.378		3.370		Continuing	TBD	
MITRE	DDForm 448	Lackland AFB TX	0.000	0.000		0.000		0.380		Continuing	TBD	
IOTA	Various	Lackland AFB TX	0.000	0.000		4.897		0.000		Continuing	TBD	
Subtotal Product Development			1.667	8.134		11.268		6.480		Continuing	TBD	0.000
Remarks:												
(U) <u>Test & Evaluation</u>												
605th Test Squadron	MIPR	Eglin AFB FL	0.000	0.310		0.220		0.220		Continuing	TBD	
46th Test Squadron	MIPR	Eglin AFB FL	0.000	0.554		0.500		0.530		Continuing	TBD	
Subtotal Test & Evaluation			0.000	0.864		0.720		0.750		Continuing	TBD	0.000
Remarks:												
(U) Total Cost			1.667	8.998		11.988		7.230		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0208021F Information Warfare Support

PROJECT NUMBER AND TITLE
0374 Electronic Combat Spt, C3 Protection/Multi-Mission, Technology and Spt



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IWPC Schedule

1QFY04	2QFY04	3QFY04	4QFY04	1QFY05	2QFY05	3QFY05	4QFY05	1QFY06→
◆ Global Guardian	◆ JTFEX		◆ JEFX 04					◆ J-IWPC Contract Award
Field		IWPCv3.0 Sustain						
◆ IWPCv4.0 C&A Delivery to SPO			◆ Field IOC		Sustain Through FY09 →			
IWPCv4.1 (JEFX only)			Sustain (CAOC-N only)					
IWPCv4.2 Development, Integration & Test						◆ C&A Delivery to SPO		◆ Field Through FY09→



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Exhibit R-4a, RDT&E Schedule Detail

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0208021F Information Warfare Support

PROJECT NUMBER AND TITLE

0374 Electronic Combat Spt, C3 Protection/Multi-Mission, Technology and Spt

(U) Schedule Profile

FY 2003

FY 2004

FY 2005

(U) JEFX		1-4Q	1-4Q
(U) IWPC Contract Award	1Q	1Q	1Q
(U) IWPC Software Development	1-4Q	1-4Q	1-4Q
(U) IWPC Software Integration Testing	4Q	4Q	4Q
(U) IWPC Software Release	4Q	4Q	4Q

Exhibit R-2, RDT&E Budget Item Justification								DATE February 2004	
BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0302015F E-4B NATIONAL AIRBORNE OPERATIONS CENTER					
Cost (\$ in Millions)	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
Total Program Element (PE) Cost	47.393	44.000	11.172	6.323	0.286	0.000	0.000	0.000	0.000
4777 E-4B Aircraft Modernization	47.393	44.000	11.172	6.323	0.286	0.000	0.000	0.000	0.000

(U) **A. Mission Description and Budget Item Justification**

The E-4B National Airborne Operations Center (NAOC) modernization program upgrades the fleet of four highly modified Boeing 747-200 aircraft to add new capability and improve reliability in support of the two primary missions for this weapon system. The E-4B NAOC fleet satisfies the military requirement to provide a survivable operations center as an alternate to the National Military Command Center (NMCC) located in the Pentagon. The E-4B NAOC fleet also satisfies the military need for an airborne operations center with communications capabilities that will permit senior national leadership to monitor and control military and civil national assets during all phases of national conflict or disaster. Developmental modifications include, but are not limited to, upgrades and enhancements to aircraft structures, propulsion system, fuel system, environmental control system, electrical generation and distribution systems, flight safety and navigation systems (with their associated communications equipment), and the related aircraft operations center facilities, equipment, and communications necessary for the E-4B fleet to execute its primary mission as an alternate NMCC.

Modifications currently underway or planned for accomplishment under this project in the next four to five years include:

Modification Block 1 (Mod Blk 1): A group designator for modifications being started and completed together on the same aircraft. The RDT&E elements of Mod Blk 1 include Audio Infrastructure Update (AIU) (formerly Block 5A) and Global Air Traffic Management (GATM) II. The Senior Leaders Communication System (SLCS) is also included in the Mod Blk 1 work, but is not considered R&D work. The SLCS modification is entirely funded with Procurement (Aircraft Modification) funds.

AIU affects the primary mission internal audio distribution and recording system. It replaces obsolete 1960s era equipment with digital technology that corrects a major sustainment issue associated with out-dated analog voice data distribution and recording equipment. The planning for internal the noise reduction modification of the senior leadership conference room (Area 4) was completed during FY03 as part of the "Block 5B - Data Concept Exploration". The exploration revealed that installation of the Area 4 noise reduction would be most efficiently performed if done in conjunction with the AIU modification. Consequently, the internal noise reduction modification is being performed during the same depot period that the AIU modification was begun, November 2003. Future noise reduction modifications will be accomplished during depot periods in conjunction with the AIU portion of the Mod Blk 1 modification.

GATM II is the second part of a 3-phased implementation of Global Access, Navigation, and Safety/Global Air Traffic Management modifications to permit unencumbered access to international airspace and to maintain the level of E-4B flight safety consistent with civil standards that become effective in CY05.

SLCS: Completion of FY02 DERF funded SLCS study during FY02 concluded that the technical solution to the SLCS requirements would not require research and development. Consequently, the SLCS modification is funded with Aircraft Procurement modification funds. SLCS will provide an 'office in the sky' capability for senior

Exhibit R-2, RDT&E Budget Item Justification

DATE

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0302015F E-4B NATIONAL AIRBORNE OPERATIONS CENTER

leaders that includes commercial Direct Broadcast Service (DBS), and video teleconferencing capability, plus access to Defense Information System Network (DISN) and Public Switch Network (PSN) for voice, video and data exchange on and off the airplane (external e-mail and Internet access).

Data LAN (Local Area Network) Infrastructure (DLI) (formerly part of Block 5B): A primary mission equipment modification that will greatly improve the ability to store, manipulate, distribute and view information related to the aircraft's primary mission. These enhancements will increase the accuracy, timeliness, and throughput of tactical and strategic information presented to embarked military decision-making commanders. (Internal Noise Reduction moved to AIU portion of Mod Blk 1)

Because the E-4B program develops modifications for a fielded system, it is categorized as a budget activity 7 - Operational System Development.

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	47.867	44.377	53.164
(U) Current PBR/President's Budget	47.393	44.000	11.172
(U) Total Adjustments	-0.474	-0.377	
(U) Congressional Program Reductions		-0.377	
Congressional Rescissions	-0.706		
Congressional Increases			
Reprogrammings	1.372		
SBIR/STTR Transfer	-1.140		

(U) **Significant Program Changes:**

The FY05 plan for Mod Blk 1 and for Data LAN Infrastructure (DLI), formerly a major component of Block 5B, has been changed. The production schedule for Mod Blk 1 has been accelerated while the estimated cost of the DLI RDT&E work during FY05 has been decreased due to a new DLI technical approach. The net effect is to increase the FY05 Procurement funds request and to decrease the FY05 RDT&E request as shown above.

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0302015F E-4B NATIONAL AIRBORNE OPERATIONS CENTER			PROJECT NUMBER AND TITLE 4777 E-4B Aircraft Modernization			
Cost (\$ in Millions)		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
4777	E-4B Aircraft Modernization	47.393	44.000	11.172	6.323	0.286	0.000	0.000	0.000	0.000
Quantity of RDT&E Articles		0	0	0	0	0	0	0		

(U) **A. Mission Description and Budget Item Justification**

The E-4B National Airborne Operations Center (NAOC) modernization program upgrades the fleet of four highly modified Boeing 747-200 aircraft to add new capability and improve reliability in support of the two primary missions for this weapon system. The E-4B NAOC fleet satisfies the military requirement to provide a survivable operations center as an alternate to the National Military Command Center (NMCC) located in the Pentagon. The E-4B NAOC fleet also satisfies the military need for an airborne operations center with communications capabilities that will permit senior national leadership to monitor and control military and civil national assets during all phases of national conflict or disaster. Developmental modifications include, but are not limited to, upgrades and enhancements to aircraft structures, propulsion system, fuel system, environmental control system, electrical generation and distribution systems, flight safety and navigation systems (with their associated communications equipment), and the related aircraft operations center facilities, equipment, and communications necessary for the E-4B fleet to execute its primary mission as an alternate NMCC.

Modifications currently underway or planned for accomplishment under this project in the next four to five years include:

Modification Block 1 (Mod Blk 1): A group designator for modifications being started and completed together on the same aircraft. The RDT&E elements of Mod Blk 1 include Audio Infrastructure Update (AIU) (formerly Block 5A) and Global Air Traffic Management (GATM) II. The Senior Leaders Communication System (SLCS) is also included in the Mod Blk 1 work, but is not considered R&D work. The SLCS modification is entirely funded with Procurement (Aircraft Modification) funds.

AIU affects the primary mission internal audio distribution and recording system. It replaces obsolete 1960s era equipment with digital technology that corrects a major sustainment issue associated with out-dated analog voice data distribution and recording equipment. The planning for internal the noise reduction modification of the senior leadership conference room (Area 4) was completed during FY03 as part of the "Block 5B - Data Concept Exploration". The exploration revealed that installation of the Area 4 noise reduction would be most efficiently performed if done in conjunction with the AIU modification. Consequently, the internal noise reduction modification is being performed during the same depot period that the AIU modification was begun, November 2003. Future noise reduction modifications will be accomplished during depot periods in conjunction with the AIU portion of the Mod Blk 1 modification.

GATM II is the second part of a 3-phased implementation of Global Access, Navigation, and Safety/Global Air Traffic Management modifications to permit unencumbered access to international airspace and to maintain the level of E-4B flight safety consistent with civil standards that become effective in CY05.

SLCS: Completion of FY02 DERF funded SLCS study during FY02 concluded that the technical solution to the SLCS requirements would not require research and development. Consequently, the SLCS modification is funded with Aircraft Procurement modification funds. SLCS will provide an 'office in the sky' capability for senior leaders that includes commercial Direct Broadcast Service (DBS), and video teleconferencing capability, plus access to Defense Information System Network (DISN) and

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0302015F E-4B NATIONAL AIRBORNE OPERATIONS CENTER	PROJECT NUMBER AND TITLE 4777 E-4B Aircraft Modernization
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Public Switch Network (PSN) for voice, video and data exchange on and off the airplane (external e-mail and Internet access).

Data LAN (Local Area Network) Infrastructure (DLI) (formerly part of Block 5B): A primary mission equipment modification that will greatly improve the ability to store, manipulate, distribute and view information related to the aircraft's primary mission. These enhancements will increase the accuracy, timeliness, and throughput of tactical and strategic information presented to embarked military decision-making commanders. (Internal Noise Reduction moved to AIU portion of Mod Blk 1)

Because the E-4B program develops modifications for a fielded system, it is categorized as a budget activity 7 - Operational System Development.

(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishment/Planned Program	0.000	0.000	
(U) Complete AIU (formerly part of Blk 5A, now a component of Mod Blk 1) System Engineering & Prototype Kit	40.438	6.581	
(U) Complete Data LAN Infrastructure (formerly part of Blk 5B) - Data Concept Exploration	0.025	0.250	
(U) Complete GATM II System Engineering and Prototype Kit	4.686	1.000	
(U) Contractor Technical and Program Management Support	2.244	2.805	1.504
(U) Mod Blk 1 - AIU prototype installation (formerly called Block 5A)		30.000	8.996
(U) Mod Blk 1 - GATM II prototype installation		3.364	0.672
(U) Total Cost	47.393	44.000	11.172

(U) <u>C. Other Program Funding Summary (\$ in Millions)</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E									
(U) Other APPN Aircraft Procurement AF, Budget Activity 5, Weapon System Code E00400, PE									
(U) 0302015F; Mod 4381 (AIU--formerly Blk 5A);4381B (Blk 5B); Mod 9709 (GATM Phase II)	19.145	49.726	96.564	91.570	64.482	22.508			343.995

(U) D. Acquisition Strategy
 A mod block structure has been established which includes AIU (formerly part of Block 5A), GATM II and SLCS (note: SLCS doesn't require RDT&E funding). System engineering, design, and prototype installation is being done under a Cost Plus Incentive Fee (CPIF) contract with Boeing - Wichita Development & Modification Center. Installations are performed in conjunction with Program Depot Maintenance (PDM) at Boeing's Wichita facility.

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY			PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
07 Operational System Development			0302015F E-4B NATIONAL AIRBORNE OPERATIONS CENTER					4777 E-4B Aircraft Modernization				
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
<u>(U) Product Development</u>												
Boeing	Sole Source CPAF/T&M	Boeing Aerospace Operations	55.003	18.529	Oct-02						73.532	
Boeing - Wichita	Sole Source CPIF	Wichita Development & Modificaiton Center		26.620	Feb-03	41.195	Nov-03	9.668	Nov-04		77.483	
None											0.000	
Subtotal Product Development			55.003	45.149		41.195		9.668		0.000	151.015	0.000
Remarks:												
<u>(U) Support</u>												
DISA	MIPR		0.250	0.365	Apr-03	0.613	Mar-04	0.100	Mar-05		1.328	
None											0.000	
Subtotal Support			0.250	0.365		0.613		0.100		0.000	1.328	0.000
Remarks:												
<u>(U) Test & Evaluation</u>												
605 FT	Project Order		0.172	0.271	Jan-03	0.284	Nov-03	0.100	Nov-04		0.827	
None											0.000	
Subtotal Test & Evaluation			0.172	0.271		0.284		0.100		0.000	0.827	0.000
Remarks:												
<u>(U) Management</u>												
Program Office contractor support	Sole Source T&M		2.732	1.608	Oct-02	1.908	Jan-04	1.304	Jan-05		7.552	
Subtotal Management			2.732	1.608		1.908		1.304		0.000	7.552	0.000
Remarks:												
<u>(U) Total Cost</u>			58.157	47.393		44.000		11.172		0.000	160.722	0.000

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Exhibit R-4a, RDT&E Schedule Detail

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

**0302015F E-4B NATIONAL AIRBORNE
OPERATIONS CENTER**

PROJECT NUMBER AND TITLE

4777 E-4B Aircraft Modernization

(U) Schedule Profile

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Complete Systems Engineering for GATM and AIU portion of Mod Block 1		2Q	
(U) Initiate Purchase Prototype Hardware for GATM and AIU portion of Mod Block 1	1Q		
(U) Start Prototype Install for GATM and AIU portion of Mod Block 1		1Q	
(U) Complete Prototype Install for GATM and AIU portion of Mod Block 1			1Q
(U) Conduct OT&E for Mod Block 1			2Q
(U) Begin DLI Concept Exploration (DLI)	2Q		

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PE NUMBER: 0303110F

PE TITLE: Defense Satellite Communications System

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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0303110F Defense Satellite Communications System
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Cost (\$ in Millions)	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
Total Program Element (PE) Cost	2.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	621.009
2638 Defense Satellite Communications Sys	2.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	621.009

(U) A. Mission Description and Budget Item Justification

Defense Satellite Communications System (DSCS) is the backbone of the Government's satellite communications system, providing both secure voice and high data rate transmissions in the Super High Frequency band. DSCS provides unique and vital national security communications for global command and control, crisis management, intelligence and early warning data relay, treaty monitoring and surveillance information, and diplomatic traffic. The communications relayed through DSCS support the President, Secretary of Defense, combat forces of all Services, Defense Information System Network, Diplomatic Telecommunications Service, White House Communications Agency, and Air Force Satellite Control Network.

The DSCS Service Life Enhancement Program (SLEP) includes additional modifications that increased the last four (B8, B11, A3, and B6) satellites' capacity to tactical users by more than 200%, and implements the DoD Space Architect's recommendation to make these modifications. The first three satellites with SLEP mods are currently operational, and the last one, B6, completed its on orbit testing in Jan 04 and is enroute to its operational location.

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	2.016	0.000	0.000
(U) Current PBR/President's Budget	2.009	0.000	0.000
(U) Total Adjustments	-0.007	0.000	
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer	-0.007		
(U) <u>Significant Program Changes:</u>			
None.			

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT NUMBER AND TITLE		
07 Operational System Development				0303110F Defense Satellite Communications System			2638 Defense Satellite Communications Sys		
Cost (\$ in Millions)	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
2638 Defense Satellite Communications Sys	2.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	621.009
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) **A. Mission Description and Budget Item Justification**

Defense Satellite Communications System (DSCS) is the backbone of the Government's satellite communications system, providing both secure voice and high data rate transmissions in the Super High Frequency band. DSCS provides unique and vital national security communications for global command and control, crisis management, intelligence and early warning data relay, treaty monitoring and surveillance information, and diplomatic traffic. The communications relayed through DSCS support the President, Secretary of Defense, combat forces of all Services, Defense Information System Network, Diplomatic Telecommunications Service, White House Communications Agency, and Air Force Satellite Control Network.

The DSCS Service Life Enhancement Program (SLEP) includes additional modifications that increased the last four (B8, B11, A3, and B6) satellites' capacity to tactical users by more than 200%, and implements the DoD Space Architect's recommendation to make these modifications. The first three satellites with SLEP mods are currently operational, and the last one, B6, completed its on orbit testing in Jan 04 and is enroute to its operational location.

(U) **B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) System Program Office Operations	1.586		
- Provided Contractor Support			
- Provided Mission Support			
(U) Basic DSCS Program	0.200		
- Conducted programmatic tradeoff and analyses			
(U) - Continued DSCS/EELV integration development, transitioned the last satellite to launch on EELV	0.223		
(U) Total Cost	2.009	0.000	0.000

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E									
(U) PE 0603854F, BPAC 644870, CCS-C, BA-04, Line R-51	13.801	36.271	20.297	8.269	6.999	5.701	6.357	Continuing	TBD
(U) Other APPN									
(U) OPAF, PE 0303600F, CCS-C	5.320	8.049	2.124	0.288	0.000	0.000	0.000	0.000	15.781

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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0303110F Defense Satellite Communications System	PROJECT NUMBER AND TITLE 2638 Defense Satellite Communications Sys
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(U) **C. Other Program Funding Summary (\$ in Millions)**

(U) MPAF, PE 0303110F, DSCS, BA-05, Line P-35	21.813	11.980	6.613	0.000	0.000	0.000	0.000	0.000	1,585.567
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(U) **D. Acquisition Strategy**

All satellites have been acquired and launched.

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY			PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
07 Operational System Development			0303110F Defense Satellite Communications System					2638 Defense Satellite Communications Sys				
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
(U) <u>Product Development</u>												
Lockheed Martin	CPAF/AF		434.629							0.000	434.629	
Miscellaneous	CPAF		149.509	0.423						0.000	149.932	
None											0.000	
Subtotal Product Development			584.138	0.423		0.000		0.000		0.000	584.561	0.000
Remarks:												
(U) <u>Support</u>												
Aerospace Corp	PO		12.900							0.000	12.900	
Miscellaneous	Various		21.962	1.586						0.000	23.548	
None											0.000	
Subtotal Support			34.862	1.586		0.000		0.000		0.000	36.448	0.000
Remarks:												
(U) <u>Test & Evaluation</u>												
None											0.000	
None											0.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			619.000	2.009		0.000		0.000		0.000	621.009	0.000

Exhibit R-4, RDT&E Schedule Profile

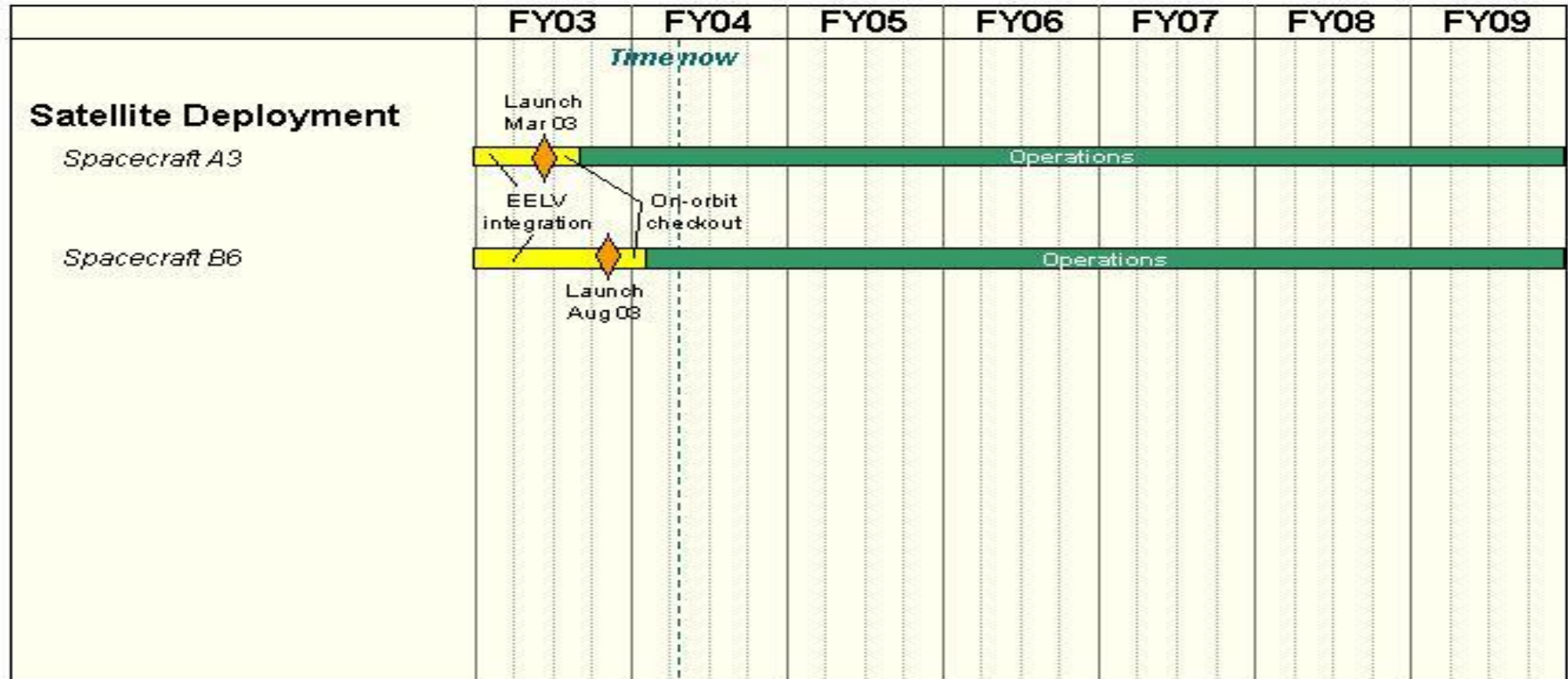
DATE

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BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0303110F Defense Satellite
Communications System

PROJECT NUMBER AND TITLE
2638 Defense Satellite
Communications Sys



- Concept activities
- Production / fielding
- Design / development
- Operations / sustainment
- Integration / test
- Key events

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Exhibit R-4a, RDT&E Schedule Detail		DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0303110F Defense Satellite Communications System	PROJECT NUMBER AND TITLE 2638 Defense Satellite Communications Sys
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(U) <u>Schedule Profile</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Launch DSCS A3/IABS 7	2Q		
(U) Launch DSCS B6/IABS 10	4Q		
(U) EELV Integration Completion	2Q		
(U) On-orbit Checkout B6		1Q	

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PE NUMBER: 0303131F

PE TITLE: Minimum Essential Emergency Communications Network (MEECN)

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0303131F Minimum Essential Emergency Communications Network (MEECN)
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Cost (\$ in Millions)	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
Total Program Element (PE) Cost	2.253	10.595	33.183	52.035	50.880	31.508	9.698	Continuing	TBD
2832 MEECN System Improvements	0.995	1.390	1.442	3.126	3.273	3.408	3.531	Continuing	TBD
4521 DIRECT	0.871	0.282	0.285	0.298	0.302	0.307	0.311	Continuing	TBD
4610 Minuteman MEECN Program (MMP)	0.387	0.282	1.498	10.946	37.206	22.934	0.905	Continuing	TBD
5047 Ground Element MEECN System (GEMS)	0.000	8.641	29.958	37.665	10.099	4.859	4.951	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

Minimum Essential Emergency Communications Network (MEECN) systems provide assured communications connectivity between the President and the strategic deterrent forces in stressed environments. Modernization efforts upgrade network ground, airborne, and missile communications elements.

Currently these systems include:

- The Modified Miniature Receive Terminal (MMRT), that provides High Data Rate (HIDAR) receive capability for E-4B and E-6B aircraft. MMRT replaces 1960s-era strategic aircraft low frequency receivers with a common receive capability.
- Defense Improved Emergency Message Automated Transmission System (IEMATS) Replacement Command and Control (C2) Terminal (DIRECT). Upgrades hardware and software for the Emergency Action Messages (EAM) injection at nuclear command centers.
- Minuteman MEECN Program (MMP) - is the combination of Minuteman ICBM Launch Control Center (LCC) Very Low Frequency/Low Frequency (VLF/LF) upgrade efforts with Minuteman ICBM Extremely High Frequency (EHF) band communications capability efforts.
- Ground Element MEECN System (GEMS) - provides a secure, survivable inter-site, intra-site and mobile VLF and EHF communications to bomber, tanker and other communication facilities with strategic responsibilities. Replaces existing mission-deficient, unsustainable systems.

Future capability will include Advanced EHF (AEHF) on MMP and Ground Element MEECN Systems (GEMS).

This program is in Budget Activity 07, Operational System Development, because it supports work on fielded operating weapon systems.

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2004

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0303131F Minimum Essential Emergency Communications Network (MEECN)

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	2.396	10.716	37.620
(U) Current PBR/President's Budget	2.253	10.595	33.183
(U) Total Adjustments	-0.143	-0.121	
(U) Congressional Program Reductions		-0.121	
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer	-0.143		
(U) <u>Significant Program Changes:</u>			
FY05 reduction due to restructure of Minuteman MEECN Program Advanced EHF upgrade.			

Exhibit R-2a, RDT&E Project Justification

DATE
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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0303131F Minimum Essential Emergency Communications Network (MEECN)			PROJECT NUMBER AND TITLE 2832 MEECN System Improvements			
Cost (\$ in Millions)	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	
2832 MEECN System Improvements	0.995	1.390	1.442	3.126	3.273	3.408	3.531	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

(U) A. Mission Description and Budget Item Justification

This project's past (FY04 and prior) efforts supported the design and development of the Modified Miniature Receive Terminal (MMRT) program. The program modifies the Miniature Receive Terminal (MRT) to provide High Data Rate (HIDAR) capability on the E-4B, National Airborne Operations Center (NAOC) and the E-6B, Take Charge and Move Out (TACAMO) aircraft. The MMRT Very Low Frequency/Low Frequency (VLF/LF) receivers are fully interoperable satisfying both Air Force and Navy requirements.

This project continues to fund the Communications Evaluation Program (CEP) for technical analysis of the currently fielded Command, Control, and Communication (C3) systems. CEP is a key factor in determining Assured MEECN Interoperability (AMI). The program implements a detailed test program for Emergency Action Message (EAM) insertion and reception. It conducts multiple evaluations on a continuing year-round basis. Following test data collection, analysis is performed to ensure the strategic communication systems meet JCS-directed platform connectivity requirements. The purpose of the program is to test the strategic C3 system to establish a quantitative system-wide performance baseline, conduct trend analysis, integrate new systems into the strategic C3 system, identify system deficiencies, recommend solutions and verify the effectiveness of corrective actions, and recommend and develop procedures in order to improve overall system performance.

Trade-off analysis is also performed to identify benefits and drawbacks of maintaining current systems. Studies are conducted to monitor communications system technology and potential integration complexities into current and future capabilities. Studies are conducted to assess the use of current communications terminals capability to support future requirements. The MEECN architecture is currently evaluating/planning modernization of the VLF/LF cryptographic capability, application of using DIRECT in mobile configurations (E-4, E-6 and Mobile Consolidated Command Center (MCCC)) and application of HIDAR VLF/LF in other strategic communications platforms.

This program is in Budget Activity 07, Operational System Development, because it supports work on currently fielded weapon systems.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Continue Communications Evaluation Program (CEP) Studies and Analysis and trade studies on current strategic communication systems.	0.995	1.390	1.442
(U) Total Cost	0.995	1.390	1.442

Exhibit R-2a, RDT&E Project Justification

DATE

February 2004

BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0303131F Minimum Essential Emergency Communications Network (MEECN)	PROJECT NUMBER AND TITLE 2832 MEECN System Improvements
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(U) **C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Aircraft Procurement - AF, (MEECN, PE 0303131F, BA-05, P-57)	4.655	0.000	0.000	0.000	0.000	0.000	0.000	0.000	36.897

(U) **D. Acquisition Strategy**

Modified Miniature Receive Terminal (MMRT) Program. Contract awarded in FY96 for MMRT system development and a procurement contract in FY01 for the E-4B and E-6B . CEP is an annual test and evaluation program of currently fielded command and control systems.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

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BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
07 Operational System Development				0303131F Minimum Essential Emergency Communications Network (MEECN)				2832 MEECN System Improvements				
(U) Cost Categories	<u>Contract Method</u>	<u>Performing Activity &</u>	<u>Total</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to</u>	<u>Total</u>	<u>Target</u>
(Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>& Type</u>	<u>Location</u>	<u>Prior to FY</u>	<u>2003</u>	<u>2003</u>	<u>2004</u>	<u>2004</u>	<u>2005</u>	<u>2005</u>	<u>Complete</u>	<u>Cost</u>	<u>Value of</u>
			<u>2003</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>			<u>Contract</u>
			<u>Cost</u>		<u>Date</u>		<u>Date</u>		<u>Date</u>			
(U) <u>Product Development</u>												
Rockwell	SS/CPAF		13.500							0.000	13.500	
Rockwell	SS/CPAF		49.338							0.000	49.338	
TRW	SS/CPAF		16.788							0.000	16.788	
JHU-APL (SPAWAR SysCen)	MIPR		5.026	0.200	Jan-03	0.250	Jan-04	0.300	Jan-05	Continuing	TBD	
Subtotal Product Development			84.652	0.200		0.250		0.300		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												
SE/TA [SRC, ASEC, MCR ATT, SAFTAS]	Various		3.276	0.650	Mar-03	0.822	Mar-04	0.850	Mar-05	0.000	5.598	
MITRE	LOE		0.131			0.146	Dec-03	0.150	Dec-04	0.000	0.427	
PMA	Various		2.355	0.145		0.172		0.142		Continuing	TBD	
ALCs	MIPR		0.355							0.000	0.355	
Subtotal Support			6.117	0.795		1.140		1.142		Continuing	TBD	0.000
Remarks: PMA has several award dates												
(U) <u>Test & Evaluation</u>												
NavAir Warfare Center	MIPR		5.554							0.000	5.554	
AFOTEC	MIPR		0.204							0.000	0.204	
N/A											0.000	
Subtotal Test & Evaluation			5.758	0.000		0.000		0.000		0.000	5.758	0.000
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			96.527	0.995		1.390		1.442		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

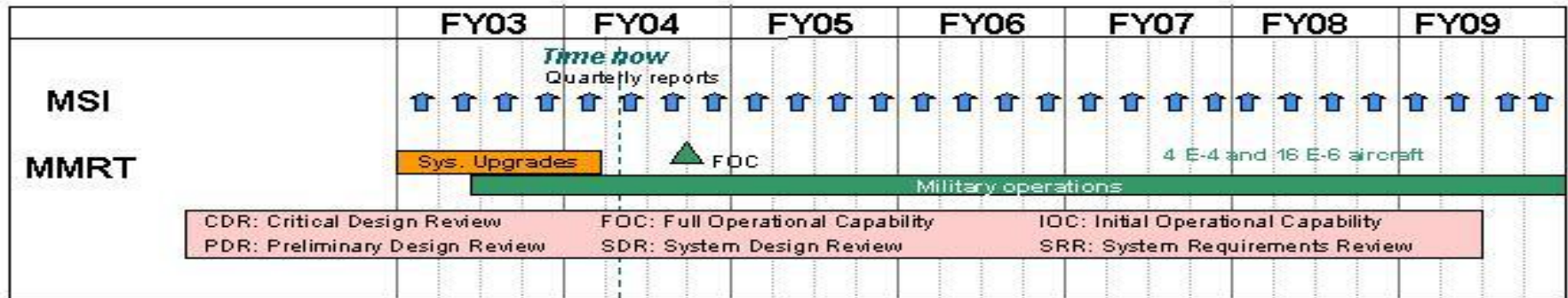
February 2004

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0303131F Minimum Essential
Emergency Communications Network
(MEECN)

PROJECT NUMBER AND TITLE
2832 MEECN System Improvements

MEECN System Improvement Schedule



■ Concept activities
■ Production / fielding

■ Design / development
■ Operations / sustainment

■ Integration / test
 △◇ Key events

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Exhibit R-4a, RDT&E Schedule Detail		DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0303131F Minimum Essential Emergency Communications Network (MEECN)	PROJECT NUMBER AND TITLE 2832 MEECN System Improvements
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(U) <u>Schedule Profile</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) E-4B Full Operational Capability (FOC)		2Q	
(U) E-6B Full Operational Capability (FOC)		4Q	
(U) CEP Study and Analysis - Quarterly Report(s)	1-4Q	1-4Q	1-4Q

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0303131F Minimum Essential Emergency Communications Network (MEECN)			PROJECT NUMBER AND TITLE 4521 DIRECT		
Cost (\$ in Millions)	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
4521 DIRECT	0.871	0.282	0.285	0.298	0.302	0.307	0.311	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The Defense Improved Emergency Message Automated Transmission System (IEMATS) Replacement Command and Control (C2) Terminal (DIRECT) is a Strategic Nuclear Command and Control (C2) system directly supporting the President, Secretary of Defense, and the Chairman of the Joint Chiefs of Staff (CJCS). DIRECT enforces all Emergency Action Message (EAM) processing requirements, including the build and release of EAMs, to allow the warfighter to remain responsive to the directives of the President and Secretary of Defense. DIRECT is certified to Top Secret-Single Integrated Operational Plan (SIOP) messaging and reached Full Operational Capability (FOC) on 15 Feb 02. DIRECT interfaces with all current EAM distribution communication systems (as directed by Vol VII of Joint Chiefs of Staff guidance) and has an expansion capability for future communication systems. DIRECT is currently expanding, through the Nuclear Command, Control, and Communications (NC3) Hybrid solution (a DIRECT to Nova/Strategic Command and Control System (SACCS) interface), the user base for EAM dissemination due to the Automatic Digital Network (AUTODIN)/DMS Transitional Hub (DTH) closure.

This project also funds the operational Command and Control Terminals segment of MEECN System Improvement for technical analysis of the currently fielded Command, Control, and Communication (C3) systems. CEP is a key factor in determining Assured MEECN Interoperability (AMI). The program implements a detailed test program for EAM insertion and reception and conducts multiple evaluations on a continuing year-round basis. Following test data collection, analysis is performed to ensure the strategic communication systems meet JCS-directed platform connectivity requirements. The purpose of the program is to test the strategic C3 system to establish a quantitative system-wide performance baseline, conduct trend analysis, integrate new systems into the strategic C3 system, identify system deficiencies, recommend solutions and verify the effectiveness of corrective actions, and recommend and develop procedures in order to improve overall system performance. Trade-off analysis is also performed to identify benefits and drawback of maintaining current systems. Studies are conducted to monitor communications system technology and potential integration complexities into current and future capabilities.

This program is in Budget Activity 07, Operational System Development, because it supports work on fielded operating weapon systems.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Continue EMD to develop interface between DIRECT and NC3 Hybrid Solution, as well as other communication interfaces as directed by Joint Staff in accordance with Vol VII of JCS guidance	0.691	0.282	0.285
(U) Communications Evaluation Program (CEP) Studies and Analysis	0.180		
(U) Total Cost	0.871	0.282	0.285

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

**0303131F Minimum Essential
Emergency Communications Network
(MEECN)**

PROJECT NUMBER AND TITLE

4521 DIRECT**(U) C. Other Program Funding Summary (\$ in Millions)****(U) D. Acquisition Strategy**

An SS/CPAF contract for EMD was awarded to GTE Government Systems (now General Dynamics C4 Systems), Needham, MA on 12 Jul 96.

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0303131F Minimum Essential Emergency Communications Network (MEECN)	PROJECT NUMBER AND TITLE 4521 DIRECT
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(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method</u> & <u>Type</u>	<u>Performing Activity &</u> <u>Location</u>	<u>Total</u> Prior to FY 2003 <u>Cost</u>	<u>FY</u> 2003 <u>Cost</u>	<u>FY</u> 2003 <u>Award</u>	<u>FY</u> 2004 <u>Cost</u>	<u>FY</u> 2004 <u>Award</u>	<u>FY</u> 2005 <u>Cost</u>	<u>FY</u> 2005 <u>Award</u>	<u>Cost to</u> <u>Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
(U) <u>Product Development</u>												
GDCS	SS/CPAF		32.549	0.543	Apr-03	0.282	Mar-04	0.285	Mar-05	Continuing	TBD	
National Security Agency (NSA)	MIPR		2.300							0.000	2.300	
JHU-APL	LOE		0.399	0.180	Dec-02					Continuing	TBD	
Subtotal Product Development			35.248	0.723		0.282		0.285		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												
SETA	LOE		3.072								3.072	
MITRE	LOE		2.668	0.003	Mar-03						2.671	
PMA	Various		1.459	0.145							1.604	
Subtotal Support			7.199	0.148		0.000		0.000		0.000	7.347	0.000
Remarks: PMA has several award dates												
(U) <u>Test & Evaluation</u>												
Various	Various		0.471							0.000	0.471	
Subtotal Test & Evaluation			0.471	0.000		0.000		0.000		0.000	0.471	0.000
Remarks:												
(U) <u>Management</u>											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			42.918	0.871		0.282		0.285		Continuing	TBD	0.000

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Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2004

BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0303131F Minimum Essential Emergency Communications Network (MEECN)	PROJECT NUMBER AND TITLE 4521 DIRECT
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(U) <u>Schedule Profile</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) STRFM Software Delivery/Drop		2Q	
(U) Hybrid Solution	1-4Q	1Q	
(U) Companion UHF TACSAT System (CUTS)	2-3Q		
(U) JCS Vol VII Annual Software Revision	1-4Q	1-4Q	1-4Q

Exhibit R-2a, RDT&E Project Justification

DATE
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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0303131F Minimum Essential Emergency Communications Network (MEECN)			PROJECT NUMBER AND TITLE 4610 Minuteman MEECN Program (MMP)			
Cost (\$ in Millions)	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	
4610 Minuteman MEECN Program (MMP)	0.387	0.282	1.498	10.946	37.206	22.934	0.905	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

(U) A. Mission Description and Budget Item Justification

This project implements a Minuteman ICBM Launch Control Center (LCC) Very Low Frequency/Low Frequency (VLF/LF) capability and a Minuteman ICBM Extremely High Frequency (EHF) band communications capability. The Extremely High Frequency (EHF) band terminal provides both receive and report-back capability. Specifically, the EHF effort replaces the Ultra High Frequency (UHF) satellite link with a MILSTAR EHF link.

The MMP EHF system will be upgraded to be compatible with Advanced EHF (AEHF). AEHF is an Extended Data Rate (XDR) waveform that provides more secure transmit/receive at frequencies above 20 GHz.

This program is in Budget Activity 07, Operational System Development, because it supports work on fielded operating weapon systems.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Completed MMP ECPs/Weapon System Test/Operational Test (WST/OT)	0.387	0.282	
(U) Begin AEHF Concept Development Studies			1.498
(U) Total Cost	0.387	0.282	1.498

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) MPAF, Missile Modifications (MEECN, PE 0303131F, BA 03, P-011)	33.037	32.968	15.780	2.887	0.000	6.404	23.964	6.900	191.977

(U) D. Acquisition Strategy

The ICBM Prime Integrating Contract (through OO-ALC, Hill AFB, UT) is being used as a contracting vehicle for the Minuteman MEECN Program (MMP).

The AEHF upgrade for MMP will be a full and open competition.

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Exhibit R-3, RDT&E Project Cost Analysis

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February 2004

BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0303131F Minimum Essential Emergency Communications Network (MEECN)	PROJECT NUMBER AND TITLE 4610 Minuteman MEECN Program (MMP)
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(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2003 Cost</u>	<u>FY 2003 Cost</u>	<u>FY 2003 Award Date</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
NGC	SS/CPAF		45.812	0.158	Jan-03	0.101	Nov-03			0.000	46.071	
AEHF Concept Development Studies - TBD	TBD							1.300	Dec-04		1.300	
JHU-APL	LOE		0.836								0.836	
Subtotal Product Development			46.648	0.158		0.101		1.300		0.000	48.207	0.000
Remarks:												
(U) <u>Support</u>												
SETA	LOE		0.826	0.074	Mar-03			0.198			1.098	
MITRE	LOE		0.695								0.695	
PMA	Various		0.847	0.155		0.061					1.063	
Subtotal Support			2.368	0.229		0.061		0.198		0.000	2.856	0.000
Remarks: Various Award Dates												
(U) <u>Test & Evaluation</u>												
WST/OT						0.120					0.120	
Subtotal Test & Evaluation			0.000	0.000		0.120		0.000		0.000	0.120	0.000
Remarks: Various Award Dates												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			49.016	0.387		0.282		1.498		0.000	51.183	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

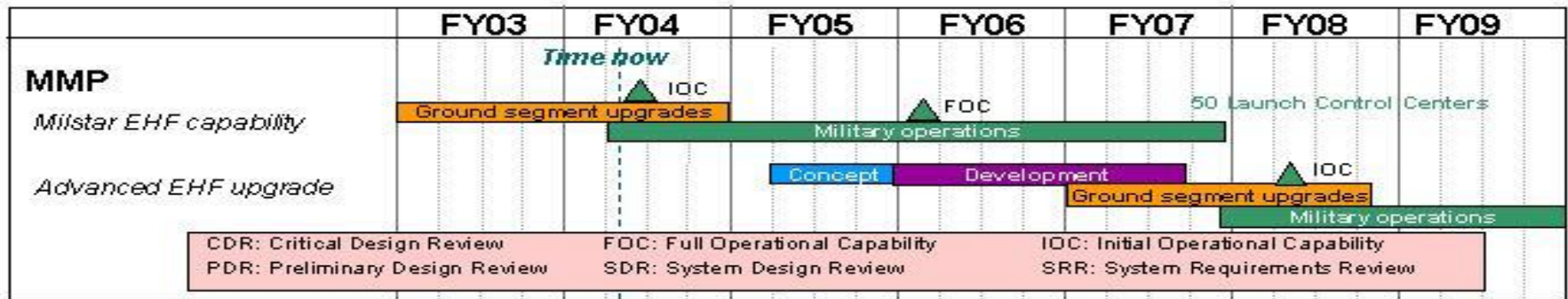
February 2004

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0303131F Minimum Essential
Emergency Communications Network
(MEECN)

PROJECT NUMBER AND TITLE
4610 Minuteman MEECN Program
(MMP)

Minuteman MEECN Program Schedule



Concept activities
 Production / fielding

Design / development
 Operations / sustainment

Integration / test
 Key events

UNCLASSIFIED

Exhibit R-4a, RDT&E Schedule Detail		DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0303131F Minimum Essential Emergency Communications Network (MEECN)	PROJECT NUMBER AND TITLE 4610 Minuteman MEECN Program (MMP)
--	--	--

(U) <u>Schedule Profile</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Exercise MMP Production Option	2Q	1Q	
(U) MMP IOC		2Q	
(U) Award AEHF Concept Development Studies			1Q

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0303131F Minimum Essential Emergency Communications Network (MEECN)			PROJECT NUMBER AND TITLE 5047 Ground Element MEECN System (GEMS)		
---	--	--	--	---	--	--	--	--	--

Cost (\$ in Millions)	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
5047 Ground Element MEECN System (GEMS)	0.000	8.641	29.958	37.665	10.099	4.859	4.951	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

Nuclear Command and Control Technical Performance Criteria require that communication facilities with strategic responsibilities receive Emergency Action Messages (EAMs) and function as part of the strategic force. Ground Element MEECN Systems (GEMS) will be comprised of MILSTAR EHF/AEHF, VLF/LF, UHF and Aircrew Alerting components and will provide secure, survivable inter-site, intra-site and mobile communications to bomber, tanker, reconnaissance and other communications facilities with strategic responsibilities. GEMS terminals will be developed and fielded to replace strategic mobile and fixed-site Single Channel Anti-jam Man-Portable (SCAMP) terminals. GEMS will also replace the Aircraft Alerting Communications Electromagnetic Pulse System/Electromagnetic Pulse Hardened Dispersal Communications (AACE/EHDC) systems.

This program is in Budget Activity 07, Operational System Development, because it supports work on fielded operating weapon systems.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Concept & Technology Demonstration Study		6.557	
(U) PMA/Analytical Support		2.084	2.187
(U) Award Increment 1 - Systems Demonstration & Development (SDD) Contract			27.771
(U) Total Cost	0.000	8.641	29.958

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u> <u>Actual</u>	<u>FY 2004</u> <u>Estimate</u>	<u>FY 2005</u> <u>Estimate</u>	<u>FY 2006</u> <u>Estimate</u>	<u>FY 2007</u> <u>Estimate</u>	<u>FY 2008</u> <u>Estimate</u>	<u>FY 2009</u> <u>Estimate</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) Other Procurement - AF, (MEECN, PE0303131F, BA-03, P-050)				25.410	111.390	73.923	20.923	Continuing	TBD

(U) D. Acquisition Strategy

Award up to 3 Concept and Technology Development (CTD) contracts following full and open competition. Upon completion of CTD, award a single SDD contract following full & open competition.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2004

BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0303131F Minimum Essential Emergency Communications Network (MEECN)	PROJECT NUMBER AND TITLE 5047 Ground Element MEECN System (GEMS)
--	--	---

(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method</u> & <u>Type</u>	<u>Performing Activity &</u> <u>Location</u>	<u>Total</u> Prior to FY 2003 <u>Cost</u>	<u>FY</u> 2003 <u>Cost</u>	<u>FY</u> 2003 <u>Award</u> <u>Date</u>	<u>FY</u> 2004 <u>Cost</u>	<u>FY</u> 2004 <u>Award</u> <u>Date</u>	<u>FY</u> 2005 <u>Cost</u>	<u>FY</u> 2005 <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
(U) <u>Product Development</u>												
CTD Contract	TBD		0.000	0.000		6.557	Apr-04			Continuing	TBD	
SDD Contract								27.771	Dec-04		27.771	
Subtotal Product Development			0.000	0.000		6.557		27.771		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												
ITSP						0.670	Mar-04	0.703	Mar-05	Continuing	TBD	
MITRE						1.164	Jan-04	1.222	Nov-04	Continuing	TBD	
PMA						0.250		0.262			0.512	
Subtotal Support			0.000	0.000		2.084		2.187		Continuing	TBD	0.000
Remarks: PMA has several award dates												
(U) <u>Test & Evaluation</u>												
N/A											0.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u>											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			0.000	0.000		8.641		29.958		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

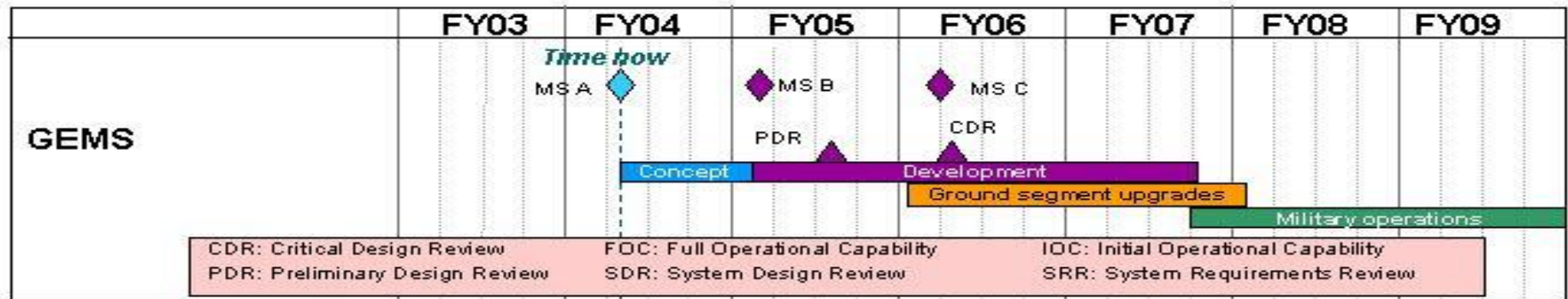
February 2004

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0303131F Minimum Essential
Emergency Communications Network
(MEECN)

PROJECT NUMBER AND TITLE
5047 Ground Element MEECN System
(GEMS)

Ground Element MEECN System Schedule



■ Concept activities
■ Production / fielding

■ Design / development
■ Operations / sustainment

■ Integration / test
 △◇ Key events

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Exhibit R-4a, RDT&E Schedule Detail		DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0303131F Minimum Essential Emergency Communications Network (MEECN)	PROJECT NUMBER AND TITLE 5047 Ground Element MEECN System (GEMS)
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	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <u>Schedule Profile</u>			
(U) ORD Approval		2Q	
(U) C&TD Study		2-3Q	
(U) MS B/SDD Start			1Q

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PE NUMBER: 0303140F

PE TITLE: Information Systems Security Program

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0303140F Information Systems Security Program
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Cost (\$ in Millions)	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
Total Program Element (PE) Cost	21.659	47.718	79.625	109.735	216.535	367.352	253.088	Continuing	TBD
4579 Information Warfare	11.051	5.877	0.000	0.000	0.000	0.000	0.000	0.000	37.808
4861 Cryptologic 2000	0.000	9.708	2.813	3.302	3.533	3.597	3.637	Continuing	TBD
4871 Information Operations Technology	1.055	0.745	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5100 Cryptographic Modernization	0.000	23.128	72.269	102.350	207.369	357.820	242.243	Continuing	TBD
7820 Computer Security RDT&E: Firestarter	9.553	8.260	4.543	4.083	5.633	5.935	7.208	Continuing	TBD

In FY 2005, Project 0674579, Information Warfare, was terminated. In FY 2005, Project 674871, Information Operations Technology , efforts were transferred to PE 0305887, Intelligence Support to Information Warfare, Project 670374, Information Warfare Support. This was done in order to move the only offensive Project out of a defensive PE; and to move it under the management of the AF HQ DCS for Operations (HAF/XOIW).

(U) A. Mission Description and Budget Item Justification

This program provides the capability to protect and defend USAF Command, Control, Communications, Computers, and Intelligence, Surveillance, and Reconnaissance (C4ISR) and Weapon Systems from Information Warfare (IW) attacks; and to recover from those attacks. Primarily, the project does research and development of information protection tools and transitions them to operational systems.

Through FY04 the Information Warfare Project provided the acquisition community and operational warfighters the ability to manage their own risks relative to mission, task, threat, and vulnerability information; and to mitigate IW risks based on rank-ordered countermeasure recommendations. It was terminated during the FY 2005 AF POM Process as an offset to increase funding of a higher priority program.

The Info Ops (IO) Technology Project concentrates on transitioning state-of-the-art IO capabilities to the warfighter through demonstrations of those technologies and rapid prototyping of warfighter tools. It also funds the IW Mission Area Team (MAT), the Information Warfare Solution Analysis Integrated Product Team (IPT) (previously known as the IW Technology Planning IPT [IW TPIPT]), and the Panther Den program office. This project transfers to another PE in FY 2005.

The Cryptologic 2000 Project's efforts will allow the AF to migrate from the current legacy manual system of generation, distribution, accounting, and material management of AF cryptographic keying materials to the new DoD Electronic Key Management System being acquired by NSA.

The AF Crypto Modernization Program is part of a Joint Program lead by NSA to modernize and transform the Type 1 Cryptographic Inventory throughout DoD. Not only will algorithms be upgraded, but reprogrammable chips will be used in the Crypto Devices. Thus, the next generation of algorithm upgrades will cost only the reprogramming of those chips. The total inventory will be greatly reduced by doing a box-for-a family of systems/functions; and the logistics requirements will be greatly simplified and reduced. The total inventory and logistics requirements are also reduced by going to multi-purpose, "purple" solution crypto devices instead of the Service

Exhibit R-2, RDT&E Budget Item Justification

DATE

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0303140F Information Systems Security Program

unique inventory we now have.

The computer security project directs the R&D of information protection technology and tools to defend C4ISR systems, with emphasis on computer and network systems security, damage assessment and recovery, and secure distributed computing capabilities. It provides access control, integrity, assured services and meets warfighter's requirements.

This program is in budget activity 7, Operational System Development, because it addresses the development and transition of information security, protection and defensive capabilities and technologies.

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	9.353	37.667	87.813
(U) Current PBR/President's Budget	21.659	47.718	79.625
(U) Total Adjustments	12.306	10.051	
(U) Congressional Program Reductions	0.000		
Congressional Rescissions	-0.428	-0.649	
Congressional Increases	15.400	10.700	
Reprogrammings	-2.041		
SBIR/STTR Transfer	-0.625		

(U) **Significant Program Changes:**

FY04 Congressional Adds: \$1.0M for continued management of the Cyber Lighthouse Security Technology Program; \$2.1M for continued management of the Center for Information Assurance (IA); \$2.0M for continued management of the WISE; \$4.6M for the Enterprise Data Warehouse; and \$1.0M for information security support of Northcom.

FY 2005: Project 0674579, Information Warfare, was terminated.

FY 2005: Project 674871, Information Operations Technology, efforts were transferred to PE 0305887, Intelligence Support to Information Warfare, Project 670374, Information Warfare Support.

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development			PE NUMBER AND TITLE 0303140F Information Systems Security Program				PROJECT NUMBER AND TITLE 4579 Information Warfare		
Cost (\$ in Millions)	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
4579 Information Warfare	11.051	5.877	0.000	0.000	0.000	0.000	0.000	0.000	37.808
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

In FY 2005, Project 067459, Information Warfare was terminated.

(U) **A. Mission Description and Budget Item Justification**

Built information warfare (IW) solutions for AF Command and Control (C2), Intelligence, Surveillance, and Reconnaissance (ISR) systems. The project provided the acquisition community and operational warfighters the ability to manage the IW risks to their missions and operational tasks based on asset threat and vulnerability information. Provided decision-makers with countermeasure recommendations, rank-ordered based on operational utility and relative cost. Looking across all assessments conducted on AF systems, the project also provided the USAF a unique system-of-systems perspective for managing shared IW risks.

IW Solutions Analysis Integrated Product Team (IW SA IPT) supported modernization planning for IW Mission Area and Solutions Analysis Processes. Continuously identified and evaluated commercial and Government inventory of available products that could be used to meet IW mission deficiencies. Information Warfare Architectures provided architectural solutions that resulted in systems designed with IW fundamentals. Provided Government laboratories and private industry guidance on new technologies needed for the next 10 to 25 years. Support of this effort will transfer in FY 2004.

Demonstrated and migrated Attack Tree Methodology to AF networks to provide improved situational awareness during cyber attacks. The first phase of this project incorporated the knowledge of AF networks and national level cyber vulnerabilities databases and performed an Attack Tree analysis of the networks. The analysis provided AF network administrators attack paths into their networks. The second phase of this project monitored real time cyber attack information and provided intelligent assessments of the type of the cyber attack and end goals for the cyber attack.

Cancelled project Common Access Card (CAC) concept exploration and prototyping of wireless technologies: Studies, analysis, and prototype development related to integrating the DoD CAC and emerging wireless infrastructure technologies in support of information assurance. Reports and prototypes developed were used for risk reduction and technology migration. Technologies studied included wireless infrastructure components such as Blackberry, Bluetooth and wireless local area networks.

(Technical work done under Cyber Lighthouse. Received Joint Expeditionary Force Experiment [JEFX02] money for demonstrations.) Completed Integrated SATCOM Interference Detection and Response (ISIDR) concept exploration, prototyping, and demonstration. During JEFX02, ISIDR was successfully demonstrated that this technology can quickly identify when unprotected Command, Control, Communications, and Computers/Intelligence, Surveillance, and Reconnaissance (C4ISR) SATCOM jamming occurs and characterizes the jamming signal. Due to this success, further investigations and demonstrations were conducted with inputs from JEFX02 participants. Results from this investigation provided the warfighter with C4ISR situational awareness of SATCOM jamming. Investigated unprotected C4ISR SATCOM jammer excision technology leading to prototype demonstration. Investigated in concert with the SATCOM interference detection and characterization. Successful demonstration of this technology and subsequent developments would have provided the warfighter unfettered C4ISR unprotected SATCOM during real world operations.

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

**0303140F Information Systems
Security Program**

PROJECT NUMBER AND TITLE

4579 Information Warfare

Cyber Lighthouse (a Congressional Add) is a cyber security research and development program managed by the Air Forces HQ Electronic Systems Center (ESC). The work under Cyber Lighthouse is performed by three Federally Funded Research and Development Centers - MITRE (MA), Carnegie Mellon University's Software Engineering Institute (PA), and MIT/Lincoln Lab (MA). The program identifies information assurance (IA) gaps in systems, develops and validates new technological countermeasures, and seeks to rapidly transition these solutions to operational users. It is designed to address those research needs that are not currently being addressed by other sources. In some cases, it simply involves investigating the feasibility of a cyber technology. In others, the effort will actually include the development and prototype of a system that will resolve a known vulnerability.

The Cyber Lighthouse effort has included such initiatives as the Integrated Satellite Communications Interference Detection and Response System (ISIDR), which was successfully tested in cooperation with Spiral 3 of the Joint Expeditionary Force Experiment (JEFX 02). The ISIDR prototype demonstrated the ability to rapidly detect and characterize interference on unprotected SATCOM links. These links are used to provide network connectivity (SIPRNET, NIPRNET, and JWICS), Intel Surveillance and Reconnaissance (ISR) connectivity (Predator, Global Hawk and U-2), and Beyond Line of Sight air picture connectivity to Air and Space Operations Centers (AOC). On a separate Cyber Lighthouse effort, research is being performed to aid in identifying a solution for a demonstrated Global Positioning System timing vulnerability. This project developed an Automated Incident Reporting System referred to as AirCERT. AirCERT was designed to collect, exchange, and analyze security event data from across large distributed networks to create a better view of the cyber threats facing a given organization and the Internet as a whole.

This project is in Budget Activity 7, Operational System Development, because it addresses the development and transition of information security, protection, and defensive capabilities and technologies.

(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Managed Cyber Lighthouse Security Technology Development Program (Congressional Add)	3.800	1.000	0.000
(U) Managed Enabling Technologies for Information Assurance (IA) (Congressional Add)	1.000	0.000	0.000
(U) Managed the Center for Information Assurance (IA) Security (Congressional Add)	3.500	2.100	0.000
(U) Completed Exportable Vulnerability Assessment/Risk Management (VA/RM) Attack Trees	0.376	0.843	0.000
(U) Completed IA Architecture Infrastructure Assessments	0.140	0.794	0.000
(U) Transferred responsibility for IW SA IPT activities, analyses, database support	0.336	0.080	0.000
(U) Transferred responsibility for cross-domain solutions	0.334	0.280	0.000
(U) Cancelled Common Access Card (CAC) concept exploration and prototyping of wireless technologies	0.792	0.780	0.000
(U) Cancelled Migration of Attack Tree Methodology for enterprise Mission Assurance Support System (eMASS)	0.773	0.000	0.000
(U) Total Cost	11.051	5.877	0.000

Exhibit R-2a, RDT&E Project Justification

DATE

February 2004

BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0303140F Information Systems Security Program	PROJECT NUMBER AND TITLE 4579 Information Warfare
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(U) **C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E									
(U) Other APPN									
N/A									

(U) **D. Acquisition Strategy**

All major contracts within this Program Element are awarded after full and open competition.

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Exhibit R-3, RDT&E Project Cost Analysis

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February 2004

BUDGET ACTIVITY			PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
07 Operational System Development			0303140F Information Systems Security Program					4579 Information Warfare				
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
<u>(U) Product Development</u>												
MITRE	C	San Antonio, TX	30.272	9.639	Oct-02	3.422	Oct-03				43.333	43.333
MIT/Lincoln Labs	C	Boston, MA	2.992	0.952	Apr-02	0.239	Oct-03				4.183	4.183
Carnegie-Mellon Software Engineering Institute (SEI)	C	Pittsburgh, PA	1.444	0.460	Jun-02	0.116	Oct-03				2.020	2.020
University of TX, San Antonio	RL Grant/CRADA	San Antonio, TX	0.000	0.000	Jul-02	2.100	Mar-03				2.100	2.100
Subtotal Product Development			34.708	11.051		5.877		0.000		0.000	51.636	51.636
Remarks:												
<u>(U) Total Cost</u>			34.708	11.051		5.877		0.000		0.000	51.636	51.636

Exhibit R-4, RDT&E Schedule Profile

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February 2004

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0303140F Information Systems Security Program

PROJECT NUMBER AND TITLE
4579 Information Warfare

Exhibit R-4: BPAC 4579 Information Warfare (p 2 of 2)

Fiscal Year	FY 03				FY 04				FY 05				FY 06				FY 07				FY 08				FY 09			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Transfer responsibility for cross-domain solutions								△																				
Cancel CAC & wireless technologies exploration								△																				
Cancelled Migration for eMAS S				▲																								

- ☆ Major Event or Milestone
- ▬ Planned Ongoing Activity
- ▬ Ongoing Activity that is Complete
- ▲ Completed Event
- △ Planned Task(s)

Exhibit R-4, RDT&E Schedule Profile

DATE

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BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0303140F Information Systems Security Program

PROJECT NUMBER AND TITLE
4579 Information Warfare

Exhibit R-4: BPAC 4579 Information Warfare (p 1 of 2)

Fiscal Year	FY 03				FY 04				FY 05				FY 06				FY 07				FY 08				FY 09			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Manage Cyber Lighthouse	█				█																							
Managed Enabling Techs for IA	█																											
Manage CAIS	█				█																							
Complete Exportable VA/RM attack trees	█				█																							
Complete IA Arch Infrastructure Assessments	█				█																							
Transfer responsibility IW SA IPT	█				█																							

- ☆ Major Event or Milestone
- █ Planned Ongoing Activity
- █ Ongoing Activity that is Complete
- ▲ Completed Event
- △ Planned Task(s)

Exhibit R-4a, RDT&E Schedule Detail

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

**0303140F Information Systems
Security Program**

PROJECT NUMBER AND TITLE

4579 Information Warfare**(U) Schedule Profile**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Managed Cyber Lighthouse Program (Congressional Add)	1-4Q	1-4Q	
(U) Managed Enabling Technologies for IA (Congressional Add)	1-4Q		
(U) Managed the Center for IA Security (Congressional Add)	1-4Q	1-4Q	
(U) Completed Exportable VA/RM Attack Trees	1-4Q	1-4Q	
(U) Completed IA Architecture Infrastructure Assessments	1-4Q	1-4Q	
(U) Transferred the integration of cross-domain solutions		4Q	
(U) Transferred support of the IW SA IPT activities, analysis, database support		4Q	
(U) Cancelled CAC concept exploration and prototype wireless	2-4Q	1-4Q	
(U) Cancelled the Migration of Attack Tree Methodology for enterprise Mission Assurance Support System (eMASS)	1-4Q		

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0303140F Information Systems Security Program			PROJECT NUMBER AND TITLE 4861 Cryptologic 2000		
Cost (\$ in Millions)	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
4861 Cryptologic 2000	0.000	9.708	2.813	3.302	3.533	3.597	3.637	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

NOTES: FY 2004: AFEKMS received \$5.6 M in Congressional Plus-Ups that belong to two other PEs. Specifically, \$4.6 M intended for PE 0303141F, GCSS for their Enterprise Data Warehouse; and \$1.0 for PE 0303164F, for Services Support Information System Security Program (ISSP) for Northcom.

(U) **A. Mission Description and Budget Item Justification**

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Exhibit R-2a, RDT&E Project Justification

DATE

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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0303140F Information Systems Security Program	PROJECT NUMBER AND TITLE 4861 Cryptologic 2000
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(U) Continue program office contract support of User Application Software (UAS) including architectural planning and migration to the Key Management Infrastructure	0.000	0.905	0.620
(U) Continue End User Application Software Development: Common UAS, Local Management Device (LMD/Data Management Device (DMD), KOV-21 (for F-22), and computer-based training	0.000	3.203	2.193
(U) Enterprise Data Warehouse (Congressional Add)	0.000	4.600	
(U) Services Support ISSP for Northcom (Congressional Add)	0.000	1.000	
(U) Total Cost	0.000	9.708	2.813

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E									
(U) Other APPN									
N/A									

(U) D. Acquisition Strategy

All major contracts within this Project are awarded after full and open competition.

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0303140F Information Systems Security Program	PROJECT NUMBER AND TITLE 4861 Cryptologic 2000
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(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
(U) <u>Product Development</u>												
Science Applications International Corporation (SAIC)	BPA	San Antonio, TX	0.000		Oct-02	3.488	Oct-03	2.193		Continuing	TBD	TBD
Mitre	C	San Antonio, TX	0.000		Oct-02	0.620	Oct-03	0.620		Continuing	TBD	TBD
TBD	TBD	TBD	0.000			4.600		0.000			4.600	4.600
TBD	TBD	TBD	0.000			1.000		0.000			1.000	1.000
Subtotal Product Development			0.000	0.000		9.708		2.813		Continuing	TBD	TBD
Remarks:												
(U) <u>N/A</u>												
(U) Total Cost			0.000	0.000		9.708		2.813		Continuing	TBD	TBD
Remarks: N/A												

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0303140F Information Systems Security Program

PROJECT NUMBER AND TITLE
4861 Cryptologic 2000

Exhibit R-4: BPAC 4861 Cryptologic 2000

Fiscal Year	FY 03				FY 04				FY 05				FY 06				FY 07				FY 08				FY 09							
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Architectural planning & migration to Key Mgmt. Infrastructure					[Planned Ongoing Activity]																											
User Application Software Development					[Planned Ongoing Activity]																											
Transfer Enterprise Data Warehouse Cong add						△																										
Transfer svcs support ISSP for Northcom Cng add						△																										

- ☆ Major Event or Milestone
- [Grey Bar] Planned Ongoing Activity
- [Black Bar] Ongoing Activity that is Complete
- ▲ Completed Event
- △ Planned Task(s)

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Exhibit R-4a, RDT&E Schedule Detail		DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0303140F Information Systems Security Program	PROJECT NUMBER AND TITLE 4861 Cryptologic 2000
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(U) <u>Schedule Profile</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Continue End User Application SW development, Common UAS, LMD/DMD, KOV-21 integration, etc.	1-4Q	1-4Q	1-4Q
(U) Continue Program Office contract support of the EKMS UAS for KMI	1-4Q	1-4Q	1-4Q
(U) Transfer Enterprise Data Warehouse Congressional Add to PE 0303141F		2Q	
(U) Transfer Services Support ISSP Northcom Congressional Add to PE 0303164F		2Q	

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0303140F Information Systems Security Program			PROJECT NUMBER AND TITLE 4871 Information Operations Technology		
Cost (\$ in Millions)	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
4871 Information Operations Technology	1.055	0.745	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

In FY 2005, Project 674871, Information Operations Technology , efforts were transferred to PE 0305887F, Intelligence Support to Information Warfare, Project 670374, Information Warfare Support. This was done in order to move the only offensive project out of a defensive PE; and to move it under the management of the AF Deputy Chief of Staff (DCS) for Air and Space Operations (AF/XOIW).

(U) A. Mission Description and Budget Item Justification

Exhibit R-2a, RDT&E Project Justification							DATE February 2004		
BUDGET ACTIVITY 07 Operational System Development			PE NUMBER AND TITLE 0303140F Information Systems Security Program		PROJECT NUMBER AND TITLE 4871 Information Operations Technology				
(U) The IO Technology Program will support the IW SA IPT and the IWMission Area Team (MAT) through studies, rapid prototyping, and demonstrations of state-of-the-art IO technologies to meet the warfighters' IO requirements.					1.055	0.745	0.000		
(U) Total Cost					1.055	0.745	0.000		
(U) C. Other Program Funding Summary (\$ in Millions)									
	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E									0.000
(U) Other APPN									0.000
This project's studies leveraged current DoD lab efforts. Studies will be deconflicted with and will complement PE 0208021F, Information Warfare Support. Some aspects of this program will be protected under the Panther Den Special Access Program.									
(U) D. Acquisition Strategy									
All major contracts within this Project are awarded after full and open competition unless other than full and open is justified to the Designated Acquisition Commander (DAC).									

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2004

BUDGET ACTIVITY			PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
07 Operational System Development			0303140F Information Systems Security Program					4871 Information Operations Technology				
<u>(U) Cost Categories</u>	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to</u>	<u>Total</u>	<u>Target</u>
(Tailor to WBS, or System/Item Requirements) (\$ in Millions)			<u>Prior to FY</u>	<u>2003</u>	<u>2003</u>	<u>2004</u>	<u>2004</u>	<u>2005</u>	<u>2005</u>	<u>Complete</u>	<u>Cost</u>	<u>Value of</u>
			<u>2003</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>			<u>Contract</u>
			<u>Cost</u>		<u>Date</u>		<u>Date</u>		<u>Date</u>			
<u>(U) Product Development</u>												
Lockheed-Martin	CPFF	Boston, MA	1.040	0.738	Oct-02	0.407	Oct-03			Continuing	TBD	TBD
BAE Systems	CPFF	Boston, MA	0.168	0.117	Oct-02	0.120	Oct-03			Continuing	TBD	TBD
Mitre	C	Boston, MA	0.269	0.200	Oct-02	0.218	Oct-03			Continuing	TBD	TBD
Subtotal Product Development			1.477	1.055		0.745		0.000		Continuing	TBD	TBD
Remarks:												
<u>(U) Total Cost</u>			1.477	1.055		0.745		0.000		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0303140F Information Systems Security Program

PROJECT NUMBER AND TITLE
4871 Information Operations Technology

Exhibit R-4: BPAC 4871 Information Operations Technology

Fiscal Year	FY 03				FY 04				FY 05				FY 06				FY 07				FY 08				FY 09			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
IO Technology Study/Prototype/bi-annual Demos		▲		▲		△		△																				

- ☆ Major Event or Milestone
- ▬ Planned Ongoing Activity
- ▬ Ongoing Activity that is Complete
- ▲ Completed Event
- △ Planned Task(s)

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Exhibit R-4a, RDT&E Schedule Detail		DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0303140F Information Systems Security Program	PROJECT NUMBER AND TITLE 4871 Information Operations Technology
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(U) <u>Schedule Profile</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) IO Technology Study/Prototype/ Bi-annual Demos	2-4Q	2-4Q	

Exhibit R-2a, RDT&E Project Justification

DATE

February 2004

BUDGET ACTIVITY		PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
07 Operational System Development		0303140F Information Systems Security Program					5100 Cryptographic Modernization			
Cost (\$ in Millions)	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	
5100 Cryptographic Modernization	0.000	23.128	72.269	102.350	207.369	357.820	242.243	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

(U) A. Mission Description and Budget Item Justification

The AF Cryptographic Modernization (CM) Program's goal is to modernize the cryptographic inventory to support transforming AF operations necessary to secure the Global Information Grid. Algorithms are expiring, aging equipment is becoming logistically unsupportable, and many assets are not compatible with key management systems. At the same time, we need cryptography with new capabilities able to support transforming AF operations. The program has three primary objectives: 1) complete box-for-box replacement for identified near-term needs; 2) begin modernizing the remaining inventory via incremental capabilities enhancements; and 3) complete transformation will result in an inventory that is modular and scalable; will enable network-centric operations; and result in cryptographic operations that are transparent to the operator. Near-term funding supports primarily replacement efforts. As we move later in the Fiscal Year Defense Plan (FYDP), modernization/transformation activities take precedence.

Replacement Efforts: Five replacement efforts are currently identified: KG-3X and KI-22 both support the Nuclear Command and Control (NC2) mission; Communication Security/ Transportation Security (COMSEC/TRANSEC) Integrated Circuit/DS-101 Hybrid (CTIC/CDH) is an integrated circuit cryptographic engine used primarily for data links; Interrogator Friend-or-Foe (IFF) Mode 5 is an upgrade that improves secure airborne/air traffic situation awareness; and the CI-13 upgrade improves remote re-keying of cryptographic end units.

Modernization Efforts: Initially, modernization efforts will focus on analyzing the current operational inventory for capability gaps, redundancies, and best practices. This is accomplished by a large-scale user operational requirements gathering effort. The analysis will identify modernization opportunities that will provide a common solution for multiple crypto end items. They will begin to incrementally incorporate new and emerging technologies (programmability, modularity, scalability, etc.), be network-friendly, and operate with modern key management systems.

Transformation Efforts: Persistent application of cryptographic modernization principles to end unit development will result in an inventory that robustly secures and enables network-centric warfare; is re-configurable; interoperates with Joint and Coalition partners; and whose operation is transparent to the user.

This project is in Budget Activity 7, Operational System Development, because it addresses the development and transition of information security, protection, and defensive capabilities and technologies.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Continue KI-22 Cryptographic Modernization analysis for development of replacement	0.000	11.110	30.550
(U) Continue KG-3X Cryptographic Modernization analysis for development of replacement	0.000	5.916	9.800
(U) Continue IFF Cryptographic Modernization analysis for development of replacement	0.000	4.917	16.696

Project 5100

R-1 Shopping List - Item No. 169-20 of 169-30

Exhibit R-2a (PE 0303140F)

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0303140F Information Systems Security Program	PROJECT NUMBER AND TITLE 5100 Cryptographic Modernization
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(U) Continue CTIC/CDH Cryptographic Modernization analysis for development of replacement	0.000	0.953	0.085
(U) Completed CI-13 Cryptographic Modernization analysis for development of replacement	0.000	0.232	0.000
(U) Initiate Studies and Analyses	0.000	0.000	3.405
(U) Initiate Space Cryptographic Modernization analyses for development of replacements	0.000	0.000	11.733
(U) Total Cost	0.000	23.128	72.269

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

	<u>FY 2003</u> Actual	<u>FY 2004</u> Estimate	<u>FY 2005</u> Estimate	<u>FY 2006</u> Estimate	<u>FY 2007</u> Estimate	<u>FY 2008</u> Estimate	<u>FY 2009</u> Estimate	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) AF RDT&E									
(U) AF Other Procurement PE 0303140F			25.000	27.200	29.300	30.600	11.500	Continuing	TBD

(U) **D. Acquisition Strategy**

All major contracts within this project are awarded after full and open competition.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2004

BUDGET ACTIVITY			PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
07 Operational System Development			0303140F Information Systems Security Program					5100 Cryptographic Modernization				
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
<u>(U) Product Development</u>												
KI-22	MIPR	OO-ALC/LM, Hill AFB, UT	0.000	0.000		11.110	Oct-03	30.550		Continuing	TBD	TBD
KG-3X	MIPR	ESC/NDM, Hanscom AFB, MA	0.000	0.000		5.916	Oct-03	9.800		Continuing	TBD	TBD
CTIC-CDH	MIPR	CPSG, Lackland AFB, TX	0.000	0.000		0.953	Oct-03	0.085		Continuing	TBD	TBD
IFF	MIPR	ESC/DIW, Lackland AFB, TX	0.000	0.000		4.917	Oct-03	16.696		Continuing	TBD	TBD
ESC/DIW (CI-13)	MIPR	ESC/DIW, Lackland AFB, TX	0.000	0.000		0.232	Oct-03	0.000		Continuing	TBD	TBD
Studies and Analyses	N/A	CPSG, Lackland AFB, TX	0.000	0.000		0.000	Oct-03	3.405		Continuing	TBD	TBD
Space	N/A	CPSG, Lackland AFB, TX	0.000	0.000		0.000	Oct-03	11.733		Continuing	TBD	TBD
Subtotal Product Development			0.000	0.000		23.128		72.269		Continuing	TBD	TBD
Remarks:												
<u>(U) Total Cost</u>			0.000	0.000		23.128		72.269		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

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February 2004

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0303140F Information Systems Security Program

PROJECT NUMBER AND TITLE
5100 Cryptographic Modernization

Exhibit R-4: BPAC 5100 Cryptographic Modernization

Fiscal Year	FY 03				FY 04				FY 05				FY 06				FY 07				FY 08				FY 09											
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4								
KI-22					[Planned Ongoing Activity]																															
KG-3X					[Planned Ongoing Activity]																															
IFF Mode S CM					[Planned Ongoing Activity]																															
CTIC/CDH					[Planned Ongoing Activity]																															
CI-13					[Planned Ongoing Activity]																															
Studies & Analyses									[Planned Ongoing Activity]																											
Space CM									[Planned Ongoing Activity]																											

- ☆ Major Event or Milestone
- [Grey Bar] Planned Ongoing Activity
- [Black Bar] Ongoing Activity that is Complete
- ▲ Completed Event
- △ Planned Task(s)

Exhibit R-4a, RDT&E Schedule Detail

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February 2004

BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0303140F Information Systems Security Program	PROJECT NUMBER AND TITLE 5100 Cryptographic Modernization
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(U) <u>Schedule Profile</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Continue KG-3X Cryptographic Modernization analysis for development of replacement		1-4Q	1-4Q
(U) Continue IFF Cryptographic Modernization analysis for development of replacement		1-4Q	1-4Q
(U) Continue CTIC-CDH Cryptographic Modernization analysis for development of replacement		1-4Q	1-4Q
(U) Continue CI-13 Cryptographic Modernization analysis for development of replacement		1-4Q	1-4Q
(U) Initiate Studies and Analyses			2Q
(U) Initiate Space Cryptographic Modernization analyses for development of replacements			2Q

Exhibit R-2a, RDT&E Project Justification

DATE

February 2004

BUDGET ACTIVITY 07 Operational System Development		PE NUMBER AND TITLE 0303140F Information Systems Security Program					PROJECT NUMBER AND TITLE 7820 Computer Security RDT&E: Firestarter			
Cost (\$ in Millions)		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
7820	Computer Security RDT&E: Firestarter	9.553	8.260	4.543	4.083	5.633	5.935	7.208	Continuing	TBD
Quantity of RDT&E Articles		0	0	0	0	0	0	0		

(U) **A. Mission Description and Budget Item Justification**

This project directs the Research & Development (R&D) of Information Protect technology/tools to provide the capability to defend USAF Command, Control, Communications, Computer, and Intelligence (C4I) Systems from Information Warfare (IW) Cyber attacks; and to ensure recovery from attacks. As the USAF single manager for Information Protect R&D, this project directs C4I system Information Protect R&D with emphasis on information/computer/network security, damage assessment and recovery, and dynamic security policy enforcement. The asymmetrical threat of cyber terrorism against our homeland and deployed networks has the potential to affect the Commander's ability to fight and win because of his dependence upon the availability, timeliness, and integrity of information on our network centric C4I systems. The requirement for global presence and global power has demanded increasing reliance on the advanced information systems and coalition connectivity. The susceptibilities inherent in such reliance on the advanced information systems and coalition connectivity has heightened the awareness that the National Information Infrastructure (NII), the Defense Information Infrastructure (DII), and the Global Information Grid (GIG) must be protected against attack in order to provide the Commander with Global Information Exchange (GIE).

Emphasis is therefore placed on R&D areas that provide deterrence of attack through cyberspace surveillance, tactical indications & warning (I&W), intrusion detection, correlation of attack indicators, decision support, recovery, and active response. Since adversaries may gain access to critical AF information systems through a variety of means, this technology will provide the capability of collecting, integrating, and displaying threat, vulnerability, and system data indicating an attack is about to take place and/or is taking place. Current Air Force systems such as the Combat Information Transport Systems (CITS), Theater Deployed Communications (TDC), and Theater Battle Management Core Systems (TBMCS) leverage the technology from this project to meet their information protection needs/requirements. Additionally, this project utilizes information assurance technology investments by Defense Advanced Research Projects Agency (DARPA) as a jump-start for providing a solution to Air Force requirements and cooperates with Defense Information Systems Agency (DISA) and other Services/Agencies to ensure coalition GIE information protect requirements are being met.

This program is in Budget Activity 7, Operational System Development, because it addresses the development and transition of information security, protection, and defensive capabilities and technologies.

(U) **B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Continue development of technology for self-healing network systems (to include automated system recovery)	0.460	0.320	0.311
(U) Continue development of information attack correlation methodologies	0.543	0.608	0.777
(U) Continue development of methodologies for commercial software evaluation and steganography detection	0.246	0.315	0.091
(U) Continue development of secure agent frameworks for Enterprise Defense to support protection of the warfighter	0.876	0.926	0.300

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Exhibit R-2a, RDT&E Project Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0303140F Information Systems Security Program	PROJECT NUMBER AND TITLE 7820 Computer Security RDT&E: Firestarter
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C4ISR systems			
(U) Continue effort to transition DARPA information assurance (IA) technology into AF Information Protection, Detection, & Response architecture	0.422	0.476	0.316
(U) Continue effort to develop metrics for reliable information assurance (IA) measurement and testing	0.486	0.218	0.163
(U) Continue development of secure interoperable distributed agent computing (partial Congressional Add)	5.435	2.708	0.768
(U) Completed effort to evaluate biometric systems in conjunction with wired and wireless IA network applications	0.133	0.226	0.000
(U) Continue development of cyber forensic tools and methodologies	0.408	0.458	0.330
(U) Continue effort to provide active response and dynamic policy enforcement to computer/network attack	0.028	0.456	0.416
(U) Continue effort to provide dynamic, cost effective, risk mitigation information assurance techniques for wireless terminals and networks	0.516	0.438	0.327
(U) Continue effort to provide IA/Cyber modeling and simulation for mission impact assessment and dynamic planning		0.420	0.278
(U) Continue effort to provide secure coalition IA data management, collaboration, and visualization		0.455	0.350
(U) Continue effort to provide Internet Protocol (IP) Telephony (Voice Over IP) security tools		0.236	0.116
(U) Total Cost	9.553	8.260	4.543

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E									
(U) Other APPN									
N/A									

(U) D. Acquisition Strategy

All major contracts within this project are awarded after full and open competition.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2004

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
07 Operational System Development				0303140F Information Systems Security Program				7820 Computer Security RDT&E: Firestarter				
(U) <u>Cost Categories</u>	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to</u>	<u>Total</u>	<u>Target</u>
(Tailor to WBS, or System/Item Requirements) (\$ in Millions)			<u>Prior to FY</u>	<u>2003</u>	<u>2003</u>	<u>2004</u>	<u>2004</u>	<u>2005</u>	<u>2005</u>	<u>Complete</u>	<u>Cost</u>	<u>Value of</u>
			<u>Cost</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>			<u>Contract</u>
					<u>Date</u>		<u>Date</u>		<u>Date</u>			
(U) <u>Product Development</u>												
FFRDC (MITRE)	C	Multiple Locations	4.955	0.938	Oct-02	1.495	Oct-03	1.085		Continuing	TBD	TBD
Multiple Contractors	CPFF	Multiple Locations	8.888	8.224		5.933		2.854		Continuing	TBD	TBD
Multiple Universities	CPFF	Multiple Locations	3.954	0.391		0.832		0.604		Continuing	TBD	TBD
Subtotal Product Development			17.797	9.553		8.260		4.543		Continuing	TBD	TBD
Remarks:	Multiple contractors & multiple universities reflect on-going efforts with over a dozen contractors & universities. Each has a different contract date depending on when that particular contract was awarded.											
(U) Total Cost			17.797	9.553		8.260		4.543		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0303140F Information Systems Security Program

PROJECT NUMBER AND TITLE
7820 Computer Security RDT&E: Firestarter

Exhibit R-4: BPAC 7820, Firestarter (p 1 of 2)

Fiscal Year	FY 03				FY 04				FY 05				FY 06				FY 07				FY 08				FY 09			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Rqmnts. Review Board		▲				△				△				△				△				△				△		
Info Attack Correlation Methodologies	█				█				█				█				█				█							
Commercial SW & Steganography	█				█				█				█				█				█							
Secure Agent Frameworks for Enterprise	█				█				█				█				█				█							
DARPA IA Transition	█				█				█				█				█				█							
Metrics for reliable IA meas. & test	█				█				█				█				█				█							
Secure, interoperable distributed agent computing	█				█				█				█				█				█							

- ☆ Major Event or Milestone
- █ Planned Ongoing Activity
- █ Ongoing Activity that is Complete
- ▲ Completed Event
- △ Planned Task(s)

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0303140F Information Systems
Security Program

PROJECT NUMBER AND TITLE
7820 Computer Security RDT&E:
Firestarter

Exhibit R-4: BPAC 7820 Firestarter (p 2 of 2)

Fiscal Year	FY 03				FY 04				FY 05				FY 06				FY 07				FY 08				FY 09			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Eval. of biometric systems	█				█																							
Cyber forensic tools & methods	█				█				█				█				█											
Active response & policy enforcement to attack	█				█				█				█				█				█							
Risk Mitigation for wireless					█				█																			
IA/Cyber Modeling & Simulation					█				█				█															
Secure Coalition					█				█				█				█				█							
IP Telephony					█				█																			

- ☆ Major Event or Milestone
- █ Planned Ongoing Activity
- █ Ongoing Activity that is Complete
- ▲ Completed Event
- △ Planned Task(s)

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0303140F Information Systems Security Program	PROJECT NUMBER AND TITLE 7820 Computer Security RDT&E: Firestarter
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(U) <u>Schedule Profile</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Requirements Review Boards	2Q	2Q	2Q
(U) Continue development of self-healing network systems	1-4Q	1-4Q	1-4Q
(U) Continue information attack correlation methodologies	1-4Q	1-4Q	1-4Q
(U) Continue development of methodologies for commercial software evaluation and steganography	1-4Q	1-4Q	1-4Q
(U) Continue development of secure agent frameworks for Enterprise Defense	1-4Q	1-4Q	1-4Q
(U) Continue DARPA information assurance transition	1-4Q	1-4Q	1-4Q
(U) Continue to develop metrics for reliable IA measurement and testing	1-4Q	1-4Q	1-4Q
(U) Continue secure interoperable distributed agent computing (partial Congressional add)	1-4Q	1-4Q	1-4Q
(U) Completed the evaluation of biometric systems	1-4Q	1-4Q	1-4Q
(U) Continue to develop cyber forensic tools and methodologies	1-4Q	1-4Q	1-4Q
(U) Continue to develop active response and dynamic policy enforcement to computer/network attack	1-4Q	1-4Q	1-4Q
(U) Continue risk mitigation IA technology for wireless terminals and networks		2-4Q	1-4Q
(U) Continue IA/Cyber modeling and simulation		2-4Q	1-4Q
(U) Continue secure coalition IA data management collaboration and visualization		2-4Q	1-4Q
(U) Continue Internet Protocol (IP) Telephony (Voice Over IP) security tools		2-4Q	1-4Q

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PE NUMBER: 0303141F
 PE TITLE: Global Combat Support System (GCSS)

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0303141F Global Combat Support System (GCSS)
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Cost (\$ in Millions)	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
Total Program Element (PE) Cost	25.739	17.239	18.637	20.544	19.670	20.401	20.463	Continuing	TBD
4907 Financial Information Resource System (FIRST)	0.183	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
4928 Electronic Business/Electronic Commerce	0.240	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5046 Systems Engineering & Integration	25.316	17.239	18.637	20.544	19.670	20.401	20.463	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

GCSS-AF will provide the warfighter and supporting elements with timely, accurate, and trusted Agile Combat Support (ACS) information. This information will have the appropriate level of security needed for the Air Expeditionary Forces (AEF) to execute the Air Force mission throughout the full spectrum of military operations.

The primary responsibility of GCSS-AF is to provide a secure flow of timely, accurate, and trusted combat support information to any authorized process or user. It will consolidate and integrate automated information systems to achieve cost avoidance, remove business processing inefficiencies, enable reduced deployment footprint, and improve the speed with which information flows.

The GCSS-AF program modernizes, consolidates, develops, and integrates Air Force and Department of Defense combat support information systems. The modernized systems are being developed in compliance with and hosted on the Network Centric Enterprise Systems, replacing the Defense Information Infrastructure (DII) Common Operating Environment (COE). The modernized systems will be implemented and sustained worldwide and support both wartime and peacetime requirements using hardware, software, and communications capabilities available from standard open systems government contracts and communications infrastructure programs.

This program is in Budget Activity 7, Operational System Development, because the program modernizes Automated Information Systems (AIS).

Exhibit R-2, RDT&E Budget Item Justification

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0303141F Global Combat Support System (GCSS)

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	25.968	17.473	17.848
(U) Current PBR/President's Budget	25.739	17.239	18.637
(U) Total Adjustments	-0.229	-0.234	
(U) Congressional Program Reductions	-0.229	-0.086	
Congressional Rescissions	-0.275	-0.148	
Congressional Increases	0.000		
Reprogrammings	0.905		
SBIR/STTR Transfer	-0.630		
(U) <u>Significant Program Changes:</u>			

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY		PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE		
07 Operational System Development		0303141F Global Combat Support System (GCSS)					4907 Financial Information Resource System (FIRST)		
Cost (\$ in Millions)	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
4907 Financial Information Resource System (FIRST)	0.183	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

The FIRST budget for FY03 and beyond has been realigned to PE 0901538F. Neither program requirements nor program management were impacted by this breakout. The \$.183M shown above was an accounting adjustment that will be corrected separate from this document. FIRST does not execute from PE 0303141F.

(U) **A. Mission Description and Budget Item Justification**

FIRST is a software development effort that will provide an integrated, modern, seamless financial management system that enables authorized users (from Air Staff to base level) to plan, program, and execute their budgets. FIRST is ultimately envisioned to be the foundation for the Air Force's Planning, Programming, Budgeting and Execution System (PPBES). FIRST will be developed using the Spiral Development approach. The core capabilities include Enterprise Data View (formerly Acquire Accounting), Budget Formulation, Funds Management, Budget Execution, and Cost Modeling. Additional increments of FIRST will continue development of legacy system's functionality contained in the Automated Business Services System (ABSS), Budget Enactment Management Information System (BEMIS), and the Obligation Adjustment Reporting System (OARS). FIRST will be compliant with the Clinger-Cohen Act, Financial Management Modernization Program (FMMP), the Joint Technical Architecture (JTA), GCSS-Air Force Integration Framework, C4ISR, and incorporate Public Key Infrastructure initiatives (such as electronic signature capability). FIRST will be integrated onto the GCSS-AF architecture.

Enterprise Data View (formerly Acquire Accounting) provides flexible, easy-to-use report generation and decision support tools for Air Force managers, incorporates the new DoD Standard Fiscal Codes (SFC) into FIRST, and delivers timely budget execution data to minimize the budget community's dependency on formal end-of-month accounting reports. The Budget Formulation capability provides for programming, budget formulation, budget justification processes and documentation. It encompasses the budget exercise process, which affects all organizational levels and all users, and is based on core financial and selected program information used to build the Air Force budget. Funds Management encompasses the methods and procedures for maintaining control over the status of adjustments to the President's Budget (PB), receipt and distribution of program authority and budget authorizations in accordance with established business rules. Budget Execution provides analysis tools and execution data to budget offices at all levels. It includes analysis tools for monitoring budget execution information, determining unfunded requirements, and fiscal year-end processing. Cost Modeling capabilities provide interactive cost modeling capability for manpower, flying hours, civilian pay, and other similar model driven costs based on resource information. In accordance with the Operational Requirements Document (ORD), FIRST will continue development of legacy systems (e.g., Automated Business Services System (ABSS), Budget Enactment Management Information System (BEMIS), and Obligation Adjustment Reporting System (OARS)) into FIRST.

This program is in Budget Activity 7, Operational System Development, because the program modernizes Automated Information Systems (AIS).

(U) **B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments/Planned Programs	0.000	0.000	
(U) First GCSS-AF Integration	0.183	0.000	

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0303141F Global Combat Support System (GCSS)	PROJECT NUMBER AND TITLE 4907 Financial Information Resource System (FIRST)
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(U) Total Cost	0.183	0.000	0.000
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(U) **C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	

(U)

(U) **D. Acquisition Strategy**

All major contracts awarded after full and open competition.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

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BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
07 Operational System Development				0303141F Global Combat Support System (GCSS)				4907 Financial Information Resource System (FIRST)				
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to</u>	<u>Total</u>	<u>Target</u>
			<u>Prior to FY</u>	<u>2003</u>	<u>2003</u>	<u>2004</u>	<u>2004</u>	<u>2005</u>	<u>2005</u>	<u>Complete</u>	<u>Cost</u>	<u>Value of</u>
			<u>2003</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Cost</u>	<u>Contract</u>
			<u>Cost</u>	<u>Date</u>	<u>Date</u>	<u>Date</u>	<u>Date</u>	<u>Date</u>	<u>Date</u>			
(U) <u>Product Development</u>												
First GCSS-AF Integration	C/FFP	Lockheed Martin IT, Owego, NY	0.000	0.183	Mar-03					Continuing	TBD	
Subtotal Product Development			0.000	0.183		0.000		0.000		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												0.000
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Test & Evaluation</u>												0.000
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u>												0.000
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			0.000	0.183		0.000		0.000		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0303141F Global Combat Support System (GCSS)

PROJECT NUMBER AND TITLE
4907 Financial Information Resource System (FIRST)

Exhibit R-4: FIRST

Fiscal Year	FY02				FY03				FY04				FY05				FY06				FY07				FY08							
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
First GCSS- AF Integration																																

- ☆ Major Event or Milestone
- Planned Ongoing Activity
- Ongoing Activity that is Complete
- ▲ Completed Event
- △ Planned Task(s)

Note: This sample form is an interpretation of requirements illustrated in the FMR, Vol 2A, Chapter 5 (June 2002). Congressional Staffer Day briefing formats are acceptable. See the FMR or your SAFLAQR or FMBI analysts for details.

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Exhibit R-4a, RDT&E Schedule Detail		DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0303141F Global Combat Support System (GCSS)	PROJECT NUMBER AND TITLE 4907 Financial Information Resource System (FIRST)
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(U) <u>Schedule Profile</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) First GCSS-AF Integration	1-4Q		

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0303141F Global Combat Support System (GCSS)			PROJECT NUMBER AND TITLE 4928 Electronic Business/Electronic Commerce		
Cost (\$ in Millions)	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
4928 Electronic Business/Electronic Commerce	0.240	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

In FY 2004, Project Number 4928, Electronic Business/Electronic Commerce (EB/EC), efforts transferred to PE 0303200F, Air Force CIO Ops and Support, a 3400 appropriation for Electronic Business/Electronic Commerce (EB/EC), to align the program within the appropriate management structure and ensure funding appropriations consistent with the performance of work. No program requirements nor program management were impacted by this transfer.

(U) A. Mission Description and Budget Item Justification

The EB/EC Project is part of the initial phase of the Air Force's discipline for defining, planning and selecting information technology (IT) investments to meet its overall mission and support operational/warfighter needs. The EC Project supports eCommerce and eBusiness pilots (proofs-of-concept) with highest likelihood for producing near-term, tangible results. Initial Business Case Analyses are produced for each candidate pilot and submitted by Sponsors/Process Owners to the AF EC Project Board. The Board selects pilots based on their potential to transform or re-engineer business processes across the AF. Upon completion, each pilot is assessed against its initial Business Case Analysis and a common set of EC proof-of-concept criterion. If deemed a strong business case in the areas of effectiveness, efficiency gains, security, privacy and enterprise architecture, the pilots are recommended for transition to a capital investment program plan and acquisition strategy. All relevant customers and stakeholders participate throughout the pilot phase in order to fully assess the functional and technical basis/rationale for investment and acquisition.

This program is in Budget Activity 7, Operational System Development, because the program modernizes Automated Information Systems (AIS).

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments/Planned Programs	0.000	0.000	
(U) Concept Exploration	0.127		
(U) Planning	0.076		
(U) Program Management	0.037		
(U) No Activity		0.000	
(U) Total Cost	0.240	0.000	0.000

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Operations & Maintenance, AF, PE 0303200F	0.000	2.398	11.897	12.298	12.160	12.310	12.470	Continuing	TBD

(U) D. Acquisition Strategy

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0303141F Global Combat Support System (GCSS)

PROJECT NUMBER AND TITLE

4928 Electronic Business/Electronic Commerce

All major contracts awarded after full and open competition.

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
07 Operational System Development				0303141F Global Combat Support System (GCSS)				4928 Electronic Business/Electronic Commerce				
(U) Cost Categories	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to</u>	<u>Total</u>	<u>Target</u>
(Tailor to WBS, or System/Item Requirements) (\$ in Millions)			<u>Prior to FY</u>	<u>2003</u>	<u>2003</u>	<u>2004</u>	<u>2004</u>	<u>2005</u>	<u>2005</u>	<u>Complete</u>	<u>Cost</u>	<u>Value of</u>
			<u>Cost</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>			<u>Contract</u>
					<u>Date</u>		<u>Date</u>		<u>Date</u>			
(U) <u>Product Development</u>												
Software Engineering & Development support	C/FFP	Lockheed Martin IT, Owego, NY	0.000	0.127	Oct-03					Continuing	TBD	0.127
Project Management				0.037						Continuing	TBD	0.037
DOD Architecture Repository				0.076						Continuing	TBD	0.076
Subtotal Product Development			0.000	0.240		0.000		0.000		Continuing	TBD	0.240
Remarks:												
(U)											0.000	
Subtotal			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			0.000	0.240		0.000		0.000		Continuing	TBD	0.240

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0303141F Global Combat Support System (GCSS)

PROJECT NUMBER AND TITLE
4928 Electronic Business/Electronic Commerce

Exhibit R-4: Electronic Business/ Electronic Commerce

Fiscal Year	FY02				FY03				FY04				FY05				FY06				FY07				FY08				FY09			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Com Support				▲																												
Req-ing Init				▲																												
Adv Tech Proto's Planning				▲																												
Program Mngt								▲																								
Concept Exp In								▲																								
Refer to 3300F								▲																								
New PE Support																																

- ☆ Major Event or Milestone
- ▬ Planned Ongoing Activity
- ▬ Ongoing Activity that is Complete
- ▲ Completed Event
- △ Planned Task(s)

Note: This is an interpretation of requirements illustrated in the FMR, Vol 2A Chapter 5 (June 2002). Congressional Staffer Day briefing formats are acceptable. See the FMR or your SAF/AQXR or FMBI analysts for details.

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0303141F Global Combat Support System (GCSS)	PROJECT NUMBER AND TITLE 4928 Electronic Business/Electronic Commerce
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	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <u>Schedule Profile</u>			
(U) Concept Exploration	1-4Q		
(U) Planning	1-4Q		
(U) Program Management	1-4Q		

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT NUMBER AND TITLE		
07 Operational System Development				0303141F Global Combat Support System (GCSS)			5046 Systems Engineering & Integration		
Cost (\$ in Millions)	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
5046 Systems Engineering & Integration	25.316	17.239	18.637	20.544	19.670	20.401	20.463	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

Global Combat Support System - Air Force (GCSS-AF) is an umbrella program to develop a modern integrated system that provides for Agile Combat Support (ACS) for the Air Force. This information is necessary to train, equip, deploy, employ, sustain and redeploy Air Expeditionary Forces (EAF) worldwide during peace and war and support the warfighting Combatant Commanders. The GCSS-AF architecture is an integrated set of system products that orchestrate the passing of combat support data between applications and software objects, and provides the warfighter real-time access to accurate, current information and decision support tools. It is based on open standard technologies. Included are efforts such as hardware and software engineering; modeling and simulation; design optimization; hardware and software commercial off the shelf (COTS) analysis; and architecture design. Other standard technologies include architecture and integration framework interface definitions, standards and descriptions; system engineering; software and hardware integration; testing; and other special studies as required. Other efforts included to successfully enable application and cross-application capabilities are requirements analysis, interface analysis, and modeling and simulation. Also included are developing guidelines for application developers, technical support to application developers, technical integration, prototyping, application interface testing, architecture testing of applications and common services, support for business process reengineering, and developing common services for application utilization.

This program is in Budget Activity 7, Operational System Development, because the program modernizes Automated Information Systems (AIS).

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments/Planned Programs	0.000	0.000	0.000
(U) Presentation Services (Air Force Portal)	7.873	3.000	3.243
(U) Integration Framework/Architecture Development	5.686	5.679	6.140
(U) GCSS-AF Application Integration	2.810	1.594	1.723
(U) Standards Systems Group/Defense Integrated Infrastructure (SSG/DII) Engineering	2.187	2.500	2.703
(U) SSG/DII Program Management and Operations	1.050	1.200	1.297
(U) Test and Evaluation	1.050	1.200	1.297
(U) Electronic System Center/Networks and Information Integration (ESC/NI) Engineering	1.787	0.600	0.649
(U) ESC/NI Program Management and Operations	1.037	0.966	1.044
(U) Integrated Requirements Support System (IRSS) Integration	1.836	0.500	0.541
(U) Total Cost	25.316	17.239	18.637

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0303141F Global Combat Support System (GCSS)	PROJECT NUMBER AND TITLE 5046 Systems Engineering & Integration
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(U) **C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to Complete</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>		
(U) AF RDT&E								Continuing	TBD
(U) Other APPN									
(U) Operation & Maintenance, AF; PE 0303141F	12.048	40.894	18.326	24.301	28.961	29.487	31.634	Continuing	TBD
(U) Other Procurement, AF; PE 0303141F	9.662	11.421	7.947	10.518	10.326	10.977	9.231	Continuing	TBD

(U) **D. Acquisition Strategy**

All major contracts awarded after full and open competition.

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Exhibit R-3, RDT&E Project Cost Analysis										DATE February 2004		
BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0303141F Global Combat Support System (GCSS)				PROJECT NUMBER AND TITLE 5046 Systems Engineering & Integration				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u> Prior to FY 2003 Cost	<u>FY</u> 2003 Cost	<u>FY</u> 2003 Award Date	<u>FY</u> 2004 Cost	<u>FY</u> 2004 Award Date	<u>FY</u> 2005 Cost	<u>FY</u> 2005 Award Date	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Presentation Services (Air Force Portal)	Multiple	Lockheed Martin IT, Owego, NY	0.000	8.178	Oct-03	5.569	Oct-04	6.020		Continuing	TBD	
Lockheed Martin Systems Integration SSG/DII Engineering	C/FFP Service Level Agreement (FFP)		0.000	6.425	Oct-03	4.375	Oct-04	4.730	Oct-05	Continuing	TBD	
IRSS Integration	C/FFP		0.000	1.388		0.945		1.022		Continuing	TBD	
MSG/MM	SLA		0.000	2.919		1.988		2.149		Continuing	TBD	
Subtotal Product Development			0.000	21.182		14.424		15.593		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												
ESC/NI Program Management and Operations	Time & Material	MITRE, Hanscom AFB, MA	0.000	1.091	Oct-03	0.743	Oct-04	0.803	Oct-05	Continuing	TBD	
SSG/DII Program Management and Operations	Service level Agreement (SLA)		0.000	1.136		0.774		0.837		Continuing	TBD	
ESC/NI Engineering	N/A		0.000	0.817		0.557		0.602		Continuing	TBD	
Subtotal Support			0.000	3.044		2.074		2.242		Continuing	TBD	0.000
Remarks:												
(U) <u>Test & Evaluation</u>												
Test and Evaluation	C/FFP	Lockheed Martin IT, Owego, NY	0.000	1.090	Oct-03	0.741	Oct-04	0.802	Oct-05	Continuing	TBD	
Subtotal Test & Evaluation			0.000	1.090		0.741		0.802		Continuing	TBD	0.000
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			0.000	25.316		17.239		18.637		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0303141F Global Combat Support System (GCSS)

PROJECT NUMBER AND TITLE
5046 Systems Engineering & Integration

Exhibit R-4 DRAFT: GCSS-AF

Fiscal Year	FY02				FY03				FY04				FY05				FY06				FY07				FY08			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
RIT Program																												
Major Milestones		★	IOC																									
Cost Anal Req Desc								▲																				
Software Migration																												
C CA Cert								▲																				
Integd Framework																												
T & E Mstr Plan													△															
MIPRNET Institution																												
SIPRNET Institution																												
Ind Cost Estimate																												
IRSS Integration																												
Ev Acq Dec Rev																												

- ★ Major Event or Milestone
- ▬ Planned Ongoing Activity
- ▬ Ongoing Activity that is Complete
- ▲ Completed Event
- △ Planned Task(s)

Note: This sample form is an interpretation of requirements illustrated in the FMR, Vol 2A, Chapter 5 (June 2002). Congressional Staffer Day briefing formats are acceptable. See the FMR or your SAFLAQR or FMBI analysts for details.

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Exhibit R-4a, RDT&E Schedule Detail

DATE

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0303141F Global Combat Support System (GCSS)

PROJECT NUMBER AND TITLE

5046 Systems Engineering & Integration

(U) Schedule Profile

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Completed Cost Analysis Requirements Description (CARD)	4Q		
(U) Achieved Clinger-Cohen Certification	2Q		
(U) Complete Test and Evaluation Master Plan (TEMP)		2Q	
(U) Start Independent Cost Estimate (ICE)		2Q	
(U) Start Evolutionary Acquisition Decision Review		3Q	
(U) Start Initial IRSS Integration (In progress)		2Q	
(U) Start Secret Internet Protocol Routing Network (SIPRNET) Installation			3Q

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PE NUMBER: 0303150F

PE TITLE: WWMCCS/GLOBAL COMMAND & CONTROL SYSTEM

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0303150F WWMCCS/GLOBAL COMMAND & CONTROL SYSTEM
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Cost (\$ in Millions)	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
Total Program Element (PE) Cost	3.218	3.500	3.611	3.622	3.694	3.768	3.756	Continuing	TBD
4667 Global Command and Control System - AF	3.218	3.500	3.611	3.622	3.694	3.768	3.756	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

The Global Command and Control System (GCCS) is the designated Command and Control (C2) migration system for the DoD. It is an integrated Command, Control, Communications, Computer, and Intelligence (C4I) system capable of supporting all echelons of the US military command structure. GCCS solves C4I interoperability problems between Service components by establishing a Common Operating Environment (COE), and has an end objective to eliminate stovepiped systems. The Global Command and Control System-Air Force program provides C2, intelligence, surveillance, reconnaissance and operational information for the Joint Force Air Component Commander (JFACC) and the Air and Space Operations Center (AOC) for planning and execution, air space deconfliction, targeting, weaponing, and many other applications supporting air operational command and control, and fully supports the Aerospace Expeditionary Force (AEF) concept. The Air Force is responsible for developing four of the modules that will make up the COE, and integration of Air Force unique applications with the COE. Integration efforts will be directed towards future aerospace C2 concepts supporting requirements for the AOC, including intelligence, surveillance, and reconnaissance and intended to automate operational systems with an end objective for saving manpower and reducing costs. GCCS-AF will add integrated applications satisfying requirements for the Common Operational Picture (COP), Single Integrated Air Picture (SIAP), Family of Interoperable Operational Pictures (FIOP), Joint Defensive Planner (JDP), Joint Targeting Toolbox (JTT), and Deliberate Crisis Action Planning and Execution Segment (DCAPES). The COP will integrate data to provide the SIAP and the FIOP.

This effort is Budget Activity 7, Operational System Development, because the program develops and implements software, and engineers and implements communications for an integrated operational communications and computer network that will eventually evolve to the Global Information Grid and the Joint Command and Control (JC2) system.

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	3.565	3.547	3.611
(U) Current PBR/President's Budget	3.218	3.500	3.611
(U) Total Adjustments	-0.347	-0.047	
(U) Congressional Program Reductions	-0.038	-0.017	
Congressional Rescissions	-0.274	-0.030	
Congressional Increases	0.000		
Reprogrammings	-0.035		
SBIR/STTR Transfer		0.000	

(U) Significant Program Changes:

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2004

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0303150F WWMCCS/GLOBAL COMMAND & CONTROL SYSTEM

N/A

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0303150F WWMCCS/GLOBAL COMMAND & CONTROL SYSTEM			PROJECT NUMBER AND TITLE 4667 Global Command and Control System - AF		
Cost (\$ in Millions)	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
4667 Global Command and Control System - AF	3.218	3.500	3.611	3.622	3.694	3.768	3.756	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The Global Command and Control System (GCCS) is the designated Command and Control (C2) migration system for the DoD. It is an integrated Command, Control, Communications, Computer, and Intelligence (C4I) system capable of supporting all echelons of the US military command structure. GCCS solves C4I interoperability problems between Service components by establishing a Common Operating Environment (COE), and has an end objective to eliminate stovepiped systems. The Global Command and Control System-Air Force program provides C2, intelligence, surveillance, reconnaissance and operational information for the Joint Force Air Component Commander (JFACC) and the Air and Space Operations Center (AOC) for planning and execution, air space deconfliction, targeting, weaponeering, and many other applications supporting air operational command and control, and fully supports the Aerospace Expeditionary Force (AEF) concept. The Air Force is responsible for developing four of the modules that will make up the COE, and integration of Air Force unique applications with the COE. Integration efforts will be directed towards future aerospace C2 concepts supporting requirements for the AOC, including intelligence, surveillance, and reconnaissance and intended to automate operational systems with an end objective for saving manpower and reducing costs. GCCS-AF will add integrated applications satisfying requirements for the Common Operational Picture (COP), Single Integrated Air Picture (SIAP), Family of Interoperable Operational Pictures (FIOP), Joint Defensive Planner (JDP), Joint Targeting Toolbox (JTT), and Deliberate Crisis Action Planning and Execution Segment (DCAPES). The COP will integrate data to provide the SIAP and the FIOP.

This effort is Budget Activity 7, Operational System Development, because the program develops and implements software, and engineers and implements communications for an integrated operational communications and computer network that will eventually evolve to the Global Information Grid and the Joint Command and Control (JC2) system.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Continue Integration and Development of Future Aerospace C2 Concepts, Crisis Action Planning Evolution	0.850	0.900	0.950
(U) Continue Integration of Air Force Capabilities into GCCS (COP, SIAP, FIOP, DCAPES, ATO Reader, Joint Defensive Planner (JDP), Joint Targeting Toolbox (JTT)), Prototype Software Development, GCCS Migration Support	1.168	1.300	1.311
(U) Continue COE Development and Distribution	1.200	1.300	1.350
(U) Total Cost	3.218	3.500	3.611

Exhibit R-2a, RDT&E Project Justification

DATE

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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0303150F WWMCCS/GLOBAL COMMAND & CONTROL SYSTEM	PROJECT NUMBER AND TITLE 4667 Global Command and Control System - AF
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(U) **C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E									TBD
(U) Other APPN									TBD
(U) Other Procurement, AF (3080)	27.672	23.283	17.324	17.021	17.361	17.705	18.050	Continuing	TBD

(U) **D. Acquisition Strategy**

Electronic Systems Center (ESC) Hanscom AFB, MA manages the integration and infrastructure of the Air Force Global Command and Control Systems developed/fielded using spiral acquisition approaches. Common Operating Environment (COE) and GCCS-Joint compliance is performed by ESC to support Air Force contribution to the Joint Services and to support the separate Air Force mission applications that operate in the COE.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2004

BUDGET ACTIVITY			PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
07 Operational System Development			0303150F WWMCCS/GLOBAL COMMAND & CONTROL SYSTEM					4667 Global Command and Control System - AF				
(U) <u>Cost Categories</u>	<u>Contract Method</u>	<u>Performing Activity &</u>	<u>Total</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to</u>	<u>Total</u>	<u>Target</u>
(Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>& Type</u>	<u>Location</u>	<u>Prior to FY</u>	<u>2003</u>	<u>2003</u>	<u>2004</u>	<u>2004</u>	<u>2005</u>	<u>2005</u>	<u>Complete</u>	<u>Cost</u>	<u>Value of</u>
			<u>2003</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>			<u>Contract</u>
			<u>Cost</u>		<u>Date</u>		<u>Date</u>		<u>Date</u>			
(U) <u>Product Development</u>												
Miscellaneous	SS/BOA		0.265	0.168	Oct-02	0.200	Oct-03	0.300	Oct-04	0.000	0.933	
											0.000	
WINxB	SS/FFP	Northrop Gruman ITS/Herndon, VA	0.000	1.400	Oct-02	0.700	Oct-03	0.800	Oct-04	Continuing	TBD	
DCAPES*	SS/FFP		8.776							0.000	8.776	
Subtotal Product Development			9.041	1.568		0.900		1.100		Continuing	TBD	0.000
Remarks: *In FY 00 DCAPES funding was transferred to PE 27438												
(U) <u>Support</u>												
Information Technology Services Program (ITSP)	SS/FFP	Multiple	1.909	0.200	Oct-02	0.300	Oct-03	0.300	Oct-04	Continuing	TBD	
Miscellaneous SPO	SS/BOA	Multiple	0.623	0.250	Oct-02	0.600	Oct-03	0.411	Oct-04	Continuing	TBD	
Subtotal Support			2.532	0.450		0.900		0.711		Continuing	TBD	0.000
Remarks:												
(U) <u>Management</u>												
FFRDC	SS/FFP	Mitre/ESC	7.616	1.200	Oct-02	1.700	Oct-03	1.800	Oct-04	Continuing	TBD	
Subtotal Management			7.616	1.200		1.700		1.800		Continuing	TBD	0.000
Remarks:												
(U) Total Cost			19.189	3.218		3.500		3.611		Continuing	TBD	0.000

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Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2004

BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0303150F WWMCCS/GLOBAL COMMAND & CONTROL SYSTEM	PROJECT NUMBER AND TITLE 4667 Global Command and Control System - AF
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(U) <u>Schedule Profile</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) GCCS-AF v3.7: Development/Integration/Testing	1-4Q		
(U) GCCS-AF v3.7: Accreditation	2-4Q		
(U) GCCS-AF v3.7: Fielding	4Q	1Q	
(U) GCCS-AF v3.7.1: Development/Integration/Testing	2-4Q		
(U) GCCS-AF v3.7.1: Accreditation	4Q		
(U) GCCS-AF v3.7.1: Fielding		1Q	
(U) GGCS-AF v4.0a: Development/Integration/Testing	1-4Q	1Q	
(U) GCCS-AF v4.0a: Accreditation	4Q	1Q	
(U) GCCS-AF v4.0a: Fielding		1Q	
(U) GCCS-AF v4.0b: Development/Integration/Testing	1-4Q	1Q	
(U) GCCS-AF v4.0b: Accreditation	4Q	1-2Q	
(U) GCCS-AF v4.0b: Fielding		4Q	1Q
(U) GCCS-AF v4.0b: Sustainment			1-4Q

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PE NUMBER: 0303401F

PE TITLE: Communications Security

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0303401F Communications Security
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Cost (\$ in Millions)	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
Total Program Element (PE) Cost	4.344	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
4861 Cryptologic 2000	4.344	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

Note: Starting in FY04 this BPAC has been moved out of PE 33401F, Communications Security, and into PE 33140F, Information Systems Security Program (ISSP), with the same BPAC number and name.

(U) A. Mission Description and Budget Item Justification

The Cryptologic 2000 Project consists of multiple developments supporting the Air Force Electronic Key Management Systems (AFEKMS). AFEKMS, in concert with the National Security Agency's (NSA) EKMS, provides a secure and flexible capability for the electronic generation, distribution, accounting, and management of key material, voice callwords, and communications security (COMSEC) publications for AF Command, Control, Communications, Computers, and Intelligence (C4I) systems and weapon systems. AFEKMS replaces the existing physical distribution and management system providing cryptographic keying material for USAF Information Assurance. Information Assurance emphasizes access control, multi-level secure databases, trusted computing and information integrity. AFEKMS is a three-tier system structure in a hierarchical arrangement. This tiered structure provides 'wholesale' to 'retail' to 'consumer' capability to distribute, manage and account for COMSEC keying material. Tier 1 installations comprise the 'wholesale' capability. Tier 2 installations comprise the distribution network and Tier 3 comprises the 'retail' locations where keying material leaves the AFEKMS and enters the End Item COMSEC Equipment (EICE).

Acquisition includes Commercial Off-The-Shelf (COTS) computers and software, contractor-developed application software, and Government Furnished Equipment (GFE) and software such as NSA's Local COMSEC Management Software (LCMS). The USAF-developed user application software (UAS) is necessary to provide a common framework for specific functions of unique key management systems such as the F-22, Advanced Extremely High Frequency (EHF) COMSEC/TRANSEC System (ACTS), Joint Strike Fighter, and other current and future programs. Further, unique key fill requirements of EICE for AF applications such as ARC-210, Fighter Data Link, Airborne Integrated Terminal Group and Multi-Band Multi-Mode Radio, and other current and future programs are also supported by AFEKMS developments. The UASs developed by the AFEKMS System Program Office (SPO) improve the LCMS user interface, integrate multiple independent UASs into a single commonly supported package, and moderate unique UASs running on the same platform when integration is not possible. They also allow automation of manual operator processes in order to save manpower, reduce required training, and improve mission effectiveness.

Overall AFEKMS will improve protection of national security-related information by enhancing confidentiality, integrity, and non-repudiation substantially over legacy key management systems. AFEKMS will greatly accelerate availability of key through electronic transmission vice shipping of materials, and will enhance mission responsiveness and flexibility. While much of the current AFEKMS level of effort is directed at enhancing current and developing systems, the ultimate aim is to provide a migration path to future functionality planned under NSA's Key Management Infrastructure (KMI) initiative. Such KMI functionality is expected to emerge about 2007.

This program is in Budget Activity 7, Operational System Development, because it addresses the development and transition of information security, protection, and defensive capabilities and technologies.

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2004

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0303401F Communications Security

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	4.765	0.000	0.000
(U) Current PBR/President's Budget	4.344	0.000	0.000
(U) Total Adjustments	-0.421	0.000	
(U) Congressional Program Reductions	-0.006	0.000	
Congressional Rescissions	-0.051	0.000	
Congressional Increases	0.000	0.000	
Reprogrammings	-0.093	0.000	
SBIR/STTR Transfer	-0.271	0.000	

(U) **Significant Program Changes:**

Moved out of PE 0303401F, Communications Security, starting in FY04. Has been placed in PE 0303140F, Information Systems Security Program (ISSP), using the same Project number and BPAC name.

Exhibit R-2a, RDT&E Project Justification

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February 2004

BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0303401F Communications Security			PROJECT NUMBER AND TITLE 4861 Cryptologic 2000		
Cost (\$ in Millions)	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
4861 Cryptologic 2000	4.344	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) **A. Mission Description and Budget Item Justification**

The Cryptologic 2000 Project consists of multiple developments supporting the Air Force Electronic Key Management Systems (AFEKMS). AFEKMS, in concert with the National Security Agency's (NSA) EKMS, provides a secure and flexible capability for the electronic generation, distribution, accounting, and management of key material, voice callwords, and communications security (COMSEC) publications for AF Command, Control, Communications, Computers, and Intelligence (C4I) systems and weapon systems. AFEKMS replaces the existing physical distribution and management system providing cryptographic keying material for USAF Information Assurance. Information Assurance emphasizes access control, multi-level secure databases, trusted computing and information integrity. AFEKMS is a three-tier system structure in a hierarchical arrangement. This tiered structure provides 'wholesale' to 'retail' to 'consumer' capability to distribute, manage and account for COMSEC keying material. Tier 1 installations comprise the 'wholesale' capability. Tier 2 installations comprise the distribution network and Tier 3 comprises the 'retail' locations where keying material leaves the AFEKMS and enters the End Item COMSEC Equipment (EICE).

Acquisition includes Commercial Off-The-Shelf (COTS) computers and software, contractor-developed application software, and Government Furnished Equipment (GFE) and software such as NSA's Local COMSEC Management Software (LCMS). The USAF-developed user application software (UAS) is necessary to provide a common framework for specific functions of unique key management systems such as the F-22, Advanced Extremely High Frequency (EHF) COMSEC/TRANSEC System (ACTS), Joint Strike Fighter, and other current and future programs. Further, unique key fill requirements of EICE for AF applications such as ARC-210, Fighter Data Link, Airborne Integrated Terminal Group and Multi-Band Multi-Mode Radio, and other current and future programs are also supported by AFEKMS developments. The UASs developed by the AFEKMS System Program Office (SPO) improve the LCMS user interface, integrate multiple independent UASs into a single commonly supported package, and moderate unique UASs running on the same platform when integration is not possible. They also allow automation of manual operator processes in order to save manpower, reduce required training, and improve mission effectiveness.

Overall AFEKMS will improve protection of national security-related information by enhancing confidentiality, integrity, and non-repudiation substantially over legacy key management systems. AFEKMS will greatly accelerate availability of key through electronic transmission vice shipping of materials, and will enhance mission responsiveness and flexibility. While much of the current AFEKMS level of effort is directed at enhancing current and developing systems, the ultimate aim is to provide a migration path to future functionality planned under NSA's Key Management Infrastructure (KMI) initiative. Such KMI functionality is expected to emerge about 2007.

This program is in Budget Activity 7, Operational System Development, because it addresses the development and transition of information security, protection, and defensive capabilities and technologies.

(U) **B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Continued program office contract support of EKMS User Application Software including migration to the Key Management Infrastructure (KMI) and the Browser-Based Development effort	1.347		

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Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0303401F Communications Security	PROJECT NUMBER AND TITLE 4861 Cryptologic 2000
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(U) Continued End User Application Software Development: common UAS, Local Management Device/Data Management Device (LMD/DMD) browser interface, KOV-21 Integration, and computer-based training	2.997		
(U) Total Cost	4.344	0.000	0.000

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) F-22 Engineering and Manufacturing Development (EMD) (BA05, PE 0604239F, Avionics Block 3.1.1)	1.300	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.000
(U) Information Systems Security Program (ISSP) (Continuation of Project 674861 under BA07, PE 030140F)	0.000	9.708	2.813	3.302	3.533	3.597	3.637	Continuing	TBD

(U) D. Acquisition Strategy

All major contracts within this Program Element were awarded after full and open competition.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2004

BUDGET ACTIVITY			PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
07 Operational System Development			0303401F Communications Security					4861 Cryptologic 2000				
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
(U) <u>Product Development</u>												
Science Applications International Corporation (SAIC) -- Common User Application Software (CUAS) Development	C/GSA BPA	SAIC, San Diego CA	7.320	2.997	May-98	0.000		0.000		Continuing	TBD	TBD
MITRE -- Technical Support of CUAS	S/FFRDC	AF Cryptologic Support Group (CPSG), Lackland AFB TX	3.240	1.246	Nov-00	0.000		0.000		Continuing	TBD	TBD
Windmill International, Inc. -- COMSEC Account Application Software Development	C/GSA BPA	Windmill International, Nashua NH	0.000	0.101	Nov-01	0.000		0.000		Continuing	TBD	TBD
Subtotal Product Development			10.560	4.344		0.000		0.000		Continuing	TBD	TBD
Remarks:	All program efforts and funding moved to PE 0303140F, Information Systems Security Program, under the same Project number and Project name effective with the FY04 President's Budget submittal											
(U) Total Cost			10.560	4.344		0.000		0.000		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0303401F Communications Security

PROJECT NUMBER AND TITLE
4861 Cryptologic 2000

Exhibit R-4: BPAC 4861 Cryptologic 2000

Fiscal Year	FY 03				FY 04				FY 05				FY 06				FY 07				FY 08				FY 09							
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Architectural planning & migration to Key Mgmt. Infrastructure					[Planned Ongoing Activity]																											
User Application Software Development					[Planned Ongoing Activity]																											
Transfer Enterprise Data Warehouse Cong add						△																										
Transfer svs support ISSP for Northcom Cng add						△																										

- ☆ Major Event or Milestone
- [Grey Bar] Planned Ongoing Activity
- [Black Bar] Ongoing Activity that is Complete
- ▲ Completed Event
- △ Planned Task(s)

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0303401F Communications Security	PROJECT NUMBER AND TITLE 4861 Cryptologic 2000
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(U) <u>Schedule Profile</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Continue End User Application Software Development, Common UAS, and KOV-21 integration.	1-4Q		

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Exhibit R-2, RDT&E Budget Item Justification								DATE February 2004	
BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0303601F MILSATCOM Terminals					
Cost (\$ in Millions)	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
Total Program Element (PE) Cost	65.090	171.860	272.149	241.099	161.529	186.802	173.957	Continuing	TBD
2487 MILSATCOM Terminals	65.090	171.860	272.149	241.099	161.529	186.802	173.957	Continuing	TBD

(U) **A. Mission Description and Budget Item Justification**

The MILSATCOM Terminals program develops equipment enabling users to communicate via Milstar, Advanced Extremely High Frequency (AEHF), Ultra High Frequency (UHF), Wideband Gapfiller System (WGS), Defense Satellite Communication System (DSCS), and other military satellites, as well as commercial satellites, to support tactical Air and Space Expeditionary Force (AEF) requirements and maintain essential connectivity for strategic forces. Program RDT&E currently supports the following efforts to include program operations and support:

- 1) Concept development work to identify commercial/military technology solutions to improve MILSATCOM terminal capabilities for the warfighters. Focus includes increasing throughput, facilitating sustainability, reducing footprint on user platform and supporting network.
- 2) Ground Multi-band Terminal (GMT) development. In addition to supporting the Air and Space Expeditionary Force requirement for increased information, GMT will replace Air Force Ground Mobile Forces (GMF) terminals with higher-capacity military communications to provide tactical ground forces with connectivity via the X- and Ka-band WGS, X-band DSCS, and commercial C- and Ku-band satellites to significantly increase throughput for inter- and intra-theater tactical force information such as air tasking orders, battle damage assessments, and reconnaissance data.
- 3) Family of Advanced Beyond-Line-of-Sight Terminals (FAB-T) development. FAB-T will develop robust, secure, survivable EHF voice and data satellite communications terminals for nuclear and conventional forces. FAB-T variants will provide ground and airborne command posts and other aircraft with connectivity to Milstar and AEHF satellites, while providing an open architecture terminal to support future increments for WGS, EHF payloads on polar and UHF Follow-on (UFO) satellites, Global Broadcast Service payloads and Transformational Communications satellites.
- 4) High Data Rate (HDR) Radio Frequency (RF) Terminals. Develops High Data Rate (HDR) RF terminals to operate with increased RF capacity on Wideband Gapfiller System and Transformational Communications Satellite System (TSAT) satellite providing 2-way Ka-band satellite communications for High Altitude Endurance (HAE) aircraft and to support the Distributed Common Ground System (DCGS) receipt of data rates up to 274 Mbps to satisfy Intelligence, Surveillance and Reconnaissance (ISR) requirements.
- 5) Lasercom Development. Develops a laser communications terminal to support optical communications for High Altitude Endurance Intelligence, Surveillance and Reconnaissance (ISR) aircraft (Global Hawk and U-2) and command and control aircraft (MC2A); supports transformational communications initiatives which require laser transmission of sensor data at rates above 1 Gbps over Transformational Communications satellites.
- 6) Joint Terminal Engineering Office (JTEO) provides tri-service coordination of terminal development, acquisition and fielding activities.
- 7) Advanced Multi-band Communications Antenna System (AMCAS) development. NOTE: The name of this program has been changed from Wideband Antenna program. AMCAS will provide a multi-beam, multi-band phased array antenna enabling simultaneous connectivity to more than one satellite aircraft. Addresses limited aircraft external surface area, historically high antenna integration costs, and aerodynamic and low observability restrictions. Enables airborne weapon systems to support the higher data needed for today's combat while eliminating the need to develop separate solutions for each platform to meet unique power and data rate requirements.
- 8) Mobile User Objective System (MUOS) terminal upgrade development is the next generation advanced narrowband satellite communications. MUOS-capable UHF

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2004

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0303601F MILSATCOM Terminals

SATCOM users will be able to utilize increases in bandwidth, gain and link availability.

This effort is funded in Budget Activity 7, Operational System Development because some of its programs have completed Milestone C reviews and are in production.

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	71.293	173.831	241.906
(U) Current PBR/President's Budget	65.090	171.860	272.149
(U) Total Adjustments	-6.203	-1.971	
(U) Congressional Program Reductions			
Congressional Rescissions		-1.971	
Congressional Increases			
Reprogrammings	-0.004		
SBIR/STTR Transfer	-6.199		
(U) <u>Significant Program Changes:</u>			
None.			

Exhibit R-2a, RDT&E Project Justification

DATE

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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0303601F MILSATCOM Terminals			PROJECT NUMBER AND TITLE 2487 MILSATCOM Terminals			
Cost (\$ in Millions)	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	
2487 MILSATCOM Terminals	65.090	171.860	272.149	241.099	161.529	186.802	173.957	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

(U) A. Mission Description and Budget Item Justification

The MILSATCOM Terminals program develops equipment enabling users to communicate via Milstar, Advanced Extremely High Frequency (AEHF), Ultra High Frequency (UHF), Wideband Gapfiller System (WGS), Defense Satellite Communication System (DSCS), and other military satellites, as well as commercial satellites, to support tactical Air and Space Expeditionary Force (AEF) requirements and maintain essential connectivity for strategic forces. Program RDT&E currently supports the following efforts to include program operations and support:

- 1) Concept development work to identify commercial/military technology solutions to improve MILSATCOM terminal capabilities for the warfighters. Focus includes increasing throughput, facilitating sustainability, reducing footprint on user platform and supporting network.
- 2) Ground Multi-band Terminal (GMT) development. In addition to supporting the Air and Space Expeditionary Force requirement for increased information, GMT will replace Air Force Ground Mobile Forces (GMF) terminals with higher-capacity military communications to provide tactical ground forces with connectivity via the X- and Ka-band WGS, X-band DSCS, and commercial C- and Ku-band satellites to significantly increase throughput for inter- and intra-theater tactical force information such as air tasking orders, battle damage assessments, and reconnaissance data.
- 3) Family of Advanced Beyond-Line-of-Sight Terminals (FAB-T) development. FAB-T will develop robust, secure, survivable EHF voice and data satellite communications terminals for nuclear and conventional forces. FAB-T variants will provide ground and airborne command posts and other aircraft with connectivity to Milstar and AEHF satellites, while providing an open architecture terminal to support future increments for WGS, EHF payloads on polar and UHF Follow-on (UFO) satellites, Global Broadcast Service payloads and Transformational Communications satellites.
- 4) High Data Rate (HDR) Radio Frequency (RF) Terminals. Develops High Data Rate (HDR) RF terminals to operate with increased RF capacity on Wideband Gapfiller System and Transformational Communications Satellite System (TSAT) satellite providing 2-way Ka-band satellite communications for High Altitude Endurance (HAE) aircraft and to support the Distributed Common Ground System (DCGS) receipt of data rates up to 274 Mbps to satisfy Intelligence, Surveillance and Reconnaissance (ISR) requirements.
- 5) Lasercom Development. Develops a laser communications terminal to support optical communications for High Altitude Endurance Intelligence, Surveillance and Reconnaissance (ISR) aircraft (Global Hawk and U-2) and command and control aircraft (MC2A); supports transformational communications initiatives which require laser transmission of sensor data at rates above 1 Gbps over Transformational Communications satellites.
- 6) Joint Terminal Engineering Office (JTEO) provides tri-service coordination of terminal development, acquisition and fielding activities.
- 7) Advanced Multi-band Communications Antenna System (AMCAS) development. NOTE: The name of this program has been changed from Wideband Antenna program. AMCAS will provide a multi-beam, multi-band phased array antenna enabling simultaneous connectivity to more than one satellite aircraft. Addresses limited aircraft external surface area, historically high antenna integration costs, and aerodynamic and low observability restrictions. Enables airborne weapon systems to support the higher data needed for today's combat while eliminating the need to develop separate solutions for each platform to meet unique power and data rate requirements.
- 8) Mobile User Objective System (MUOS) terminal upgrade development is the next generation advanced narrowband satellite communications. MUOS-capable UHF SATCOM users will be able to utilize increases in bandwidth, gain and link availability.

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Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0303601F MILSATCOM Terminals	PROJECT NUMBER AND TITLE 2487 MILSATCOM Terminals
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This effort is funded in Budget Activity 7, Operational System Development because some of its programs have completed Milestone C reviews and are in production.

(U) B. Accomplishments/Planned Program (\$ in Millions)	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Continue concept/prototype demo/MILSATCOM Terminals roadmap/SATCOM funding	1.002	3.307	3.785
(U) Continue Family of Advanced Beyond Line-of-Sight Terminals (FAB-T) development	51.756	96.596	112.685
(U) Continue Ground Multi-band Terminal (GMT) development	3.628	9.677	23.043
(U) JSTARS development to assume Airborne Battlefield Command and Control (ABCCC) role	0.400	0.000	0.000
(U) Continue High Data Rate (HDR) RF Terminals	4.806	29.340	81.669
(U) Continue Lasercom Terminals development	3.498	14.401	28.736
(U) Continue Joint Terminal Engineering Office (JTEO) Support		7.322	7.687
(U) Continue Advanced Multi-band Communications Antenna System (AMCAS) development		11.217	9.052
(U) Initiate Mobile User Objective System terminal upgrades development			5.492
(U) Total Cost	65.090	171.860	272.149

(U) C. Other Program Funding Summary (\$ in Millions)	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Aircraft Procurement, Air Force, Project 119992 (Budget Activity 5, P-27 and P-61, PE 0303601F only) (1)	31.824	35.628	27.665	8.861	121.757	152.994	223.574	Continuing	TBD
(U) Other Procurement, Air Force, 'MILSATCOM Space', Project 836780 (Budget Activity 3, P-74, PE 0303601F only) (1) (1) Spares Included	4.267	22.452	26.555	100.180	106.717	116.391	131.062	Continuing	TBD

NOTE: Related RDT&E costs for MILSATCOM satellite systems to which terminal development is linked can be found in RDT&E Budget Item Justification Sheets for the following Program Elements (PEs):

- PE 0303110F Defense Satellite Communication System
- PE 0603430F Advanced EHF
- PE 0603845F Transformational Communications Satellite (TSat)
- PE 0603432F Polar MILSATCOM (Space)

Exhibit R-2a, RDT&E Project Justification

DATE

February 2004

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0303601F MILSATCOM Terminals

PROJECT NUMBER AND TITLE

2487 MILSATCOM Terminals

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

PE 0603854F Wideband Gapfiller System (Space)
 PE 0604479F Milstar LDR/MDR Satellite Communications
 PE 0604240F B-2 RDT&E
 PE 0101113F B-52 RDT&E
 PE 0305207F RC-135 RDT&E
 PE 0207581F Joint STARS RDT&E

(U) **D. Acquisition Strategy**

In FY03, the Air Force (AF) initiated development of the High Data Rate (HDR) RF terminals and Lasercom Terminals to operate with Wideband Gapfiller System (WGS) and Transformational Communications Satellites. Contract awards for HDR RF terminals will be split into HDR RF airborne and HDR RF ground. For both HDR RF pieces, the contracts will be awarded to provide capabilities incrementally and will be a combination of sole source and full and open competition acquisitions. In FY03, the AF also began development of the Lasercom terminal and plans to award multiple technology demonstration contracts to mature the optical aperture technologies and will also award an architecture definition effort contract. In FY04, the AF initiated the development of the Advanced Multi-band Communications Antenna System (AMCAS) Program and will award multiple technology demonstration contracts to mature the antenna technology with a follow on contract based on full and open competition to build the antenna. In FY05, AF will begin development of Mobile User Objective System (MUOS) terminal modifications to incorporate Software Communications Architecture (SCA) functionality so that the SCA compliant MUOS waveform can be used on the AIT radio. Modifications will be accomplished via sole source development contract to Raytheon due to the proprietary AIT radio software.

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Exhibit R-3, RDT&E Project Cost Analysis										DATE February 2004		
BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0303601F MILSATCOM Terminals				PROJECT NUMBER AND TITLE 2487 MILSATCOM Terminals				
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u> Prior to FY 2003 <u>Cost</u>	<u>FY</u> 2003 <u>Cost</u>	<u>FY</u> 2003 <u>Award</u> <u>Date</u>	<u>FY</u> 2004 <u>Cost</u>	<u>FY</u> 2004 <u>Award</u> <u>Date</u>	<u>FY</u> 2005 <u>Cost</u>	<u>FY</u> 2005 <u>Award</u> <u>Date</u>	<u>Cost to Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
(U) <u>Product Development</u>												
GMT Development	CPAF	Harris Corp., Melbourne, FL	28.046	2.650	Nov-03	5.500	Oct-03	19.500	Oct-04	Continuing	TBD	55.939
FAB-T Development	CPAF	Boeing Corp., Anaheim, CA	3.670	42.234	Oct-03	89.233	Oct-03	95.700	Oct-04	Continuing	TBD	236.349
Joint STARS A-kit Development	AF-616	ESC/JS, Hanscom AFB	0.000	0.400	Oct-03	0.000		0.000		0.000	0.400	0.400
High Data Rate (HDR) RF Ground terminal study (Associated Contract Agreement)	TRN	Harris Corp., Melbourne, FL	0.000	0.500	Mar-03	0.880	Feb-04	0.000		0.000	1.380	1.380
High Data Rate (HDR) RF Airborne terminal study (Associated Contract Agreement)	TRN	Boeing Corp., Anaheim, CA	0.000	0.500	Mar-03	0.000		0.000		0.000	0.500	0.500
High Data Rate (HDR) RF Terminal Development	TBD	TBD	0.000	0.000		22.248	Oct-03	75.255	Oct-04	Continuing	TBD	
Lasercom Terminal Development	TBD	TBD	0.000	0.000		8.714	Oct-03	24.606	Oct-04	Continuing	TBD	
AMCAS Development	TBD	TBD	0.000	0.000		7.843	Oct-03	7.288	Oct-04	Continuing	TBD	
MUOS Terminal Modification Development	TBD	TBD	0.000	0.000		0.000		3.869	Dec-04	Continuing	TBD	
Subtotal Product Development			31.716	46.284		134.418		226.218		Continuing	TBD	294.568
Remarks:												
(U) <u>Support</u>												
Systems Engineering Support	CPAF	MITRE, Bedford MA	120.977	13.591	Oct-03	17.231	Oct-03	21.425	Oct-04	Continuing	TBD	
Systems Engineering/Functional/Financial Support	Various	Various	162.734	3.102	Oct-03	12.915	Oct-03	14.796	Oct-04	Continuing	TBD	
Financial Support (Beginning in FY04 totals included in Systems Engineering/Functional/Financial Support)	Various	Tecolote, Bedford MA	3.013	1.125	Nov-03	0.000		0.000		Continuing	TBD	
Miscellaneous	Various	Various	20.075	0.688	Oct-03	6.996	Oct-03	4.059	Oct-04	Continuing	TBD	0.000

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2004

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE			
07 Operational System Development				0303601F MILSATCOM Terminals				2487 MILSATCOM Terminals			
Subtotal Support				306.799	18.506	37.142	40.280	Continuing	TBD	0.000	
Remarks:											
(U)	<u>Test & Evaluation</u>										
	Various Programs	Various	AF Research Lab	24.603	0.000	0.000	4.388	Oct-04	Continuing	TBD	
	Miscellaneous T&E	Various	Various	5.907	0.300	Oct-03 0.300	Oct-03 1.263	Oct-04	Continuing	TBD	
Subtotal Test & Evaluation				30.510	0.300	0.300	5.651	Continuing	TBD	0.000	0.000
Remarks:											
(U)	<u>Management</u>										
Subtotal Management				0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Remarks:											
(U)	Total Cost			369.025	65.090	171.860	272.149	Continuing	TBD	294.568	

NOTE: Prior Year dollar amounts do not agree with last years document due to removal of the Raytheon FPIF/FFP from June 1985, Rockwell CPIF from August 1993 and ViaSat C/FFP from October 1995 contract lines. Nothing has been budgeted for these products since FY01 and no future work is planned on these projects.

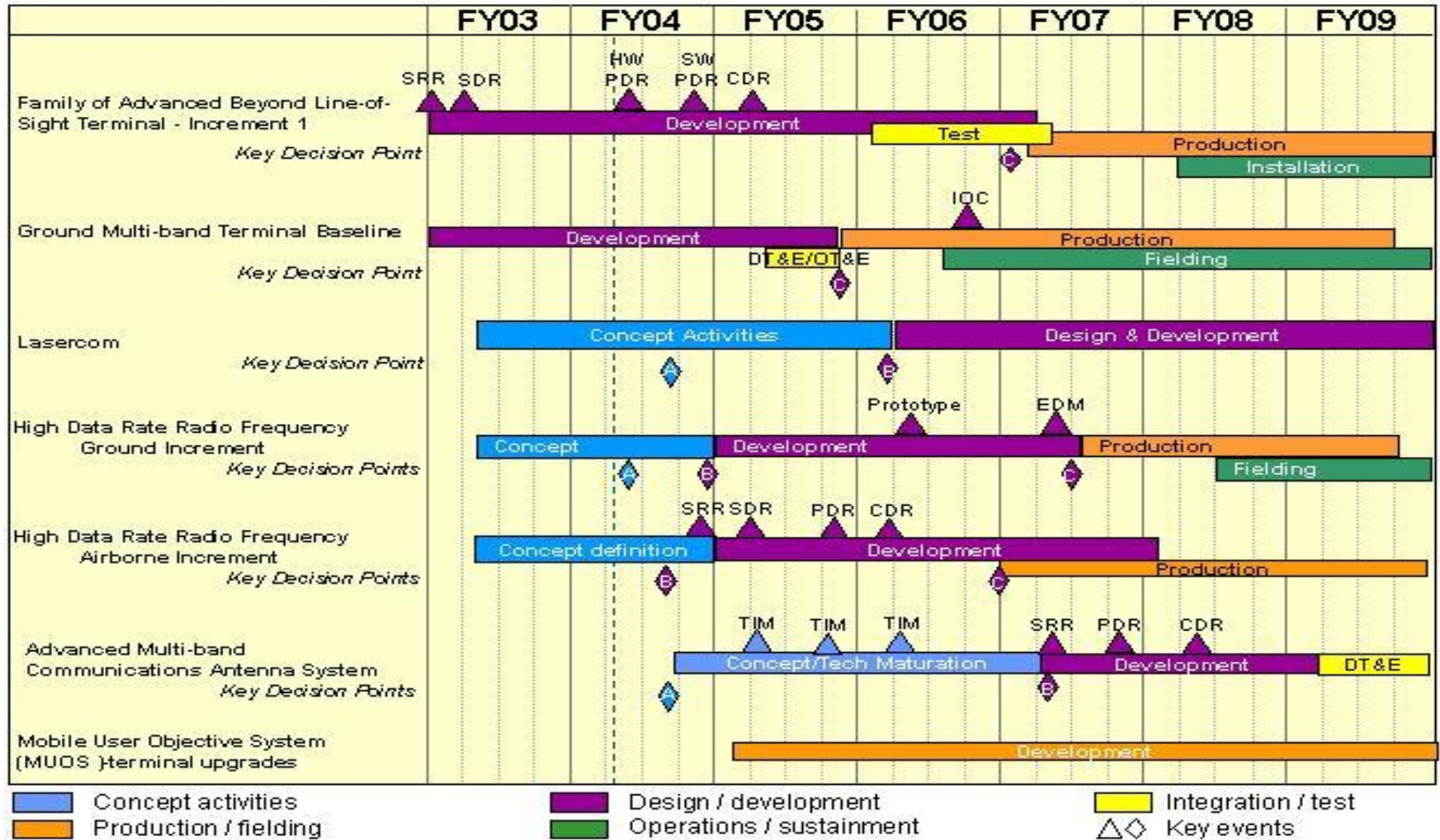
Exhibit R-4, RDT&E Schedule Profile

DATE
February 2004

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0303601F MILSATCOM Terminals

PROJECT NUMBER AND TITLE
2487 MILSATCOM Terminals



AoA: Analysis of Alternatives CDR: Critical Design Review IOT&E: Initial Operational Test & Evaluation SRR: System Requirements Review
 PDR: Preliminary Design Review EDM: Engineering Design Model SDR: System Design Review TIM: Technical Interchange Meeting

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0303601F MILSATCOM Terminals	PROJECT NUMBER AND TITLE 2487 MILSATCOM Terminals
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	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <u>Schedule Profile</u>			
(U) JSTARS development of Airborne Battlefield Command and Control Center (ABCCC) communications capability	4Q		
(U) Begin Initial Development of High Data Rate (HDR) RF Terminals	2Q		
(U) Begin Initial Development of Lasercom Terminals	2Q		
(U) Award Technology Maturation contracts for Lasercom Optical Apertures		3Q	
(U) Award Technology Maturation contracts for Advanced Multi-band Communications Antenna System (AMCAS)		3Q	
(U) Begin Mobile User Objective System (MUOS) terminal upgrades development			1Q

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PE NUMBER: 0305099F

PE TITLE: Global Air Traffic Management (GATM)

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305099F Global Air Traffic Management (GATM)
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Cost (\$ in Millions)	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
Total Program Element (PE) Cost	6.961	6.820	7.291	7.499	7.773	7.895	8.020	Continuing	TBD
4689 Global Access Architecture	6.961	6.820	7.291	7.499	7.773	7.895	8.020	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

Global Air Traffic Management: GATM is the Air Force program designed to meet the evolving aviation requirements of the International Civil Aviation Organization (ICAO). GATM, Navigation and Safety, and Navigation Warfare (NAVWAR) are major components of the AF's Global Access, Navigation, and Safety (GANS) management effort. The Global Air Traffic Operations/Mobility Command and Control (GATO/MC2) System Program Office (SPO) supports GATM as the AF's central focal point for analyzing and evaluating operational requirements, developing aircraft system architectures, acquiring aviation equipment, and certifying weapon system implementation. Per AFPD 63-13, SPO support funds engineering services, acquisition support, and certification of platform integration. The system architectures identify necessary equipment and aircraft capability shortfalls across the Air Force inventory, for mobility, information dominance, bombers, fighters, trainers, helicopters, and unmanned aerial vehicles. For those capabilities where no current solution exists, development activities are undertaken in conjunction with existing DoD communications, navigation, surveillance, and safety program offices. Dual-use capabilities of avionics to satisfy GATM and military requirements of the Air Force fleet will be explored. The SPO will continue projections of studies and prototype efforts necessary to ensure AF aviation weapon systems are postured to meet civil standards and future changes to the civil standards leading to free flight. This project supports the definition of requirements for ACAT III projects across multiple weapon systems. No existing program satisfies the requirements of the GATM initiatives.

This program upgrades avionics to add air traffic control capabilities to currently fielded weapon systems and is assigned Budget Activity 7, Operational Systems Development.

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	7.041	7.164	7.291
(U) Current PBR/President's Budget	6.961	6.820	7.291
(U) Total Adjustments	-0.080	-0.344	
(U) Congressional Program Reductions			
Congressional Rescissions	-0.080	-0.344	
Congressional Increases			
Reprogrammings	0.000		
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0305099F Global Air Traffic Management (GATM)			PROJECT NUMBER AND TITLE 4689 Global Access Architecture			
Cost (\$ in Millions)		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
4689	Global Access Architecture	6.961	6.820	7.291	7.499	7.773	7.895	8.020	Continuing	TBD
	Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

Global Air Traffic Management: GATM is the Air Force program designed to meet the evolving aviation requirements of the International Civil Aviation Organization (ICAO). GATM, Navigation and Safety, and Navigation Warfare (NAVWAR) are major components of the AF's Global Access, Navigation, and Safety (GANS) management effort. The Global Air Traffic Operations/Mobility Command and Control (GATO/MC2) System Program Office (SPO) supports GATM as the AF's central focal point for analyzing and evaluating operational requirements, developing aircraft system architectures, acquiring aviation equipment, and certifying weapon system implementation. Per AFPD 63-13, SPO support funds engineering services, acquisition support, and certification of platform integration. The system architectures identify necessary equipment and aircraft capability shortfalls across the Air Force inventory, for mobility, information dominance, bombers, fighters, trainers, helicopters, and unmanned aerial vehicles. For those capabilities where no current solution exists, development activities are undertaken in conjunction with existing DoD communications, navigation, surveillance, and safety program offices. Dual-use capabilities of avionics to satisfy GATM and military requirements of the Air Force fleet will be explored. The SPO will continue projections of studies and prototype efforts necessary to ensure AF aviation weapon systems are postured to meet civil standards and future changes to the civil standards leading to free flight. This project supports the definition of requirements for ACAT III projects across multiple weapon systems. No existing program satisfies the requirements of the GATM initiatives. This program upgrades avionics to add air traffic control capabilities to currently fielded weapon systems and is assigned Budget Activity 7, Operational Systems Development.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Continue operational requirements analysis, demonstration, and evaluation	1.154	1.159	1.195
(U) Continue development of common avionics and technologies	2.324	2.169	2.185
(U) Continue acquisition of ID/IQ aviation equipment	0.852	0.891	0.912
(U) Continue Nav/Safety and GPS/NAVWAR integration and interoperability evaluations	0.579	0.589	0.629
(U) Accomplishment/Planned Program: Continue system architecture definitions, development, and certification.	2.052	2.012	2.370
(U) Total Cost	6.961	6.820	7.291

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E									
(U) Other APPN									
(U) Aircraft Procurement, AF,	125.067	80.524	12.062						308.184

Exhibit R-2a, RDT&E Project Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305099F Global Air Traffic Management (GATM)	PROJECT NUMBER AND TITLE 4689 Global Access Architecture
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(U) <u>C. Other Program Funding Summary (\$ in Millions)</u>				
BA-5, C-5 Avionics Modernization Program, PE 0401119F RDT&E, AF, BA-7, C-5 AMP,				
(U)	PE 0401119F, C-5 Airlift Squadrons Aircraft Procurement, AF,	10.030		74.270
(U)	BA-5, C-5, FM Immunity, PE0401119F Aircraft Procurement, AF,			
(U)	BA-5, C-9 NAVSTAR GPS, PE 0401314F Aircraft Procurement, AF,			
(U)	BA-5, C-9 RVSM, PE 0401314F Aircraft Procurement, AF,			
(U)	BA-5, C-9 TAWS, PE 0401314F Aircraft Procurement, AF,			
(U)	BA-5, KC-10 NAVSTAR GPS, PE 0401219F RDT&E, AF, BA-7, KC-10 GATM, PE 0401219F Aircraft Procurement, AF,	10.584	2.422	35.780
(U)	BA-5, KC-10 GATM, PE 0401219F Aircraft Procurement, AF,	8.163	14.085	39.314
(U)	BA-5, KC-10 FM Immunity, PE 0401219F Aircraft Procurement, AF,			
(U)	BA-5, KC-10 TCAS/TAWS, PE 0401219F			

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Exhibit R-2a, RDT&E Project Justification						DATE February 2004	
BUDGET ACTIVITY 07 Operational System Development			PE NUMBER AND TITLE 0305099F Global Air Traffic Management (GATM)			PROJECT NUMBER AND TITLE 4689 Global Access Architecture	
(U) C. Other Program Funding Summary (\$ in Millions)							
(U)	Aircraft Procurement, AF, BA-5, C-17 HFDL, PE 0401130F	2.820	7.967	3.651	1.667		19.233
(U)	Aircraft Procurement, AF, BA-5, C-17 GPS Integrity Monitoring Capability, PE 0401130F						
(U)	Aircraft Procurement, AF, BA-5, C-17 GATM II, PE 0401130F		54.372	57.640	55.089	52.547	29.324 248.972
(U)	Aircraft Procurement, AF, BA-5, C-17 RNP-4, PE 0401130F	2.820	7.967	3.651	1.667		19.233
(U)	Aircraft Procurement, AF, BA-5, C-17 TAWS, PE 0401130F	18.796	5.082				35.579
(U)	Aircraft Procurement, AF, BA-5, C-17 GATM PE 0401130F	30.029					69.545
(U)	Aircraft Procurement, AF, BA-5, C-20 TAWS, PE 0401314F						
(U)	Aircraft Procurement, AF, BA-5, C-21 TCAS, PE 0401314F						
(U)	Aircraft Procurement, AF, BA-5, C-21 TAWS, PE 0401314F						
(U)	Aircraft Procurement, AF, BA-5, VC-25 Windshear Warning, PE 0401314F						
(U)	Aircraft Procurement, AF, BA-5, VC-25 Windshear Warning, PE 0401314F	11.124	1.780				24.268

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Exhibit R-2a, RDT&E Project Justification						DATE February 2004	
BUDGET ACTIVITY 07 Operational System Development			PE NUMBER AND TITLE 0305099F Global Air Traffic Management (GATM)			PROJECT NUMBER AND TITLE 4689 Global Access Architecture	
(U) C. Other Program Funding Summary (\$ in Millions)							
BA-5, VC-25 GATM, PE 0401314F Aircraft Procurement, AF,							
(U)	BA-5, VC-25 TAWS, PE 0401314F Aircraft Procurement, AF,						
(U)	BA-5, T-43 TCAS, PE 0804742F Aircraft Procurement, AF,	1.924	4.910	3.239	0.055		10.128
(U)	BA-5, T-43 TAWS, PE 0804742F Aircraft Procurement, AF,	1.868	5.184	2.722			13.178
(U)	BA-5, C-130 Avionics Modernization Program, PE 0401115F Aircraft Procurement, AF,	80.800	180.200	213.600	303.300	1,982.700	2,760.600
(U)	BA-5, C-130 ETCAS, PE 0401115F Aircraft Procurement, AF,	3.635	0.250				5.990
(U)	BA-5, C-135 8.33 radio, PE 0401218F Aircraft Procurement, AF,						
(U)	BA-5, C-135 Interphone replacement, PE 0401218F Aircraft Procurement, AF,						
(U)	BA-5, C-135 GATM, PE 0401218F Aircraft Procurement, AF,	159.307	157.549	151.846	131.427	137.257	125.213 953.799
(U)	BA-5, C-135 RVSM, PE 0401218F Aircraft Procurement, AF,						19.290
(U)	BA-5, C-135 TAWS, PE						8.788

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Exhibit R-2a, RDT&E Project Justification						DATE
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			0305099F Global Air Traffic Management (GATM)		4689 Global Access Architecture	
(U) C. Other Program Funding Summary (\$ in Millions)						
	0401218F					
	Aircraft Procurement, AF,					
(U)	BA-5, C-135 FDR/CVR, PE	1.598				38.102
	0401218F					
	Aircraft Procurement, AF,					
(U)	BA-5, C-135 Pacer CRAG, PE					1.549
	0401218F					
	Aircraft Procurement, AF,					
(U)	BA-5, C-135 FM Immunity,					
	PE0401218F					
	Aircraft Procurement, AF,					
(U)	BA-5, C-141 TCAS, PE					
	0401118F					
(U)	RDT&E , AF, BA-7, E-3	16.876	66.568	20.429		103.873
	GATM, PE 0207417F					
	Aircraft Procurement, AF,					
(U)	BA-5, E-3 GATM, PE			26.515	69.475	95.990
	0207417F					
	Aircraft Procurement, AF,					
(U)	BA-5, E-4 8.33 radio, PE					
	0302015F					
	Aircraft Procurement, AF,					
(U)	BA-5, E-4 TCAS, PE					0.720
	0302015F					
	Aircraft Procurement, AF,					
(U)	BA-5, E-4 TAWS, PE					
	0302015F					
	RDT&E, AF BA-5, E-4 ,					
(U)	INFRASTRUCTURE	9.017	29.351	21.703		77.328
	MODERNIZATION, PE					
	0302015F					
(U)	Aircraft Procurement, AF,	28.262	20.139	31.883	7.306	104.882
					17.292	

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305099F Global Air Traffic Management (GATM)	PROJECT NUMBER AND TITLE 4689 Global Access Architecture
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(U) C. Other Program Funding Summary (\$ in Millions)

BA-5, E-4 INFRASTRUCTURE MODERNIZATION, PE 0302015F Aircraft Procurement, AF,					
(U)	BA-5, E-4 FDR/CVR, PE 0302015F Aircraft Procurement, AF,				0.480
(U)	BA-5, E-8 GATM, PE 0207581F	22.632	17.993	24.660	74.105
(U)	RDT&E, AF, BA-7, E-8 GATM, PE 0207581F	49.600	63.800	36.300	7.700
(U)	Aircraft Procurement, AF, BA-5, H-1 TCAS, PE 0101235F	0.292	0.488		0.780
(U)	BA-5, B-52, GATM, PE 0101113F			0.340	118.800
(U)	RDT&E, AF, BA07, B-52 GATM, PE 0101113F	4.676	15.836	40.000	60.512
(U)	Aircraft Procurement, AF, BA-5, C-12 TAWS, PE 0401314F				

(U) D. Acquisition Strategy

The GATM Global Access Architecture acquisition strategy enables the GATO/MC2 SPO to guide equipment acquisition supporting global air traffic operations. The SPO will ensure standardization and certification of USAF platforms/systems that operate in the national and global air traffic environments. The SPO will also provide technical expertise and interface with appropriate product/support centers, battle labs, and Department of Defense (DOD) research and development facilities in the execution of assigned tasks. Program Research and Development Agreements (PRDAs), Cooperative Research and Development Agreements (CRDAs), and Indefinite Delivery/Indefinite Quantity (ID/IQ) contracts will be competitively awarded.

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305099F Global Air Traffic Management (GATM)	PROJECT NUMBER AND TITLE 4689 Global Access Architecture
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(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to</u> <u>Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
				<u>2003</u> <u>Cost</u>	<u>2003</u> <u>Award</u> <u>Date</u>	<u>2004</u> <u>Cost</u>	<u>2004</u> <u>Award</u> <u>Date</u>	<u>2005</u> <u>Cost</u>	<u>2005</u> <u>Award</u> <u>Date</u>			
(U) <u>Product Development</u>												
MIT	FFP		2.420	1.486		1.500		1.500		Continuing	TBD	
Honeywell	FFP		2.689	0.028		0.028		0.028		Continuing	TBD	
Allied Signal	FFP		1.975						0.000		1.975	
Rockwell Collins	FFP		1.504							Continuing	TBD	
MITRE Corporation	CPAF		5.188	2.846		2.685		2.759		Continuing	TBD	
Horizons Technology Inc	FFP		3.974							Continuing	TBD	
TASC	CPFF		0.728						0.000		0.728	
Smiths Industries	FFP		0.194							Continuing	TBD	
SAIC	T&M		0.530						0.000		0.530	
ARINC Inc	FFP		0.946							Continuing	TBD	
Lockheed Martin	CPAF		0.159						0.000		0.159	
Bremmer Associates	FFP		0.729						0.000		0.729	
Northrop Grumman	CPAF		2.499						0.000		2.499	
MCR	IDIQ		0.750	0.444		0.332		0.409		Continuing	TBD	
Federal Tech Services	FFP		0.300						0.000		0.300	
DISA/DIT	FFP		0.000							Continuing	TBD	
ACS Defense			0.000	1.155		1.383		1.425			3.963	
Various	various		2.188	0.405		0.342		0.529		Continuing	TBD	
Subtotal Product Development			26.773	6.364		6.270		6.650		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												
MITRE Corporation	CPAF		0.761	0.312		0.296		0.368		Continuing	TBD	
Various	Various		0.788	0.285		0.254		0.273		Continuing	TBD	
Subtotal Support			1.549	0.597		0.550		0.641		Continuing	TBD	0.000
Remarks:												
(U) <u>Test & Evaluation</u>												
412th FLTS (Edwards AFB)			0.111							Continuing	TBD	
Subtotal Test & Evaluation			0.111	0.000		0.000		0.000		Continuing	TBD	0.000

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305099F Global Air Traffic Management (GATM)	PROJECT NUMBER AND TITLE 4689 Global Access Architecture
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Remarks:								
(U) <u>Management</u>								
						0.000		
Subtotal Management	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Remarks:								
(U) Total Cost	28.433	6.961	6.820	7.291	Continuing	TBD	0.000	

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0305099F Global Air Traffic Management (GATM)

PROJECT NUMBER AND TITLE
4689 Global Access Architecture

Fiscal Year	FY02				FY03				FY04				FY05				FY06				FY07				FY08				FY09			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
KC-10 Supplemental Type Certification Award									▲																							
KC-135 GATM Certification									▲																							
KC-10 OT Flight Test									■	■	■	■																				
KC-10 LRIP													■	■	■	■																
KC-10 Production Deliverables																	■	■	■	■												
GATM V Contract Award													★																			
C-5 AMP									■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
C-17 RNP Improvements									■	■	■	■	■	■	■	■	■	■	■	■												
KC-10 PMR/TIM					■	■	■	■																								
KC-135 Production/Installation (through 2016)					■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
KC-767 GATM Telecon. System Req. Review									△																							
AWACS IDG Buy/Install									■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■

★ Major Event or Milestone

△ Planned Task(s)

▲ Completed Event

■ Ongoing Activity that is Complete

▬ Planned Ongoing Activity

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Exhibit R-4a, RDT&E Schedule Detail

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305099F Global Air Traffic Management (GATM)

PROJECT NUMBER AND TITLE

4689 Global Access Architecture

(U) Schedule Profile

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) System Architecture Definitions	1-4Q	1-4Q	1-4Q
(U) Operational Requirements Analysis	1-4Q	1-4Q	1-4Q
(U) Development of common avionics and technologies	1-4Q	1-4Q	1-4Q
(U) Acquisition of ID/IQ equipment	1-4Q	1-4Q	1-4Q
(U) GPS/NAVWAR Integration Activities	1-4Q	1-4Q	1-4Q

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Exhibit R-2, RDT&E Budget Item Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305110F Satellite Control Network
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Cost (\$ in Millions)	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
Total Program Element (PE) Cost	16.725	20.468	17.833	22.086	20.138	17.931	17.554	Continuing	TBD
3276 Satellite Control Network	16.725	20.468	17.833	22.086	20.138	17.931	17.554	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

The Air Force Satellite Control Network (AFSCN) mission is to command and control space systems and to distribute space system information in support of operational DoD missions, National Security, RDT&E programs, and other designated users. Air Force Space Command (AFSPC) performs operations, maintenance, modernization, and sustainment of the system to meet requirements validated by a HQ USAF approved Operational Requirements Document (ORD). This program element contains funds for the development and acquisition of this integrated national satellite telemetry, tracking, commanding, and data relay capability to meet the requirements of the growing inventory of operational and developmental DoD, National, Civil, and Allied satellite systems.

The AFSCN is a global infrastructure of control centers, Remote Tracking Stations (RTSs), and communications links that provide the highly reliable command and control, communications, and range systems required to support the nation's surveillance, navigation, communications, warning, and weather satellite operations. The AFSCN is the DoD's common user network that provides satellite state-of-health, telemetry, tracking, and commanding (TT&C) for the following operational satellite systems: Defense Meteorological Satellite Program (DMSP), Global Positioning System (GPS), Defense Satellite Communications System (DSCS), Defense Support Program (DSP), Fleet Satellite (FLEETSAT), Military Strategic and Tactical Relay Satellite (MILSTAR), the Navy's Ultra High Frequency Follow-On (UHF F/O), Skynet, NATO III/IV, and classified programs. In addition, it provides launch and early orbit tracking operations in support of all major US launches and is the world's only global satellite network equipped with high-power capability necessary for satellite rescue, anomaly resolution, and end-of-life disposal operations.

AFSCN Improvement and Modernization (I&M) is an ongoing program of replacements and upgrades which will meet AFSPC operational requirements to replace non-standard, unsupportable equipment with more reliable, maintainable, interoperable, and standardized hardware and software. This new equipment will enable AFSPC satellite operations to be performed with fewer, less skilled personnel and will significantly reduce hardware/software maintenance costs. The principal efforts within this program are currently focused on Range Upgrades and Network Operations Upgrades.

RANGE UPGRADES: This effort will upgrade the current RTSs. Several integrated efforts, which are now grouped into the Remote Tracking Station (RTS) Block Change (RBC) effort, will standardize, automate and make interoperable the remote tracking stations through the replacement of outdated government unique equipment with commercial off-the-shelf technology in order to reduce failures, correct operational deficiencies, and reduce operating and sustainment costs. Additionally, interoperability efforts to address standards and protocols and external user connectivity are included in this segment.

NETWORK OPERATIONS UPGRADES: These upgrades, that include resource scheduling and orbit analysis system follow-on, build upon the Electronic Schedule Dissemination (ESD) and Orbit Analysis Subsystem (OAS) deliveries to improve AFSCN resource management capabilities. These capabilities include electronic scheduling and status report information dissemination. Also, these upgrades provide the infrastructure for a multi-domain and web-based system.

Exhibit R-2, RDT&E Budget Item Justification

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305110F Satellite Control Network

This effort is in Budget Activity 7, Operational System Development, because it supports a fielded system.

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	16.779	18.603	17.880
(U) Current PBR/President's Budget	16.725	20.468	17.833
(U) Total Adjustments	-0.054	1.865	
(U) Congressional Program Reductions		-0.235	
Congressional Rescissions			
Congressional Increases		2.100	
Reprogrammings			
SBIR/STTR Transfer	-0.054		
(U) <u>Significant Program Changes:</u>			
FY04: Congressional plus-up to continue research into technical feasibility of augmenting AFSCN capabilities with commercial satellite control antennas (+\$2.1M);			
Congressional/general reductions (-\$0.235M).			

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT NUMBER AND TITLE		
07 Operational System Development				0305110F Satellite Control Network			3276 Satellite Control Network		
Cost (\$ in Millions)	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
3276 Satellite Control Network	16.725	20.468	17.833	22.086	20.138	17.931	17.554	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The Air Force Satellite Control Network (AFSCN) mission is to command and control space systems and to distribute space system information in support of operational DoD missions, National Security, RDT&E programs, and other designated users. Air Force Space Command (AFSPC) performs operations, maintenance, modernization, and sustainment of the system to meet requirements validated by a HQ USAF approved Operational Requirements Document (ORD). This program element contains funds for the development and acquisition of this integrated national satellite telemetry, tracking, commanding, and data relay capability to meet the requirements of the growing inventory of operational and developmental DoD, National, Civil, and Allied satellite systems.

The AFSCN is a global infrastructure of control centers, Remote Tracking Stations (RTSs), and communications links that provide the highly reliable command and control, communications, and range systems required to support the nation's surveillance, navigation, communications, warning, and weather satellite operations. The AFSCN is the DoD's common user network that provides satellite state-of-health, telemetry, tracking, and commanding (TT&C) for the following operational satellite systems: Defense Meteorological Satellite Program (DMSP), Global Positioning System (GPS), Defense Satellite Communications System (DSCS), Defense Support Program (DSP), Fleet Satellite (FLEETSAT), Military Strategic and Tactical Relay Satellite (MILSTAR), the Navy's Ultra High Frequency Follow-On (UHF F/O), Skynet, NATO III/IV, and classified programs. In addition, it provides launch and early orbit tracking operations in support of all major US launches and is the world's only global satellite network equipped with high-power capability necessary for satellite rescue, anomaly resolution, and end-of-life disposal operations.

AFSCN Improvement and Modernization (I&M) is an ongoing program of replacements and upgrades which will meet AFSPC operational requirements to replace non-standard, unsupportable equipment with more reliable, maintainable, interoperable, and standardized hardware and software. This new equipment will enable AFSPC satellite operations to be performed with fewer, less skilled personnel and will significantly reduce hardware/software maintenance costs. The principal efforts within this program are currently focused on Range Upgrades and Network Operations Upgrades.

RANGE UPGRADES: This effort will upgrade the current RTSs. Several integrated efforts, which are now grouped into the Remote Tracking Station (RTS) Block Change (RBC) effort, will standardize, automate and make interoperable the remote tracking stations through the replacement of outdated government unique equipment with commercial off-the-shelf technology in order to reduce failures, correct operational deficiencies, and reduce operating and sustainment costs. Additionally, interoperability efforts to address standards and protocols and external user connectivity are included in this segment.

NETWORK OPERATIONS UPGRADES: These upgrades, that include resource scheduling and orbit analysis system follow-on, build upon the Electronic Schedule Dissemination (ESD) and Orbit Analysis Subsystem (OAS) deliveries to improve AFSCN resource management capabilities. These capabilities include electronic scheduling and status report information dissemination. Also, these upgrades provide the infrastructure for a multi-domain and web-based system.

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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305110F Satellite Control Network	PROJECT NUMBER AND TITLE 3276 Satellite Control Network
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This effort is in Budget Activity 7, Operational System Development, because it supports a fielded system.

(U) B. Accomplishments/Planned Program (\$ in Millions)	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments/Planned Program			
(U) Range Upgrades: continue upgrades to include development of interoperability and RTS Block Change efforts. Continue predeployment system engineering and network integration.	11.216	11.330	11.592
(U) Network Operations Upgrades: continue upgrades to network operations to include development of Phase 2 and Phase 3 (Enterprise Management) of Orbit Analysis Subsystem follow-on upgrade and predeployment system engineering and network integration.	2.174	3.155	2.170
(U) Program support for Systems Program Office	3.335	3.883	4.071
(U) Conduct research into technical feasibility of augmenting AFSCN capabilities with commercial satellite control antennas (Civil Reserve Space Service -- CRSS)		2.100	
(U) Total Cost	16.725	20.468	17.833

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
OPAF, Electronics & Telecom									
(U) Equipment (BA 03, PE 0305110F, P-72)	43.263	47.871	43.882	51.437	68.510	60.566	60.250	Continuing	TBD
OPAF, Initial Spares & Repair									
(U) Parts (BA 05 PE 0305110F, P-112)	1.259	4.411	3.167	3.419	3.499	0.000	0.000	0.000	18.098

(U) D. Acquisition Strategy

The AF uses the competitively awarded Satellite Control Network Contract (SCNC), managed by Space and Missile System Center, to modernize and sustain the AFSCN on a non-interference basis as it continues to support operational, RDT&E, and other designated users.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2004

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
07 Operational System Development				0305110F Satellite Control Network				3276 Satellite Control Network				
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to</u>	<u>Total</u>	<u>Target</u>
			<u>Prior to FY 2003</u>	<u>2003</u>	<u>2003</u>	<u>2004</u>	<u>2004</u>	<u>2005</u>	<u>2005</u>	<u>Complete</u>	<u>Cost</u>	<u>Value of</u>
			<u>Cost</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Date</u>	<u>Date</u>	<u>Contract</u>
(U) <u>Product Development</u>												
Range & Comm Development Contract	C/CPAF	Lockheed Martin, San Jose, CA	133.146	0.656	Dec-02	0.000		0.000			0.000	133.802
Satellite Control Network Contract*	C/CPAF	Honeywell, Colorado Springs, CO	22.300	12.734	Dec-02	14.485	Dec-03	13.762	Dec-04		22.919	86.200
Congressional Plus-up for civil reserve space service	TBD	TBD	0.000	0.000		2.100	Mar-04	0.000			0.000	2.100
Subtotal Product Development			155.446	13.390		16.585		13.762			22.919	222.102
Remarks: *note: EACs include basic contract and options but do not include unpriced, future ECPS												
(U) <u>Support</u>												
Program Support (FFRDC, SETA, SPO ops)	various	various	79.612	3.335	Dec-02	3.883	Dec-03	4.071	Dec-04	Continuing		TBD
Subtotal Support			79.612	3.335		3.883		4.071		Continuing		TBD
Remarks:												
(U) <u>Management</u>												
N/A												0.000
Subtotal Management			0.000	0.000		0.000		0.000			0.000	0.000
Remarks:												
(U) <u>Subtotal additional reprogrammings</u>												0.000
(U) Total Cost			235.058	16.725		20.468		17.833		Continuing		TBD
Remarks:												

Exhibit R-4, RDT&E Schedule Profile

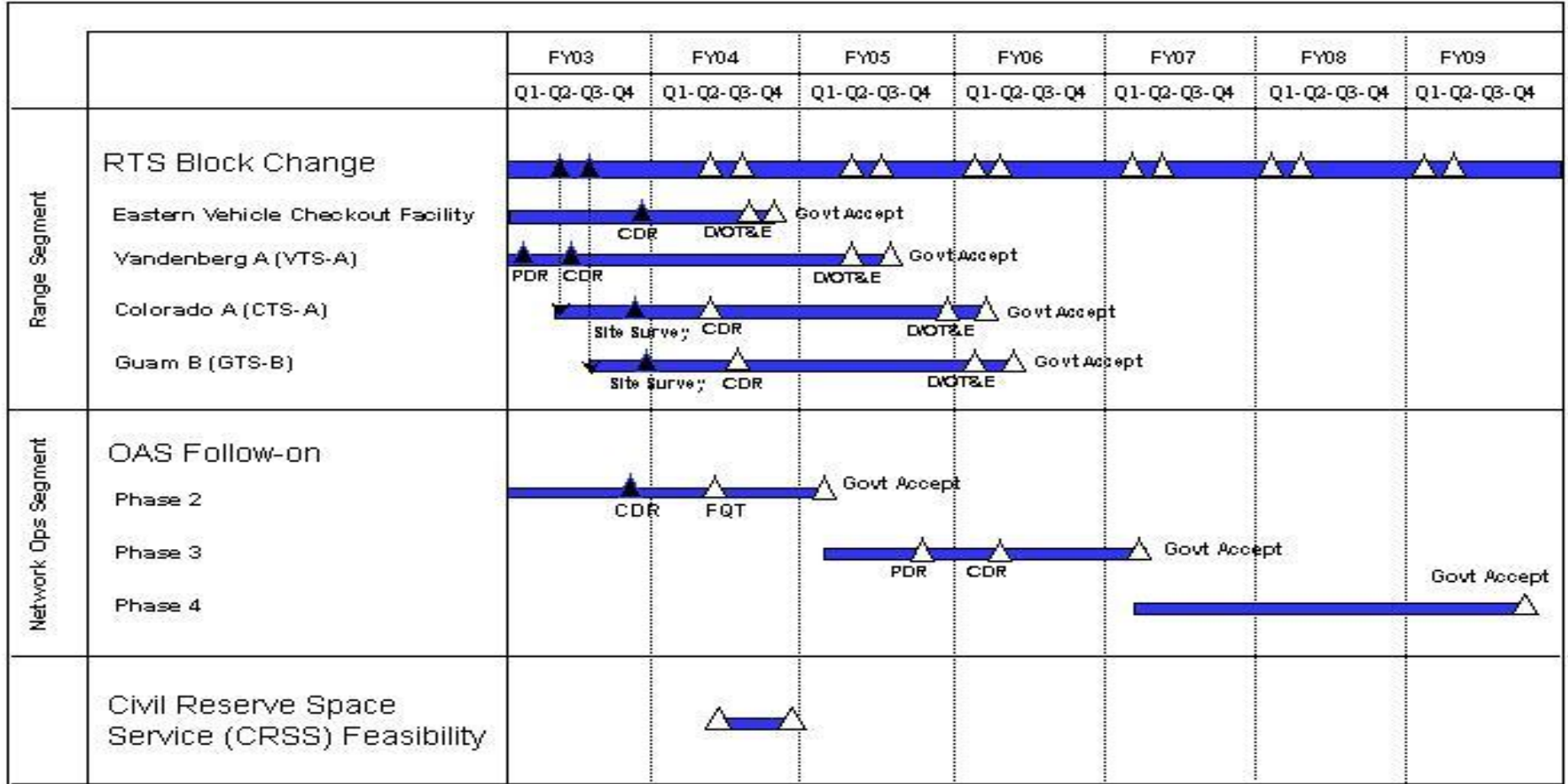
DATE

February 2004

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0305110F Satellite Control Network

PROJECT NUMBER AND TITLE
3276 Satellite Control Network



Acronyms: CDR - Critical Design Review; D/OT&E - Development/Operational Test & Evaluation; FQT - Factory Qualification Testing; OAS - Orbital Analysis System; PDR - Preliminary Design Review; RTS - Remote Tracking Station

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Exhibit R-4a, RDT&E Schedule Detail		DATE February 2004		
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE		
07 Operational System Development	0305110F Satellite Control Network	3276 Satellite Control Network		
		<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Schedule Profile				
(U) RANGE UPGRADES (RTS Block Change)				
(U) - Vandenberg RTS Preliminary Design Review (PDR)		1Q		
(U) - Vandenberg RTS Critical Design Review (CDR)		2Q		
(U) - Eastern Vehicle Checkout Facility (EVCF) CDR		4Q		
(U) - Colorado RTS CDR			2Q	
(U) - Guam RTS CDR			3Q	
(U) - EVCF Developmental/operational test & eval			3Q	
(U) - Vandenberg RTS Developmental/operational test & eval				2Q
(U) - Colorado RTS Developmental/operational test & eval				4Q
(U) NETWORK OPERATIONS UPGRADES				
(U) - OAS follow-on Phase 2 CDR		4Q		
(U) - OAS Follow-on Phase 2 Factory Qualification Testing			2Q	
(U) - OAS Follow-on Phase 2 Gov't acceptance				1Q
(U) - OAS Follow-on Phase 3 Preliminary Design Review				2Q
(U) - OAS Follow-on Phase 3 Critical Design Review				4Q

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PE NUMBER: 0305111F
 PE TITLE: WEATHER SERVICE

Exhibit R-2, RDT&E Budget Item Justification								DATE February 2004	
BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0305111F WEATHER SERVICE					
Cost (\$ in Millions)	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
Total Program Element (PE) Cost	14.492	16.098	16.526	16.670	16.970	25.431	32.334	Continuing	TBD
2738 Weather Service	14.492	16.098	16.526	16.670	16.970	25.431	32.334	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

This budget activity funds operational development necessary to acquire, modify, and sustain segments of the Air Force Weather Weapon System (AFWWS). The AFWWS supports worldwide operations of Air Force and Army warfighters, as well as Special Operation Forces (SOF) and other government agencies, by providing observations and forecasts of terrestrial and space weather. The AFWWS provides fixed and transportable equipment supporting the Expeditionary Aerospace Force (EAF) concept with weather observing and forecasting capabilities at in-garrison and deployed locations. Air Force Weather (AFW) programs are aligned under the five core competency areas of Weather Data Collection (WDC), Weather Data Analysis (WDA), Weather Forecasting, Product Tailoring/Warfighter Applications (PT/WA), and Weather Dissemination, described in the AFW Mission Area Plan. Through this alignment, AFW ensures an integrated and systems-oriented approach to program management decisions.

WDC provides for terrestrial and space environmental sensing using automated weather observing capabilities at fixed and deployed locations worldwide. WDA provides interoperability for the AFW infrastructure with users and data sources, and includes the assimilation of advanced models, radar, lightning, and satellite data into a single user interface for the timely analysis and production of tailored weather products. Weather Forecasting integrates advanced scientific numerical weather prediction capabilities into the AFW Strategic Center for automated, high resolution mission-tailored weather forecast products. Weather Forecasting includes the Space Weather Analysis and Forecast System (SWAFS) which provides space environmental support through modernization of software capabilities to meet warfighter requirements. Product Tailoring/Warfighter Applications (PT/WA) provides timely, fine-scale weather products and services to operational commanders for a given Area of Responsibility, and at tactical levels, provides front-line weather information to warfighters in support of combat operations. PT/WA also provides the capability to ingest multiple sources of weather information to provide timely and precisely tailored weather products for the warfighter and supports the 'train as you fight' concept by assuring fixed and deployable systems have a similar look and feel. Weather Dissemination provides for the timely and reliable transmission of weather data and products to intermediate and end users.

This effort is in Budget Activity 7, Operational System Development, because it supports operational software development and system tests associated with the upgrade and replacement of currently operational systems, systems already in production, and systems with approved production funds in the DoD budget.

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Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2004

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305111F WEATHER SERVICE

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	14.095	16.317	16.526
(U) Current PBR/President's Budget	14.492	16.098	16.526
(U) Total Adjustments	0.397	-0.219	
(U) Congressional Program Reductions	0.000	-0.080	
Congressional Rescissions		-0.139	
Congressional Increases			
Reprogrammings	0.912		
SBIR/STTR Transfer	-0.515		
(U) <u>Significant Program Changes:</u>			
Not Applicable			

Exhibit R-2a, RDT&E Project Justification

DATE
February 2004

BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0305111F WEATHER SERVICE			PROJECT NUMBER AND TITLE 2738 Weather Service		
Cost (\$ in Millions)	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
2738 Weather Service	14.492	16.098	16.526	16.670	16.970	25.431	32.334	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

This budget activity funds operational development necessary to acquire, modify, and sustain segments of the Air Force Weather Weapon System (AFWWS). The AFWWS supports worldwide operations of Air Force and Army warfighters, as well as Special Operation Forces (SOF) and other government agencies, by providing observations and forecasts of terrestrial and space weather. The AFWWS provides fixed and transportable equipment supporting the Expeditionary Aerospace Force (EAF) concept with weather observing and forecasting capabilities at in-garrison and deployed locations. Air Force Weather (AFW) programs are aligned under the five core competency areas of Weather Data Collection (WDC), Weather Data Analysis (WDA), Weather Forecasting, Product Tailoring/Warfighter Applications (PT/WA), and Weather Dissemination, described in the AFW Mission Area Plan. Through this alignment, AFW ensures an integrated and systems-oriented approach to program management decisions.

WDC provides for terrestrial and space environmental sensing using automated weather observing capabilities at fixed and deployed locations worldwide. WDA provides interoperability for the AFW infrastructure with users and data sources, and includes the assimilation of advanced models, radar, lightning, and satellite data into a single user interface for the timely analysis and production of tailored weather products. Weather Forecasting integrates advanced scientific numerical weather prediction capabilities into the AFW Strategic Center for automated, high resolution mission-tailored weather forecast products. Weather Forecasting includes the Space Weather Analysis and Forecast System (SWAFS) which provides space environmental support through modernization of software capabilities to meet warfighter requirements. Product Tailoring/Warfighter Applications (PT/WA) provides timely, fine-scale weather products and services to operational commanders for a given Area of Responsibility, and at tactical levels, provides front-line weather information to warfighters in support of combat operations. PT/WA also provides the capability to ingest multiple sources of weather information to provide timely and precisely tailored weather products for the warfighter and supports the 'train as you fight' concept by assuring fixed and deployable systems have a similar look and feel. Weather Dissemination provides for the timely and reliable transmission of weather data and products to intermediate and end users.

This effort is in Budget Activity 7, Operational System Development, because it supports operational software development and system tests associated with the upgrade and replacement of currently operational systems, systems already in production, and systems with approved production funds in the DoD budget.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments/Planned Program			
(U) SWAFS: Continue spiral development for incremental deliveries of space weather prediction capabilities (funding included in Forecasting FY04 and beyond)	2.614	0.000	0.000
(U) WDC: Includes AF participation with National Weather Service and Federal Aviation Administration in Product Improvement Plans for automated weather sensors and the Next Generation Weather Radar	0.000	1.225	1.365
(U) WDA: Continues incremental software development and integration of enhanced analysis capabilities	2.058	2.652	2.188

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Exhibit R-2a, RDT&E Project Justification

DATE

February 2004

BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305111F WEATHER SERVICE	PROJECT NUMBER AND TITLE 2738 Weather Service
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(U) Forecasting: Continues integration of advanced weather forecast capabilities within AFW Strategic Center and continues (beginning in FY04) spiral development of SWAFS for incremental deliveries	2.380	6.004	4.391
(U) PT/WA: Continues software development and integration of regional and tactical weather systems and integration with warfighter C4I systems	7.440	6.217	8.582
(U) Total Cost	14.492	16.098	16.526

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Other Procurement, AF, Weather Service (PE 0305111F WSC 833070, 838010, and 86190A)	38.632	42.928	45.057	45.142	46.212	57.384	62.220	Continuing	TBD

(U) D. Acquisition Strategy

All major contracts within this program used precompeted DoD contract vehicles or were awarded after full and open competition. Programs support DoD's Common Operating Environment (COE) compliance and use an evolutionary acquisition strategy with a series of incremental IOCs and software releases. This approach accommodates refinement and prioritization of user requirements and improves adaptability to evolving commercial activities.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2004

BUDGET ACTIVITY			PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
07 Operational System Development			0305111F WEATHER SERVICE					2738 Weather Service				
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
<u>(U) Product Development</u>												
Northrup Grumman	GSA schedule/LOE	Colorado Springs, CO	0.114	2.227	Dec-02	2.255	Nov-03	1.931	Nov-04	Continuing	TBD	
Raytheon	C/CPFF	Long Beach, CA	0.000	1.593	Mar-03					Continuing	TBD	
TBD [WDA]	C/CPFF		0.000			2.112	Mar-04	1.681	Dec-04	Continuing	TBD	
Multiple [PT/WA]	GSA schedule/LOE	various	8.980	4.388	Nov-02					Continuing	TBD	
TBD [PT/WA]	C/CPFF		0.000			4.166	May-04	6.208	Oct-04	Continuing	TBD	
National Weather Service	MIPR	Norman, OK	0.000			1.225	Apr-04			Continuing	TBD	
Various	various	various		4.359	Oct-02	3.866	Oct-03	3.905	Oct-04	Continuing	TBD	
Subtotal Product Development			9.094	12.567		13.624		13.725		Continuing	TBD	0.000
Remarks:												
<u>(U) Management</u>												
Electronic Systems Center		Hanscom AFB, MA		1.538	Oct-02	2.254	Oct-03	2.561	Oct-04		6.353	
Space & Missile Systems Center		Los Angeles AFB, CA		0.387	Oct-02	0.220	Oct-03	0.240	Oct-04		0.847	
Subtotal Management			0.000	1.925		2.474		2.801		0.000	7.200	0.000
Remarks:												
<u>(U) Total Cost</u>			9.094	14.492		16.098		16.526		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305111F WEATHER SERVICE

PROJECT NUMBER AND TITLE

2738 Weather Service

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Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2004

BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305111F WEATHER SERVICE	PROJECT NUMBER AND TITLE 2738 Weather Service
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(U) <u>Schedule Profile</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) WDC National Weather Service development begins (Note 1)		2Q	
(U) WDA contract award	2Q		
(U) WDA Increment 2 IOC		4Q	
(U) WDA Increment 3 IOC			4Q
(U) WDA Increment 4 contract award			2Q
(U) Forecasting FY03 PRDA tasks awarded (Note 2)	3Q		
(U) Forecasting FY03 PRDA complete		4Q	
(U) Forecasting FY04 PRDA tasks awarded		2Q	
(U) Forecasting FY04 PRDA complet			3Q
(U) Forecasting FY05 PRDA tasks awarded			2Q
(U) SWAFS Spiral 2 development began	1Q		
(U) SWAFS Spiral 2 Increment 1 IOC		1Q	
(U) SWAFS Spiral 2 Increment 2 IOC		4Q	
(U) SWAFS Spiral 2 Increment 3 IOC			4Q
(U) PT/WA follow-on RFP release		2Q	
(U) PT/WA down-select and fly-off		3-4Q	1Q
(U) PT/WA final down-select			2Q

Note 1: AF participation with National Weather Service and Federal Aviation Administration in Product Improvement Plans for automated weather sensors and the Next Generation Weather Radar (NEXRAD).

Note 2: Permission for Research and Development Announcement (PRDA) contracting vehicle for reaching multiple universities and laboratories. PRDA replaces the spiral development for Forecasting reported in FY04 PB.

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PE NUMBER: 0305114F

PE TITLE: Air Traffic Control/Approach/Landing System (ATCALs)

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305114F Air Traffic Control/Approach/Landing System (ATCALs)
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Cost (\$ in Millions)	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
Total Program Element (PE) Cost	9.141	10.421	7.371	5.221	5.314	5.418	5.488	Continuing	TBD
3587 Air Traffic Control Systems	9.141	10.421	7.371	5.221	5.314	5.418	5.488	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

This project funds research and development and management of new air traffic control surveillance, positioning, and precision approach capabilities. This project includes the Mobile Approach Control System (MACS) which will replace non-standard, unsupportable, large footprint mobile radar approach systems with a common, easily-transportable system for use by both the Air National Guard and active duty AF. This project also funds the advance of Air Force Terminal Instrument Procedures - Replacement (AFTERPS-R), which provides automated development of terminal flight instrument procedures. These procedures are specifically designed to accurately and precisely measure critical information necessary for pilots to fly designated flight paths that safely avoid obstacles and other hazards during a final approach to landing. This project is also key to ensuring Air Force Air Traffic Systems work collaboratively to safely and efficiently provide ATC services within the National Airspace System (NAS) and in host nations overseas. For example, over the next 15 years, the FAA plans to implement new or improved capabilities into the NAS in an evolutionary manner.

FY 2004-2009 will concentrate on deployment of the next generation of communications, navigation, and surveillance (CNS) technologies and the automation upgrades necessary to accommodate them. FY 2010-2015 will see additional capabilities being added to enable the concept of Free Flight throughout the NAS. Since the Air Force must provide the same level of air traffic service to the military and flying public, funds are required to conduct interoperability and architecture studies and analyses on a wide range of aviation concepts. This effort complements similar activities associated with other safety of flight and airspace access programs such as Global Air Traffic Management that predominantly focus on aircraft issues. This program is in budget activity 7, Operational System Development, because it upgrades currently fielded systems.

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	9.865	10.622	5.886
(U) Current PBR/President's Budget	9.141	10.421	7.371
(U) Total Adjustments	-0.724	-0.201	
(U) Congressional Program Reductions	-0.050	-0.110	
Congressional Rescissions	-0.104	-0.091	
Congressional Increases			
Reprogrammings	-0.183		
SBIR/STTR Transfer	-0.387		

(U) Significant Program Changes:

\$1.485M was transferred to complete MACS development.

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Exhibit R-2a, RDT&E Project Justification

DATE
February 2004

BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0305114F Air Traffic Control/Approach/Landing System (ATCALs)			PROJECT NUMBER AND TITLE 3587 Air Traffic Control Systems		
Cost (\$ in Millions)	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
3587 Air Traffic Control Systems	9.141	10.421	7.371	5.221	5.314	5.418	5.488	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

This project funds research and development and management of new air traffic control surveillance, positioning, and precision approach capabilities. This project includes the Mobile Approach Control System (MACS) which will replace non-standard, unsupportable, large footprint mobile radar approach systems with a common, easily-transportable system for use by both the Air National Guard and active duty AF. This project also funds the advance of Air Force Terminal Instrument Procedures - Replacement (AFTERPS-R), which provides automated development of terminal flight instrument procedures. These procedures are specifically designed to accurately and precisely measure critical information necessary for pilots to fly designated flight paths that safely avoid obstacles and other hazards during a final approach to landing. This project is also key to ensuring Air Force Air Traffic Systems work collaboratively to safely and efficiently provide ATC services within the National Airspace System (NAS) and in host nations overseas. For example, over the next 15 years, the FAA plans to implement new or improved capabilities into the NAS in an evolutionary manner.

FY 2004-2009 will concentrate on deployment of the next generation of communications, navigation, and surveillance (CNS) technologies and the automation upgrades necessary to accommodate them. FY 2010-2015 will see additional capabilities being added to enable the concept of Free Flight throughout the NAS. Since the Air Force must provide the same level of air traffic service to the military and flying public, funds are required to conduct interoperability and architecture studies and analyses on a wide range of aviation concepts. This effort complements similar activities associated with other safety of flight and airspace access programs such as Global Air Traffic Management that predominantly focus on aircraft issues. This program is in budget activity 7, Operational System Development, because it upgrades currently fielded systems.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments/Planned Programs			
(U) Continue MACS Air Surveillance Radar (ASR) and Ops Shelter Development	1.080		
(U) Complete MACS ASR and Ops Shelter Development		1.986	
(U) Continue MACS Precision Approach Radar (PAR) development	4.869		
(U) Complete MACS PAR development		5.546	
(U) Complete AFTERPS-R Release C Study		0.410	
(U) Continue support for all ATCALs projects	3.192	2.479	1.500
(U) Begin ATCALs pre-planned product improvement (P3I)			5.871
(U) Total Cost	9.141	10.421	7.371

Exhibit R-2a, RDT&E Project Justification

DATE

February 2004

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305114F Air Traffic
Control/Approach/Landing System
(ATCALs)

PROJECT NUMBER AND TITLE

3587 Air Traffic Control Systems

(U) C. Other Program Funding Summary (\$ in Millions)(U) D. Acquisition Strategy

Award multiple, competitive contract vehicles. Emphasize off-the-shelf technology, and maximize use of non-developmental items (NDIs).

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Exhibit R-3, RDT&E Project Cost Analysis

DATE
February 2004

BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305114F Air Traffic Control/Approach/Landing System (ATCALs)	PROJECT NUMBER AND TITLE 3587 Air Traffic Control Systems
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(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u> Prior to FY 2003 Cost	<u>FY</u> 2003 Cost	<u>FY</u> 2003 Award Date	<u>FY</u> 2004 Cost	<u>FY</u> 2004 Award Date	<u>FY</u> 2005 Cost	<u>FY</u> 2005 Award Date	<u>Cost to Complete</u>	<u>Total</u> Cost	<u>Target</u> Value of Contract
(U) <u>Product Development</u>												
AFTERPS-R	C/FPAF	MacDonald Dettwiler; Vancouver, BC	2.450			0.410	Dec-03			0.000	2.860	
MACS Airport Surveillance Radar (ASR) and Operational Shelter Development Engineering Support	C/FPAF	ITT Gilfillan; Van Nuys, CA	29.823	0.537	Nov-03	1.264	Nov-03			Continuing	TBD	
Various	C/FFP	Mitre Corp; Bedford, MA	1.407	1.150	Oct-02	1.272	Oct-03	1.000	Oct-04	Continuing	TBD	
MACS Precision Approach Radar (PAR) Development	Multiple	Multiple	2.765	0.238	Mar-03	0.350	Mar-04			Continuing	TBD	
ATCALs P3I	C/FFP	ITT Gilfillan; Van Nuys, CA		2.427	Dec-02	3.546	Feb-04			Continuing	TBD	
Subtotal Product Development	TBD	TBD	36.445	4.352		6.842		3.771	Jan-05	Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												
Various	C/FFP/T&M	Multiple	0.523	1.682	May-03	1.718	May-04	1.500	May-05	Continuing	TBD	
Subtotal Support			0.523	1.682		1.718		1.500		Continuing	TBD	0.000
Remarks:												
(U) <u>Test & Evaluation</u>												
Test & Evaluation for MACS & AFTERPS-R	MIPR	46th Test Wing, Eglin AFB FL	0.787	1.510	Dec-02	0.761	Feb-04			Continuing	TBD	
Subtotal Test & Evaluation			0.787	1.510		0.761		0.000		Continuing	TBD	0.000
Remarks:												
(U) <u>Management</u>												
Cost Estimating Support	C/T&M	MCR Federal Inc; MacLean, VA	0.550	0.082	May-03	0.100	May-04	0.100	May-05	Continuing	TBD	
Program Management Support	C/T&M	ACS Inc; Bedford, MA	0.000	1.515	May-03	1.000	May-04	1.000	May-05	Continuing	TBD	
Subtotal Management			0.550	1.597		1.100		1.100		Continuing	TBD	0.000
Remarks:												

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2004

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305114F Air Traffic
Control/Approach/Landing System
(ATCALs)

PROJECT NUMBER AND TITLE

3587 Air Traffic Control Systems

(U) Total Cost

38.305 9.141 10.421 7.371 Continuing TBD 0.000

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Exhibit R-4a, RDT&E Schedule Detail

DATE

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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305114F Air Traffic Control/Approach/Landing System (ATCALs)	PROJECT NUMBER AND TITLE 3587 Air Traffic Control Systems
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(U) <u>Schedule Profile</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Complete development of AFTERPS-R	1Q		
(U) Complete MACS ASR operations shelter development			3Q
(U) Complete MACS PAR development		3Q	
(U) Begin ATCALs P3I			4Q
(U) ASR/OPS operational testing	2Q		
(U) PAR operational testing	3Q		
(U) ATCALs P3I contract award		2Q	

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Exhibit R-2, RDT&E Budget Item Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305128F Security And Investigative Activities
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	Cost (\$ in Millions)	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
Total Program Element (PE) Cost		0.443	20.300	0.484	0.488	0.497	0.504	0.512	Continuing	TBD
1931 TECH SURVEIL COUNTER MEAS EQPT		0.443	20.300	0.484	0.488	0.497	0.504	0.512	Continuing	TBD

(U) **A. Mission Description and Budget Item Justification**

Air Force Office of Special Investigations (AFOSI) conducts specialized investigative activities and force protection support for Air Force (AF) commanders worldwide. This assists AF commanders in protecting their people and resources. AFOSI's mission includes investigating criminal matters affecting AF personnel, contract fraud and economic crimes involving AF weapons systems and spare parts, the investigation of environmental crime, counterdrugs, computer intrusion detection and forensic media analysis of computer crimes. This element supports Technical Surveillance Countermeasures (TSCM), Computer Crime Investigations (CCI), and technical support to criminal and counterintelligence investigations and operations conducted by AFOSI. AFOSI's TSCM mission conducts counterintelligence investigations for both AF and DoD facilities and programs in order to deter and detect technical surveillance operations conducted by Foreign Intelligence Services to compromise classified or sensitive information. The purpose of CCI research is to improve AF and DoD Information Operations capability by enhancing AFOSI's ability to deter or prevent spies, hackers, or saboteurs from manipulating, damaging, or stealing sensitive war fighting data or systems. Failing that, to investigate, identify, and prosecute those who do. While most research to meet operational requirements is Operational System Development, there is also research in the category of Engineering and Manufacturing Development due to a need for modifications to present technology.

The equipment required to provide technical support to investigations is unique and complex. This equipment must be continually updated to provide state-of-the-art capabilities to detect and neutralize criminal activities targeted against the AF and DoD. In an era of advancing technology, reduced manning, and increasingly high level fraud, environmental crime and computer crime investigations, technical investigative equipment must be continuously updated to enable AFOSI special agents to have the most cost effective and best possible means of thwarting criminal acts. The evolution of a new wave of computer crimes has made AFOSI responsible for the collection, investigative analysis, national level law enforcement coordination, and dissemination of hacker activity and intrusion incidents for the Air Force. AFOSI's computer crime equipment must stay on the leading edge of technology to collect criminal information as well as pursue and apprehend criminals through a global medium. AFOSI must continually update its existing high tech computer surveillance equipment to support ongoing and future investigative operations to identify hackers and hacker groups, as well as potential hostile government activities targeting Air Force communication and control systems.

Critical Infrastructure Protection identifies weaknesses in the Air Force Critical infrastructure, highlights critical countermeasures and acquires and deploys cost-effective solutions. The intent is to provide an Air Force-wide review of current infrastructure vulnerabilities; prioritize AF protection planning and integrate with existing programs; identify gaps based on AF needs; direct studies to refine AF requirements.

This program is in Budget Activity 7, Operational System Development, because its products are primarily for use in investigative activity of an operational nature.

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2004

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305128F Security And Investigative Activities

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	0.469	0.474	0.492
(U) Current PBR/President's Budget	0.443	20.300	0.484
(U) Total Adjustments	-0.026	19.826	
(U) Congressional Program Reductions			
Congressional Rescissions	-0.026		
Congressional Increases		19.830	
Reprogrammings		-0.004	
SBIR/STTR Transfer			

(U) **Significant Program Changes:**

A Congressional Increase of \$19.830 M was intended for PE 0901212F, SERVICE-WIDE SUPPORT and will be executed within that PE.

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Exhibit R-2a, RDT&E Project Justification

DATE

February 2004

BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0305128F Security And Investigative Activities			PROJECT NUMBER AND TITLE 1931 TECH SURVEIL COUNTER MEAS EQPT		
Cost (\$ in Millions)	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
1931 TECH SURVEIL COUNTER MEAS EQPT	0.443	20.300	0.484	0.488	0.497	0.504	0.512	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

Exhibit R-2a, RDT&E Project Justification

DATE
February 2004

BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305128F Security And Investigative Activities	PROJECT NUMBER AND TITLE 1931 TECH SURVEIL COUNTER MEAS EQPT
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(U) Accomplished/Planned Program		
(U) Next generation Technical Surveillance Countermeasures (TSCM) receiver.	0.257	
(U) Continue development of Computer Crimes Investiative (CCI) Equipment. and Software.	0.186	
(U) Continue development of Computer Crimes Investigative (CCI) Equipment and Software.	0.300	0.242
(U) Next Generation TSCM receiver Continuing Development	0.170	0.242
(U) Total Cost	0.443	0.484
A Congressional Increase of \$19.830 M was intended for PE 91212F and will be executed there.		

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u> <u>Actual</u>	<u>FY 2004</u> <u>Estimate</u>	<u>FY 2005</u> <u>Estimate</u>	<u>FY 2006</u> <u>Estimate</u>	<u>FY 2007</u> <u>Estimate</u>	<u>FY 2008</u> <u>Estimate</u>	<u>FY 2009</u> <u>Estimate</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
Other Procurement/Technical									
(U) Surveillance Countermeasures Equipment 3080/WSC 846030	4.018	3.998	4.055	4.072	4.014	4.088	4.154	Continuing	TBD
Other Procurement/Heavily									
(U) Armored Vehicle 3080/WSC 821700	0.460	0.243	0.242	0.241	0.241	0.246	0.250	Continuing	TBD

(U) D. Acquisition Strategy

Market Research is accomplished jointly within the DoD, Counterintelligence, and Law Enforcement communities with the various government laboratories and major defense contractors to identify locations with the ability to develop investigative tools unique to our mission needs, these technologies, capabilities, and limitations of current and future investigative tools is sometimes highly sensitive or classified.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE
February 2004

BUDGET ACTIVITY			PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
07 Operational System Development			0305128F Security And Investigative Activities					1931 TECH SURVEIL COUNTER MEAS EQPT				
(U) <u>Cost Categories</u>	<u>Contract Method</u>	<u>Performing Activity &</u>	<u>Total</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to</u>	<u>Total</u>	<u>Target</u>
(Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>& Type</u>	<u>Location</u>	<u>Prior to FY</u>	<u>2003</u>	<u>2003</u>	<u>2004</u>	<u>2004</u>	<u>2005</u>	<u>2005</u>	<u>Complete</u>	<u>Cost</u>	<u>Value of</u>
			<u>2003</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>			<u>Contract</u>
			<u>Cost</u>		<u>Date</u>		<u>Date</u>		<u>Date</u>			
(U) <u>Product Development</u>												
Sandia Natl Lab	MIPR		1.376							Continuing	TBD	
AFWIC	MIPR		0.300	0.058	Nov-03					Continuing	TBD	
Other Agency	MIPR		0.205	0.385	Jul-03	0.470	Apr-04	0.484	Apr-05	Continuing	TBD	
None											0.000	
Subtotal Product Development			1.881	0.443		0.470		0.484		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												0.000
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Test & Evaluation</u>												
US Armor Working Group	MIPR		0.000							0.000	0.000	
None											0.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u>												0.000
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>AF Infrastructure Protection Studies</u>												
AF Infrastructure Protection Studies			1.992							Continuing	TBD	
(U) Total Cost			1.881	0.443		0.470		0.484		Continuing	TBD	0.000
Remarks:												

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0305128F Security And Investigative
Activities

PROJECT NUMBER AND TITLE
1931 TECH SURVEIL COUNTER
MEAS EQPT

Fiscal Year	FY 04				FY 05				FY 06				FY 07				FY 08				FY 09				FY 10				FY 11			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
TSCM Receiver		▲				▲				▲				▲				▲				▲				▲				▲		
CCI Software Equipment		▲	▲			▲	▲			▲	▲			▲	▲			▲	▲			▲	▲			▲	▲			▲	▲	
Armored Vehicle Testing																																

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Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2004

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

**0305128F Security And Investigative
Activities**

PROJECT NUMBER AND TITLE

**1931 TECH SURVEIL COUNTER
MEAS EQPT**

(U) Schedule Profile

FY 2003

FY 2004

FY 2005

(U) TSCM Receiver

4Q

4Q

4Q

(U) CCI Software/Equipment

4Q

4Q

4Q

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PE NUMBER: 0305148F
 PE TITLE: AF Tac Measurement & Sign

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305148F AF Tac Measurement & Sign
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Cost (\$ in Millions)	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
Total Program Element (PE) Cost	15.259	7.436	7.905	13.151	2.809	3.026	3.072	0.000	0.000
5053 ARGUS	15.259	7.436	7.905	13.151	2.809	3.026	3.072	0.000	0.000

(U) A. Mission Description and Budget Item Justification

The Advanced Remote Ground Unattended Sensor (ARGUS) provides joint forces and other commanders with Intelligence, Surveillance & Reconnaissance (ISR) derived information for Intelligence Preparation of the Battlespace (IPB) on mobile Time Critical Targets (TCTs) autonomously in near real-time. In addition it will provide cueing for wide area sensors on other ISR platforms such as the Joint Surveillance Target Attack Radar System (JSTARS), Predator, U-2, Global Hawk, and next-generation ISR platforms. ARGUS is designed for 24/7 operations in support of worldwide geographic and climate conditions and can be air-delivered or hand-emplaced. Each sensor is self-contained with internal battery power, 2-way satellite communication transceiver, sensor suite, signal processing, and Global Positioning System. ARGUS program office is working cooperative development with the United States Marine Corps program office for the Advanced Air-Delivered Sensor (AADS). Spiral 1 of Block 1 provides acoustic/seismic sensing capability at least as good as in the Advanced Concept Technology Demonstration (ACTD) versions (STEEL EAGLE and STEEL RATTLER). Information dissemination for Block 1 will be from the ARGUS Operator Interface (AOI), which will require a man-in-the-loop for Spiral 1. By Spiral 2, sensing capability will be achieved through software enhancements and integration of the AOI into the theater Air Operation Centers will be via multi-intelligence workstations developed as part of the Distributed Common Ground Systems (DGCS) Block 10.2 program. After completion of Block 1, the program will continue research and development on Block 1 sensors, comms and battery; and explore opportunities for ARGUS/AADS mission expansion to other sensor capabilities.

This program is in budget activity 7, Operational Systems Development, because it addresses development and capabilities to support already operational weapon systems.

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	15.486	7.510	15.826
(U) Current PBR/President's Budget	15.259	7.436	7.905
(U) Total Adjustments	-0.227	-0.074	
(U) Congressional Program Reductions	-0.163	-0.064	
Congressional Rescissions		-0.010	
Congressional Increases			
Reprogrammings	-0.064		
SBIR/STTR Transfer			

(U) Significant Program Changes:

FY05: Program realigned to support higher priority AF requirements.

Exhibit R-2a, RDT&E Project Justification

DATE

February 2004

BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0305148F AF Tac Measurement & Sign			PROJECT NUMBER AND TITLE 5053 ARGUS		
Cost (\$ in Millions)	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
5053 ARGUS	15.259	7.436	7.905	13.151	2.809	3.026	3.072	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The Advanced Remote Ground Unattended Sensor (ARGUS) provides joint forces and other commanders with Intelligence, Surveillance & Reconnaissance (ISR) derived information for Intelligence Preparation of the Battlespace (IPB) on mobile Time Critical Targets (TCTs) autonomously in near real-time. In addition it will provide cueing for wide area sensors on other ISR platforms such as the Joint Surveillance Target Attack Radar System (JSTARS), Predator, U-2, Global Hawk, and next-generation ISR platforms. ARGUS is designed for 24/7 operations in support of worldwide geographic and climate conditions and can be air-delivered or hand-emplaced. Each sensor is self-contained with internal battery power, 2-way satellite communication transceiver, sensor suite, signal processing, and Global Positioning System. ARGUS program office is working cooperative development with the United States Marine Corps program office for the Advanced Air-Delivered Sensor (AADS). Spiral 1 of Block 1 provides acoustic/seismic sensing capability at least as good as in the Advanced Concept Technology Demonstration (ACTD) versions (STEEL EAGLE and STEEL RATTLER). Information dissemination for Block 1 will be from the ARGUS Operator Interface (AOI), which will require a man-in-the-loop for Spiral 1. By Spiral 2, sensing capability will be achieved through software enhancements and integration of the AOI into the theater Air Operation Centers will be via multi-intelligence workstations developed as part of the Distributed Common Ground Systems (DGCS) Block 10.2 program. After completion of Block 1, the program will continue research and development on Block 1 sensors, comms and battery; and explore opportunities for ARGUS/AADS mission expansion to other sensor capabilities.

This program is in budget activity 7, Operational Systems Development, because it addresses development and capabilities to support already operational weapon systems.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments/Planned Program	0.000	0.000	0.000
(U) Concept and Technology Development activities (ACTD activities and support)	5.236	0.000	0.000
(U) Test Support to complete C&TD/ACTD activities in 2003 (Operation Iraqi Freedom)	3.685	0.000	0.000
(U) System Development and Demonstration (SDD)	6.138	4.936	7.670
(U) Test support to SDD	0.000	2.000	0.235
(U) Simulation Support	0.200	0.500	0.000
(U) Total Cost	15.259	7.436	7.905

Exhibit R-2a, RDT&E Project Justification

DATE

February 2004

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305148F AF Tac Measurement & Sign

PROJECT NUMBER AND TITLE

5053 ARGUS

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Other Procurement, AF (3080)	0.000	0.000	0.000	0.000	4.975	10.174	10.388	21.100	46.637
(U) O&M, AF (3400)	0.000	0.000	0.000	0.951	2.457	3.274	3.339	Continuing	TBD

(U) D. Acquisition Strategy

ARGUS/AADS follows directly from the STEEL EAGLE ACTD for air delivered and STEEL RATTLER ACTD for hand emplaced ground sensors. The ARGUS/AADS program SDD will build on successes and lessons learned from the ACTD, its operational demonstrations, and uses. Proposals were solicited for development and prototype design through open and competitive bid contract, type cost plus award fee with incentives. ARGUS/AADS will develop and procure using spiral development in order to achieve operational utility in the minimal timeframe. ARGUS/AADS will leverage existing advanced government work where feasible, and other non-developmental items (NDI) to the maximum extent possible. Procurement of production models is planned to use a Firm Fixed Price (FFP) contract structure.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE
February 2004

BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0305148F AF Tac Measurement & Sign				PROJECT NUMBER AND TITLE 5053 ARGUS				
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
<u>(U) System Development & Demonstration</u> Textron	C/CPAF	ESC, Hanscom AFB, MA	0.000	6.138	Jul-03	4.936	Oct-03	7.670	Oct-04	11.151	29.895	
Subtotal System Development & Demonstration			0.000	6.138		4.936		7.670		11.151	29.895	0.000
Remarks:												
<u>(U) Test & Evaluation</u> 40th Test Wing, Sandia; Joint Munitions Test & Evaluation Program Office; Textron	MIPR, C/CPAF	Eglin AFB, FL; DOE-Washington, DC; Hanscom AFB, MA	0.000	3.685	Jul-03	2.000	Dec-03	0.235	Oct-04	4.809	10.729	
Subtotal Test & Evaluation			0.000	3.685		2.000		0.235		4.809	10.729	0.000
Remarks:												
<u>(U) Simulation Support</u> Lincoln Lab, SEEK Eagle	FFRDC, MIPR	Hanscom AFB, MA; Eglin AFB, FL	0.000	0.200	Aug-03	0.500	Mar-04	0.000		0.000	0.700	
Subtotal Simulation Support			0.000	0.200		0.500		0.000		0.000	0.700	0.000
Remarks:												
<u>Concept & Technology Development</u> <u>(U) (ACTD Completion)</u> Sandia; Joint Munitions T&E Program Office	MIPR	DOE-Washington DC; Eglin AFB, FL	0.000	5.236	Feb-03	0.000		0.000		0.000	5.236	
Subtotal Concept & Technology Development (ACTD Completion)			0.000	5.236		0.000		0.000		0.000	5.236	0.000
Remarks:												
<u>(U) Total Cost</u>			0.000	15.259		7.436		7.905		15.960	46.560	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE
February 2004

BUDGET ACTIVITY
07 Operational System Development

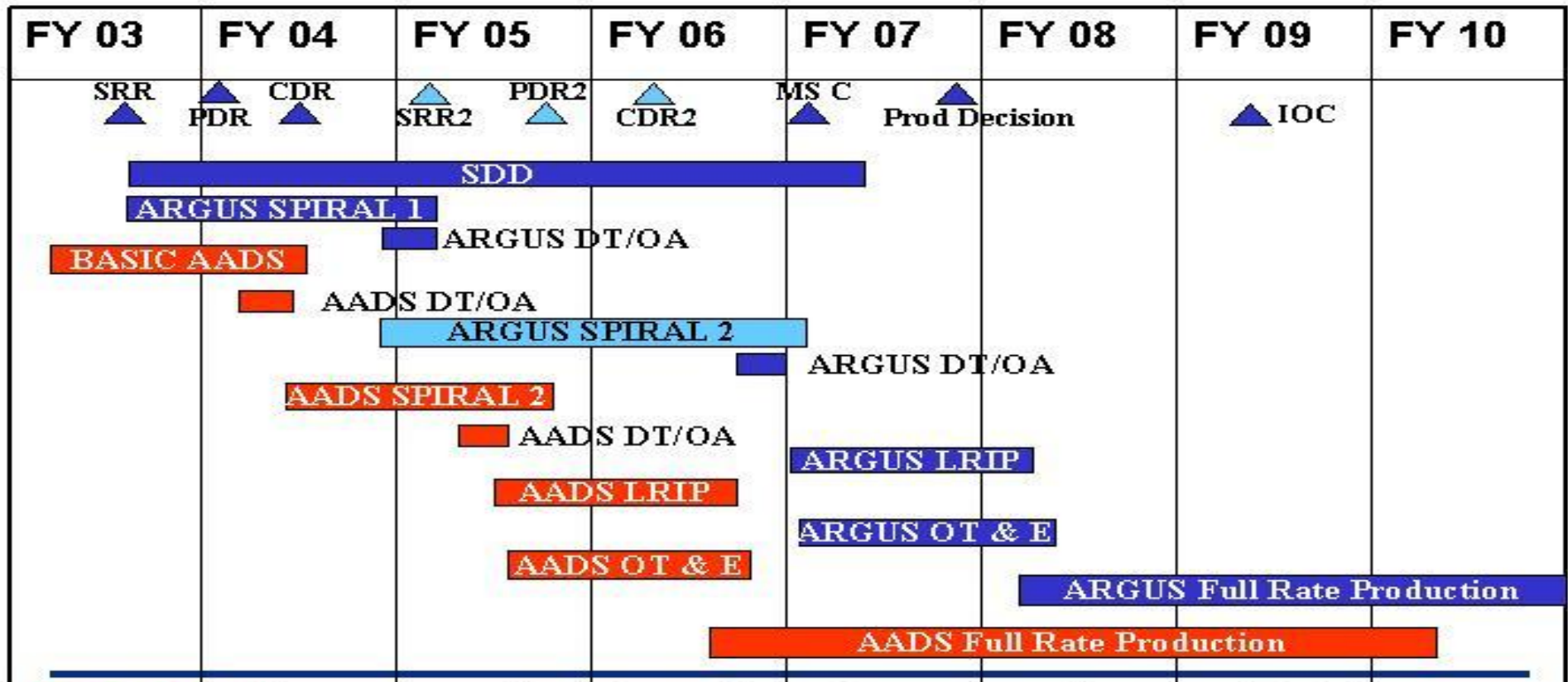
PE NUMBER AND TITLE
0305148F AF Tac Measurement &
Sign

PROJECT NUMBER AND TITLE
5053 ARGUS



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ARGUS/AADS Block 1 Schedule



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Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305148F AF Tac Measurement &
Sign

PROJECT NUMBER AND TITLE

5053 ARGUS



Schedule Acronyms & Legend

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- ARGUS – Advanced Remote Ground Unattended Sensor
- AADS – Advanced Air-Delivered Sensor
- SRR – Systems Readiness Review
- PDR – Preliminary Design Review
- CDR – Critical Design Review
- MS C – Milestone C Decision
- IOC – Initial Operational Capability
- FOC – Full Operational Capability
- LRIP – Low-Rate Initial Production
- DT/OA – Development Test/Operational Assessment
- OT&E – Operational Test & Evaluation
- ARGUS Spiral 1 Activities for Block 1
- ARGUS Spiral 2 Activities for Block 1
- USMC AADS Activities

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Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2004

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

**0305148F AF Tac Measurement &
Sign**

PROJECT NUMBER AND TITLE

5053 ARGUS

(U) <u>Schedule Profile</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Program Start	2Q		
(U) Milestone B	2Q		
(U) SDD Contract Award	4Q		
(U) Begin Spiral 1 Development of Block 1	4Q		
(U) Complete C&TD (ACTD residual activities)	4Q		
(U) Ballistic Testing		2Q	
(U) Begin Spiral 2 Development of Block 1		4Q	
(U) Complete Spiral 1 Development of Block 1			4Q

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PE NUMBER: 0305160F

PE TITLE: Defense Meteorological Satellite Program

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305160F Defense Meteorological Satellite Program
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Cost (\$ in Millions)	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
Total Program Element (PE) Cost	5.031	0.907	0.000	0.000	0.000	0.000	0.000	0.000	897.918
4758 DMSP Program	5.031	0.907	0.000	0.000	0.000	0.000	0.000	0.000	897.918

(U) A. Mission Description and Budget Item Justification

The Defense Meteorological Satellite Program (DMSP) is a fully operational program supporting a broad range of strategic and tactical national security users that require timely and accurate global weather information. DMSP is a critically important tool enabling commanders to effectively employ weapon systems and protect DoD resources in any operational battlespace. DMSP is DoD's only assured source of global weather data providing visible and infrared cloud cover imagery (1/3 nautical miles (nm) constant resolution) and other meteorological, oceanographic, land surface, and space environmental data. At least two satellites are required in sun-synchronous, 450nm polar-orbit at all times (sun-synchronous means the satellites cross the equator at the same local sun time on each of their 14 orbits/day). DMSP F-15 was the first Block 5D3 satellite (with legacy sensors) and was launched on a Titan-II booster in Dec 99. DMSP F-16, launched Oct 03, is the first 'full-up' Block 5D3 (spacecraft bus plus sensors) and was the last DMSP to launch on a Titan-II booster. The remaining DMSP satellites, F-17 through F-20, are all manifested to launch on Evolved Expendable Launch Vehicle (EELV) boosters (either Atlas or Delta).

This program is in Budget Activity 7, Operational Systems Development, because it supports the current operational DMSP constellation.

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	3.816	0.918	
(U) Current PBR/President's Budget	5.031	0.907	
(U) Total Adjustments	1.215	-0.011	
(U) Congressional Program Reductions		-0.011	
Congressional Rescissions			
Congressional Increases			
Reprogrammings	1.215		
SBIR/STTR Transfer			

(U) Significant Program Changes:

Funding: Additional \$1.215M required in FY2003 for F-16 Calibration and Validation and Titan II support as a result of launch delays.

Schedule: F-16 was launched in Oct 03 (previously scheduled for 2QFY02). Schedule slip was caused by multiple technical problems with the booster, satellite, and sensors. F-17 is on track for 3QFY05 launch; F-18 slips to 1QFY08 to maintain 24-month launch centers.

Technical: DMSP F-18 was moved to the Atlas V EELV booster rather than the Delta IV EELV.

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0305160F Defense Meteorological Satellite Program			PROJECT NUMBER AND TITLE 4758 DMSP Program		
Cost (\$ in Millions)	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
4758 DMSP Program	5.031	0.907	0.000	0.000	0.000	0.000	0.000	0.000	897.918
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The Defense Meteorological Satellite Program (DMSP) is a fully operational program supporting a broad range of strategic and tactical national security users that require timely and accurate global weather information. DMSP is a critically important tool enabling commanders to effectively employ weapon systems and protect DoD resources in any operational battlespace. DMSP is DoD's only assured source of global weather data providing visible and infrared cloud cover imagery (1/3 nautical miles (nm) constant resolution) and other meteorological, oceanographic, land surface, and space environmental data. At least two satellites are required in sun-synchronous, 450nm polar-orbit at all times (sun-synchronous means the satellites cross the equator at the same local sun time on each of their 14 orbits/day). DMSP F-15 was the first Block 5D3 satellite (with legacy sensors) and was launched on a Titan-II booster in Dec 99. DMSP F-16, launched Oct 03, is the first 'full-up' Block 5D3 (spacecraft bus plus sensors) and was the last DMSP to launch on a Titan-II booster. The remaining DMSP satellites, F-17 through F-20, are all manifested to launch on Evolved Expendable Launch Vehicle (EELV) boosters (either Atlas or Delta).

This program is in Budget Activity 7, Operational Systems Development, because it supports the current operational DMSP constellation.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Continue system integration and test, studies, and related support activities	2.886	0.611	
(U) Continue EELV interface design (transition to EELV)	0.335	0.050	
(U) Complete F-16 5D3 sensor calibration and validation	1.810	0.246	
(U) Total Cost	5.031	0.907	0.000

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u> <u>Actual</u>	<u>FY 2004</u> <u>Estimate</u>	<u>FY 2005</u> <u>Estimate</u>	<u>FY 2006</u> <u>Estimate</u>	<u>FY 2007</u> <u>Estimate</u>	<u>FY 2008</u> <u>Estimate</u>	<u>FY 2009</u> <u>Estimate</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) AF RDT&E									
(U) Other APPN									
Missile Procurement/PE									
(U) 0305160F (Budget Activity 5, Line Item P-33)	69.373	67.469	74.201	66.829	68.967	74.344	70.667	150.104	2,729.869
Related RDT&E: PE 0603434F, National Polar-orbiting Operational Environmental Satellite System (NPOESS) PE 0305160N, Navy Meteorological and Oceanographic Sensor-Space (METOC) (provides funds for Navy unique studies)									

(U) D. Acquisition Strategy

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Exhibit R-2a, RDT&E Project Justification

DATE

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305160F Defense Meteorological
Satellite Program

PROJECT NUMBER AND TITLE

4758 DMSP Program

Support and services contracts for the spacecraft, sensors, ground systems, and supporting software have been awarded to various contractors. No major milestone decisions remain. Production of DMSP satellites has been completed. Remaining effort is to continue spacecraft and sensor integration and test and successfully launch remaining DMSP satellites.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305160F Defense Meteorological Satellite Program	PROJECT NUMBER AND TITLE 4758 DMSP Program
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(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
(U) <u>Product Development</u>												
Lockheed -Martin	SS/CPAF		3.764							0.000	3.764	
Lockheed-Martin	SS/CPAF		10.553	0.573	May-97	0.511	Jun-02				11.637	
Northrop-Grumman (CSS&S)	SS/CPAF		11.884	0.712	May-00						12.596	
Lockheed-Martin	C/CPAF		39.513							0.000	39.513	
Lockheed-Martin	C/CPAF		1.723	0.335	Jun-02	0.050					2.108	
Harris (SSMIS/STT SW)	C/CPAF		8.617							0.000	8.617	
Det 11/GSA (Mark IVB P3I)	MIPR		2.986							0.000	2.986	
Lockheed-Martin (Titan II Msn Unique Studies)	SS/CPAF		5.358	0.700	Oct-02					0.000	6.058	
Boeing (EELV Msn Unique Studies & Services)	SS/CPAF		1.534	0.093	Oct-02					0.000	1.627	
Aerojet	SS/CPAF		2.530							0.000	2.530	
Aerojet	C/CPAF/FFP		85.979							0.000	85.979	
Aerojet (SSM/TW/IS S&S & Model + SSMIS)	SS/CPAF		2.183							0.000	2.183	
Raytheon, formerly Hughes (SSMI Spt & Svc)	SS/CPFF		0.236							0.000	0.236	
AFRL	MIPR/PD		5.289							0.000	5.289	
NRL	MIPR/Var		14.051	0.250	Oct-02					0.000	14.301	
APL	MIPR/Var		3.538							0.000	3.538	
SMC (Det 3 SSSG/NPOESS)	FCA/MIPR		2.506							0.000	2.506	
Sandia	MIPR/Var		0.820							0.000	0.820	
NOAA			0.034							0.000	0.034	
Other	Various		4.811	1.560	Oct-02	0.246				0.000	6.617	
Historical Satellite Blocks	Various		583.786								583.786	
NONE											0.000	
Subtotal Product Development			791.695	4.223		0.807		0.000		0.000	796.725	0.000

Remarks:

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE
07 Operational System Development	0305160F Defense Meteorological Satellite Program	4758 DMSP Program
(U) <u>Support</u>		
FFRDC AF 277	25.304 0.319 Oct-02	25.623
PRC/BD Systems/TASS C/CPAF	9.515	0.000 9.515
Program Mgmt	22.720	0.000 22.720
Litigation Support	1.809	0.000 1.809
Other Various	2.407 0.489 Oct-02 0.100 Oct-03	0.000 2.996
Historical Satellite Blocks Various	38.530	0.000 38.530
NONE		0.000
Subtotal Support	100.285 0.808 0.100 0.000	0.000 101.193 0.000
Remarks:		
(U) <u>Test & Evaluation</u>		
NONE		0.000
NONE		0.000
Subtotal Test & Evaluation	0.000 0.000 0.000 0.000	0.000 0.000 0.000
Remarks:		
(U) <u>Management</u>		
Subtotal Management	0.000 0.000 0.000 0.000	0.000 0.000 0.000
Remarks:		
(U) Total Cost	891.980 5.031 0.907 0.000	0.000 897.918 0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0305160F Defense Meteorological
Satellite Program

PROJECT NUMBER AND TITLE
4758 DMSP Program

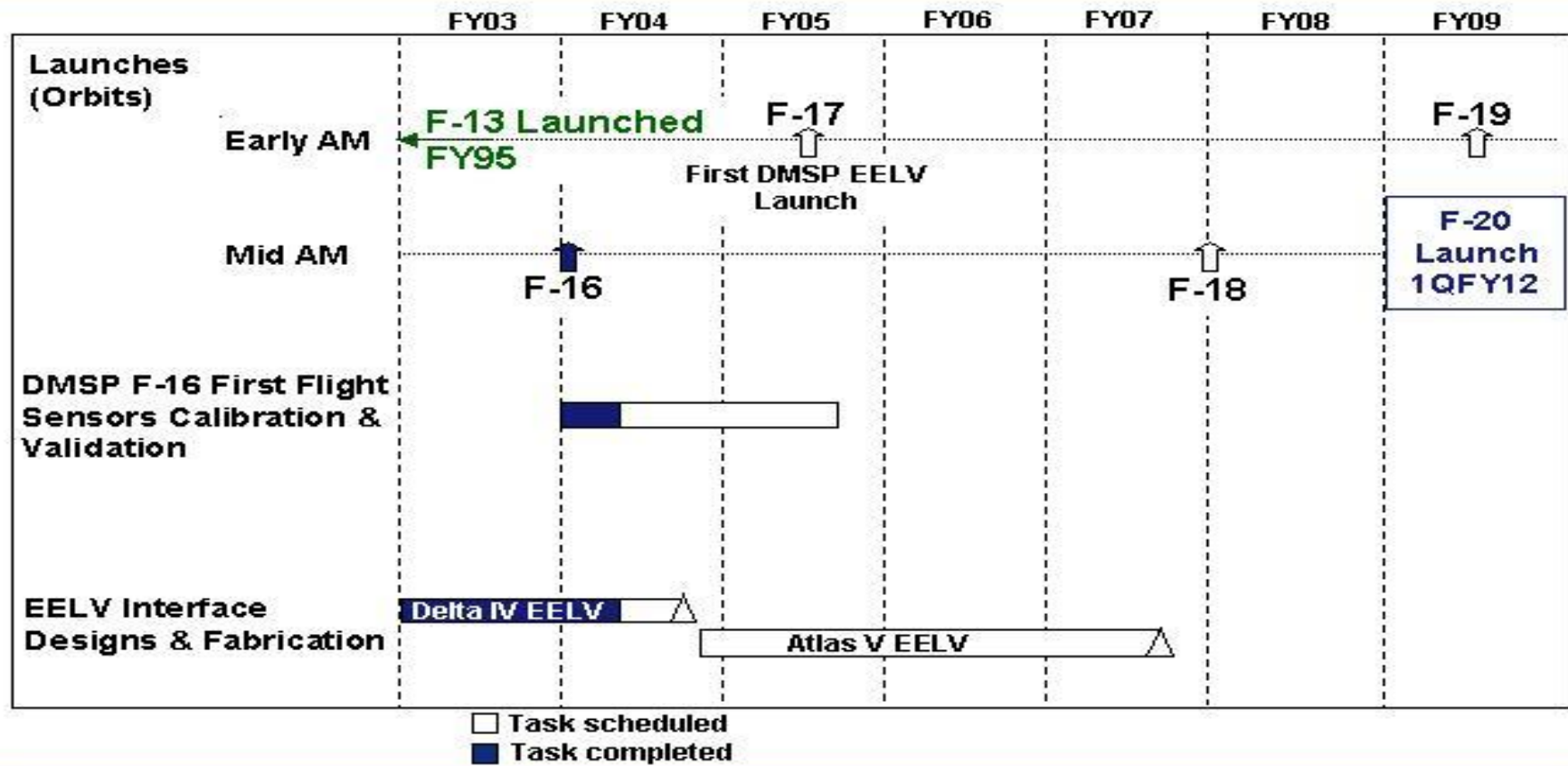


Exhibit R-4a, RDT&E Schedule Detail

DATE

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305160F Defense Meteorological
Satellite Program

PROJECT NUMBER AND TITLE

4758 DMSP Program

(U) Schedule Profile

FY 2003

FY 2004

FY 2005

(U) F-16 Satellite Launch

1Q

(U) F-17 Satellite Launch

3Q

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PE NUMBER: 0305164F

PE TITLE: NAVSTAR Global Positioning System User Equipment Space

Exhibit R-2, RDT&E Budget Item Justification								DATE February 2004	
BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0305164F NAVSTAR Global Positioning System User Equipment Space					
Cost (\$ in Millions)	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
Total Program Element (PE) Cost	80.500	99.449	104.114	92.697	89.204	76.032	73.975	Continuing	TBD
3028 Navstar GPS	80.500	99.449	104.114	92.697	89.204	76.032	73.975	Continuing	TBD

(U) **A. Mission Description and Budget Item Justification**

The Global Positioning System (GPS) is a space-based radio positioning, navigation, and time distribution system. GPS User Equipment (UE) consists of standardized receivers, antennas, antenna electronics, etc., grouped together in sets to derive navigation and time information transmitted from GPS satellites. These receiver sets are used by all Services and DoD. RDT&E funds UE development and testing, studies and engineering to assist UE aircraft integration, software upgrades, product improvement studies, commercial GPS UE test and evaluation, and mission support. Due to increasing military GPS dependence and emerging Electronic Warfare (EW) threat, Navigation Warfare (Navwar) program was established to address EW solutions for GPS. Key elements of GPS Modernization include protecting U.S. military and allies' use of GPS, preventing hostile exploitation of GPS, and preserving civil use of GPS outside the area of operations (AOO).

This program element is in Budget Activity 7 - Operational System Development, because UE passed Milestone IIB in January 1992.

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	85.241	100.589	104.387
(U) Current PBR/President's Budget	80.500	99.449	104.114
(U) Total Adjustments	-4.741	-1.140	
(U) Congressional Program Reductions		-1.140	
Congressional Rescissions			
Congressional Increases			
Reprogrammings	-2.350		
SBIR/STTR Transfer	-2.391		
(U) <u>Significant Program Changes:</u>			
No significant program changes.			

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0305164F NAVSTAR Global Positioning System User Equipment Space			PROJECT NUMBER AND TITLE 3028 Navstar GPS			
Cost (\$ in Millions)		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
3028	Navstar GPS	80.500	99.449	104.114	92.697	89.204	76.032	73.975	Continuing	TBD
	Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The Global Positioning System (GPS) is a space-based radio positioning, navigation, and time distribution system. GPS User Equipment (UE) consists of standardized receivers, antennas, antenna electronics, etc., grouped together in sets to derive navigation and time information transmitted from GPS satellites. These receiver sets are used by all Services and DoD. RDT&E funds UE development and testing, studies and engineering to assist UE aircraft integration, software upgrades, product improvement studies, commercial GPS UE test and evaluation, and mission support. Due to increasing military GPS dependence and emerging Electronic Warfare (EW) threat, Navigation Warfare (Navwar) program was established to address EW solutions for GPS. Key elements of GPS Modernization include protecting U.S. military and allies' use of GPS, preventing hostile exploitation of GPS, and preserving civil use of GPS outside the area of operations (AOO).

This program element is in Budget Activity 7 - Operational System Development, because UE passed Milestone IIB in January 1992.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Continue Advanced UE Technology efforts	27.025	17.739	15.117
(U) Continue SAASM/GRAM-SAASM development	15.963	9.613	7.726
(U) Continue Integration, Test and Evaluation	4.659	5.890	6.241
(U) Continue System Engineering and program support	25.648	26.031	21.030
(U) Continue Modernization efforts (M-Code Development)	7.205	40.176	54.000
(U) Total Cost	80.500	99.449	104.114

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u> <u>Actual</u>	<u>FY 2004</u> <u>Estimate</u>	<u>FY 2005</u> <u>Estimate</u>	<u>FY 2006</u> <u>Estimate</u>	<u>FY 2007</u> <u>Estimate</u>	<u>FY 2008</u> <u>Estimate</u>	<u>FY 2009</u> <u>Estimate</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) AF RDT&E									
(U) Other APPN									
Operations and Maintenance									
(U) (PE 0305164F, BA 1 - Operating Forces, SAG 13D)	1.145	2.160	2.250	2.265	2.257	2.403	2.388	Continuing	TBD
(U) Aircraft Procurement (PE 0305164F, BA 7, Aircraft)	16.654	29.326	28.469	27.646	23.861	35.309	36.482	Continuing	TBD

Exhibit R-2a, RDT&E Project Justification

DATE

February 2004

BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305164F NAVSTAR Global Positioning System User Equipment Space	PROJECT NUMBER AND TITLE 3028 Navstar GPS
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(U) **C. Other Program Funding Summary (\$ in Millions)**

Support Equipment, BP19)
 Other Procurement (PE
 0305164F, BP 63 - Electronics
 & Telecommunications
 Equipment, WSC 6730, P-70);
 BP 86 - Spares & Repair Parts,
 WSC 190A, P-111)

	4.301	10.255	10.272	8.186	5.308	4.826	3.918	Continuing	TBD
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(U) **D. Acquisition Strategy**

Several ongoing and planned concept definition and technology risk reduction programs will define and mature GPS technologies needed for GPS Modernization. Air Force strategy is to develop an open system architecture for a GPS receiver based on the GPS Receiver Applications Module (GRAM) concept. The GRAM-Selective Availability Anti-Spoofing Module (SAASM) program is a further risk reduction effort to integrate the GPS receiver operations internally between GRAM and SAASM. Also, several anti-jam technology risk reduction efforts will be pursued to mature technologies and prepare for technology insertion. GPS UE continues to work with platforms/users to identify requirements and upgrade paths for GPS enhancements. In addition, to combat the potential threat that U.S. forces may be denied the use of GPS signals, the Advanced Digital Antenna Production (ADAP) program (a follow-on to the GPS Antenna System (GAS-1)), is being developed.

The Modernized User Equipment (MUE) program will develop controlled, non-proprietary specifications and interface control documents (ICDs), to enable the Services to acquire affordable M-Code UE through their program offices and/or the GPS JPO. An assurance plan will verify compliance. The program will use a phased approach:

- Cost Plus Fixed Fee (CPFF) Program and Research Development Announcement (PRDA) contracts for program concept development are intended to reduce risk and advance the technology required for future development (awarded 3QFY03).
- A follow-on contract for engineering development of single form factors (aviation) as well as integration and test is scheduled for contract award in FY05.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE
February 2004

BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305164F NAVSTAR Global Positioning System User Equipment Space	PROJECT NUMBER AND TITLE 3028 Navstar GPS
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(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u> Prior to FY 2003 Cost	<u>FY</u> 2003 Cost	<u>FY</u> 2003 Award Date	<u>FY</u> 2004 Cost	<u>FY</u> 2004 Award Date	<u>FY</u> 2005 Cost	<u>FY</u> 2005 Award Date	<u>Cost to Complete</u>	<u>Total</u> Cost	<u>Target</u> Value of Contract
(U) <u>Product Development</u>												
Rockwell (MAGR)	C/FPIF/FFP/ CPAF		19.293	0.000		0.000		0.000		0.000	19.293	
DOE Sandia (SAASM)	MIPR	Kirtland AFB, NM	20.432	6.441	Dec-02	6.150	Feb-04	6.750	Jan-05	Continuing	TBD	
NAWC (SAASM)	MIPR		0.599	0.000		0.000		0.000		0.000	0.599	
Various (SAASM)	Various	Various	18.593	9.522		3.463		0.976		Continuing	TBD	
Various (M-Code)	Various	Various	18.112	7.205		40.176		54.000		Continuing	TBD	
Alliant Techsys Inc (SAASM) & Multiple NAVWAR PRDAs	C/CPFF & C/CPAF		18.222	0.000		0.000		0.000		0.000	18.222	
Holloman AFB (Integration)	Project Order	46th TG, Holloman AFB, NM	4.804	0.596	Nov-02	0.409	Jan-04	0.656	Jan-05	Continuing	TBD	
General Dynamics (Various)	Time and Materials		1.810	0.000		0.000		0.000		0.000	1.810	
Completed technology development efforts	Various		85.634	0.000		0.000		0.000		0.000	85.634	
Allan Osborne, Alliant Tech, Rockwell Collins, and Raytheon (DAGR)	PRDA	Various	17.524	8.429		0.000		0.000		Continuing	TBD	
Various (GRAM-SAASM)	PRDA		30.494	0.000		0.000		0.000		0.000	30.494	
Advanced UE Tech Invest Receiver Technology	Various		4.646	0.000		0.000		0.000		0.000	4.646	
	MIPR	AFRL - WPAFB, OH & KAFB, NM	5.963	4.250	Feb-03	5.207	Nov-03	2.100	Dec-04	Continuing	TBD	
Anti-jam Filter Technology	Various	Various	2.045	5.802		2.882		1.182		Continuing	TBD	
Advanced Antenna Technology	Various	Various	11.052	8.544		9.650		11.835		Continuing	TBD	
Subtotal Product Development			259.223	50.789		67.937		77.499		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												
Overlook Sys (OASD/C3I)	C/CPFF	OASD, Arlington, VA	24.536	2.537	Jan-03	0.000		0.000		0.000	27.073	
Aerospace Corp (Technical Supt)	CPFF	Aerospace, Los Angeles, CA	5.835	3.651	Dec-02	5.482	Jan-04	3.162	Dec-05	Continuing	TBD	

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Exhibit R-3, RDT&E Project Cost Analysis							DATE February 2004			
BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT NUMBER AND TITLE			
07 Operational System Development				0305164F NAVSTAR Global Positioning System User Equipment Space			3028 Navstar GPS			
PRC (Technical Supt)	Time and Materials			0.714	0.000	0.000	0.000	0.000	0.714	
Miscellaneous (Program Spt)	Various	Various		15.112	19.460	20.549	17.868	Continuing	TBD	
Various (Other Navwar Studies)	Various			7.883	0.000	0.000	0.000	0.000	7.883	
Subtotal Support				54.080	25.648	26.031	21.030	Continuing	TBD	0.000
Remarks:										
(U) <u>Test & Evaluation</u>										
46th TG (SAASM/Test)	Project Order			31.987	0.000	0.000	0.000	0.000	31.987	
46th TG/UE development & production Testing	Project Order / Various	Holloman AFB, NM / Various		8.627	4.063	5.481	5.585	Continuing	TBD	
N/A									0.000	
Subtotal Test & Evaluation				40.614	4.063	5.481	5.585	Continuing	TBD	0.000
Remarks:										
(U) <u>Management</u>										0.000
Subtotal Management				0.000	0.000	0.000	0.000	0.000	0.000	0.000
Remarks:										
(U) Total Cost				353.917	80.500	99.449	104.114	Continuing	TBD	0.000

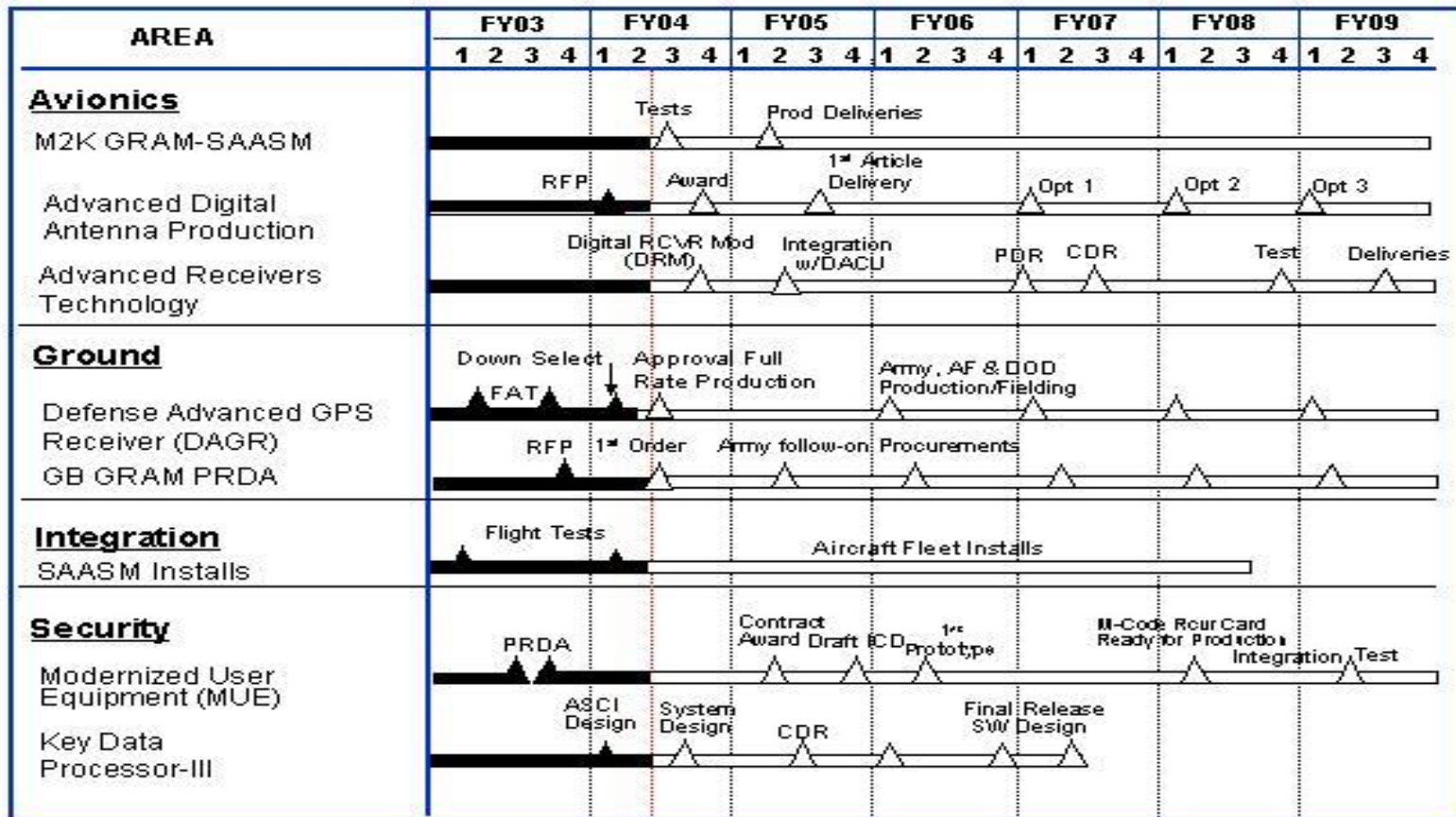
Exhibit R-4, RDT&E Schedule Profile

DATE
February 2004

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0305164F NAVSTAR Global
Positioning System User Equipment
Space

PROJECT NUMBER AND TITLE
3028 Navstar GPS



M2K - Miniaturized Airborne GPS Rcvr 2000
GRAM - GPS Receiver Applications Module
SAASM - Selective Avail Anti Spoof Module
ICD - Interface Control Document

M-Code - Military Code
PDR - Preliminary Design Review
CDR - Critical Design Review
DACU - Digital Antenna Control Unit

RFP - Request for Proposal
FAT - First Article Test Unit
PRDA - Program Research & Dev Announcement

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305164F NAVSTAR Global Positioning System User Equipment Space	PROJECT NUMBER AND TITLE 3028 Navstar GPS
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(U) <u>Schedule Profile</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Adv UE Technology - Digital AE upgrade CDR	2Q		
(U) GB GRAM-SAASM preproduction prototypes deliveries		1Q	
(U) Begin Micro-Electro Mechanical Sensor (MEMS) NRE effort		3Q	
(U) Adv Digital Antenna Production (ADAP) Contract Award		3Q	
(U) GRAM-SAASM Avionics Development Complete		3Q	
(U) M-Code Receiver Requirements Definition		4Q	
(U) Begin Digital Receiver Module Delivery		4Q	
(U) Digital Antenna Control Unit (DACU) Integration/Test			2Q
(U) Multi Beam Steering Antenna Electronics Requirement Dev			2Q
(U) MUE Single Contractor Award			2Q
(U) Advanced Digital Antenna Production (ADAP) First Article Delivery			3Q

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PE NUMBER: 0305165F
 PE TITLE: NAVSTAR GPS (Space)

Exhibit R-2, RDT&E Budget Item Justification								DATE February 2004	
BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0305165F NAVSTAR GPS (Space)					
Cost (\$ in Millions)	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
Total Program Element (PE) Cost	284.036	144.790	148.344	117.813	94.558	43.657	39.758	Continuing	TBD
3030 NAVSTAR GPS (Space & Control)	284.036	144.790	148.344	117.813	94.558	43.657	39.758	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

This program element funds Research and Development for the Navstar Global Positioning System (GPS) Space and Control segments of the overall GPS program. This includes, but is not limited to: satellite development, training simulators, development of an Integrated Mission Operation Support Center (IMOSC), Integrated Logistics Support (ILS) products, and ground control segment development, procurement, and operation; sustaining engineering; space and ground segments upgrades; and R&D efforts to support the entire GPS system deployment. This Program Element (PE) funds the Research and Development (R&D) for modernization and future GPS systems including efforts to provide anti-jam capability through increased M-Code signal power, as soon as practical.

GPS Block IIF satellites and IIR satellites will be modified to include a second civil signal and new military signal. Block IIF satellites will also include a third civil signal (L5). A new GPS Block III program (PE 0603421F) was initiated after new start approval in August 2000 to incorporate a higher power military signal to provide enhanced anti-jam capability, the second and third civil signals, and the new military signal.

GPS Modernization Stewardship funds efforts which are of a national scale, joint civil-military in nature, and benefit two or more agencies. Stewardship funding requirement transferred from PE 0603421F to this PE starting in FY04.

This program is in Budget Activity 7 - Operational Systems Development because it is a post-Milestone III program.

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	285.415	146.468	129.933
(U) Current PBR/President's Budget	284.036	144.790	148.344
(U) Total Adjustments	-1.379	-1.678	
(U) Congressional Program Reductions	0.000	-1.678	
Congressional Rescissions			
Congressional Increases			
Reprogrammings	-1.379		
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development		PE NUMBER AND TITLE 0305165F NAVSTAR GPS (Space)					PROJECT NUMBER AND TITLE 3030 NAVSTAR GPS (Space & Control)			
Cost (\$ in Millions)	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	
3030 NAVSTAR GPS (Space & Control)	284.036	144.790	148.344	117.813	94.558	43.657	39.758	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

(U) A. Mission Description and Budget Item Justification

This program element funds Research and Development for the Navstar Global Positioning System (GPS) Space and Control segments of the overall GPS program. This includes, but is not limited to: satellite development, training simulators, development of an Integrated Mission Operation Support Center (IMOSC), Integrated Logistics Support (ILS) products, and ground control segment development, procurement, and operation; sustaining engineering; space and ground segments upgrades; and R&D efforts to support the entire GPS system deployment. This Program Element (PE) funds the Research and Development (R&D) for modernization and future GPS systems including efforts to provide anti-jam capability through increased M-Code signal power, as soon as practical.

GPS Block IIF satellites and IIR satellites will be modified to include a second civil signal and new military signal. Block IIF satellites will also include a third civil signal (L5). A new GPS Block III program (PE 0603421F) was initiated after new start approval in August 2000 to incorporate a higher power military signal to provide enhanced anti-jam capability, the second and third civil signals, and the new military signal.

GPS Modernization Stewardship funds efforts which are of a national scale, joint civil-military in nature, and benefit two or more agencies. Stewardship funding requirement transferred from PE 0603421F to this PE starting in FY04.

This program is in Budget Activity 7 - Operational Systems Development because it is a post-Milestone III program.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Continue system engineering, spectrum/frequency management and program operations	10.041	16.763	6.776
(U) Continue IIF satellite development	4.487	1.100	0.100
(U) Continue GPS Modernization for Space (for IIR and IIF satellites) and enhanced anti-jam capabilities	89.589	10.817	5.353
(U) Continue IIF Spacecraft Parts Obsolescence	0.000	1.000	37.000
(U) Continue OCS development/modernization	179.919	110.510	94.415
(U) GPS Stewardship (FY03 funded in PE 0603421F)	0.000	4.600	4.700
(U) Total Cost	284.036	144.790	148.344

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Exhibit R-2a, RDT&E Project Justification

DATE
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305165F NAVSTAR GPS (Space)	PROJECT NUMBER AND TITLE 3030 NAVSTAR GPS (Space & Control)
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(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E Related RDT&E (PE 0603421F, (U) BA-4/R-40, Project 644993 - GPS Block III)	46.633	0.000	40.568	180.023	291.035	779.493	794.030	Continuing	TBD
(U) Other APPN Operations and Maintenance (U) (PE 0305165F, BA 1 - Operating Forces, SAG 13D) Missile Procurement (PE (U) 0305165F, BA 5 - Space and Other Support, P-31, 32) Other Procurement (PE 0305165F, BP 83 - Electronics and Telecommunications (U) Equipment, WSC 6790, P-70, and WSC 6730; BP 86 - Spares & Repair Parts, WSC 190A, P-111)	41.663	53.205	65.991	67.497	78.468	81.947	82.354	Continuing	TBD
	249.794	255.758	330.530	341.482	265.975	132.051	82.367	Continuing	TBD
	19.926	12.495	7.804	13.547	12.051	10.359	22.889	Continuing	TBD

(U) D. Acquisition Strategy

GPS OCS upgrade was competitively awarded to a single contractor (Lockheed Martin) in July 1995. Block IIF satellite and IIF ground systems development contract was competitively awarded to a single contractor (Boeing) in April 1996. The Single Prime Initiative (SPI) consolidated these efforts and was added to the Boeing IIF contract (with Lockheed Martin as a subcontractor) on 1 Oct 99. GPS Modernization efforts for the Block IIR were awarded sole source to Lockheed Martin under a new contract in August 2000. Modernization efforts for Block IIF were added to the existing contract with Boeing as Engineering Change Proposals (ECPs).

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Exhibit R-3, RDT&E Project Cost Analysis										DATE February 2004		
BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0305165F NAVSTAR GPS (Space)				PROJECT NUMBER AND TITLE 3030 NAVSTAR GPS (Space & Control)				
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
<u>(U) Product Development</u>												
Applied Research Labs	MIPR	Various	3.649	0.000		0.000		0.000		Continuing	TBD	0.000
OCS Development & IIF Modernization & IIF Spacecraft Parts Obsolescence (F0470196C0025)	FPAF/CPAF/CP FF	Boeing, Seal Beach, CA	573.536	246.789	Oct-02	120.380	Nov-03	131.072	Oct-04	Continuing	TBD	1,944.179
IIR Modernization Development (F0470100C0006)	CPIF	Lockheed Martin, King of Prussia, PA	65.050	9.736	Nov-02	1.000	Feb-04	0.500	Feb-05	Continuing	TBD	119.428
GPS III Modernization (F0470101C0008)	FFP	Lockheed Martin, King of Prussia, PA	15.767	0.000		0.000		0.000		0.000	15.767	20.052
GPS III Modernization (F0470101C0010)	FFP	Boeing, Seal Beach, CA	16.000	0.000		0.000		0.000		0.000	16.000	20.812
Control Segment Support	MIPR/PO	Various Gov't agencies	0.000	2.776		3.625		1.829		Continuing	TBD	TBD
EELV Mission Unique Svcs & Clock Development	MIPR/Other SPO contracts	NRL & contractors	14.930	4.687		4.785		2.075		Continuing	TBD	TBD
Stewardship	MIPR		7.274	0.000		4.600		4.700		Continuing	TBD	TBD
Accuracy Improvement Initiative (AII) (IRAQI FREEDOM FUND)	FPAF/CPAF/CP FF	Boeing, Seal Beach, CA	0.000	10.000		0.000		0.000		Continuing	TBD	TBD
Subtotal Product Development			696.206	273.988		134.390		140.176		Continuing	TBD	TBD
Remarks: None												
<u>(U) Support</u>												
System Engineering/Support	Various	FFRDC (Aerospace/Mitre), SETA	30.436	3.340	Oct-02	3.400	Oct-03	1.168	Oct-04	Continuing	TBD	TBD
GPS Modernization Tech Spt			43.249	0.000		0.000		0.000		Continuing	TBD	TBD
Miscellaneous	Various	Various	3.231							0.000	3.231	
Subtotal Support			76.916	3.340		3.400		1.168		Continuing	TBD	TBD
Remarks: None												
<u>(U) Test & Evaluation</u>												
Flex Power Testing (F0470100C0006)	FPAF/CPAF/CP	Lockheed Martin, King	0.000	1.588	Mar-03	2.000	Feb-04	2.000	Feb-05	Continuing	TBD	TBD

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Exhibit R-3, RDT&E Project Cost Analysis							DATE February 2004			
BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0305165F NAVSTAR GPS (Space)			PROJECT NUMBER AND TITLE 3030 NAVSTAR GPS (Space & Control)			
	FF	of Prussia, PA & various gov't activities		0.000	1.588	2.000	2.000	Continuing	TBD	TBD
Subtotal Test & Evaluation				0.000	1.588	2.000	2.000	Continuing	TBD	TBD
Remarks: None										
(U)	<u>Management</u>									
	Various SETA & FFRDCs	FFRDC (Aerospace) & SETA		0.000	5.120	5.000	5.000	Continuing	TBD	TBD
Subtotal Management				0.000	5.120	5.000	5.000	Continuing	TBD	TBD
Remarks: None										
(U)	Total Cost			773.122	284.036	144.790	148.344	Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

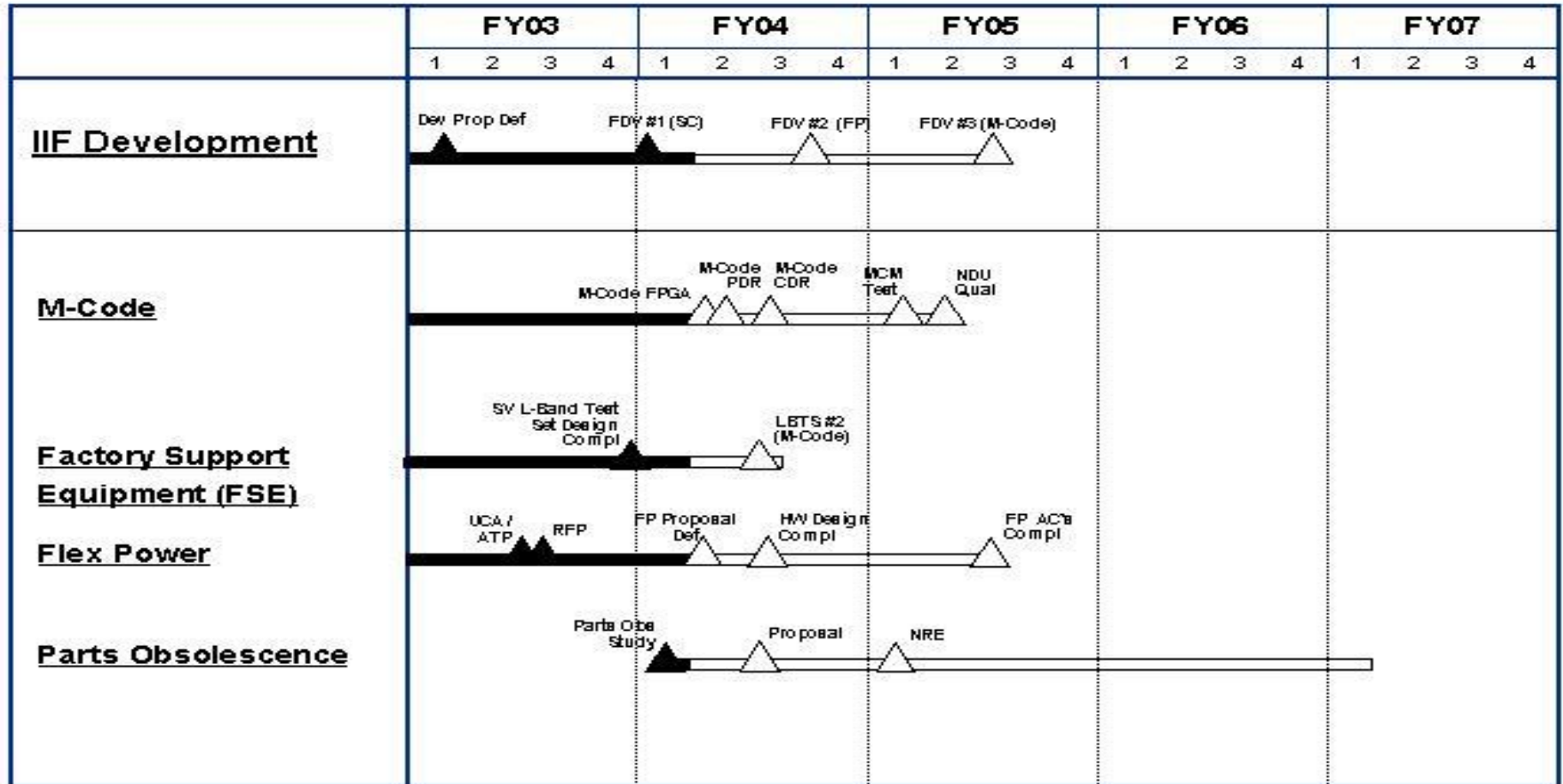
DATE

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BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0305165F NAVSTAR GPS (Space)

PROJECT NUMBER AND TITLE
3030 NAVSTAR GPS (Space & Control)



FDV - Final Design Verified
PDR - Preliminary Design Review
NDU - Navigation Data Unit
RFP - Request for Proposals

FPGA - Field Program Gate Array
CDR - Critical Design Review
SV - Space Vehicle
HW - Hardware

LBTS - L-Band Test Set
MCM - Multi-Chip Module
ATP - Authority to Proceed
NRE - Non-Recurring Engineering

Exhibit R-4, RDT&E Schedule Profile

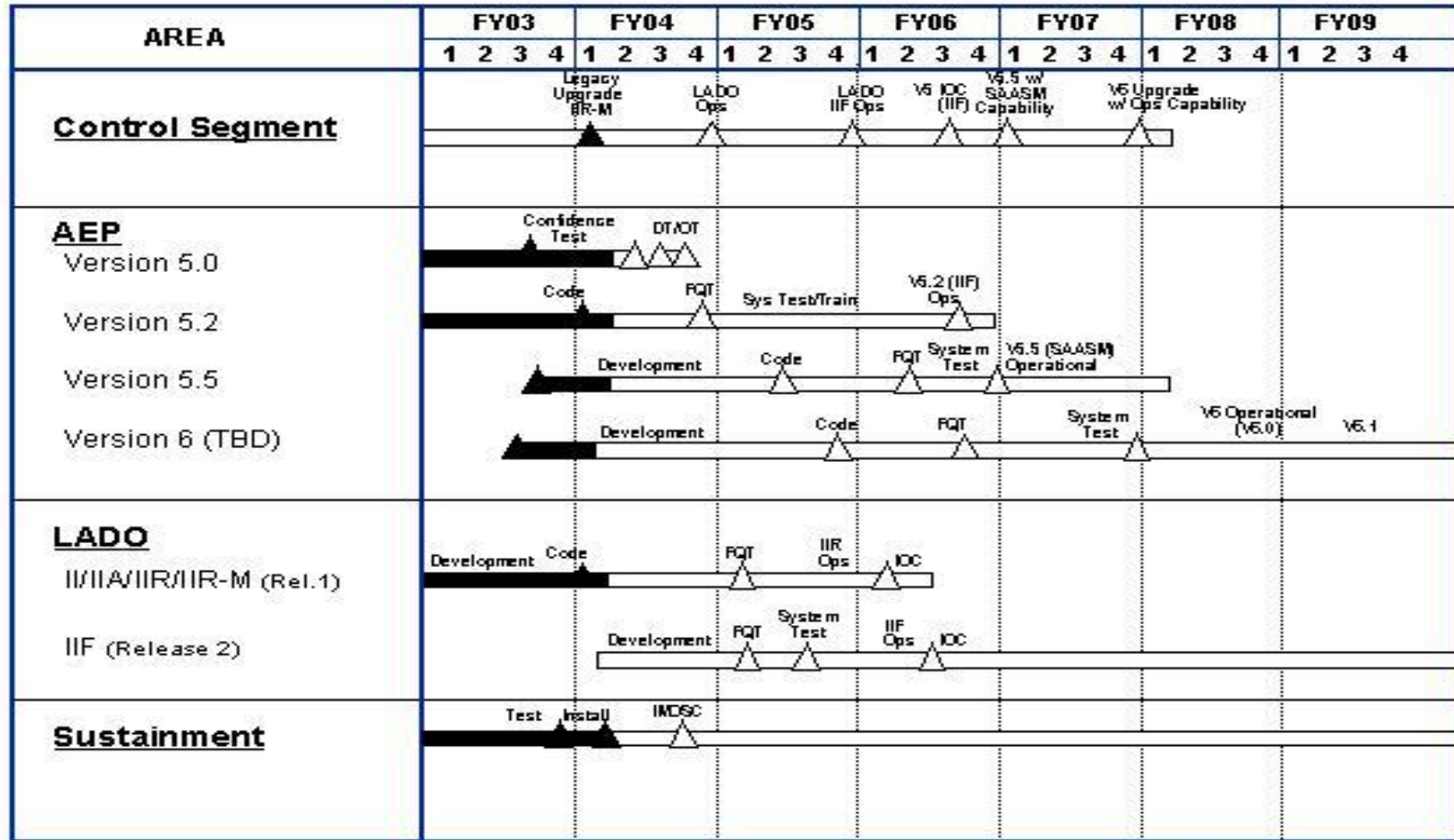
DATE

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BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0305165F NAVSTAR GPS (Space)

PROJECT NUMBER AND TITLE
3030 NAVSTAR GPS (Space & Control)



AEP - Architecture Evolution Plan
IOC - Initial Operating Capability
DT/OT - Developmental Testing/Operational Testing
FQT - Formal Qualification Test

LADO - Launch, Anomaly and Disposal Operations
SAASM - Selective Availability Anti-Spoofing Module
IMOSC - Integrated Mission Operation Support Center

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305165F NAVSTAR GPS (Space)	PROJECT NUMBER AND TITLE 3030 NAVSTAR GPS (Space & Control)
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	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Schedule Profile			
(U) Enhanced IIA IMOSC Development complete	3Q		
(U) IIF IMOSC Development Complete		4Q	
(U) Develop Launch Anomaly & Disposal Ops (LADO) System - Release 1 SW Design begins	3Q		
(U) LADO Release 1 delivery to site		3Q	
(U) Continue OCS Architectural Implementation-Version 5.0 (COTS upgrade) delivery to site	2Q		
(U) Modernized Monitor Station Receiver Element (M-MSRE) development begins	3Q		
(U) Version 5.2 (IIF baseline) delivery to site		2Q	
(U) Version 6 Development Begins	3Q		
(U) GPS Block IIF Development Complete			2Q
(U) Legacy Accuracy Improvement Initiative (AII) Capability complete		4Q	

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PE NUMBER: 0305174F
 PE TITLE: SPACE WARFARE CENTER

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305174F SPACE WARFARE CENTER
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Cost (\$ in Millions)	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
Total Program Element (PE) Cost	0.000	0.401	0.411	0.409	0.838	2.066	3.670	Continuing	TBD
A011 Space Analysis and Application Development	0.000	0.401	0.411	0.409	0.838	2.066	3.670	Continuing	TBD

(U) **A. Mission Description and Budget Item Justification**

The Air Force Space Command (AFSPC) Space Analysis Center develops and modifies new and current tools/models to support HQ Air Force Space Command analyses. Responsibilities include assessing military utility of space and missile systems, improving operational space capabilities, quantifying space effects in exercises and wargames, and acting as a key analysis focal point for collaboration within the national security space community. The models and simulations available for these purposes must continue to be modified to keep current with operational capabilities being fielded and projected to be fielded in space systems.

This effort is in BA07, Operational System Development, due to its support of fielded systems.

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	0.000	0.404	0.412
(U) Current PBR/President's Budget	0.000	0.401	0.411
(U) Total Adjustments	0.000	-0.003	
(U) Congressional Program Reductions		-0.003	
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			

Exhibit R-2a, RDT&E Project Justification

DATE
February 2004

BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0305174F SPACE WARFARE CENTER			PROJECT NUMBER AND TITLE A011 Space Analysis and Application Development		
Cost (\$ in Millions)	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
A011 Space Analysis and Application Development	0.000	0.401	0.411	0.409	0.838	2.066	3.670	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The Air Force Space Command (AFSPC) Space Analysis Center develops and modifies new and current tools/models to support HQ Air Force Space Command analyses. Responsibilities include assessing military utility of space and missile systems, improving operational space capabilities, quantifying space effects in exercises and wargames, and acting as a key analysis focal point for collaboration within the national security space community. The models and simulations available for these purposes must continue to be modified to keep current with operational capabilities being fielded and projected to be fielded in space systems.

This effort is in BA07, Operational System Development, due to its support of fielded systems.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Continue model modification.		0.196	0.200
(U) Continue verification of model changes.		0.086	0.088
(U) Continue validation of results.		0.119	0.123
(U) Total Cost	0.000	0.401	0.411

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E									
(U) Other APPN OPAF, PE 0305174F, Space Warfare Center	0.707	1.478	1.499	1.513	1.546	1.573	1.598	Continuing	TBD

(U) D. Acquisition Strategy

This effort will be accomplished with competitive contracts.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2004

BUDGET ACTIVITY			PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
07 Operational System Development			0305174F SPACE WARFARE CENTER					A011 Space Analysis and Application Development				
<u>(U) Cost Categories</u>	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to</u>	<u>Total</u>	<u>Target</u>
(Tailor to WBS, or System/Item Requirements) (\$ in Millions)			<u>Prior to FY</u>	<u>2003</u>	<u>2003</u>	<u>2004</u>	<u>2004</u>	<u>2005</u>	<u>2005</u>	<u>Complete</u>	<u>Cost</u>	<u>Value of</u>
			<u>2003</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>			<u>Contract</u>
			<u>Cost</u>		<u>Date</u>		<u>Date</u>		<u>Date</u>			
<u>(U) Product Development</u>												
Develop/modify new and current tools/models	CPFF	TBD	0.000			0.401	Mar-04	0.411		Continuing	TBD	
Subtotal Product Development			0.000	0.000		0.401		0.411		Continuing	TBD	0.000
Remarks:												
<u>(U) Support</u>												
Not Applicable											0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Test & Evaluation</u>												
Not Applicable											0.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Management</u>												
Not Applicable											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Total Cost</u>			0.000	0.000		0.401		0.411		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

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BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0305174F SPACE WARFARE CENTER

PROJECT NUMBER AND TITLE
A011 Space Analysis and Application Development

	FY02				FY03				FY04				FY05				FY06				FY07				FY08				FY09			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Network expansion								△																								
Install GPS timing clocks												△																				
Multi-level security interface upgrades																△																
Install Air Defense Space Integration equipment																				△												
Model modification, verification & validation for transformation communications, space research/analysis & launch collision avoidance																																

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305174F SPACE WARFARE CENTER	PROJECT NUMBER AND TITLE A011 Space Analysis and Application Development
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(U) <u>Schedule Profile</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Continue model modification		2Q	1Q
(U) Continue verification		3Q	3Q
(U) Continue validation		4Q	4Q

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PE NUMBER: 0305182F
 PE TITLE: Spacelift Range System

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305182F Spacelift Range System
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	Cost (\$ in Millions)	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
	Total Program Element (PE) Cost	85.181	69.908	47.253	27.099	21.582	14.551	9.619	Continuing	TBD
4137	Launch and Test Range System (LTRS) Modernization	85.181	69.908	47.253	27.099	21.582	14.551	9.619	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

The Eastern Range (ER) at Patrick Air Force Base (AFB), FL, and the Western Range (WR) at Vandenberg AFB, CA, make up the Spacelift Range System (SLRS) . They provide tracking, telemetry, flight analysis, and other capabilities necessary to safely conduct: Department of Defense, civil, and commercial spacelift operations; ballistic missile evaluations; and aeronautical and guided weapons tests. Many range assets are outdated, unreliable, inefficient, and costly to operate and maintain.

The Air Force is addressing range deficiencies through two modernization contracts. First, the Range Standardization and Automation (RSA) Phase IIA contract modernizes the control/display and communication segments at both ranges. Second, the SLRS Contract (SLRSC) modernizes instrumentation at both ranges. The SLRSC also provides overall systems engineering and architecture management, follow-on modernization of the control/display and communications segments to complete the SLRS architecture, and system level testing to complete the modernization effort. Subsequent to the FY04 President's Budget, the Air Force replanned the RSA IIA contract to complete modernization of weather, communications (voice, video, data, and timing; network management system; and digital telemetry), planning and scheduling, and flight safety systems.

These upgrades to fielded systems are categorized as Budget Activity 7, Operational Systems Development.

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	85.538	63.210	50.777
(U) Current PBR/President's Budget	85.181	69.908	47.253
(U) Total Adjustments	-0.357	6.698	
(U) Congressional Program Reductions		-0.802	
Congressional Rescissions			
Congressional Increases		7.500	
Reprogrammings			
SBIR/STTR Transfer	-0.357		

(U) Significant Program Changes:

FY 2003: Increased by \$9.0M to adjust for program restructuring.

FY 2004: Increased (Congress) by \$7.5M: 1) \$2.5M for RSA IIA; 2) \$3.0M for water supply monitoring project; and 3) \$2.0M for earthquake monitoring demo.

Exhibit R-2, RDT&E Budget Item Justification

DATE

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305182F Spacelift Range System

FY 2005: Reduced by \$3.4M to adjust for program restructuring.

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0305182F Spacelift Range System			PROJECT NUMBER AND TITLE 4137 Launch and Test Range System (LTRS) Modernization		
Cost (\$ in Millions)	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
4137 Launch and Test Range System (LTRS) Modernization	85.181	69.908	47.253	27.099	21.582	14.551	9.619	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The Eastern Range (ER) at Patrick Air Force Base (AFB), FL, and the Western Range (WR) at Vandenberg AFB, CA, make up the Spacelift Range System (SLRS). They provide tracking, telemetry, flight analysis, and other capabilities necessary to safely conduct: Department of Defense, civil, and commercial spacelift operations; ballistic missile evaluations; and aeronautical and guided weapons tests. Many range assets are outdated, unreliable, inefficient, and costly to operate and maintain.

The Air Force is addressing range deficiencies through two modernization contracts. First, the Range Standardization and Automation (RSA) Phase IIA contract modernizes the control/display and communication segments at both ranges. Second, the SLRS Contract (SLRSC) modernizes instrumentation at both ranges. The SLRSC also provides overall systems engineering and architecture management, follow-on modernization of the control/display and communications segments to complete the SLRS architecture, and system level testing to complete the modernization effort. Subsequent to the FY04 President's Budget, the Air Force replanned the RSA IIA contract to complete modernization of weather, communications (voice, video, data, and timing; network management system; and digital telemetry), planning and scheduling, and flight safety systems.

These upgrades to fielded systems are categorized as Budget Activity 7, Operational Systems Development.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Continue RSA Phase IIA. Continue development, test, and evaluation of RSA Phase IIA systems, including planning and scheduling, communications (voice, video, data, and timing; network management system; and digital telemetry), weather, flight safety, and differential GPS. Develop upgrades needed to evolve and deliver operational range capabilities. Perform product engineering, integration efforts, engineering studies, and related tasks to support the architecture. This includes \$2.5M added by Congress in FY04 for RSA IIA.	34.053	32.751	12.071
(U) Continue SLRSC. Continue systems engineering technical effort including architecture management, requirement management, systems integration, and engineering analyses. Develop specifications for SLRS systems. Integrate modernized instrumentation systems with legacy systems as well as systems developed by RSA Phase IIA. Develop, test, and evaluate: instrumentation to include command destruct, telemetry, and radars; and interfaces to establish the SLRS automated architecture and enable centralized and local control of instrumentation.	32.946	28.380	31.948
(U) Provide program support for Systems Program Office (SPO), including \$3.5M added by Congress in FY03 for Eastern Range Core Crew (operational support to acquisition).	7.826	4.127	3.234
(U) Partner with California Space Authority (CSA) to conduct California Space Infrastructure projects using funds added	9.431	4.650	

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305182F Spacelift Range System	PROJECT NUMBER AND TITLE 4137 Launch and Test Range System (LTRS) Modernization
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by Congress. FY03 projects are Range Technology Demonstration, Space Technology Initiative, and Space Homeland Security Demonstration. FY04 projects are Very Small Aperture Terminal Water Supply Monitoring and Quakefinder II demonstration.

(U) Conduct the Civil Reserve Space Service Initiative using funds added by Congress.	0.925		
(U) Total Cost	85.181	69.908	47.253

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) OPAF (PE 0305182F, Spacelift Range System Space P-73, BA 03)	106.389	80.037	101.458	93.936	82.868	123.483	101.692	Continuing	TBD
(U) OPAF (PE 0305182F, Initial Spares, P-111, BA 05)	1.996	0.696	1.402	2.742	2.752	2.835	2.881	Continuing	TBD

(U) **D. Acquisition Strategy**

The AF is using two competitively awarded, complementary contracts managed by the Space and Missile Systems Center to modernize the ranges on a non-interference basis, as they continue to operate in support of launches and tests.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2004

BUDGET ACTIVITY			PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
07 Operational System Development			0305182F Spacelift Range System					4137 Launch and Test Range System (LTRS) Modernization				
(U) <u>Cost Categories</u>	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to</u>	<u>Total</u>	<u>Target</u>
(Tailor to WBS, or System/Item Requirements) (\$ in Millions)			<u>Prior to FY</u>	<u>2003</u>	<u>2003</u>	<u>2004</u>	<u>2004</u>	<u>2005</u>	<u>2005</u>	<u>Complete</u>	<u>Cost</u>	<u>Value of</u>
			<u>2003</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>			<u>Contract</u>
			<u>Cost</u>		<u>Date</u>		<u>Date</u>		<u>Date</u>			
(U) <u>Product Development</u>												
RSA Phase IIA	C/CPAF	Lockheed Martin, Santa Maria, CA	173.332	34.053	Nov-02	32.751	Nov-03	12.071	Nov-04	Continuing	TBD	269.635
SLRSC	C/CPAF	ITT Industries, Cape Canaveral, FL	45.300	32.946	Nov-02	28.380	Nov-03	31.948	Nov-04	Continuing	TBD	200.690
Subtotal Product Development			218.632	66.999		61.131		44.019		Continuing	TBD	470.325
Remarks:												
(U) <u>Support</u>												
SPO Program Support (FFRDC, SETA, SPO Ops)	Various	Various	18.845	7.826	Jan-03	4.127	Oct-03	3.234	Oct-04	Continuing	TBD	TBD
California Space Authority Studies/Projects	Various	Various	15.766	9.431	May-03	4.650	Feb-04			0.000	29.847	TBD
Civil Reserve Space Service Initiative	Various	Various		0.925						0.000	0.925	TBD
Subtotal Support			34.611	18.182		8.777		3.234		Continuing	TBD	TBD
Remarks:												
(U) <u>Test & Evaluation</u>												
N/A											0.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u>												
N/A											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Reprogrammed</u>												
Subtotal Reprogrammed			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			253.243	85.181		69.908		47.253		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305182F Spacelift Range System

PROJECT NUMBER AND TITLE

**4137 Launch and Test Range System
(LTRS) Modernization**

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Exhibit R-4a, RDT&E Schedule Detail		DATE February 2004	
BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305182F Spacelift Range System	PROJECT NUMBER AND TITLE 4137 Launch and Test Range System (LTRS) Modernization	
	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <u>Schedule Profile</u>			
(U) RSA Phase IIA			
(U) - Planning & Scheduling: ER/WR Operational Turnover			2-4Q
(U) - Communications: ER Voice/Video/Data/Timing Govt Acceptance		2Q	
(U) - Communications: ER Voice/Video/Data/Timing Operational Turnover		4Q	
(U) - Communications: WR Voice/Video/Data/Timing Govt Acceptance			2Q
(U) - Communications: ER Digital Telemetry Govt Acceptance	4Q		
(U) - Communications: ER Digital Telemetry Operational Turnover			1Q
(U) - Weather Govt Acceptance			4Q
(U) - Differential GPS Metric Tracking Govt Acceptance	4Q		
(U) - Flight Operations Version 1 (FOV1) Operational Turnover	4Q		
(U) - Flight Operations and Analysis Qualification Testing		4Q	
(U) SLRS Contract			
(U) - Instrumentation System Design Review	4Q		
(U) - Command Preliminary Design Review (PDR)/Critical Design Review (CDR)		3-4Q	
(U) - Telemetry Instrumentation PDR/CDR		2-4Q	
(U) - Radar PDR/CDR		2-3Q	
(U) California Space Authority Studies/Projects			
(U) - Space Integration Master Planning (Homeland Defense) - Final Report/Roadmap	3Q		
(U) - Range Technology Demonstration Complete/Final Report		4Q	
(U) - Space Technology Initiative Complete/Final Report		4Q	
(U) - Space Homeland Security Demo Complete/Final Report		3Q	
(U) - Space-Based Water Supply Monitoring Project Complete			4Q
(U) - Quakefinder II Earthquake Detection Demo Complete			4Q

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PE NUMBER: 0305193F
 PE TITLE: INTEL SPT TO INFO OPS

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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305193F INTEL SPT TO INFO OPS
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Cost (\$ in Millions)	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
Total Program Element (PE) Cost	0.000	0.000	1.097	1.097	1.098	1.100	1.202	0.000	0.000
4871 Information Operations Technology	0.000	0.000	1.097	1.097	1.098	1.100	1.202	0.000	0.000

(U) **A. Mission Description and Budget Item Justification**

Funds the Joint Task Force - Computer Network Operations (JTF-CNO) Threat Incident Database (JTID). JTID accomplishes a fusion of network incident and intelligence data analyzed within the context of operationally relevant information from affected commands; develops appropriate response options and detailed course-of-action in defense of protected networks; catalogs limited sets of foreign CNO specific threat information to DoD's command and control infrastructure to include intentions and capabilities; and is interoperable with law enforcement and allied communities of interest.

This program element supports intelligence activities focused on the development, integration and assessment of systems or applications in support of non-traditional and contingency warfare. Resources will also support network-centric collaborative operations to improve situational awareness and operational-intelligence planning efforts. This program is funded under BA-7, Operational Systems Development, because it supports intelligence efforts that involve engineering development.

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget			
(U) Current PBR/President's Budget	0.000	0.000	1.097
(U) Total Adjustments	0.000	0.000	
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0305193F INTEL SPT TO INFO OPS			PROJECT NUMBER AND TITLE 4871 Information Operations Technology		
Cost (\$ in Millions)	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
4871 Information Operations Technology	0.000	0.000	1.097	1.097	1.098	1.100	1.202	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

Funds the Joint Task Force - Computer Network Operations (JTF-CNO) Threat Incident Database (JTID). JTID accomplishes a fusion of network incident and intelligence data analyzed within the context of operationally relevant information from affected commands; develops appropriate response options and detailed course-of-action in defense of protected networks; catalogs limited sets of foreign CNO specific threat information to DoD's command and control infrastructure to include intentions and capabilities; and is interoperable with law enforcement and allied communities of interest.

This program element supports intelligence activities focused on the development, integration and assessment of systems or applications in support of non-traditional and contingency warfare. Resources will also support network-centric collaborative operations to improve situational awareness and operational-intelligence planning efforts. This program is funded under BA-7, Operational Systems Development, because it supports intelligence efforts that involve engineering development.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) - Continue cataloging of limited sets of foreign CNO specific threat information to DoD's command and control infrastructure, to include intentions and capabilities; Continue production of intelligence reports on computer network attacks against US systems; Continue to provide overall incident assessments analyzed within the context of operationally relevant information from affected commands; Continues to drive development of appropriate response options and detailed courses-of-action in defense of protected networks.			1.097

(U)

(U)

(U) Total Cost	0.000	0.000	1.097
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(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) None									

(U) D. Acquisition Strategy

N/A

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Exhibit R-3, RDT&E Project Cost Analysis

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February 2004

BUDGET ACTIVITY			PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
07 Operational System Development			0305193F INTEL SPT TO INFO OPS					4871 Information Operations Technology				
<u>(U) Cost Categories</u>	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to</u>	<u>Total</u>	<u>Target</u>
(Tailor to WBS, or System/Item Requirements) (\$ in Millions)			<u>Prior to FY</u>	<u>2003</u>	<u>2003</u>	<u>2004</u>	<u>2004</u>	<u>2005</u>	<u>2005</u>	<u>Complete</u>	<u>Cost</u>	<u>Value of</u>
			<u>2003</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>			<u>Contract</u>
			<u>Cost</u>		<u>Date</u>		<u>Date</u>		<u>Date</u>			
<u>(U) Product Development</u>												
Northrop Grumman IT-TASC		Lorton VA						1.097			1.097	
Subtotal Product Development			0.000	0.000		0.000		1.097		0.000	1.097	0.000
Remarks:												
<u>(U) Support</u>											0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Test & Evaluation</u>											0.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Management</u>											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Total Cost</u>			0.000	0.000		0.000		1.097		0.000	1.097	0.000

Exhibit R-4, RDT&E Schedule Profile

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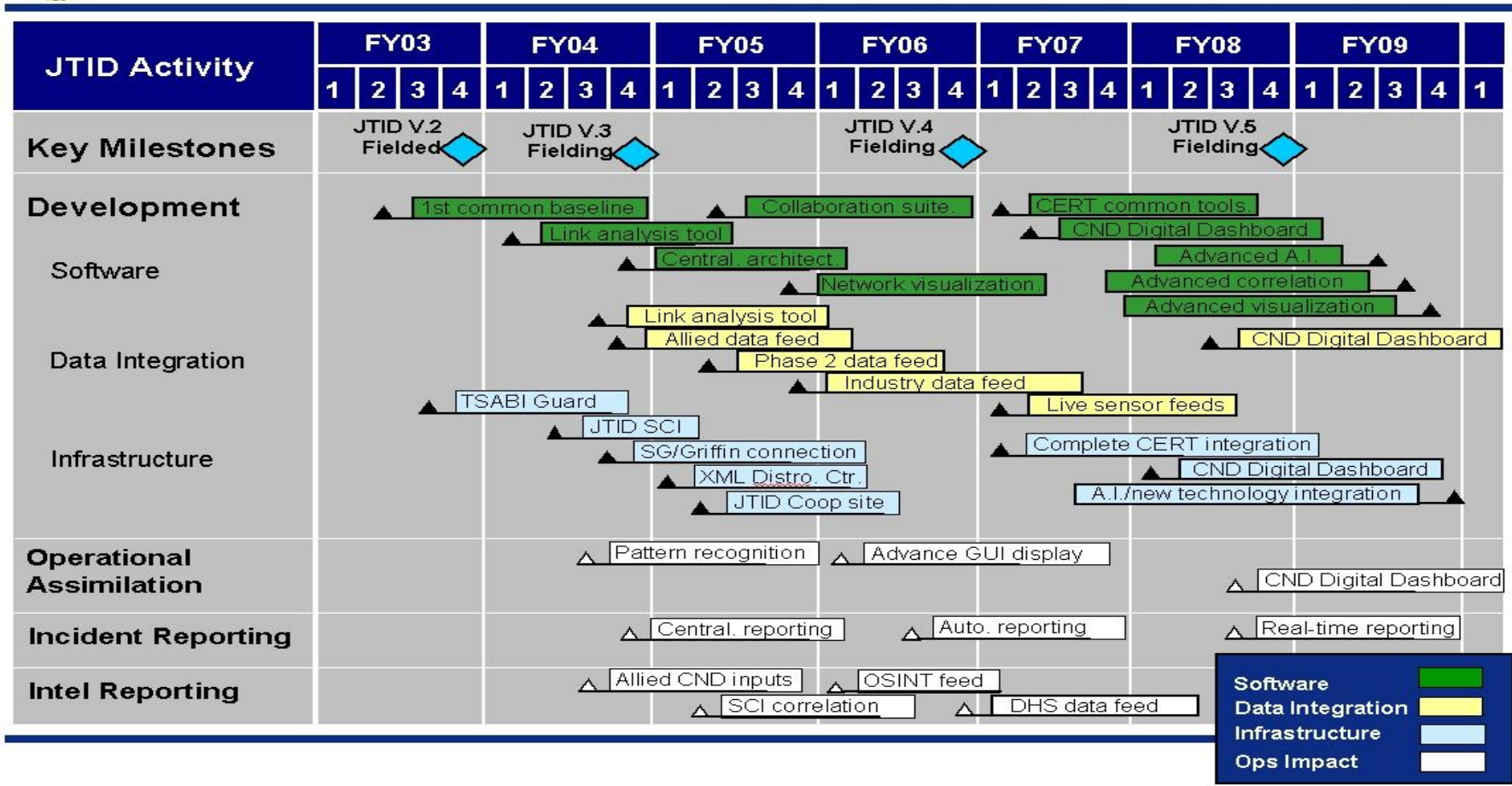
BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0305193F INTEL SPT TO INFO OPS

PROJECT NUMBER AND TITLE
4871 Information Operations
Technology



JTID Detailed Schedule



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Exhibit R-4a, RDT&E Schedule Detail

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305193F INTEL SPT TO INFO OPS

PROJECT NUMBER AND TITLE

4871 Information Operations
Technology

(U) Schedule Profile

FY 2003

FY 2004

FY 2005

(U) Ongoing development of JTID functions

1-4Q

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PE NUMBER: 0305202F
 PE TITLE: Dragon U-2 (JMIP)

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305202F Dragon U-2 (JMIP)
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Cost (\$ in Millions)	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
Total Program Element (PE) Cost	24.101	46.599	87.745	64.567	9.811	9.966	10.123	Continuing	TBD
4820 Sensor Development	17.241	41.624	84.753	61.575	9.811	9.966	10.123	Continuing	TBD
4945 High Altitude Subsystems	6.860	4.975	2.992	2.992	0.000	0.000	0.000	Continuing	TBD

1. The FY04 appropriations bill added \$2.5M for Senior Year Electro-Optical Reconnaissance System (SYERS) focal plane depot capability and cut \$8M from the Airborne Signals Intelligence Payload (ASIP) program.

(U) A. Mission Description and Budget Item Justification

The RDT&E portion of this program element funds efforts required to enhance and sustain the U-2 Dragon Lady Intelligence Surveillance Reconnaissance (ISR) system. In addition to the RDT&E funding there are procurement funds associated with these developments. This program element is categorized as Budget Activity 7 because it provides for development of technologies and capabilities in support of operational system development for the U-2 ISR system.

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	23.586	52.518	59.975
(U) Current PBR/President's Budget	24.101	46.599	87.745
(U) Total Adjustments	0.515	-5.919	
(U) Congressional Program Reductions	-7.000	-5.500	
Congressional Rescissions	-0.253	-0.419	
Congressional Increases			
Reprogrammings	7.768		
SBIR/STTR Transfer			

(U) Significant Program Changes:

The FY04 appropriations bill added \$2.5M for SYERS focal plane depot capability and cut \$8M from the U-2 ASIP. The Air Force will request authority from Congress to apply the \$2.5M toward a SYERS test bed capability.

FY05

- \$8M of procurement funds were reprogrammed into RDT&E funds to correctly align with the ASIP acquisition strategy.
- \$3M of procurement is realigned into RDT&E for further Link 16 development for the U-2.
- the U-2 program received \$17M to address ASARS-2A image quality problems noted during acceptance tests.

FY06

- \$25.4M of procurement funds were reprogrammed into RDT&E funds to correctly align with the ASIP acquisition strategy.

Exhibit R-2, RDT&E Budget Item Justification

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305202F Dragon U-2 (JMIP)

- another \$3M of procurement is realigned into RDT&E for further U-2 Link 16 development.
- the U-2 program received \$6M to address ASARS-2A image quality problems

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0305202F Dragon U-2 (JMIP)			PROJECT NUMBER AND TITLE 4820 Sensor Development		
Cost (\$ in Millions)	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
4820 Sensor Development	17.241	41.624	84.753	61.575	9.811	9.966	10.123	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

Budget Activity Justification - This program element is categorized as Budget Activity 7 because it provides for development of technologies and capabilities in support of operational system development for the U-2 intelligence surveillance and reconnaissance (ISR) system.

1. The FY04 appropriations bill added \$2.5M for SYERS focal plane depot capability and cut \$8M from the Airborne Signals Intelligence Payload (ASIP) program.

(U) **A. Mission Description and Budget Item Justification**

This development project supports high payoff improvements to the U-2 sensors such as the Advanced Synthetic Aperture Radar System (ASARS-2A), the SENIOR YEAR Electro-optical Reconnaissance System (SYERS) 2 Improvement Program, SIGINT programs, and the ASIP program.

The ASARS-2A Program improves area search, precision geolocation, and image quality to support precision guided munitions targeting. The system produces complex imagery, enabling enhanced exploitation methods. ASARS-2A introduces Asynchronous Transfer Mode (ATM) datalink formats to the ISR community and supports National Imagery Transmission Format (NITF) standards. Requirements include ASARS-2A reliability improvements and exploitation tools for the user (for example, system robustness, Dual Data Link (DDL), Beyond Line of Sight (BLOS), image quality, Ground Moving Target Indication (GMTI), geolocation and targeting, sensor position data, Receiver Exciter Controller (REC) upgrades and software upgrades). The ongoing ASARS-2A Image Quality Improvement Program (IQIP) addresses system robustness and image quality performance identified during initial system fielding.

The SYERS-2 Improvement Program includes upgrades such as multi-spectral collection and processing, polarization collection and processing, possible hyperspectral collection and processing, and the associated exploitation tools for the user. SYERS-2 also includes reliability and maintainability upgrades that incorporate next generation technology to maintain and enhance system supportability. SYERS Polarimetric Improvement (SYERS P4I) investigates the potential for using polarimetric collection data to find man-made objects on the battlefield. A depot for the repair and refurbishing of SYERS sensors will be established.

The SIGINT Program develops new sensors (ASIP) and maintains present capability by developing replacements for current components affected by diminishing manufacturing sources as well as enhancing capability to exploit evolving signals of interest including Quick Reaction Capabilities (QRCs) to meet emerging operational requirements. Also, we are examining the possibility of modifying current systems to allow them to function on Power/Electromagnetic Interference upgraded U-2s.

All of the sensors are being converted to the ATM standard to address vanishing vendor issues and to optimize signals intelligence bandwidth allocation.

The ASIP Program will design, develop, and build a common/scalable modernized SIGINT system with a low-band subsystem integrated with a High Band Sub-System (HBSS). The ASIP will be fielded on the U-2 and Global Hawk (PE 0305220F Endurance Unmanned Aerial Vehicles, project 4799). Three ASIP prototype Developmental Test Units (DTUs) will be delivered in FY07 for system integration and testing on the U-2 and Global Hawk. Following the developmental flight test

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305202F Dragon U-2 (JMIP)

PROJECT NUMBER AND TITLE

4820 Sensor Development

phase, the three DTUs will be modified to a productionized configuration for operational employment on the U-2.

(U) **B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments/Planned Program	0.000	0.000	
(U) Continue ASARS-2A IQI Software/Hardware Development Tasks and System Robustness Improvements	4.241	4.173	19.253
(U) SIGINT Enhancements	4.152		
(U) Signals Intelligence (SIGINT) Sensor Development/Integration (Airborne Signals Intelligence Payload, (ASIP)	6.500	35.327	65.413
(U) Establish SYERS-2 Depot Maintenance Capability		2.124	
(U) Systems Engineering, Program Management and Flt Test Support	2.348		0.087
(U) Total Cost	17.241	41.624	84.753

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) APAF, Manned Recce, 0305202F - Sensors Production	23.032	13.671	12.596	9.927	11.849	14.160	13.226	Continuing	TBD
(U) RDT&E, 0305205F - ASIP Development	58.331	68.674						0.000	127.005
(U) RDT&E, 0305220F - ASIP Development			62.767	26.955	26.645			0.000	116.367
(U) APAF, 0305220F - ASIP Production				28.400	104.600	60.800	47.400	Continuing	TBD
(U) RDT&E, 0305206F, SYERS-2	1.976								1.976

(U) **D. Acquisition Strategy**

For airborne collection capability upgrades, modify existing platform and associated ground control equipment via Engineering Change Proposals (ECPs)/Task Orders to existing USAF contracts. Develop and test new technology line replaceable units (LRUs) for all U-2 sensors. There is associated procurement funding tied to this development activity.

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
07 Operational System Development				0305202F Dragon U-2 (JMIP)				4820 Sensor Development				
(U) <u>Cost Categories</u>	<u>Contract Method</u>	<u>Performing Activity &</u>	<u>Total</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to</u>	<u>Total</u>	<u>Target</u>
(Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>& Type</u>	<u>Location</u>	<u>Prior to FY</u>	<u>2003</u>	<u>2003</u>	<u>2004</u>	<u>2004</u>	<u>2005</u>	<u>2005</u>	<u>Complete</u>	<u>Cost</u>	<u>Value of</u>
			<u>2003</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>			<u>Contract</u>
			<u>Cost</u>		<u>Date</u>		<u>Date</u>		<u>Date</u>			
(U) <u>Product Development</u>												
ASARS-2A	SS/CPIF	Raytheon, Los Angeles	105.767	4.241	Feb-03	4.173	Dec-03	19.253	Feb-05	Continuing	TBD	
SYERS	SS/CPFF	BF Goodrich, Boston	4.954	0.000		2.124	Apr-04	0.000		0.000	7.078	
SIGINT	SS/CPIF	Raytheon, Los Angeles	0.000	4.152	Nov-02	0.640	Jun-04	0.000		0.000	4.792	
(Collaborative SIGINT Sensor) ASIP	SS/CPAF	Northrop Grumman Los Angeles	0.000	6.500	Apr-03	32.269	Feb-04	63.012	Feb-05	Continuing	TBD	
Subtotal Product Development			110.721	14.893		39.206		82.265		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Test & Evaluation</u>												
Flight Test	SS/CPFF	Lockheed Palmdale		1.877	Dec-02	1.933	Mar-04	1.990	Mar-05	Continuing	TBD	
Subtotal Test & Evaluation			0.000	1.877		1.933		1.990		Continuing	TBD	0.000
Remarks:												
(U) <u>Management</u>												
ASC/RA	C/FFP	H.J. Ford WPAFB OH		0.471	Dec-02	0.485	Dec-03	0.498	Dec-04		1.454	
Subtotal Management			0.000	0.471		0.485		0.498		0.000	1.454	0.000
Remarks:												
(U) Total Cost			110.721	17.241		41.624		84.753		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0305202F Dragon U-2 (JMIP)

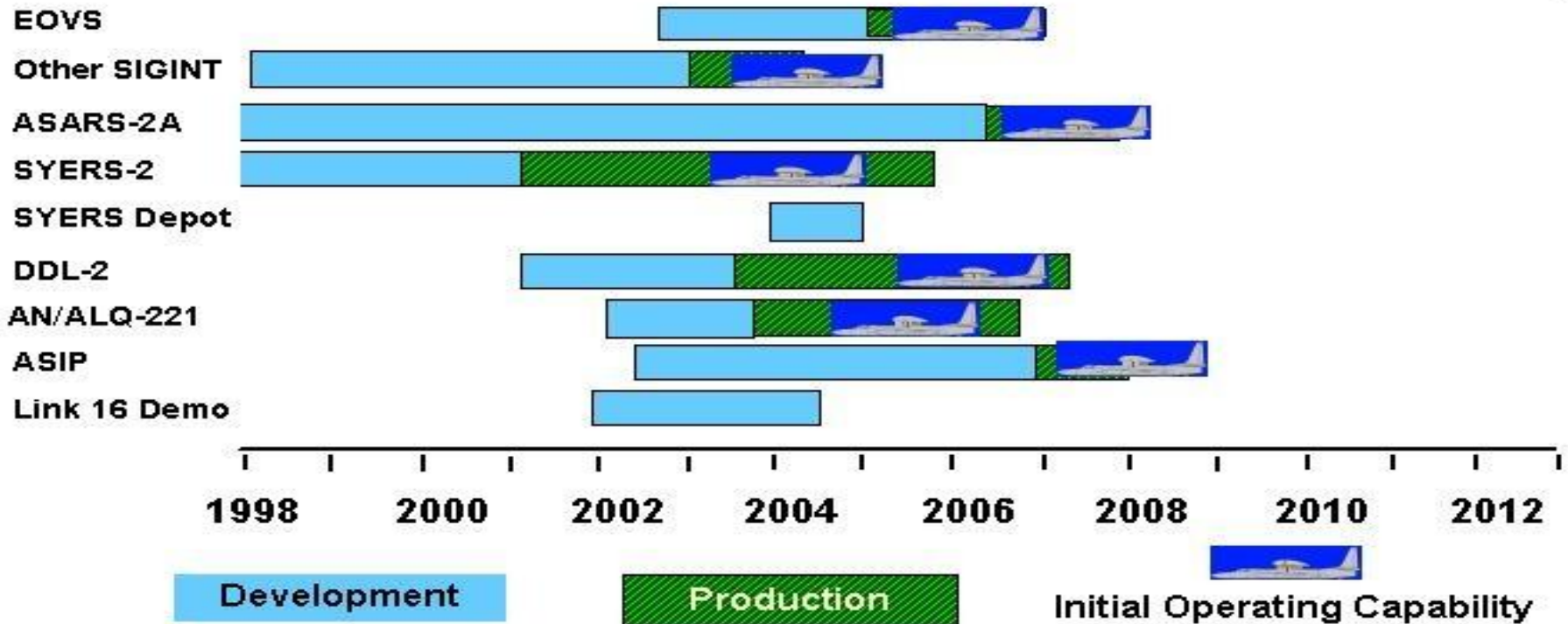
PROJECT NUMBER AND TITLE
4820 Sensor Development



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Exhibit R-4a, RDT&E Schedule Detail

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305202F Dragon U-2 (JMIP)

PROJECT NUMBER AND TITLE

4820 Sensor Development

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <u>Schedule Profile</u>			
(U) ASARS-2A Program	1Q		
(U) - Continue IQI Activities	1Q	1Q	1Q
(U) SYERS-2 Depot		2Q	
(U) Other SIGINT	3Q	1Q	
(U) ASIP Development	1Q		
(U) - Award Contract	3Q		
(U) - Preliminary Design Review		4Q	
(U) - Critical Design Review			1Q

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0305202F Dragon U-2 (JMIP)			PROJECT NUMBER AND TITLE 4945 High Altitude Subsystems		
Cost (\$ in Millions)	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
4945 High Altitude Subsystems	6.860	4.975	2.992	2.992	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

Budget Activity Justification - This program is categorized as Budget Activity 7 because it provides for development of technologies and capabilities in support of operational system development for the U-2 aircraft.

(U) **A. Mission Description and Budget Item Justification**

This project supports development and integration of subsystems on the U-2 (e.g., Advanced Defensive System (ADS or AN/ALQ-221) development, and cockpit upgrades that include a glass cockpit with Electro-Optical View Sight (EOVS), Direct Threat Warning, navigator upgrades, datalinks) and compliance with Global Air Navigation Systems and Global Air Traffic Management (GATM) requirements.

EOVS replaces the legacy optical drift sight that was removed in the U-2 Block 20 upgrade. The image from the EOVS camera will be displayed in the cockpit.

The U-2 ADS (AN/ALQ-221) development provides a new Wide Band Radar Warning Receiver (RWR)/Jammer for Search, Track and Launch Detection capability and Track and Launch Jamming capability. The new RWR/Jammer will integrate with the legacy 29E Low Band Receiver/Jammer, 29F Radar Warning Receiver, and portions of the System 29 Band Aid System.

The Fuels Conversion Program is an Air Force Research Laboratory research program attempting to develop a low temperature additive for JP-8 to substitute the current JPTS U-2 fuel. The additive will lower fuel costs and decrease the U-2's logistical footprint.

The Dual Data Link (DDL)-II Program provides the capability to transmit ISR data via dual, simultaneous, independent wideband datalinks.

The Link-16, Direct Threat Warning (DTW) data and voice links, and an upgraded electrical generator will be developed, demonstrated, and integrated on to the U-2 aircraft.

(U) **B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments/Planned Program	0.000	0.000	
(U) Complete ADS development. Includes hardware/software development program and test program.	2.631	0.000	0.000
(U) LINK-16 Integration for AF/DCGS	0.000	0.892	2.992
(U) Electro-Optical View Sight (EOVS) development and test	1.080	3.047	0.000
(U) Dual Data Link - II (DDL-II) development and test	2.229	0.100	0.000
(U) JP-8 Fuels Conversion	0.000	0.016	0.000
(U) Program management, systems engineering, and test	0.920	0.920	0.000
(U) Total Cost	6.860	4.975	2.992

Project 4945

R-1 Shopping List - Item No. 193-9 of 193-13

Exhibit R-2a (PE 0305202F)

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305202F Dragon U-2 (JMIP)

PROJECT NUMBER AND TITLE

4945 High Altitude Subsystems

(U) C. Other Program Funding Summary (\$ in Millions)(U) D. Acquisition Strategy

Funds are for the engineering, manufacturing and development for the U-2 Advanced Defensive System (ADS). A sole source contract has been awarded to a prime contractor which will be responsible for delivering a total system. For DDL-2, develop, factory test, and flight test the dual data link systems, and continue integration of ABIT P3I into datalink design. Link 16, EOVS, and DDL-2 utilizes existing CPIF contracts.

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
07 Operational System Development				0305202F Dragon U-2 (JMIP)				4945 High Altitude Subsystems				
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
(U) <u>Product Development</u>												
ADS Ctr	SS/CPIF	Lockheed, Palmdale and BAE, Nashua NH	40.442	2.631	May-03					0.000	43.073	
Fuels Conversion	SS/FFP	Air Force Research Lab, WPAFB OH	1.141	0.000		0.016	Nov-03			Continuing	TBD	
Electro-optical View Sight (EOVS)	SS/CPIF	Lockheed, Palmdale and Goodrich, Boston	0.209	0.462	Mar-03	3.047	Mar-04			Continuing	TBD	
DDL-II Dev and Test	SS/CPIF	L3 Comm, Salt Lake City	4.000	2.647	Jun-03	0.100	Mar-04		Feb-05	0.000	6.747	
LINK-16 Integration	SS/CPIF	L3 Comm, Salt Lake City	0.000	0.115	Feb-03	0.892	Mar-04	2.072	Feb-05	0.000	3.079	
Subtotal Product Development			45.792	5.855		4.055		2.072		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												0.000
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Test & Evaluation</u>												
Flight Test	SS/CPFF	Lockheed Eglin AFB and Edwards AFB		0.534	Feb-03	0.435	Feb-04	0.422	Feb-05	0.000	1.391	
Subtotal Test & Evaluation			0.000	0.534		0.435		0.422		0.000	1.391	0.000
Remarks:												
(U) <u>Management</u>												
ASC/RA	C/FFP	H.J. Ford WPAFB, OH		0.471	Dec-02	0.485	Dec-03	0.498	Dec-04		1.454	
Subtotal Management			0.000	0.471		0.485		0.498		0.000	1.454	0.000
Remarks:												
(U) Total Cost			45.792	6.860		4.975		2.992		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0305202F Dragon U-2 (JMIP)

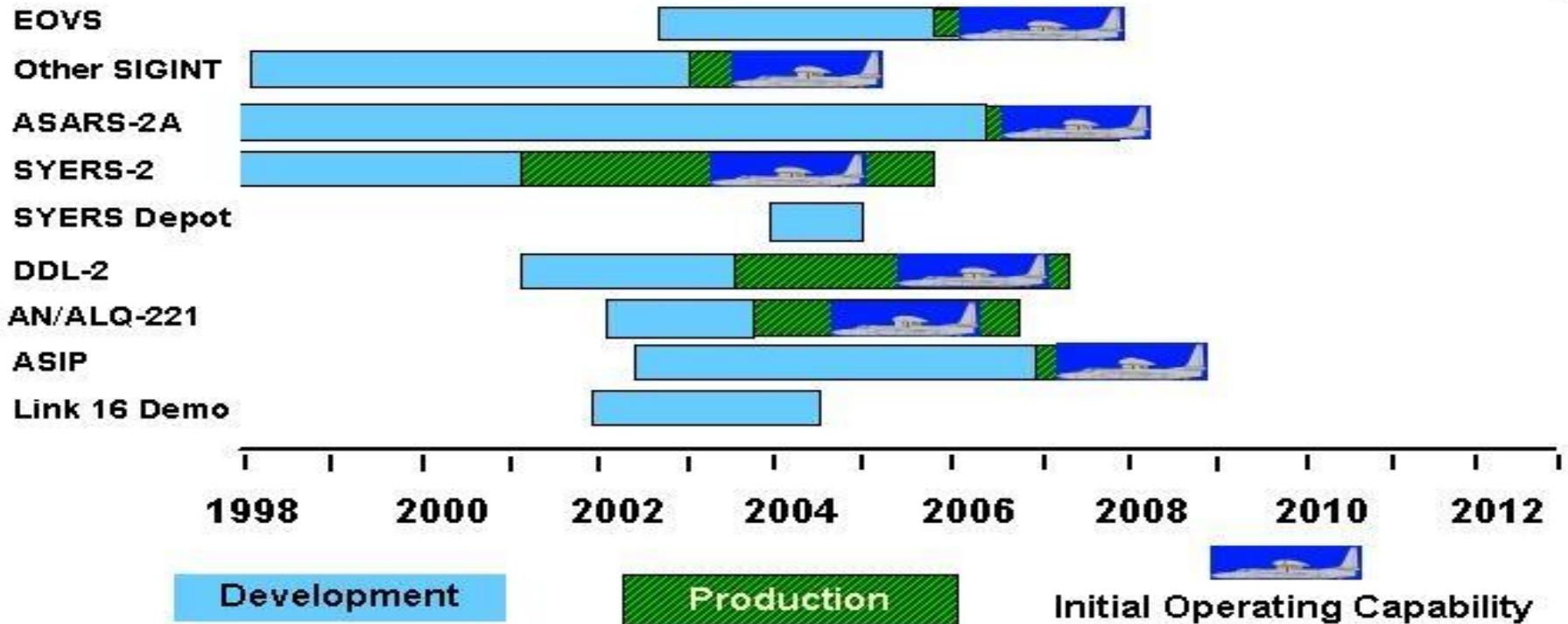
PROJECT NUMBER AND TITLE
4945 High Altitude Subsystems



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Exhibit R-4a, RDT&E Schedule Detail

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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305202F Dragon U-2 (JMIP)	PROJECT NUMBER AND TITLE 4945 High Altitude Subsystems
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(U) Schedule Profile	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Complete ADS Flight Tests	2Q		
(U) First ADS Delivery		1Q	
(U) DDL-II Development & Integration Contract Award	2Q		
(U) DDL-II DT Testing Complete	3Q		
(U) DDL-II SIL Testing	3Q		
(U) First DDL-II Delivery		1Q	
(U) View Sight Development and Test	4Q	1Q	1Q
(U) Complete View Sight Development			4Q
(U) Link 16 Development		2Q	2Q

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PE NUMBER: 0305205F

PE TITLE: Endurance Unmanned Aerial Vehicles

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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305205F Endurance Unmanned Aerial Vehicles
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Cost (\$ in Millions)	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
Total Program Element (PE) Cost	352.679	401.413	0.000	0.000	0.000	0.000	0.000	0.000	TBD
4755 Predator	20.468	40.595	0.000	0.000	0.000	0.000	0.000	0.000	TBD
4799 Global Hawk	332.211	360.818	0.000	0.000	0.000	0.000	0.000	0.000	TBD

Global Hawk and Predator will no longer share the same PE after FY04. In FY05 and out, all Global Hawk funding will be in PE 305220F, project 675144. Predator funding will move to PE 305219F, project 675143.

(U) A. Mission Description and Budget Item Justification

Endurance Unmanned Aerial Vehicles (UAVs) are a family of unmanned vehicles developed to provide all-weather, day/night, intelligence, surveillance and reconnaissance (ISR) in direct support of theater ISR collection requirements; and integrate with existing ISR architectures for mission planning, data processing, exploitation and dissemination.

The MQ-1 Predator UAV is a long-dwell, autonomous, unmanned reconnaissance system capable of operating over-the-horizon while providing real-time intelligence information to the Joint Task Force Commander. The air vehicle (A/V) carries electro-optical (EO), Infra-Red (IR) and synthetic aperture radar (SAR), and is capable of transmitting near real time imagery to the task force commander throughout the operational theater. All Predator aircraft are being produced with the Multi-spectral Targeting System (MTS) (a sensor turret that incorporates EO/IR, laser designator/range-finder, and IR illuminator), plus the capability to employ Hellfire laser-guided missiles.

The MQ-9 Predator B is a multi-role UAV, larger than the MQ-1 and will be capable of flying at higher speeds and altitudes. The aircraft will primarily function in a hunter-killer role, employing fused multi-spectral sensors to find, fix, and track ground targets and assess post-strike results. It is in continuing development and will field capability through evolving spirals. The first spiral is the flight characterization evaluation of the original off-the-shelf, proto-type aircraft (Spiral 0). Spiral 1 integrates, tests, and demonstrates the ability to deliver Hellfire laser-guided missiles. Spiral 2 increases the aircraft's gross take-off weight, integrate redundant avionics, a digital electronically controlled engine, sensor/stores management computer, MIL-STD-1760 advanced weapons data bus, and improved the human-machine interface.

The Global Hawk System consists of the RQ-4A Unmanned Aerial Vehicle (UAV), the AN/MSQ-131 Ground Segment (GS), and its support system. Global Hawk is a fully autonomous, high altitude, long endurance unmanned aircraft designed as an Intelligence, Surveillance and Reconnaissance (ISR) platform. The RQ-4A is an imagery intelligence-collecting UAV designed to carry 2,000 pounds of payload. Its payload includes an Integrated Sensor Suite (ISS) which contains Synthetic Aperture Radar (SAR) with Ground Moving Target Indicator (GMTI) capability, along with an Electro-Optical (EO)/Infrared (IR) camera.

The RQ-4B is a multi-intelligence collecting UAV with a payload capacity of 3,000 pounds. Its payload includes an improved ISS as well as spiraling in an incremental signals intelligence capability providing both high-band and low-band signals. The GS consists of the Mission Control Element (MCE) and the Launch and Recovery Element (LRE). Global Hawk will provide continuous, all-weather, day/night, wide area ISR and includes the interfaces with other theater systems required to support

Exhibit R-2, RDT&E Budget Item Justification

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305205F Endurance Unmanned Aerial Vehicles

joint tactical warfighters at various levels of command. It is designed to provide up to 40,000 sq. nmi. of search radar imagery and EO or IR imagery per mission. Global Hawk is designed as a standoff imagery platform with the capability to operate in low-to-moderate air defense threat environments, and collect imagery while looking line of sight into high threat areas.

This program is budget activity 7, Operational Systems Development, because it involves Air Force R&D to field a highly capable operational system and provide essential operational capabilities.

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	346.713	398.631	
(U) Current PBR/President's Budget	352.679	401.413	
(U) Total Adjustments	5.966	2.782	
(U) Congressional Program Reductions		-0.078	
Congressional Rescissions	-3.897	-3.440	
Congressional Increases	6.030	6.300	
Reprogrammings	3.833		
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0305205F Endurance Unmanned Aerial Vehicles			PROJECT NUMBER AND TITLE 4755 Predator		
Cost (\$ in Millions)	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
4755 Predator	20.468	40.595	0.000	0.000	0.000	0.000	0.000	0.000	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

Starting in FY05, all Predator funds will be reported in PE0305219F.

(U) A. Mission Description and Budget Item Justification

The Predator program includes RQ/MQ-1 and MQ-9 unmanned aerial vehicles (UAVs), mobile and fixed Ground Control Stations (GCS), and associated communications and support equipment.

The RQ/MQ-1 Predator Unmanned Aerial Vehicle is a long dwell reconnaissance system capable of surveillance of critical targets at a range of 400 nm from the launch area. Predator is equipped with Electro-Optical/Infrared (EO/IR) and Synthetic Aperture Radar (SAR) sensors. The entire fleet is being fitted with Multi-spectral Targeting System (MTS) sensors capable of laser target designation and illumination. Additionally all aircraft will be modified to allow HELLFIRE laser-guided missile employment. Predator incorporates line-of-sight (LOS) and wide-band Ku-band SATCOM datalinks capable of providing near-real-time (NRT) transmission of high resolution imagery throughout the operational envelope. As Predator moves into its multi-mission role, the Air Force will continue experiments to expand roles, missions, sensors, and new weapons capabilities to leverage its battlefield persistence.

The MQ-9 is currently in flight test and will continue its development as a hunter-killer, Reconnaissance, Surveillance, and Target Acquisition (RSTA) asset. Two aircraft were procured as they were configured from the contractor (Spiral 0). The Air Force is currently defining the full operational configuration for Predator B and will spirally develop the system to meet our requirements. Spiral 1 increases takeoff gross weight, adds redundant avionics, advanced digital sensors, wing hard points for weapons, and delivers a capability to deliver HELLFIRE laser-guided missiles. Spiral 2 will integrate advanced weapons and update the human-machine interface. Subsequent spirals will develop follow-on sensors/payloads and update GCS and associated communications equipment.

Budget Activity Justification: This program is budget activity 7, Operational Systems Development, because it involves Air Force R&D to field a highly capable operational system and provide essential operational capabilities.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments/Planned Program	0.000	0.000	
(U) Pre-planned Product Improvement (To include: Advanced capabilities, sensor integration, quick reaction capabilities, payload development/integration, weaponization and experimentation)	8.362		
(U) MQ-9 Spiral development (aircraft improvements, development and integration of follow-on sensors, weapons and payloads, and associated communications equipment)	8.731		
(U) Predator View situational awareness/mission planning system	2.000		
(U) System concept studies	0.375	1.000	

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Exhibit R-2a, RDT&E Project Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305205F Endurance Unmanned Aerial Vehicles	PROJECT NUMBER AND TITLE 4755 Predator
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(U) Rectify identified air vehicle and ground station deficiencies to improve reliability and maintainability	0.500		
(U) Development and Operational Test	0.450		
(U) Field support	0.050	1.000	
(U) MQ-1 Pre-planned Product Improvement (To include: Advanced capabilities, sensor integration, quick reaction capabilities, payload development/integration, weaponization and experimentation, continuing developmental testing for TC DL integration, and associated communications equipment.		3.000	
(U) MQ-9 spiral development (aircraft improvements, development and integration of follow-on sensors, weapons and payloads, and associated communications equipment)		27.578	
(U) Continue a reliability and maintainability program to ensure the continued viability of the MQ-1/MQ-9 air vehicle, ground control station, and associated communications equipment.		4.204	
(U) Developmental and Operational Test		3.813	
(U) Total Cost	20.468	40.595	0.000

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to Complete</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>		
(U) AF RDT&E									
(U) Other APPN									
(U) Aircraft Procurement, AF (PE 35205F), Predator	129.534	196.369							
(U) Aircraft Modification, AF (PE 35205F)	10.145	14.178							
(U) Aircraft Initial Spares, AF (PE 35205F)	8.497	0.377							

(U) **D. Acquisition Strategy**

Both the MQ-1 Predator and MQ-9 Predator B will be acquired through the BIG SAFARI Program Office. MQ-1 Predator is in accelerated production with ISR sensors, laser designators, and weapon delivery capability. MQ-9 Predator B will be acquired as a 'Hunter Killer' system through a series of spirals to rapidly deliver combat capability. Each spiral will build on the delivered capability from the previous spirals and will include advanced sensor capabilities and evolving weapon payloads. Prime contractor for both aircraft is General Atomics Aeronautical Systems Inc.

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY			PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
07 Operational System Development			0305205F Endurance Unmanned Aerial Vehicles					4755 Predator				
<u>(U) Cost Categories</u>	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to</u>	<u>Total</u>	<u>Target</u>
(Tailor to WBS, or System/Item Requirements) (\$ in Millions)			<u>Prior to FY</u>	<u>2003</u>	<u>2003</u>	<u>2004</u>	<u>2004</u>	<u>2005</u>	<u>2005</u>	<u>Complete</u>	<u>Cost</u>	<u>Value of</u>
			<u>2003</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>			<u>Contract</u>
			<u>Cost</u>		<u>Date</u>		<u>Date</u>		<u>Date</u>			
<u>(U) Product Development</u>												
General Atomics Aeronautical Systems Incorporated (GA-ASI)	SS/CPFF	GA-ASI Rancho Bernardo CA	9.692	19.518	Feb-03	37.145	Feb-04			Continuing	TBD	
Subtotal Product Development			9.692	19.518		37.145		0.000		Continuing	TBD	0.000
Remarks:												
<u>(U) Support</u>												
ASC	SS/T&M	Wright-Patterson AFB OH	0.000	0.500	Feb-03	0.750	Feb-04			Continuing	TBD	
Subtotal Support			0.000	0.500		0.750		0.000		Continuing	TBD	0.000
Remarks:												
<u>(U) Test & Evaluation</u>												
AFOTEC	MIPR	Kirtland AFB NM	0.795	0.200	Feb-03	1.000	Feb-04			Continuing	TBD	
Misc	Various	Various	0.330	0.250	Feb-03	1.700	Feb-04			Continuing	TBD	
Subtotal Test & Evaluation			1.125	0.450		2.700		0.000		Continuing	TBD	0.000
Remarks:												
<u>(U) Total Cost</u>			10.817	20.468		40.595		0.000		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

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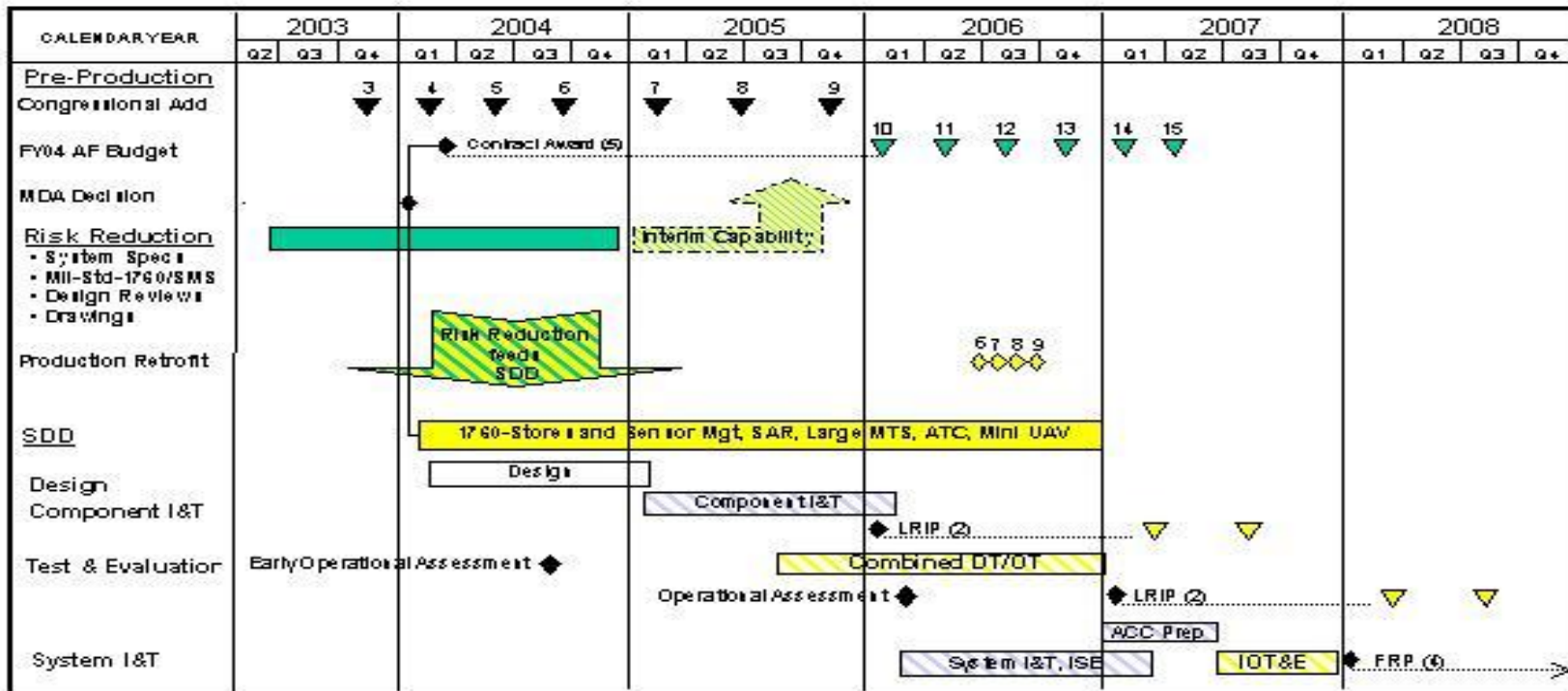
BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0305205F Endurance Unmanned
Aerial Vehicles

PROJECT NUMBER AND TITLE
4755 Predator



MQ-9 Predator B Timeline



FY	2003	2004	2005	2006	2007	2008	2009
MQ-9 Aircraft Buys (FY05 APOM)	3	6	2	2	2	4	8

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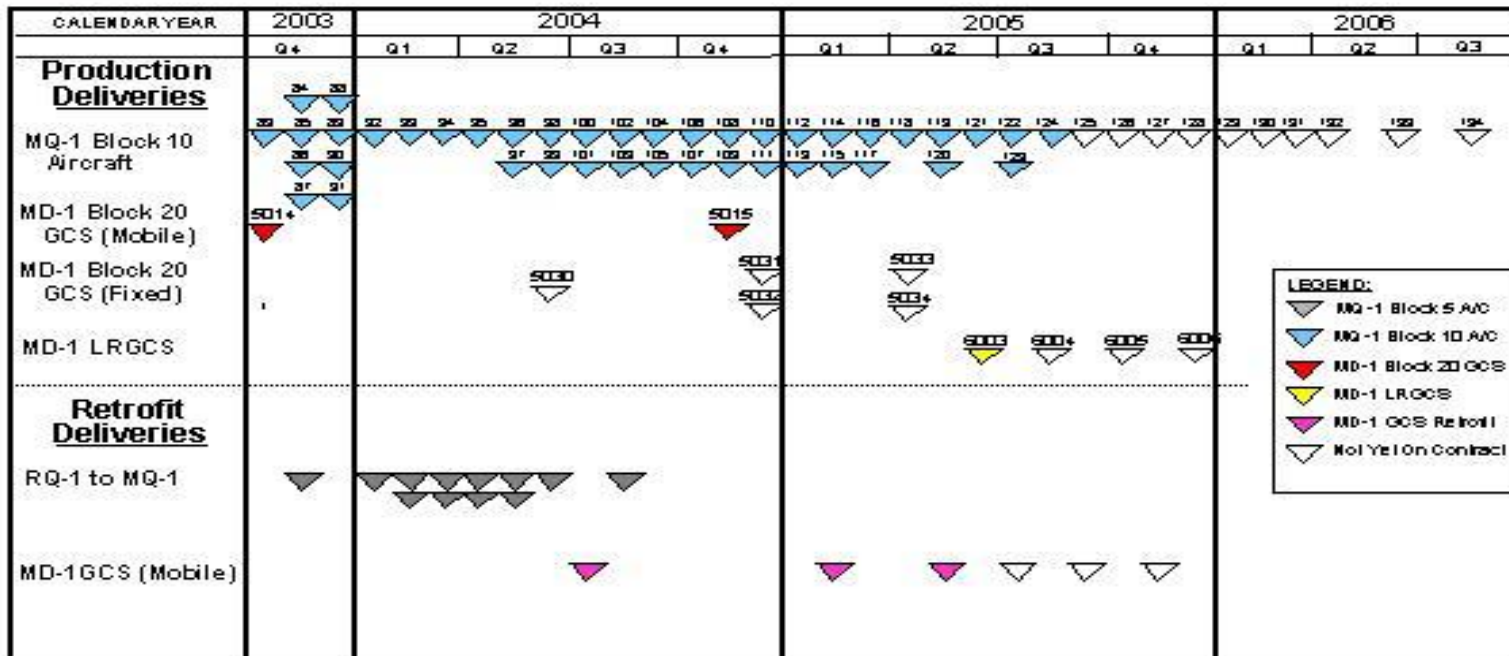
BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0305205F Endurance Unmanned
Aerial Vehicles

PROJECT NUMBER AND TITLE
4755 Predator



MQ-1 Predator Timeline



FY	2003	2004	2005	2006	2007	2008	2009
MQ-1 Aircraft Buys (FY05 APOM)	22	10	7	7	7	7	7

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Exhibit R-4a, RDT&E Schedule Detail		DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305205F Endurance Unmanned Aerial Vehicles	PROJECT NUMBER AND TITLE 4755 Predator
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(U) <u>Schedule Profile</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Delivery of first production weaponized MQ-1	2Q		
(U) MQ-9 Spiral 0 Complete	2Q		
(U) MQ-9 Spiral 1 Demonstration		4Q	

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0305205F Endurance Unmanned Aerial Vehicles			PROJECT NUMBER AND TITLE 4799 Global Hawk		
Cost (\$ in Millions)	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
4799 Global Hawk	332.211	360.818	0.000	0.000	0.000	0.000	0.000	0.000	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

In FY04 and prior years all Global Hawk funding was in PE 0305205F, project 674799. In FY05 and beyond all Global Hawk funding has been moved to PE 0305220F, project 675144.

(U) A. Mission Description and Budget Item Justification

The Global Hawk Program consists of the RQ-4A and RQ-4B Unmanned Aerial Vehicles (UAVs), the AN/MSQ-131 Ground Segment (GS), and the Support System. The Global Hawk System is designed to provide continuous, all-weather, day/night, wide area intelligence, surveillance and reconnaissance (ISR) and includes the interfaces with other theater systems required to support joint tactical warfighters at various levels of command. The aircraft is a remotely-piloted, high altitude, long endurance unmanned aircraft designed as an ISR platform. The Air Force has initiated Engineering and Manufacturing Development (EMD), using a spiral approach to incorporate improvements to the aircraft, ground station, communication system, and payloads. The Air Force will integrate Global Hawk into the Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) architecture, national and international airspace systems, and service combat environments. To support this, the Air Force will participate in demonstrations, exercises and conduct experiments with Global Hawk that will explore its use in other mission areas and activities.

This program is Budget Activity 7, Operational Systems Development because it involves Air Force R&D to field a highly capable operational system and provide essential operational capabilities.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) ACCOMPLISHMENTS / PLANNED PROGRAM	0.000	0.000	
(U) Continue spiral development and related tasks, to include spiral development of aircraft, payloads, ground stations, and support segment to satisfy ORD requirements.	224.135		
(U) Provide government test and evaluation support at Edwards AFB	8.031	10.825	
(U) Provide government program management, mission support, and other related costs.	8.421		
(U) Demonstrations and exercises	1.624	5.000	
(U) Added to FY03 program per Congressional plus-up for Advanced Payload Development and Support (\$84,000 *), Global Hawk Producibility Initiatives (\$5,000), and Global Hawk Lithium Batteries (\$1,000).	90.000		
(U) Continue spiral development and related tasks, including aircraft (\$93M), payloads (\$30M), ground stations (\$26M), support segment (\$26M), program management, test and systems engineering (\$55M) to satisfy ORD requirements.		229.794	
(U) Provide government program management, mission support, and other related costs.		9.233	
(U) MP-RTIP sensor adaptation		30.992	
(U) Continue advanced ASIP payload modernization for Global Hawk and U-2 (Global Hawk ASIP platform integration		68.674	

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305205F Endurance Unmanned Aerial Vehicles	PROJECT NUMBER AND TITLE 4799 Global Hawk
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is in Spiral 3 and platform integration for U-2 is in PE 0305202F).

(U) Congressional Plus Up for Advanced Imagery Architecture and Lithium Batteries	332.211	6.300	0.000
(U) Total Cost	332.211	360.818	0.000

*In FY03, \$66.0M continues advanced Signals Intelligence (SIGINT) payload modernization for the Global Hawk and U-2 and \$18.0M continues Imagery Intelligence (IMINT) payload modernization.

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E	332.211	360.818							TBD
(U) Other APPN									
(U) AF MILCON	11.682	22.300							TBD
(U) AF O&M	17.544	13.268							TBD
(U) AF MILPERS	5.066	13.105							TBD
(U) Aircraft Procurement, APPN 10									
AF (HAE UAV)	181.073	251.035							TBD
(U) Aircraft Procurement APPN 11									
AF (HAE UAV)									TBD
(U) Other Procurement, 3080 (HAE									
UAV)	0.639	0.192							TBD

All Other Program Funding is within PE 0305205F up through FY04. Funding is in PE 0305220F in FY05 and out.

(U) D. Acquisition Strategy

Global Hawk program uses Evolutionary Acquisition with an emphasis on Spiral Development strategy. This strategy provides the warfighter with a near term, combat capability with increased, time phased capability improvements as soon as technology and risk achieve satisfactory levels. The initial system capability evolved from a successful technology demonstration program and was refined in development Spiral 1. Subsequent development spirals incorporate additional capabilities into the system design. The Spiral Development strategy supports current operational requirements and can be updated as requirements evolve. The production program incorporates these incremental capability improvements into a series of production lots. These production lots deliver the increasingly capable Global Hawk system.

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
07 Operational System Development				0305205F Endurance Unmanned Aerial Vehicles				4799 Global Hawk				
(U) Cost Categories	Contract Method	Performing Activity &	Total	FY	FY	FY	FY	FY	FY	Cost to	Total	Target
(Tailor to WBS, or System/Item Requirements)	& Type	Location	Prior to FY	2003	2003	2004	2004	2005	2005	Complete	Cost	Value of
(\$ in Millions)			2003	Cost	Award	Cost	Award	Cost	Award			Contract
			Cost		Date		Date		Date			
(U) <u>Product Development</u>												
NGUMS	SS CPAF/CPFF	Rancho Bernardo, CA	262.992	219.912	Nov-02	231.091	Dec-03			Continuing	TBD	
ASC Reconnaissance SPO	SS: CPAF	San Jose, CA	28.000	60.700	Feb-03	55.416	Feb-04			Continuing	TBD	
ASC Reconnaissance SPO	SS: CPAF	Falls Church, VA		0.000		5.250	Feb-04			Continuing	TBD	
ASC Reconnaissance SPO	SS: CPAF	Denver, CO		0.000		5.250	Feb-04			Continuing	TBD	
ESC	SS: CPAF	Melbourne, FL	0.000	10.960	Feb-03	30.992	Mar-04			Continuing	TBD	
ASC Reconnaissance SPO	SS:CPFF	Various		15.775	Feb-03						15.775	
Subtotal Product Development			290.992	307.347		327.999		0.000		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												
NGUMS	SS/CP	Rancho Bernardo, CA	12.088	0.430	Feb-03	1.306	Jan-04			Continuing	TBD	
SAIC/DDE	MIPR	Huntsville, AL		1.700	Oct-02						1.700	
Other Govt Orgs	Various			4.658	Jan-03	4.109	Nov-03			Continuing	TBD	
											0.000	
Subtotal Support			12.088	6.788		5.415		0.000		Continuing	TBD	0.000
Remarks:												
(U) <u>Test & Evaluation</u>												
AFFTC	PO	Edwards AFB	12.982	8.991	Dec-02	10.800	Dec-03			Continuing	TBD	
Demos and Exercise support	PO	various	12.937	0.664	Nov-02	5.025	Nov-03			Continuing	TBD	
Subtotal Test & Evaluation			25.919	9.655		15.825		0.000		Continuing	TBD	0.000
Remarks:												
(U) <u>Management</u>												
MTC	PR	Dayton, OH		5.893	Dec-02	2.325	Dec-03			Continuing	TBD	
HJ Ford	PR	Dayton, OH			Nov-02	2.500	Nov-03			Continuing	TBD	
INNOLOG	PR	Dayton, OH				2.500	Nov-03			Continuing	TBD	
Other Govt Orgs	PR	Various		2.528		4.254	Jan-04			Continuing	TBD	
Subtotal Management			0.000	8.421		11.579		0.000		Continuing	TBD	0.000
Remarks:												
(U) Total Cost			328.999	332.211		360.818		0.000		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

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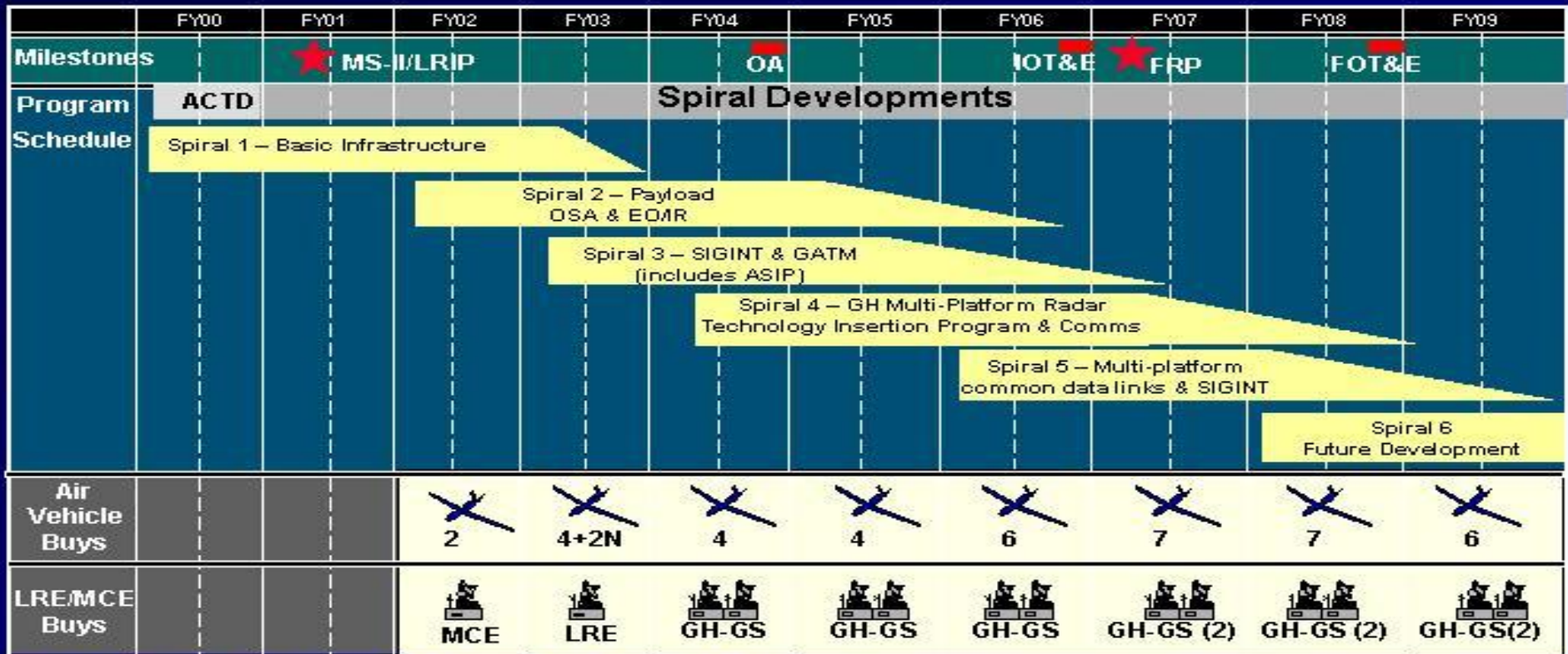
BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0305205F Endurance Unmanned
Aerial Vehicles

PROJECT NUMBER AND TITLE
4799 Global Hawk



Development/Production Program



MS-II/LRIP – Milestone II / Low Rate Initial Production

OA – Operational Assessment

FRP – Full Rate Production

I/FOT&E – Initial / Follow-on Operational Test & Evaluation

MCE – Msn Control Element

LRE – Launch Recovery Element

GH-GS – GH Ground Station

(MCE & LRE)

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305205F Endurance Unmanned Aerial Vehicles	PROJECT NUMBER AND TITLE 4799 Global Hawk
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(U) <u>Schedule Profile</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Pre-EMD Development Complete	1Q		
(U) Delivery of aircraft #7	2Q		
(U) Canadian Overflight		3Q	
(U) Global Hawk SOUTHCOM demo		3Q	
(U) Start EMD System Testing	3Q		
(U) Award EMD Spiral 3 contract	2Q		
(U) Global Hawk/German ELINT Flight Demonstration		1Q	
(U) Delivery of AF1 (First AF production aircraft)	4Q		
(U) EMD Spiral 1 Complete		2Q	
(U) Delivery of AF2		1Q	
(U) Award EMD Spiral 4A contract		2Q	
(U) Operational Assessment		4Q	

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PE NUMBER: 0305206F

PE TITLE: Airborne Reconnaissance Systems

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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305206F Airborne Reconnaissance Systems
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Cost (\$ in Millions)	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
Total Program Element (PE) Cost	64.380	77.930	55.464	58.581	59.384	61.209	61.565	Continuing	TBD
4818 Imaging and Targeting Support	8.707	13.785	12.600	15.355	16.149	17.157	16.832	Continuing	TBD
4819 Common Data Link (CDL)	48.451	45.882	30.597	35.178	36.059	36.742	37.310	Continuing	TBD
4882 Compass Bright	4.784	4.897	2.123	5.162	5.256	5.356	5.438	Continuing	TBD
5038 Network Centric Collaborative Targeting	2.438	11.441	8.196	0.960	0.000	0.000	0.000	Continuing	TBD
5092 JTC/SIL MUSE	0.000	1.925	1.948	1.926	1.920	1.954	1.985	Continuing	TBD

- FY04, project 674819, Congressional action added \$1.0M for ultra-wideband airborne laser communications.

- FY03, project 674818, \$8.7M consisted of: \$6.7 Congressional add for Theater Airborne Reconnaissance Systems (TARS) and \$2M for Senior Year Electro-optical Reconnaissance Systems (SYERS).

- FY03, project 674818, Congressional action transferred \$15.775M from Imaging and Targeting Support (ITS) (Project 674818) program to PE 0305205F, Endurance Unmanned Aerial Vehicles, Project 674799, Global Hawk. FY03 ITS funds were executed from Global Hawk program to support all approved ITS projects. FY04-09 ITS funds will be executed from project 674818, ITS.

- FY03, project 675092, Joint Technology Center/System Integration Laboratory Multiple UAV Simulation Environment (JTC/SIL MUSE) was transferred from PE 0308601F, Modeling and Simulation, into PE 0305206F (Project 675092) starting in FY04. FY03 data in PE 0308601F.

(U) A. Mission Description and Budget Item Justification

The Airborne Reconnaissance Systems program coordinates the development of advanced airborne reconnaissance system technologies (i.e., sensors, data links, targeting networks and products, and quick reaction capabilities) in support of multiple airborne reconnaissance platforms, both manned and unmanned. Its objective is to develop, demonstrate, and rapidly transition advanced, interoperable, multi-platform solutions to reduce the find, fix, target, and track kill chain timeline. This program also coordinates the development of common collection, processing, and dissemination solutions for near-real time intelligence, surveillance, and reconnaissance (ISR). This program is categorized as Budget Activity 7 because it provides for development of technologies and capabilities in support of operational system development.

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305206F Airborne Reconnaissance Systems

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	61.535	77.823	66.609
(U) Current PBR/President's Budget	64.380	77.930	55.464
(U) Total Adjustments	2.845	0.107	
(U) Congressional Program Reductions	-0.650	-0.224	
Congressional Rescissions		-0.669	
Congressional Increases		1.000	
Reprogrammings	3.495		
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT NUMBER AND TITLE		
07 Operational System Development				0305206F Airborne Reconnaissance Systems			4818 Imaging and Targeting Support		
Cost (\$ in Millions)	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
4818 Imaging and Targeting Support	8.707	13.785	12.600	15.355	16.149	17.157	16.832	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

FY 03 consist of: \$6.7M Congressional add for Theater Airborne Reconnaissance Systems (TARS) and \$2M for Senior Year Electro-optical Reconnaissance Systems (SYERS).

(U) A. Mission Description and Budget Item Justification

The purpose of the Imaging and Targeting Support (ITS) program is to develop next-generation, common imagery reconnaissance sensors (e.g., radar and electro-optical systems) for multiple airborne platforms, and sensor products to aid in rapid targeting (e.g., geolocation models, sensor-based exploitation tools, sensor networking capabilities). Developmental efforts pursued are improved sensors (including hyperspectral information [HSI], measurement and signature intelligence [MASINT] sensors, polarimetric imaging, ground moving target indication, foliage penetration, and other radar and electro-optical modes), increased geolocation accuracy, advanced sensor data correlation, automated target detection, network centric warfare, and other intelligence, surveillance, and reconnaissance (ISR) technologies to reduce both target search and kill chain timelines; as well as, supporting traditional intelligence activities. ITS will increase interoperability amongst developed systems by developing common standards and tools. ITS focuses on the following thrust areas:

Development of common radar and electro-optical sensors (e.g., Synthetic Aperture Radar (SAR), Electro-Optical (EO), and Infrared (IR)) and their operational modes (e.g., High Resolution Imagery, Moving Target Indication, Spectral Identification) for multiple airborne platforms.

Development of advanced airborne tactical sensor processing algorithms and tools (e.g., automatic registration, automatic target detection/recognition, network centric warfare). These efforts focus on reducing the find, fix and track elements of the time critical targeting kill-chain timeline while improving operator and decision-maker efficiency.

Enhancement of imagery intelligence (IMINT) product quality. Development of open architecture between tactical sensor models and target exploitation tools. Development of tactical sensor models for airborne reconnaissance platforms. Development and implementation of imagery standards (e.g., Common Ground Moving Target Indicator [GMTI], National Imagery Transmission Format [NITF] for HSI). Monitoring and enhancement of IMINT product quality (e.g., radar and EO/IR imagery, GMTI data, and spectral information) and timeliness throughout the image chain (i.e. from sensor to user).

This program is categorized as Budget Activity 7 because it provides for development of technologies and capabilities in support of operational system development.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Congressional add for SYERS-2 improvements. Effort will add new software to upgrade the geo-location accuracy, provide an automated BE finder and a capability to detect, identify, annotate and provide visualization of user-defined moving targets within the SYERS-2 images. Completes in 4Q FY04.	1.900		
(U) Congressional add for TARS. Completes airborne information transmission data system (ABIT), EO and SAR pod,	6.707		

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305206F Airborne Reconnaissance Systems	PROJECT NUMBER AND TITLE 4818 Imaging and Targeting Support
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and solid state recorder development. Program will complete system development and demonstration (SDD) phase and be ready for LRIP end of FY04.

(U) Mission Support	0.100	1.035	1.294
(U) Continue efforts to transition HSI technology, such as the Spectral Infrared Imaging Technology Testbed (SPIRITT) sensor, into airborne reconnaissance platforms		7.050	6.146
(U) Continue image quality baselining and assessment efforts for airborne reconnaissance sensors.		2.500	2.000
(U) Develop and deliver tactical sensor models		3.000	2.160
(U) Develop and integrate complex Synthetic Aperture Radar (SAR) compression techniques		0.200	1.000
(U) Total Cost	8.707	13.785	12.600

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u> <u>Actual</u>	<u>FY 2004</u> <u>Estimate</u>	<u>FY 2005</u> <u>Estimate</u>	<u>FY 2006</u> <u>Estimate</u>	<u>FY 2007</u> <u>Estimate</u>	<u>FY 2008</u> <u>Estimate</u>	<u>FY 2009</u> <u>Estimate</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) AF RDT & E (PE 63665A, AFRL)	3.490	2.640	2.880	0.600					
(U) AF RDT&E	15.775								
(U) Other APPN									

- Air Force Research Lab is contributing to the SPIRITT HSI sensor development.
 - Per Congressional direction in FY03 PB, \$15.775M was transferred from PE 0305206F, project 4818 (ITS) to PE0305205F, Endurance Unmanned Aerial Vehicles, project 4799, Global Hawk. FY03 funds (\$15.775) for project 4818, ITS, were executed from the Global Hawk project to support approved Imaging and Targeting Support activities.

(U) D. Acquisition Strategy

This program targets high payoff technologies ready to integrate into operational systems to satisfy critical unmet airborne imagery sensor and targeting system requirements. Funds are provided to develop these systems, and to reduce risk associated with their implementation in production systems. Emphasis is placed on maximizing commercial and national development efforts and investment. Multiple contracting methods are used including the use of Engineering Change Proposals (ECPs) to modify existing contracts and new contracts. Contracts have been awarded both competitively and on a sole source basis.

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Exhibit R-3, RDT&E Project Cost Analysis										DATE February 2004		
BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0305206F Airborne Reconnaissance Systems				PROJECT NUMBER AND TITLE 4818 Imaging and Targeting Support				
<u>(U) Cost Categories</u>	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2003</u>	<u>FY 2003</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2005</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(Tailor to WBS, or System/Item Requirements) (\$ in Millions)			<u>Cost</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>			
					<u>Date</u>		<u>Date</u>		<u>Date</u>			
<u>(U) Product Development</u>												
BAE Systems (SPIRITT)	C/CPFF	Greenlawn, NY	0.000			7.050	Apr-04	6.146	Dec-05	Continuing	TBD	24.478
Northrop Grumman (SAR Compression)	SS/CPFF	Linthicum Heights, MD	0.000			0.200	Feb-04	1.000	Jan-05	0.000	1.200	2.557
Eastman Kodak (Image Quality)	SS/CPFF	Rochester, NY	0.000			1.250	Mar-04	1.000	Feb-05	Continuing	TBD	8.175
General Dynamics (Image Quality)	SS/CPFF	Ann Arbor, MI	0.000			1.250	Mar-04	1.000	Feb-05	Continuing	TBD	8.175
General Dynamics (API/TRD)	SS/CPFF	Dayton, OH	0.670			0.880	Jan-04	0.000		0.000	1.550	3.704
Others	Various	Various	0.000			2.120		2.160	Feb-05	4.780	9.060	9.060
BAE (TARS)	C/CPFF	Greenlawn, NY	3.862	2.780	Sep-03	0.000		0.000		0.000	6.642	6.642
Lockheed Martin (TARS)	C/FFP	Goodyear, AZ	4.903	3.043	Aug-03	0.000		0.000		0.000	7.946	7.956
L3Comm (TARS)	C/CP	Salt Lake City, UT	1.000	0.000	Sep-02	0.000		0.000		0.000	1.000	1.000
B.F. Goodrich (SYERS)	SS/CPFF	Lexington, MA	0.000	1.800	Sep-03	0.000		0.000		0.100	1.900	1.900
Subtotal Product Development			10.435	7.623		12.750		11.306		Continuing	TBD	73.647
Remarks: FY03 funding for all projects, lines 1-9, were executed from PE 0305206 GH, per FY03PB Congressional action.												
<u>(U) Support</u>												
Other Gov't Orgs	Various	Various	1.657	0.400	Apr-04					0.000	2.057	2.057
Subtotal Support			1.657	0.400		0.000		0.000		0.000	2.057	2.057
Remarks:												
<u>(U) Test & Evaluation</u>												
Prior	Various	Various	0.638							0.000	0.638	0.638
Range Support (SYERS in 04)	Various	TBD		0.100	Jun-04					0.000	0.100	0.100
TARS T&E	MIPR	Various		0.200	Apr-04					0.000	0.200	0.500
Subtotal Test & Evaluation			0.638	0.300		0.000		0.000		0.000	0.938	1.238
Remarks:												
<u>(U) Management</u>												
ASC (ITS and TARS)	Various	Wright Patterson, AFB		0.384	Oct-02	1.035	Oct-03	1.294	Oct-04	Continuing	TBD	TBD
Subtotal Management			0.000	0.384		1.035		1.294		Continuing	TBD	TBD
Remarks:												
<u>(U) Total Cost</u>			12.730	8.707		13.785		12.600		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

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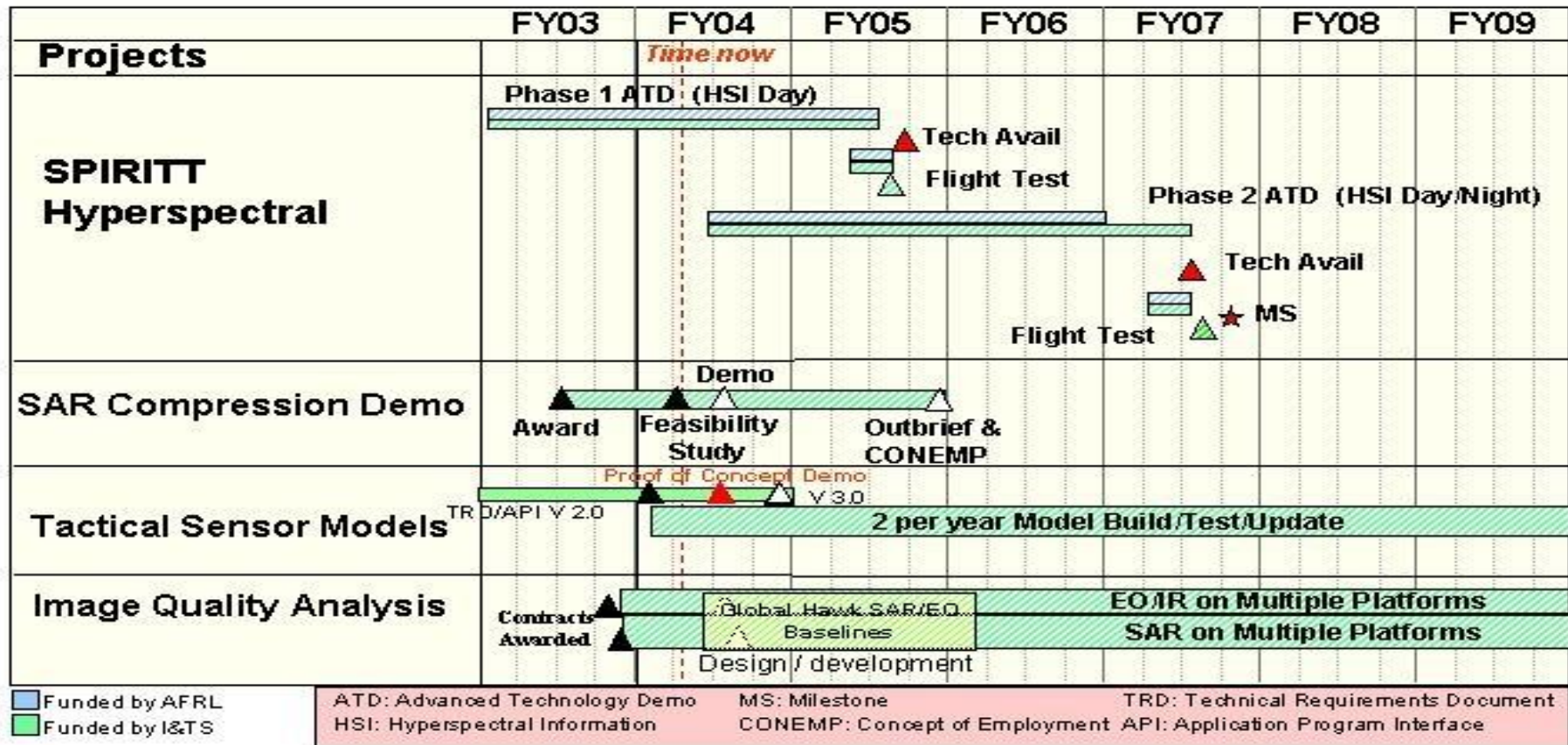
BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0305206F Airborne Reconnaissance
Systems

PROJECT NUMBER AND TITLE
4818 Imaging and Targeting Support



I&TS Schedule



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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305206F Airborne Reconnaissance Systems	PROJECT NUMBER AND TITLE 4818 Imaging and Targeting Support
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(U) <u>Schedule Profile</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) ITS: SPIRITT ATD Contract Award	3Q		
(U) ITS: SPIRITT ATD Phase I Demonstration			2Q
(U) ITS: Tactical Sensor Model Contract Award		1Q	
(U) ITS: Tactical Sensor Model Deliveries		4Q	1Q
(U) ITS: Image Quality Contract Award for EO/IR/SAR	4Q		
(U) ITS: Image Quality Assessment Program begins		4Q	
(U) ITS: Complex SAR Compression Contact Award	2Q		
(U) ITS: Complex SAR Proof of Concept Demonstration		2Q	
(U) SYERS: Contract Award, Explortation software	1Q		
(U) SYERS: Exploitation Software delivery		1Q	
(U) TARS: Electro-Optical pod on Contract	1Q		
(U) TARS: EO Pod Delivered		4Q	

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0305206F Airborne Reconnaissance Systems			PROJECT NUMBER AND TITLE 4819 Common Data Link (CDL)			
Cost (\$ in Millions)	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	
4819 Common Data Link (CDL)	48.451	45.882	30.597	35.178	36.059	36.742	37.310	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

- FY03: \$1.7M Congressional Plus-up for development of Ultra-wideband Airborne Laser Communications.
- FY04: \$1.0M Congressional Plus-up to continue Ultra-wideband Airborne Laser Communications.
- FY04: \$4.0M added to address time-shifting of MP-CDL development.

(U) **A. Mission Description and Budget Item Justification**

The objective of the CDL effort within the Air Force is to define an interoperable command, control and communications capability for intelligence and reconnaissance assets to include both manned and unmanned platforms. CDL will achieve interoperable communications paths by employing a JTRS/SCA architecture based on developed hardware, software, and waveforms to promote commonality among the Services. As the CDL Executive Agent, the Air Force is responsible for ensuring design configuration commonality and interoperability. The CDL design will permit existing and future reconnaissance assets to operate worldwide, providing sensor data directly via point-to-point or via a point-multipoint broadcast to ground sites and airborne platforms or via satellite or air-to-air relay when the asset and ground site are not within line-of-sight. This effort will integrate commercial and other satellite communications into the available satellite relay options to ensure sufficient wideband data relay capability. The system will have sufficient bandwidth to accommodate numerous sensors collecting Signals Intelligence (SIGINT), Imagery Intelligence (IMINT) (including video), Multi-spectral and other data. CDL concept and technology development and system development and demonstration efforts will support continuous improvements and implementation of line-of-sight and network Command and Control, Intelligence, Surveillance and Reconnaissance (C2ISR) capabilities to enable a joint global strike task force. Modular design allows for future technology insertion. The commonality of modular components reduces non-recurring engineering and life cycle costs to the user. Interoperability provides for the exchange of data across service or agency boundaries. (Note: the term A-series refers to full rate/capability CDL systems and T-Series refers to TCDL systems)

This program is categorized as Budget Activity 07 because it provides for development of technologies and capabilities in support of operational system development.

(U) **B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Completed requirement to lease a commercial transponder in support of Global Hawk and studies and analysis of alternative satellite communications to support airborne reconnaissance relay requirements.	2.568	0.000	0.000
(U) Continued evolutionary development of TCDL (T-Series) for operational suitability on ISR platforms such as Guardrail Legacy Replacement, P-3, EP-3, Tactical UAV and Predator.	12.981	16.152	14.658
(U) Complete Airborne Information Transmission (ABIT) (A-Series) technology integration into CDL systems for application to ISR platforms such as Theater Airborne Reconnaissance System and completed ABIT system cost reduction initiatives.	4.034	3.615	0.000
(U) Continued configuration control of CDL architecture, standards, specification, and modules; provide for Joint-Service interoperability certification and spectrum management.	3.423	2.664	2.411

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Exhibit R-2a, RDT&E Project Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305206F Airborne Reconnaissance Systems	PROJECT NUMBER AND TITLE 4819 Common Data Link (CDL)
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(U) Complete current development phase of KGV-135 replacement and CDL migration to DoD network-based encryption architecture.	0.140	0.104	0.000
(U) Continued development of advanced technology insertion activities (to include studies and analysis of future data link requirements and architectures), CDL certification test equipment development, and related Joint Service interoperability certification and spectrum management requirements.	5.170	5.673	7.970
(U) Continued Multi-Platform-Common Data Link (MP-CDL) development of wideband integrated common data link to support Multi-Platform Radar Technology Insertion Program (MP-RTIP) and Network Centric Collaborative Targeting (NCCT).	14.751	14.758	2.410
(U) Continued NCCT wideband integrated common data link development	1.000	0.000	1.000
(U) Continued Ultra-wideband Airborne Laser Communications development. This is an FY04 Congressional Plus-up.	1.700	1.000	
(U) Provide CDL mission support.	2.684	1.916	2.148
(U) Total Cost	48.451	45.882	30.597

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) None									

(U) **D. Acquisition Strategy**

CDL funds are provided to various government laboratories and program offices to support new and on-going development efforts in support of providing a common, interoperable wideband data link as mandated by ASD(NII) policy.

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Exhibit R-3, RDT&E Project Cost Analysis										DATE February 2004		
BUDGET ACTIVITY 07 Operational System Development					PE NUMBER AND TITLE 0305206F Airborne Reconnaissance Systems				PROJECT NUMBER AND TITLE 4819 Common Data Link (CDL)			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
(U) <u>Product Development</u> L-3 Communications	Competitive/Sole Source; CPAF, CPFF, CPIF	Salt Lake City, UT	39.539	29.323	Nov-02	27.428	Oct-03	17.251	Nov-04	Continuing	TBD	
Harris Corp	Competitive/Sole Source; CPFF	Melbourne, FL	14.032	0.730	Dec-02	0.860	Mar-04			Continuing	TBD	
Trex Corp*	Competitive; CPIF	San Diego, CA	6.400							0.000	6.400	6.400
SATCOM Interop/Global Grid/Other Orgs*	Sole Source; MIPR, CPIF	Multiple	9.082	0.140	Apr-03	0.100	May-04			0.000	9.322	9.082
L-3 COMCEPT	Competitive; CPFF	Rockwall, TX	21.393	1.000	Jun-03	0.000		1.000	Jan-05	Continuing	TBD	
ITT	Competitive; IDIQ	Beavercreek, OH	0.000	1.700	Jun-03	1.000	Mar-04			Continuing	TBD	
Cubic	Competitive; CPFF	San Diego, CA	0.000	2.165	Feb-03	3.160	Dec-03	0.000		Continuing	TBD	
Other	Sole Source; MIPR, CPFF	Multiple	23.360	0.994	Dec-02	1.017	Nov-03	0.076	Nov-04	Continuing	TBD	
Subtotal Product Development			113.806	36.052		33.565		18.327		Continuing	TBD	15.482
Remarks:												
(U) <u>Support</u> Various	Competitive/Sole Source; CPFF, MIPR	Multiple	10.485	7.594	Nov-02	7.603	Oct-03	7.289	Nov-04	Continuing	TBD	
Subtotal Support			10.485	7.594		7.603		7.289		Continuing	TBD	0.000
Remarks:												
(U) <u>Test & Evaluation</u> JITC	MIPR	Fort Huachuca, AZ	1.552	0.690	Nov-02	1.281	Oct-03	1.160	Nov-04	Continuing	TBD	

Exhibit R-4, RDT&E Schedule Profile

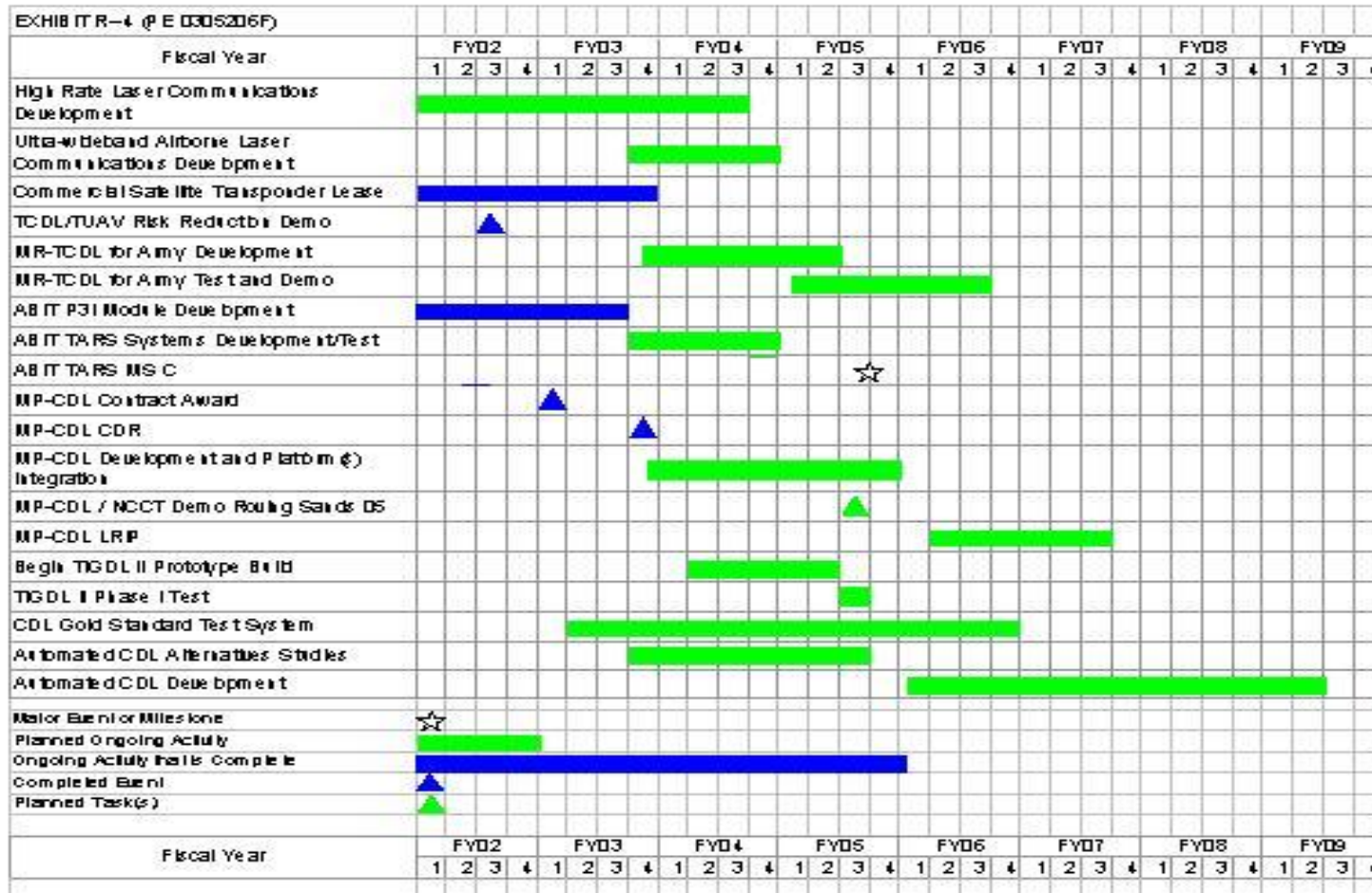
DATE

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BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0305206F Airborne Reconnaissance
Systems

PROJECT NUMBER AND TITLE
4819 Common Data Link (CDL)



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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305206F Airborne Reconnaissance Systems	PROJECT NUMBER AND TITLE 4819 Common Data Link (CDL)
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	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <u>Schedule Profile</u>			
(U) High rate laser communications development	1-4Q	1-3Q	
(U) Ultra-wideband airborne laser communications development	4Q	1-4Q	
(U) MR-TCDL for Army Test and Demo			1-4Q
(U) ABIT TARS MS C			3Q
(U) MP-CDL Contract Award	1Q		
(U) MP-CDL CDR	4Q		
(U) MP-CDL / NCCT Demo Roving Sands 05			3Q
(U) TIGDL-II Phase I Test			3Q

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0305206F Airborne Reconnaissance Systems			PROJECT NUMBER AND TITLE 4882 Compass Bright		
Cost (\$ in Millions)	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
4882 Compass Bright	4.784	4.897	2.123	5.162	5.256	5.356	5.438	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

All funds in Compass Bright are 3600 RDT&E

(U) A. Mission Description and Budget Item Justification

The COMPASS BRIGHT program develops, demonstrates, and rapidly transitions advanced Air Force-specific signal intelligence (SIGINT) and radio frequency (RF) measurement and signature intelligence (MASINT) capabilities against emerging and future target signals. It is the only USAF program that pursues basic SIGINT research.

This program is categorized as Budget Activity 7 because it provides for development of technologies and capabilities in support of operational system development.

The reduction in FY05 is due to an overall cut to the PE that was spread among several BPACs and does not affect ongoing projects. Since COMPASS BRIGHT accepts proposals for development on a year-by-year basis, reductions to the program such as this result in no new efforts being started.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishment/Planned Program	0.000	0.000	
(U) Continue COMPASS BRIGHT development projects in the signal intelligence (SIGINT) and radio frequency (RF) measurement and signature intelligence (MASINT) areas	4.384	4.427	1.840
(U) Mission Support, Program Management Activities	0.400	0.470	0.283
(U) Total Cost	4.784	4.897	2.123

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E									
(U) Other APPN									

(U) D. Acquisition Strategy

The COMPASS BRIGHT program objective is to develop technologies for application in SIGINT and RF MASINT systems/subsystems. Acquisition and production of these developed technologies will occur within the appropriate platform programs. On-going COMPASS BRIGHT technology development and demonstration contracts will continue through existing laboratory relationships and other existing contractual vehicles. The acquisition approach for future development projects will emphasize full and open competition.

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
07 Operational System Development				0305206F Airborne Reconnaissance Systems				4882 Compass Bright				
(U) <u>Cost Categories</u>	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
(\$ in Millions)												
(U) <u>Product Development</u>												
Various	Various		0.000	4.384		4.427		1.840		Continuing	TBD	
Subtotal			0.000								0.000	
Subtotal Product Development			0.000	4.384		4.427		1.840		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												
Subtotal			0.000								0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Test & Evaluation</u>												
None											0.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u>												
ASC/RAJ				0.400		0.470		0.283		Continuing	TBD	
Subtotal Management			0.000	0.400		0.470		0.283		Continuing	TBD	0.000
Remarks:												
(U) Total Cost			0.000	4.784		4.897		2.123		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0305206F Airborne Reconnaissance Systems

PROJECT NUMBER AND TITLE
4882 Compass Bright



COMPASS BRIGHT Project Schedules

	FY03	FY04	FY05	FY06	FY07	FY08	FY09
FIREHAWK	██████████						
Little Weasel	██████████						
SWCR	██████████						
Beamformer	██████████						
SUAVE-A		██████████					
MUD		██████████					
MPA		██████████					

Note1: Project descriptions are attached.

Note 2: COMPASS BRIGHT Projects are 1-2 years in duration, thus no outyear projects are shown

Integrity - Service - Excellence

Exhibit R-4, RDT&E Schedule Profile

DATE

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305206F Airborne Reconnaissance
Systems

PROJECT NUMBER AND TITLE

4882 Compass Bright



Project Descriptions

- **FIREHAWK**
 - Language Sorting System that will enhance reporting and tracking of specific entities to theater and national authorities to reduce the time-line for the TCT process.
- **Little Weasel**
 - Little Weasel will demonstrate the military worth of employing an integrated ELINT payload from a Unmanned Aerial Vehicle (UAV) to support the lethal SEAD/DEAD mission.
- **Superwideband Compressive Receiver (SWCR)**
 - Dramatically improve detection of short-on-time and low-sidelobe threat emitters from airborne ISR platforms by demonstrating the enhanced probability-of-intercept (POI) enabled by wide-instantaneous-bandwidth SWCR
- **Beamforming Receiver Architecture**
 - Classified
- **Small UAV Experiment Payload A (SUAVE-A)**
 - Classified
- **Multi-User Detection (MUD)**
 - Utilize faster processors, beamforming capabilities, and state-of-the-art interference cancellation techniques, to develop a real-time wideband MUD capability
- **Multi-Protocol Architecture (MPA)**
 - Classified

Integrity - Service - Excellence

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305206F Airborne Reconnaissance Systems	PROJECT NUMBER AND TITLE 4882 Compass Bright
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	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <u>Schedule Profile</u>			
(U) FY03 Projects Authorized to Proceed	3Q		
(U) FY04 Proposal Call	4Q		
(U) FY04 Proposals Evaluated and Approved		1Q	
(U) FY04 Projects Authorized to Proceed		2Q	
(U) Little Weasel Demo Flight		4Q	
(U) FIREHAWK Demo		4Q	
(U) FY06 Prposal Call			3Q
(U) SUAVE-A Demo			4Q
(U) MUD Demo			4Q
(U) MPA Demo			4Q
No new projects will be started in FY05 due to funding cut			

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0305206F Airborne Reconnaissance Systems			PROJECT NUMBER AND TITLE 5038 Network Centric Collaborative Targeting		
Cost (\$ in Millions)	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
5038 Network Centric Collaborative Targeting	2.438	11.441	8.196	0.960	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

- FY03: NCCT received \$8M Congressional plus-up in Manned Reconnaissance Systems PE 0305207F (see Section C, RC-135 below).

(U) A. Mission Description and Budget Item Justification

The Network Centric Collaborative Targeting (NCCT) is a CENTCOM sponsored Advanced Concept Technology Demonstration (ACTD) initiated in FY01 that will demonstrate technologies and operational concepts required by Joint/Coalition warfighters. It will provide significant improvements in accuracy and timeliness of time sensitive targeting through 'front end' horizontal integration and collaboration of multiple intelligence, surveillance, and reconnaissance (ISR) assets. NCCT will use a spiral development process to integrate, demonstrate, and assess the ACTD capabilities. The NCCT prototype network, expanded common network processing, and participant interface modules will be installed on selected ISR platforms and systems for demonstrations during FY04 and FY05.

This program is categorized as Budget Activity 7 because it provides for development of technologies and capabilities in support of operational system development.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Continue development of NCCT core technology such as NCCT Network Controller, NCCT Communications Equipment, and NCCT Operations Interface.	1.000	6.800	4.646
(U) Platform Integration Costs	0.809	3.791	2.600
(U) Indirect Engineering Support	0.213	0.250	0.250
(U) Test and Evaluation	0.116	0.100	0.200
(U) Management	0.300	0.500	0.500
(U) Total Cost	2.438	11.441	8.196

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E									
(U) E-3 AWACS PE 0207417F	0.250	0.500							0.900
(U) E-8 JSTARS PE 0207581F	0.250	0.500							1.000
(U) RC-135 PE 0305207F	9.000	1.000	1.000	0.100					12.100
(U) DCGS PE 0305208F									1.000

Exhibit R-2a, RDT&E Project Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305206F Airborne Reconnaissance Systems	PROJECT NUMBER AND TITLE 5038 Network Centric Collaborative Targeting
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(U) **C. Other Program Funding Summary (\$ in Millions)**

(U) CDL PE 0305206F (Project 4819)	1.005	0.000	1.000	1.000		18.367
(U) OSD PE 0603750D	5.000	5.000	1.000	1.000		17.000
(U) Army Guardrail PE 0203744A	0.250	1.000	1.000	1.000		3.250
(U) Other APPN						

The ACTD includes participating platforms as shown above. United Kingdom Nimrod is also participating in the ACTD.

(U) **D. Acquisition Strategy**

NCCT approved as an ACTD by USD(AT&L) and validated by Joint Requirements Oversight Council in FY01. ASC/RAB, Big Safari at Wright Patterson AFB, manages the Cost Plus Fixed Fee contract used to develop NCCT core technology. Individual platform program offices (Rivet Joint, Joint STARS, AWACS, Air Force DCGS, Airborne Overhead Intoperability Office, and Army Guardrail) manage and contract directly for Platform Interface Module development and integration on their platforms. United Kingdom Nimrod program is participating with their own funds.

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY			PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
07 Operational System Development			0305206F Airborne Reconnaissance Systems					5038 Network Centric Collaborative Targeting				
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
<u>(U) Product Development</u> L-3 ComCept, Inc.	Multiple	Prime Contractor/Rockwall, TX		1.000	Oct-02	6.800	Oct-03	4.646	Oct-04	Continuing	TBD	
Platform Specific Contractors	Various	Platform Integration/ Various		0.809		3.791	Feb-04	2.600	Feb-05	Continuing	TBD	
Subtotal Product Development			0.000	1.809		10.591		7.246		Continuing	TBD	0.000
Remarks:												
<u>(U) Support</u> Various Contractors	Various	Indirect engineering support to ACTD/Various locations		0.213		0.250	Oct-03	0.250	Oct-04	Continuing	TBD	
Subtotal Support			0.000	0.213		0.250		0.250		Continuing	TBD	0.000
Remarks:												
<u>(U) Test & Evaluation</u> AFOTEC		Military Utility Assessment/Nellis AFB, NV		0.116	N/A	0.100	N/A	0.200	N/A		0.416	
Subtotal Test & Evaluation			0.000	0.116		0.100		0.200		0.000	0.416	0.000
Remarks:												
<u>(U) Management</u> ASC/RAB		System Program Office/Dayton, OH		0.300	N/A	0.500	N/A	0.500	N/A		1.300	
Subtotal Management			0.000	0.300		0.500		0.500		0.000	1.300	0.000
Remarks:												
<u>(U) Total Cost</u>			0.000	2.438		11.441		8.196		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0305206F Airborne Reconnaissance Systems

PROJECT NUMBER AND TITLE
5038 Network Centric Collaborative Targeting

	Task Name	2003				2004				2005			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
1	Continued Core Technology Development	████████████████████				████████████████████				████████████████████			
2	NCCT Systems Integration Lab Demo (Spiral 1)	██████											
3	Development of PIM	████████████████████				████████████████████				████████████████████			
4	PIM Installation and Testing Complete							██████					
5	JFEX (MUA) Preparation					████████████████████							
6	NCCT Military Utility Assessment Live Fly (Spiral 2)								██████				
7	FY05 Live Fly - Targeting Roving Sands												██████

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305206F Airborne Reconnaissance Systems	PROJECT NUMBER AND TITLE 5038 Network Centric Collaborative Targeting
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	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <u>Schedule Profile</u>			
(U) Continued Core Technology Development *	1-4Q	1-3Q	1-3Q
(U) NCCT Sytems Integration Lab Demo (Spiral 1)	1Q		
(U) Development of PIM *	1-4Q	1-3Q	1-3Q
(U) PIM Installation and Testing Complete		3Q	
(U) 3 Spiral JEFX Preparation		1-3Q	
(U) NCCT Military Utility Assessment Live Fly (Spiral 2)		4Q	
(U) FY05 Live Fly - Targeting Roving Sands			4Q
* - Development efforts suspend during JEFX04/MUA (4Q FY04)			

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0305206F Airborne Reconnaissance Systems			PROJECT NUMBER AND TITLE 5092 JTC/SIL MUSE		
Cost (\$ in Millions)	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
5092 JTC/SIL MUSE	0.000	1.925	1.948	1.926	1.920	1.954	1.985	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

The Joint Technology Center/Systems Integration Laboratory Multiple UAV simulation Environment (JTC/SIL MUSE) BPAC was transferred from PE 0308601F to this program to better align it with JMIP programs and funding. For FY03 data see PE 0308601F, Modeling and Simulation.

(U) A. Mission Description and Budget Item Justification

The Joint Technology Center/Systems Integration Laboratory Multiple UAV Simulation Environment (JTC/SIL MUSE) provides simulations of UAVs/RPAs; their tactical and strategic reconnaissance uses and how their imagery products are used and disseminated within the DoD reconnaissance system. These simulations are utilized for the development of the Army's tactical UAV (TUAV), the Navy's vertical take off UAV (VTUAV), Air Force's Predator medium altitude endurance EUAV and the Air Force's Global Hawk high altitude endurance UAV/RPA.

This program is categorized as Budget Activity 7 because it provides for the development of technologies and capabilities in support of operational system development.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Laboratory sustainment		0.367	0.367
(U) Air Force Synthetic Environment for Reconnaissance and Surveillance (AFSERS) development		1.008	1.081
(U) Maintenance, Licenses and equipment purchases		0.550	0.500
(U) Total Cost	0.000	1.925	1.948

FY03 dollars were executed from PE 0308601F.

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E									
(U) Other APPN									

The program receives approximately \$2.3M per year from the Army and approximately \$1.7M per year from the Navy, through FY09.

(U) D. Acquisition Strategy

All funding for JTC/SIL MUSE support sustainment operations; personnel (both government and contractor support), laboratory expenses, maintenance, licenses, equipment purchases and other expenses associated with operating and maintaining facilities. When contracts are required, they will be awarded after full and open competition.

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305206F Airborne Reconnaissance Systems	PROJECT NUMBER AND TITLE 5092 JTC/SIL MUSE
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(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
	(U) <u>Product Development</u> JTC/SIL Subtotal Product Development Remarks: Prior to FY03 estimate for AF support only. FY03 was executed from PE 0308601F (\$1.953M)	MIPR	Huntsville, AL	8.000	0.000	1.925 Nov-03	1.948	Nov-04	1.948	Nov-04	Continuing	TBD
(U) Total Cost			8.000	0.000	1.925	1.948		Continuing		TBD	TBD	

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305206F Airborne Reconnaissance
Systems

PROJECT NUMBER AND TITLE

5092 JTC/SIL MUSE



JTC/SIL

- JTC/SIL MIPRs all dollars (AF, Army, Navy) to a headquarters contract where it is administered
- Due to the disbursement method JTC/SIL can not provide detailed data on which contracts or products AF only dollars are applied towards.

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Exhibit R-4a, RDT&E Schedule Detail

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305206F Airborne Reconnaissance
Systems

PROJECT NUMBER AND TITLE

5092 JTC/SIL MUSE

(U) Schedule Profile

FY 2003

FY 2004

FY 2005

(U) MIPR dollars to Headquarters

1Q

1Q

1Q

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PE NUMBER: 0305207F

PE TITLE: Manned Reconnaissance System

Exhibit R-2, RDT&E Budget Item Justification								DATE February 2004	
BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0305207F Manned Reconnaissance System					
Cost (\$ in Millions)	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
Total Program Element (PE) Cost	8.357	15.682	13.283	16.570	12.379	12.575	12.772	0.000	0.000
4754 COBRA BALL	8.357	15.682	13.283	16.570	12.379	12.575	12.772	0.000	0.000

(U) A. Mission Description and Budget Item Justification

(U) This project supports design studies, engineering analysis, non-recurring engineering, and other efforts associated with the integration and modification of the RC-135 and its' mission systems - both air and ground. Though extensive utilization of COTS based solutions allows rapid fielding of needed capabilities, it also incurs the need for continuous Vanishing Vendor integration efforts consistent with the COTS technology cycle.

(U) The result of these efforts provides the requisite engineering for preliminary assessments of technical feasibility, operability, or military utility as well as specific engineering implementations integrated into the various baseline modifications.

(U) Budget Activity Justification

This program is budget activity 7, Operational Systems Development, because it involves Air Force R&D necessary to field essential operational capabilities.

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	8.000	15.826	13.283
(U) Current PBR/President's Budget	8.357	15.682	13.283
(U) Total Adjustments	0.357	-0.144	
(U) Congressional Program Reductions		-0.010	
Congressional Rescissions	-0.085	-0.134	
Congressional Increases			
Reprogrammings	0.442		
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			
None			

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0305207F Manned Reconnaissance System			PROJECT NUMBER AND TITLE 4754 COBRA BALL		
Cost (\$ in Millions)	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
4754 COBRA BALL	8.357	15.682	13.283	16.570	12.379	12.575	12.772	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

(U) This project supports design studies, engineering analysis, non-recurring engineering, and other efforts associated with the integration and modification of the RC-135 and its' mission systems - both air and ground. Though extensive utilization of COTS based solutions allows rapid fielding of needed capabilities, it also incurs the need for continuous Vanishing Vendor integration efforts consistent with the COTS technology cycle.

(U) The result of these efforts provides the requisite engineering for preliminary assessments of technical feasibility, operability, or military utility as well as specific engineering implementations integrated into the various baseline modifications.

(U) **Budget Activity Justification**

This program is budget activity 7, Operational Systems Development, because it involves Air Force R&D necessary to field essential operational capabilities.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Congressional Add: Network-Centric Collaborative Targeting (NCCT) - \$8.0M	8.357		
(U) Continues Non-Recurring Engineering (NRE) for the Airborne Extremely High Frequency Communications system to be added to the RC135 fleet.		3.730	5.000
(U) Continues Non-Recurring Engineering (NRE) for the development and installation of improved mission sensor elements - see classified submission.		10.852	8.283
(U) Congressional Add: Cobra Ball Advanced Airborne Sensor (AAS) - \$1.1M		1.100	
(U) Total Cost	8.357	15.682	13.283

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) PE 0305207F, APAF	165.637	133.607	132.414	124.447	128.735	143.446	146.185	Continuing	TBD

(U) D. Acquisition Strategy

The RC-135 Operational Systems Development and enhancement activities are managed by the Air Force through the BIG SAFARI program located within the Reconnaissance System Program Office at the Air Force Material Command / Aeronautical Systems Center. Included is technical oversight and management of all aircraft, ground and support system modifications, integration and flight test engineering responsibility, product assurance and acceptance testing, and logistics and training activities. Aircraft, aircraft sensor systems, and associated ground support system modifications planned for FY05-FY09 include the procurement, fielding and logistical

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Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305207F Manned Reconnaissance System

PROJECT NUMBER AND TITLE

4754 COBRA BALL

support for three distinct RIVET JOINT baseline configurations [baseline 8, 9,10] and two distinct baselines [baselines 3 & 4] for COMBAT SENT. SEE CLASSIFIED Congressional budget exhibits.

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY			PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
07 Operational System Development			0305207F Manned Reconnaissance System					4754 COBRA BALL				
<u>(U) Cost Categories</u>	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2003</u>	<u>FY 2003 Cost</u>	<u>FY 2003 Award</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(Tailor to WBS, or System/Item Requirements) (\$ in Millions)			<u>Cost</u>	<u>Date</u>	<u>Date</u>	<u>Date</u>	<u>Date</u>	<u>Date</u>	<u>Date</u>			
<u>(U) Product Development</u>												
Multiple	Multiple	AFMC ASC/RAB	7.015	8.357		15.682		13.283		Continuing	TBD	
Subtotal Product Development			7.015	8.357		15.682		13.283		Continuing	TBD	0.000
Remarks:	All activity is based around the Programmed Depot Maintenance (PDM) airframe schedule which includes multiple contracts and organizations with overlapping and continuous periods of performance.											
<u>(U) Support</u>												
		AFMC ASC/RAB								Continuing	TBD	
Subtotal Support			0.000	0.000		0.000		0.000		Continuing	TBD	0.000
Remarks:												
<u>(U) Test & Evaluation</u>												
		AFMC ASC/RAB								Continuing	TBD	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		Continuing	TBD	0.000
Remarks:												
<u>(U) Management</u>												
		AFMC ASC/RAB								Continuing	TBD	
Subtotal Management			0.000	0.000		0.000		0.000		Continuing	TBD	0.000
Remarks:												
<u>(U) Total Cost</u>			7.015	8.357		15.682		13.283		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY
07 Operational System Development

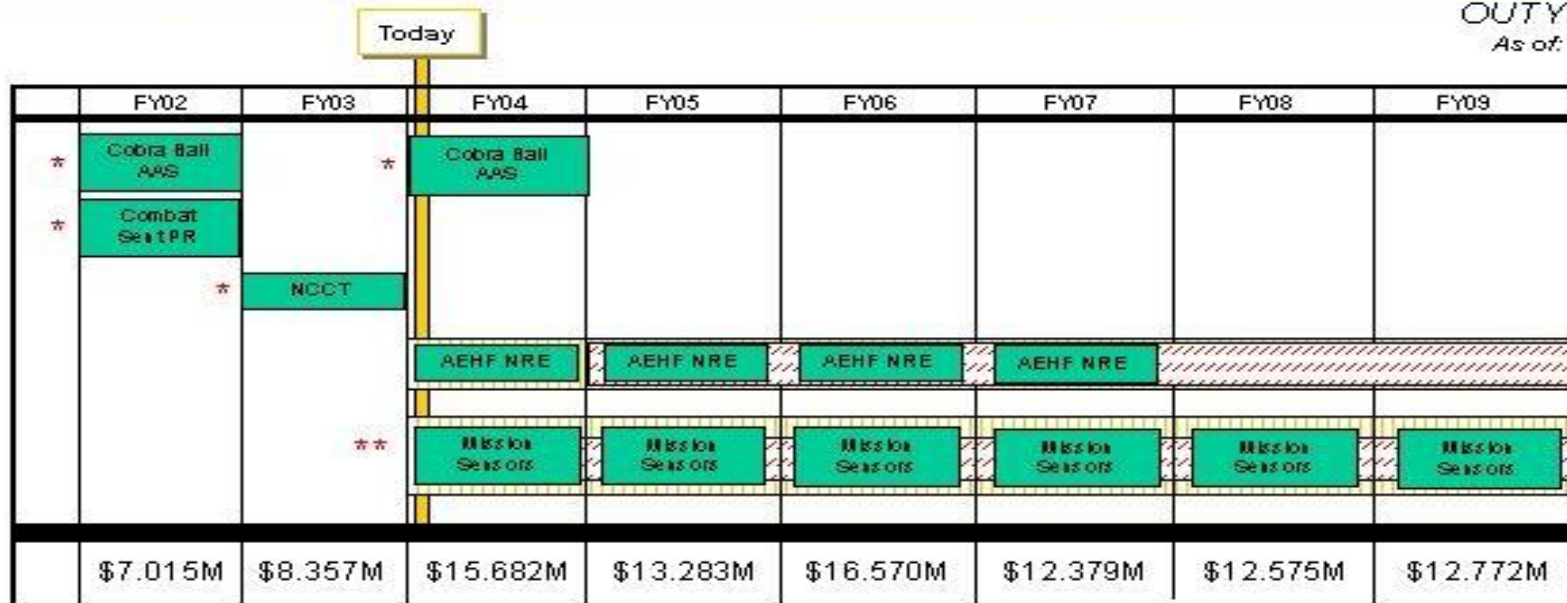
PE NUMBER AND TITLE
0305207F Manned Reconnaissance System

PROJECT NUMBER AND TITLE
4754 COBRA BALL

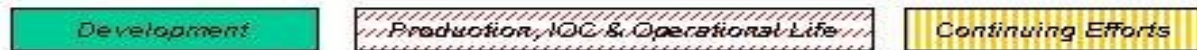


Manned Reconnaissance Program

OUTYEARS
As of: FY05



* Congressional Adds
** See CLASSIFIED Submission for detailed breakout



Integrity - Service - Excellence

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Exhibit R-4a, RDT&E Schedule Detail

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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305207F Manned Reconnaissance System	PROJECT NUMBER AND TITLE 4754 COBRA BALL
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(U) <u>Schedule Profile</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Network-Centric Collaborative Targeting (NCCT)	1Q	4Q	
(U) - Initiate the NCCT study effort	1Q		
(U) - Complete the NCCT study effort		4Q	
(U) Initiate NRE for AEHF FAB-T communications systems		1Q	4Q
(U) Initiate NRE for improved mission sensor elements*		1Q	4Q
(U) Cobra Ball Advanced Airborne Sensor (AAS)		1Q	4Q
(U) - Initiate the AAS study efforts		1Q	
(U) - Complete the AAS study efforts			4Q
* SEE Classified Budget Submission			

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305208F Distributed Common Ground Systems
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Cost (\$ in Millions)	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
Total Program Element (PE) Cost	30.885	27.772	21.232	47.290	169.423	138.666	162.462	Continuing	TBD
4826 Common Imagery Ground / Surface Systems	30.885	27.772	21.232	47.290	169.423	138.666	162.462	Continuing	TBD

(U) **A. Mission Description and Budget Item Justification**

The DoD Distributed Common Ground/Surface System (DCGS) Program is a cooperative effort between the Services and Agencies to provide world-wide ground/service systems capable of receiving, processing, exploiting, and disseminating data from airborne and national reconnaissance sensors/platforms and commercial sources. The DCGS program is developing a family of systems capable of supporting all levels of conflict, interoperable (using the Common Data Link) with reconnaissance platforms and sensors, and integrated into the Joint Command, Control, Communication, Computer, and Intelligence (C4I) environment. The program integrates architectures and standards from DCGS Imagery (DCGS-I) architecture for Imagery Intelligence (IMINT), Joint Interoperable Operator Network (JION) for Signals Intelligence (SIGINT), and Joint Airborne Measurement and Signature Intelligence (MASINT) Architecture (JAMA) for MASINT, and RF-INT, all-source analyses to Combat Air Forces and Unified Command warfighters. The Air Force has been charged with developing a DCGS Integration Backbone (DIB) for data services level interoperability.

AF DCGS provides ground/surface systems capable of tasking intelligence sensors, and receiving, processing, exploiting, and disseminating (TPED) data from airborne and national reconnaissance platforms and commercial sources. AF DCGS is a 'system of systems' interconnected by a robust communications structure to provide data streams between intelligence collectors, exploiters, producers, disseminators, and users. AF DCGS has four core locations: two CONUS based and two OCONUS. Several other DCGS systems are distributed among Air Force operational units at numbered Air Force locations, to support the Joint Task Force commander and the Air and Space Operations Center (AOC). The CONUS-based systems are deployable and capable of reachback operations via satellite.

AF DCGS provides significant support to Time Critical Targeting (TCT) operations. This support will be enhanced with the planned integration of software tools and closer integration to AOC tools. ISR management capability will provide the Joint Forces Air Component Commander (JFACC) the capability to:

- 1) dynamically visualize and command ISR assets and the information in the AOC
- 2) quickly and effectively synchronize AF DCGS ISR operations, collection capabilities, and information with the AOC's combat objectives to improve the TCT process.

AF DCGS received significant funding increases in FY 06-FY 09 to support AF DCGS modernization. These funds will transform AF DCGS from its existing architecture based on proprietary and legacy systems to an open architecture integrated into the Network Centric Warfare environment.

The Common Imagery Processor (CIP) is a major interoperability initiative to develop a common sensor processing element within DCGS-I architecture. The function of the CIP is to accept airborne imagery data, process it into an exploitable image, and output the image to other elements within DCGS-I. Baseline capability includes F/A-18 and U-2 sensors. Efforts are underway to augment the CIP baseline to process data from upgraded/new sensors.

Exhibit R-2, RDT&E Budget Item Justification

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305208F Distributed Common Ground Systems

Also included in this project is a mobile DCGS-I testbed. The testbed is being used by Service and Agency program offices to test interfaces with new sensors, applications, and other modifications. This testbed also supports the integration and testing of DoD DCGS components prior to introduction into the operational environment.

Program is in Budget Activity 7 because it provides for development of technologies and capabilities in support of operational system development.

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	30.674	27.107	26.198
(U) Current PBR/President's Budget	30.885	27.772	21.232
(U) Total Adjustments	0.211	0.665	
(U) Congressional Program Reductions		-0.097	
Congressional Rescissions	-0.730	-0.238	
Congressional Increases	0.941	1.000	
Reprogrammings			
SBIR/STTR Transfer			

(U) Significant Program Changes:

- AF DCGS received significant funding increases in FY 06 - FY 09 to support AF DCGS modernization. These funds will transform AF DCGS from its existing architecture based on proprietary and legacy systems to an open architecture integrated into the Network Centric Warfare environment.
- In FY04, AF DCGS received a Congressional increase of \$1.0M to continue efforts to improve the prosecution of Time Critical Targets (TCT).
- In FY03, AF DCGS received \$10.4M from the Cost of War Transfer Account for the development of increased/improved dissemination capabilities (\$8M) and commercial imagery integration (\$2.4M).

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0305208F Distributed Common Ground Systems			PROJECT NUMBER AND TITLE 4826 Common Imagery Ground / Surface Systems		
Cost (\$ in Millions)	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
4826 Common Imagery Ground / Surface Systems	30.885	27.772	21.232	47.290	169.423	138.666	162.462	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) **A. Mission Description and Budget Item Justification**

The DoD Distributed Common Ground/Surface System (DCGS) Program is a cooperative effort between the Services and Agencies to provide world-wide ground/service systems capable of receiving, processing, exploiting, and disseminating data from airborne and national reconnaissance sensors/platforms and commercial sources. The DCGS program is developing a family of systems capable of supporting all levels of conflict, interoperable (using the Common Data Link) with reconnaissance platforms and sensors, and integrated into the Joint Command, Control, Communication, Computer, and Intelligence (C4I) environment. The program integrates architectures and standards from DCGS Imagery (DCGS-I) architecture for Imagery Intelligence (IMINT), Joint Interoperable Operator Network (JION) for Signals Intelligence (SIGINT), and Joint Airborne Measurement and Signature Intelligence (MASINT) Architecture (JAMA) for MASINT, and RF-INT, all-source analyses to Combat Air Forces and Unified Command warfighters. The Air Force has been charged with developing a DCGS Integration Backbone (DIB) for data services level interoperability.

AF DCGS provides ground/surface systems capable of tasking intelligence sensors, and receiving, processing, exploiting, and disseminating (TPED) data from airborne and national reconnaissance platforms and commercial sources. AF DCGS is a 'system of systems' interconnected by a robust communications structure to provide data streams between intelligence collectors, exploiters, producers, disseminators, and users. AF DCGS has four core locations: two CONUS based and two OCONUS. Several other DCGS systems are distributed among Air Force operational units at numbered Air Force locations, to support the Joint Task Force commander and the Air and Space Operations Center (AOC). The CONUS-based systems are deployable and capable of reachback operations via satellite.

AF DCGS provides significant support to Time Critical Targeting (TCT) operations. This support will be enhanced with the planned integration of software tools and closer integration to AOC tools. ISR management capability will provide the Joint Forces Air Component Commander (JFACC) the capability to:

- 1) dynamically visualize and command ISR assets and the information in the AOC
- 2) quickly and effectively synchronize AF DCGS ISR operations, collection capabilities, and information with the AOC's combat objectives to improve the TCT process.

AF DCGS received significant funding increases in FY 06-FY 09 to support AF DCGS modernization. These funds will transform AF DCGS from its existing architecture based on proprietary and legacy systems to an open architecture integrated into the Network Centric Warfare environment.

The Common Imagery Processor (CIP) is a major interoperability initiative to develop a common sensor processing element within DCGS-I architecture. The function of the CIP is to accept airborne imagery data, process it into an exploitable image, and output the image to other elements within DCGS-I. Baseline capability includes F/A-18 and U-2 sensors. Efforts are underway to augment the CIP baseline to process data from upgraded/new sensors.

Also included in this project is a mobile DCGS-I testbed. The testbed is being used by Service and Agency program offices to test interfaces with new sensors,

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305208F Distributed Common Ground Systems	PROJECT NUMBER AND TITLE 4826 Common Imagery Ground / Surface Systems
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applications, and other modifications. This testbed also supports the integration and testing of DoD DCGS components prior to introduction into the operational environment.

Program is in Budget Activity 7 because it provides for development of technologies and capabilities in support of operational system development.

(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Continue evolving DCGS architectures and standards for commonality and interoperability across intelligence disciplines to include NATO interoperability and management of DCGS Infrastructure Integrated Process Team (IPT) for USD(I)	1.512	1.544	1.602
(U) Continue DCGS-I testbed development.	1.304	1.251	1.375
(U) Continue evolving CIP and its associated architecture to keep pace with growing sensor baseline: new and upgraded sensors. Continue investigation of and implementation of advanced processing tools.	12.383	7.786	7.454
(U) Continue the Adaptive Link Formatter (ALF) development.	8.000		
(U) Continue Commercial Imagery integration started under COW effort.	2.400	1.054	0.745
(U) Continue ISR management capability development efforts further integrating this functionality into DCGS. Continue development of improved command and control of ISR platforms/sensors to enhance DCGS support to the commander, improve integration with the AOC, and to increase Time Critical Targeting (TCT) effectiveness. Continue development of NCCT and DCGS integration.	5.286	9.637	5.056
(U) Continue integration of MASINT exploitation capabilities into DCGS as an extension of the Cost of War (COW) effort.		5.000	5.000
(U) Develop the geospatial effort in support of AF transition to digital mapping technology and products as an extension of the COW effort.			
(U) Develop C2 Integration for Joint Dynamic Targeting		1.000	
(U) Continue development of DGS-X		0.500	
(U) Total Cost	30.885	27.772	21.232

(U) <u>C. Other Program Funding Summary (\$ in Millions)</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Other APPN									TBD
Procurement line is classified.									

(U) **D. Acquisition Strategy**
DCGS uses a spiral development program to field and upgrade the common ground station architecture. Systems and technology will be contracted for under a competitive Request for Proposal (RFP) process where possible.

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY			PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
07 Operational System Development			0305208F Distributed Common Ground Systems					4826 Common Imagery Ground / Surface Systems				
(U) Cost Categories	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to</u>	<u>Total</u>	<u>Target</u>
(Tailor to WBS, or System/Item Requirements) (\$ in Millions)			<u>Prior to FY</u>	<u>2003</u>	<u>2003</u>	<u>2004</u>	<u>2004</u>	<u>2005</u>	<u>2005</u>	<u>Complete</u>	<u>Cost</u>	<u>Value of</u>
			<u>2003</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>			<u>Contract</u>
			<u>Cost</u>		<u>Date</u>		<u>Date</u>		<u>Date</u>			
(U) <u>Product Development</u>												
Raytheon	Multiple	Garland, TX	1.318	2.000		5.701		4.347		Continuing	TBD	
Northrop Grumman	C/CPFF	Baltimore, MD	4.896	12.383		6.347		7.454		Continuing	TBD	
Lockheed Martin	Multiple	San Jose, CA	0.300	1.250		2.199				Continuing	TBD	
General Dynamics (formerly Veridian)	C/CPAF	Hanscom AFB, MA	0.000	0.210		1.508				Continuing	TBD	
Masint Contractor TBD						5.000		5.000			10.000	
Par Government Systems Corp						1.054					1.054	
Adroit						1.000					1.000	
Subtotal Product Development			6.514	15.843		22.809		16.801		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												
Other Non-Prime Gov't Contracts			0.000							Continuing	TBD	
MITRE	SS/CPAF	Burlington, MA & Hanscom AFB		0.290		0.300				Continuing	TBD	
SAIC	SS/ IDIQ	Hanscom AFB, MA		2.400		2.700		2.375		Continuing	TBD	
Various				12.352		1.963		2.056			16.371	
Subtotal Support			0.000	15.042		4.963		4.431		Continuing	TBD	0.000
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			6.514	30.885		27.772		21.232		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

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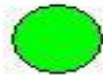
BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0305208F Distributed Common
Ground Systems

PROJECT NUMBER AND TITLE
4826 Common Imagery Ground /
Surface Systems



AF DCGS



AF DCGS Schedule

	FY03	FY04	FY05	FY06	FY07	FY08	FY09	FY10
Block 10.2		■						
Block 20.1								
CAN/WAN Installs	■							
Network Upgrades								
ETP Expansion								
Combat Support	■							

Exhibit R-4a, RDT&E Schedule Detail

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305208F Distributed Common Ground Systems

PROJECT NUMBER AND TITLE

4826 Common Imagery Ground / Surface Systems

(U) Schedule Profile

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Integrate/Test changes in testbed	2Q	2Q	2Q
(U) Assess/integrate national and tactical interface changes to DCGS	1Q	1Q	1Q
(U) Integrate new sensors and sensor modifications into CIP	2Q	2Q	2Q
(U) DCGS technology/software upgrade	2Q	2Q	2Q
(U) DCGS commonality and Interoperability standards	2Q	2Q	2Q
(U) NATO Interoperability Standards	1Q	2Q	1Q
(U) DCGS Infrastructure IPT	1-4Q	1-4Q	1-4Q
(U) Develop improved C2 of ISR platforms/sensors	1Q	2Q	2Q

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Exhibit R-2, RDT&E Budget Item Justification

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305219F PREDATOR DEVELOPMENT/FIELDING

Cost (\$ in Millions)	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
Total Program Element (PE) Cost	0.000	0.000	81.346	66.466	26.783	27.490	24.433	0.000	0.000
5143 Predator	0.000	0.000	81.346	66.466	26.783	27.490	24.433	0.000	0.000

In FY2005, this is a new PE. In FY2005, Project 5143, Predator, was transferred from PE 0305205F, Unmanned Aerial Vehicles, Project 4755, Predator, in order to better manage Predator funds.

(U) **A. Mission Description and Budget Item Justification**

The basic MQ-1/MQ-9 system consists of the aircraft, a control station, communications equipment, support equipment, readiness spares packages (RSP), technical data/training, and personnel required to operate, maintain, and sustain the system. The system is designed to be modular and open-ended: mission-specific equipment is employed in a 'plug-and-play' mission kit concept allowing specific aircraft and control station configurations to be tailored to fit mission needs.

The MQ-1 Predator aircraft is a single-engine, propeller-driven, remotely piloted aircraft (formerly called unmanned aerial vehicle) designed to operate over-the-horizon at medium altitude for long endurance sorties. The aircraft is designed to provide real-time Intelligence, Surveillance, Reconnaissance, and Target Acquisition (ISR TA), and attack roles to aggressively prosecute Time Sensitive Targets (TST). The MQ-1 will operate primarily at medium altitudes, integrating with joint aerospace, ground, and maritime forces as well as coalition and Allied forces, to execute combatant commander priority missions. The aircraft carries a Multi-spectral Targeting System (MTS) (a sensor turret that incorporates electro-optical (EO), Infra-Red (IR), laser designator/marker, and IR illuminator) capable of transmitting real-time motion imagery throughout the operational theater. Additionally the aircraft is multi-configurable to carry either a synthetic aperture radar (SAR) or Hellfire laser-guided missiles. The MQ-1 aircraft will continue to evolve and upgrade its capabilities to satisfy new requirements and address reliability and maintainability (R&M) issues as they arise.

The MQ-9 Predator B aircraft is a single-engine, turbo-prop remotely piloted aircraft designed to operate over-the-horizon at medium-to-high altitude for long endurance sorties. The aircraft will be designed primarily to prosecute critical emerging TSTs as a radar-based attack asset with on-board hard-kill capability (hunter-killer) and also perform ISR TA as a secondary role. In the hunter killer role, the aircraft will employ fused multi-spectral sensors to automatically find, fix, and track ground targets (Automatic Target Cueing (ATC)) and assess post-strike results. The MQ-9 is in continuing development and will field capability through incremental (Block) upgrades. Flight characterization evaluation of the original off-the-shelf, prototype aircraft is complete. The next step will be to develop and test a "baseline" capable system. The "baseline" development includes both a risk reduction phase and a System Development & Demonstration (SDD) phase. Risk reduction started in FY03 and includes system design, drawings, specifications, and initial MIL-STD-1760 advanced weapons data bus efforts. The SDD effort begins in FY04 and includes developing and testing the MQ-9's baseline capability. The baseline capability will include increasing the aircraft's gross take-off weight; enhancing aircraft systems to include integrated redundant avionics, ice detection capability, navigation system upgrades, electrical system upgrades, secure data links, sensor/stores management computer, MIL-STD-1760 advanced weapons data bus, advanced sensor and weapons payloads, and improved human-machine interface; integrating standard "precision" weapons (GBU-12/38); hardware and software upgrades to the ground control station (GCS) for MQ-9 operations; completing airworthiness certification and accreditation; and producing applicable training devices that emulate aircraft capabilities. Subsequent block upgrades will continue to evolve the MQ-9's capabilities to satisfy new requirements and address R&M issues as they arise.

Exhibit R-2, RDT&E Budget Item Justification

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305219F PREDATOR DEVELOPMENT/FIELDING

Approximately 15 Predator B aircraft will be purchased prior to completion of SDD due to Congressional and OSD funding adds. To maintain a basic operational capability, these aircraft will require reliability/maintainability and P3I development to keep them viable in supporting SDD and/or to provide an interim operational capability. Much of this development will be common to MQ-1 R&M and P3I efforts.

The Ground Control Station (GCS) functions as the aircraft cockpit and can control the aircraft either within line-of-sight (LOS) or beyond LOS (BLOS) via a combination of satellite relay and terrestrial communications. The GCS is either mobile to support forward operating locations or fixed at a facility to support Remote Split Operations (RSO). A mobile GCS is containerized for deployability while a fixed facility GCS consists of similar capability in a permanent facility. The GCS has the capability to perform mission planning; provide a means for manual and/or autonomous control of multiple aircraft and payloads; allow personnel to launch, recover, and monitor aircraft, payloads, and system communications status; secure data links to receive payload sensor data and command links; monitor threats to the aircraft; display common operation picture; and provide support functions. Additionally, a Launch and Recover GCS (LRGCS) allows for servicing, systems checks, maintaining, launching, and recovering aircraft under LOS control for hand off to a mobile or fixed GCS. The GCS will continue to evolve and upgrade its capabilities to fully support the MQ-1 and MQ-9 aircraft and the missions they perform.

This program is budget activity 7, Operational Systems Development, because it involves Air Force R&D to field a highly capable operational system and provide essential operational capabilities.

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget			40.181
(U) Current PBR/President's Budget	0.000	0.000	81.346
(U) Total Adjustments	0.000	0.000	
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			
Program restructured to support MQ-1 required improvements and MQ-9 SDD efforts. Funds transferred from PE 0305205F, Project 4755.			

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0305219F PREDATOR DEVELOPMENT/FIELDING			PROJECT NUMBER AND TITLE 5143 Predator		
Cost (\$ in Millions)	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
5143 Predator	0.000	0.000	81.346	66.466	26.783	27.490	24.433	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

In FY2005, this is a new PE. In FY2005, Project 5143, Predator, was transferred from PE 0305205F, Unmanned Aerial Vehicles, Project 4755, Predator, in order to better manage Predator funds.

(U) **A. Mission Description and Budget Item Justification**

The basic MQ-1/MQ-9 system consists of the aircraft, a control station, communications equipment, support equipment, readiness spares packages (RSP), technical data/training, and personnel required to operate, maintain, and sustain the system. The system is designed to be modular and open-ended: mission-specific equipment is employed in a 'plug-and-play' mission kit concept allowing specific aircraft and control station configurations to be tailored to fit mission needs.

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Exhibit R-2a, RDT&E Project Justification

DATE
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305219F PREDATOR DEVELOPMENT/FIELDING	PROJECT NUMBER AND TITLE 5143 Predator
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Approximately 15 Predator B aircraft will be purchased prior to completion of SDD due to Congressional and OSD funding adds. To maintain a basic operational capability, these aircraft will require reliability/maintainability and P3I development to keep them viable in supporting SDD and/or to provide an interim operational capability. Much of this development will be common to MQ-1 R&M and P3I efforts.

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This program is budget activity 7, Operational Systems Development, because it involves Air Force R&D to field a highly capable operational system and provide essential operational capabilities.

(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments/Planned Program			
(U) MQ-1/MQ-9 Pre-planned Product Improvement. (To include: Advanced capabilities (including multiple aircraft control/operations), sensor integration, quick reaction capabilities, payload development/integration, weaponization and experimentation, data link upgrades (including encryption and TCDL), mission planning capability, simulator/training devices, and associated ground station and communication equipment development/upgrades.)			12.300
(U) MQ-9 System Development and Demonstration (SDD) (aircraft/GCS/Communication system improvements, development and integration of follow-on sensors, weapon and payload integration, test and training capability, technical data)			46.446
(U) Continue a reliability and maintainability program to ensure the continued viability of the MQ-1/MQ-9 aircraft, GCS, and associated communications equipment.			2.200
(U) System Concept Studies			1.000
(U) Developmental and Operational Test support. including SATCOM leases			3.400
(U) Simulator/training device			15.000
(U) Field support			1.000
(U) Total Cost	0.000	0.000	81.346

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

**0305219F PREDATOR
DEVELOPMENT/FIELDING**

PROJECT NUMBER AND TITLE

5143 Predator**(U) C. Other Program Funding Summary (\$ in Millions)****(U) D. Acquisition Strategy**

Both the MQ-1 Predator and MQ-9 Predator B will be acquired 'sole-source' through the BIG SAFARI Program Office with General Atomics-ASI as the prime contractor. MQ-1 Predator is in accelerated production with ISR sensors, laser designators, and weapon delivery capability. MQ-9 Predator B will be acquired as a 'Hunter Killer' system through a series of incremental (block) upgrades to rapidly deliver combat capability. Each block upgrade will build on the delivered capability from the previous block upgrade and will include advanced sensor capabilities and evolving weapon payloads.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis										DATE February 2004		
BUDGET ACTIVITY 07 Operational System Development					PE NUMBER AND TITLE 0305219F PREDATOR DEVELOPMENT/FIELDING					PROJECT NUMBER AND TITLE 5143 Predator		
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
<u>(U) Product Development</u>												
General Atomics ASI (GA-ASI)	SS/CPIF/CPFF	GA-ASI Rancho Bernardo CA						77.446	Feb-05	Continuing	TBD	
Navy Crane	MIPR	Raytheon McKinney TX						1.400	Feb-05	Continuing	TBD	
Subtotal Product Development			0.000	0.000		0.000		78.846		Continuing	TBD	0.000
Remarks: FY04 and prior reported in PE 0305205F												
<u>(U) Support</u>												
ASC	SS/T&M	Various Wright-Patterson AFB OH						1.500	Feb-05	Continuing	TBD	
Subtotal Support			0.000	0.000		0.000		1.500		Continuing	TBD	0.000
Remarks: FY04 and prior reported in PE 0305205F; Includes management of RDT&E activities												
<u>(U) Test & Evaluation</u>												
Misc	Various	Various						1.000	Feb-05	Continuing	TBD	
Subtotal Test & Evaluation			0.000	0.000		0.000		1.000		Continuing	TBD	0.000
Remarks: FY04 and prior reported in PE 0305205F												
<u>(U) Total Cost</u>			0.000	0.000		0.000		81.346		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

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February 2004

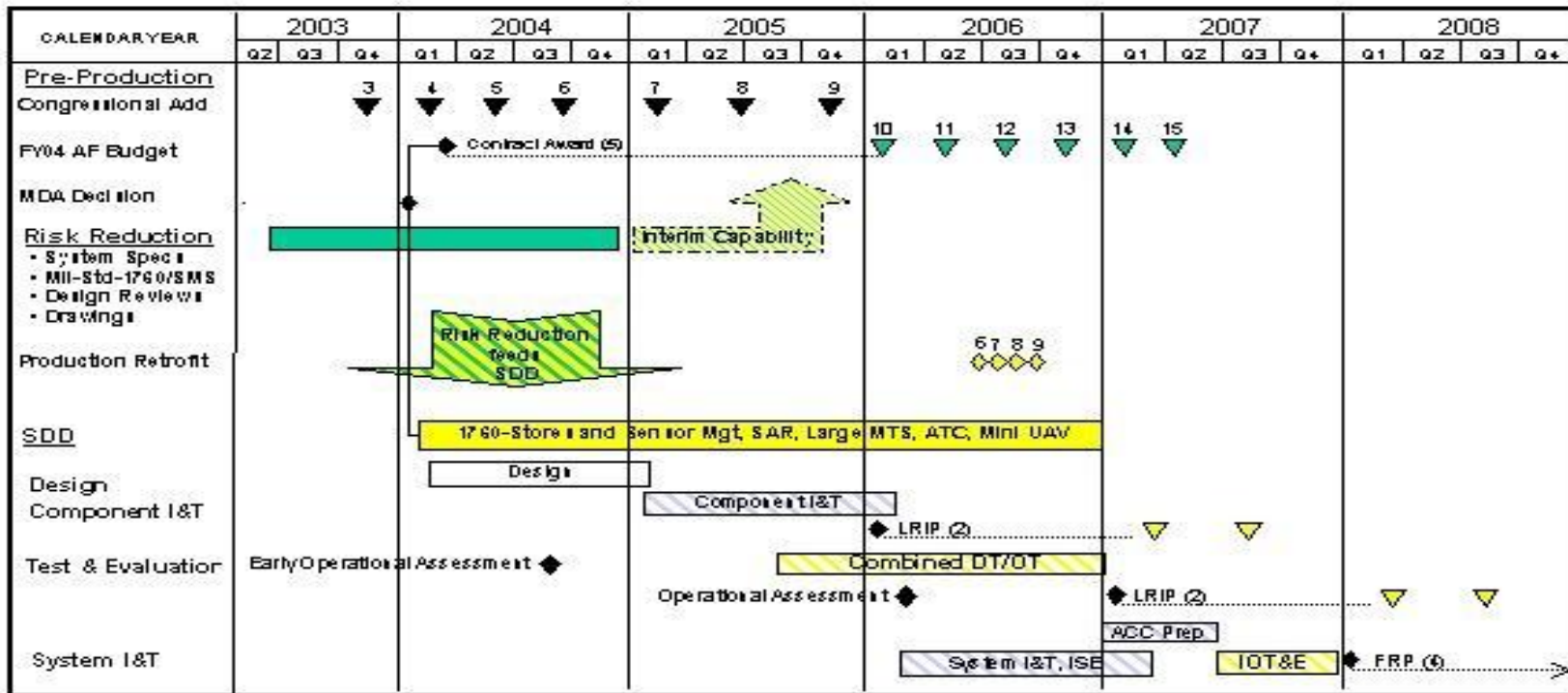
BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0305219F PREDATOR
DEVELOPMENT/FIELDING

PROJECT NUMBER AND TITLE
5143 Predator



MQ-9 Predator B Timeline



FY	2003	2004	2005	2006	2007	2008	2009
MQ-9 Aircraft Buys (FY05 APOM)	3	6	2	2	2	4	8

Exhibit R-4, RDT&E Schedule Profile

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February 2004

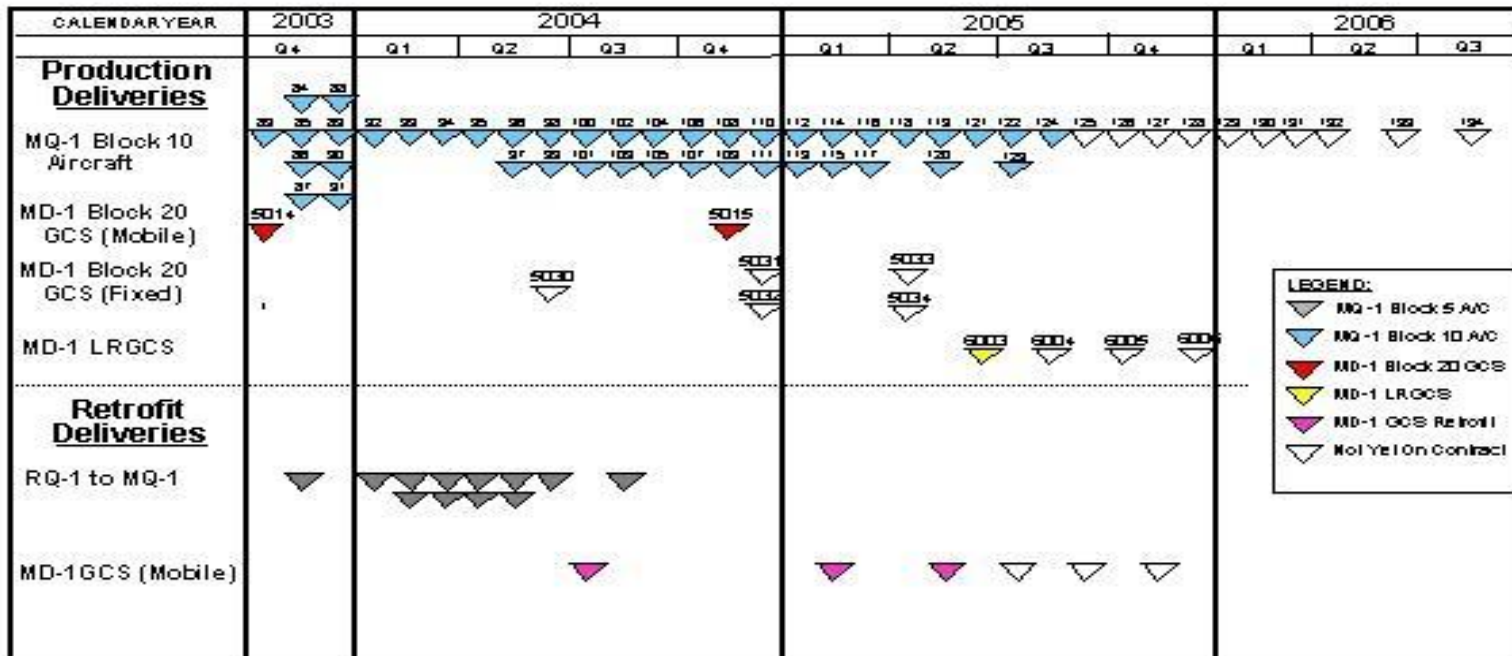
BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0305219F PREDATOR
DEVELOPMENT/FIELDING

PROJECT NUMBER AND TITLE
5143 Predator



MQ-1 Predator Timeline



FY	2003	2004	2005	2006	2007	2008	2009
MQ-1 Aircraft Buys (FY05 APOM)	22	10	7	7	7	7	7

UNCLASSIFIED

Exhibit R-4a, RDT&E Schedule Detail		DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305219F PREDATOR DEVELOPMENT/FIELDING	PROJECT NUMBER AND TITLE 5143 Predator
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(U) <u>Schedule Profile</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Delivery of first production weaponized MQ-1 aircraft	2Q		
(U) MQ-9 Flight Characterization Evaluation Complete	3Q		
(U) MQ-9 Risk Reduction Start	4Q		
(U) MQ-9 Risk Reduction Complete			1Q
(U) MQ-9 SDD Start		2Q	

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UNCLASSIFIED

PE NUMBER: 0305220F
 PE TITLE: GLOBAL HAWK DEVELOPMENT/FIELDING

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305220F GLOBAL HAWK DEVELOPMENT/FIELDING
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Cost (\$ in Millions)	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
Total Program Element (PE) Cost	0.000	0.000	336.159	226.579	226.502	230.127	233.719	0.000	0.000
5144 Global Hawk	0.000	0.000	336.159	226.579	226.502	230.127	233.719	0.000	0.000

For FY05 and out, all Global Hawk funding is in PE 305220F, project 675144; funds were transferred from PE 305205F, project 674799F.

(U) A. Mission Description and Budget Item Justification

Global Hawk is a high-altitude, long-endurance unmanned aerial vehicle developed to provide all-weather, day/night, intelligence, surveillance and reconnaissance (ISR) in direct support of theater ISR collection requirements and integrate with existing ISR architectures for mission planning, data processing, exploitation and dissemination.

The Global Hawk System consists of the RQ-4A Unmanned Aerial Vehicle (UAV), the AN/MSQ-131 Ground Segment (GS), and the support system. The aircraft is a fully autonomous, high altitude, long endurance unmanned aircraft designed as an Intelligence, Surveillance and Reconnaissance (ISR) platform. The RQ-4A is an imagery intelligence-collecting UAV designed to carry 2,000 pounds of payload. Its payload includes an Integrated Sensor Suite (ISS) which contains Synthetic Aperture Radar (SAR) with Ground Moving Target Indicator (GMTI) capability, along with an Electro-Optical (EO)/Infrared (IR) camera.

The RQ-4B will be a multi-intelligence collecting UAV with a payload capacity of 3,000 pounds. Its payload will include an upgraded ISS as well as a signals intelligence (SIGINT) capability providing both a high-band and low-band signal capability. The GS consists of the Mission Control Element (MCE) and the Launch and Recovery Element (LRE). It is designed to provide up to 40,000 sq. nmi. of search radar imagery and EO or IR imagery per mission. Global Hawk is designed as a standoff imagery platform with the capability to operate in low-to-moderate air defense threat environments, and collect imagery while looking line of sight into high threat areas.

This program is Budget Activity 7, Operational Systems Development because it involves Air Force R&D to field a highly capable operational system and provide essential operational capabilities.

Exhibit R-2, RDT&E Budget Item Justification

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305220F GLOBAL HAWK DEVELOPMENT/FIELDING

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget			300.021
(U) Current PBR/President's Budget	0.000	0.000	336.159
(U) Total Adjustments	0.000	0.000	
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0305220F GLOBAL HAWK DEVELOPMENT/FIELDING			PROJECT NUMBER AND TITLE 5144 Global Hawk		
Cost (\$ in Millions)	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
5144 Global Hawk	0.000	0.000	336.159	226.579	226.502	230.127	233.719	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

Global Hawk Funding for FY04 and prior is in PE 305205F, Project 674799. Funding for FY05 and out is in PE 305220F Project 675144.

(U) A. Mission Description and Budget Item Justification

Global Hawk is a high-altitude, long-endurance unmanned aerial vehicle developed to provide all-weather, day/night, intelligence, surveillance and reconnaissance (ISR) in direct support of theater ISR collection requirements and integrate with existing ISR architectures for mission planning, data processing, exploitation and dissemination.

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This program is Budget Activity 7, Operational Systems Development because it involves Air Force R&D to field a highly capable operational system and provide essential operational capabilities.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Continue spiral development and related tasks, including aircraft (\$66M), payloads (\$45M), ground stations (\$21M), support segment(\$5M), program management, test and systems engineering (\$74M) to satisfy ORD requirements.			211.002
(U) Provide government test and evaluation support at Edwards AFB			13.949
(U) Provide government program management, mission support, and other related costs.			9.847
(U) Demonstrations and exercises			5.000
(U) Multi- Platform Radar Technology Improvement Program (MP-RTIP) sensor adaptation			33.594
(U) Continue advanced Airborne Signals Intelligence Program (ASIP) payload modernization for Global Hawk and U-2 (Global Hawk ASIP platform integration is in Spiral 3 and platform integration for U-2 is in PE, 0305202F).			62.767
(U) Total Cost	0.000	0.000	336.159

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305220F GLOBAL HAWK
DEVELOPMENT/FIELDING

PROJECT NUMBER AND TITLE

5144 Global Hawk

(U) C. Other Program Funding Summary (\$ in Millions)(U) D. Acquisition Strategy

Global Hawk program uses Evolutionary Acquisition with an emphasis on a Spiral Development strategy. This strategy provides the warfighter with a near term, combat capability with increased, time phased capability improvements as soon as technology and risk achieve satisfactory levels. The initial system capability evolved from a successful technology demonstration program and was refined in the first development spiral. Subsequent development spirals incorporate additional capabilities into the system design. The Spiral Development strategy supports current operational requirements and can be updated as requirements evolve. The production program incorporates these incremental capability improvements into a series of production lots. These production lots deliver the increasingly capable Global Hawk system.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

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BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
07 Operational System Development				0305220F GLOBAL HAWK DEVELOPMENT/FIELDING				5144 Global Hawk				
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
NGUMS	SS/CPAF/CPFF	Rancho Bernardo CA						206.068	Oct-04		206.068	
ASC Reconnaissance SPO	SS CPAF	San Jose CA						52.257	Feb-05		52.257	
ASC Reconnaissance SPO	SS CPAF	Falls Church VA						4.000	Feb-05		4.000	
ASC Reconnaissance SPO	SS CPAF	Denver CO						4.000	Feb-05		4.000	
ESC	SS CPAF	Melbourne FL						33.594	Feb-05		33.594	
Subtotal Product Development			0.000	0.000		0.000		299.919		0.000	299.919	0.000
Remarks:												
(U) <u>Support</u>												
NGUMS	SS/CPFF	Rancho Bernardo CA						2.100	Jan-05		2.100	
Other Govt Orgs	MIPR	Various						3.259	Nov-04		3.259	
Subtotal Support			0.000	0.000		0.000		5.359		0.000	5.359	0.000
Remarks:												
(U) <u>Test & Evaluation</u>												
AFFTC (Edwards)	PO	Edwards AFB						13.949	Jan- 0		13.949	
Demo & Exercise Support	MIPR / CPFF	Various						5.000	Nov-04		5.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		18.949		0.000	18.949	0.000
Remarks:												
(U) <u>Management</u>												
A&AS	PR	Various						7.765	Nov-04		7.765	
Other Govt Orgs	PR	ASC/RG/RA, Dayton OH						4.167	Jan-05		4.167	
Subtotal Management			0.000	0.000		0.000		11.932		0.000	11.932	0.000
Remarks:												
(U) Total Cost			0.000	0.000		0.000		336.159		0.000	336.159	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

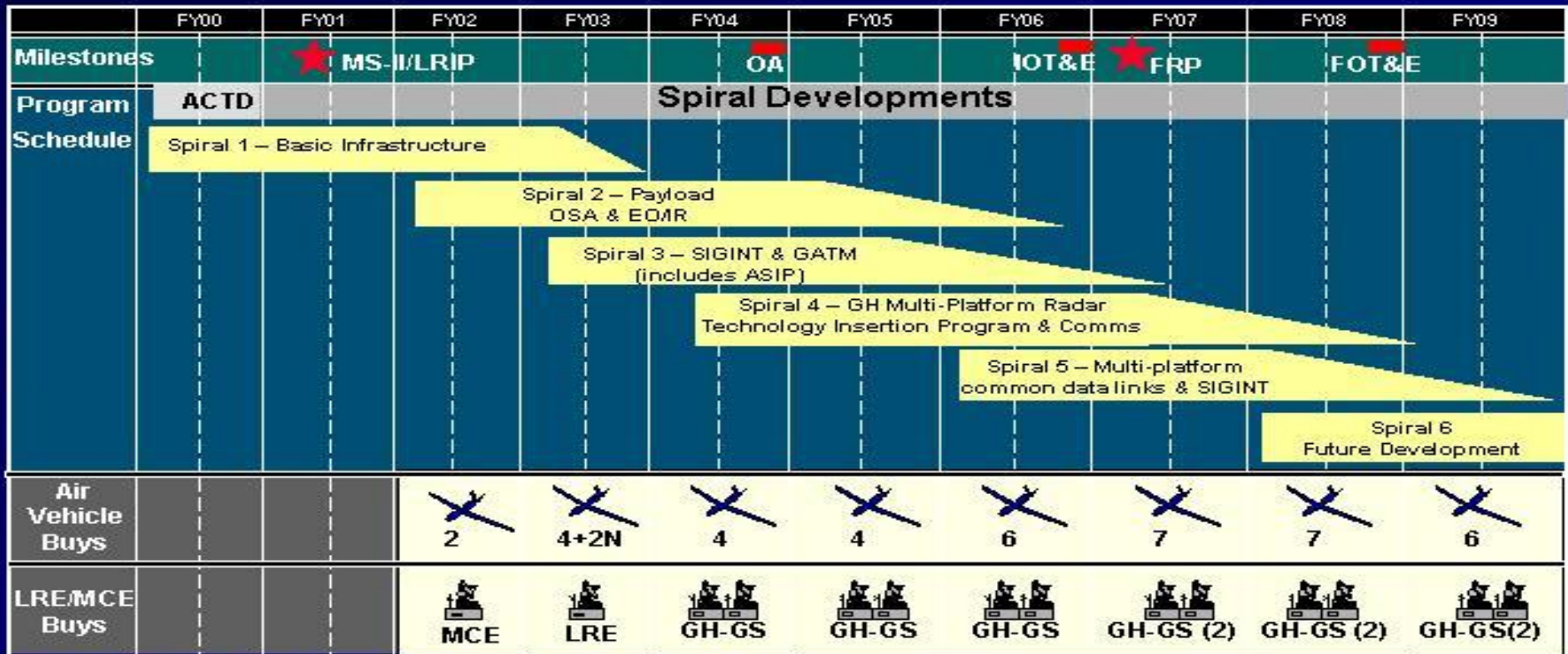
BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0305220F GLOBAL HAWK
DEVELOPMENT/FIELDING

PROJECT NUMBER AND TITLE
5144 Global Hawk



Development/Production Program



MS-II/LRIP – Milestone II / Low Rate Initial Production

OA – Operational Assessment

FRP – Full Rate Production

I/FOT&E – Initial / Follow-on Operational Test & Evaluation

MCE – Msn Control Element

LRE – Launch Recovery Element

GH-GS – GH Ground Station

(MCE & LRE)

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Exhibit R-4a, RDT&E Schedule Detail		DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305220F GLOBAL HAWK DEVELOPMENT/FIELDING	PROJECT NUMBER AND TITLE 5144 Global Hawk
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(U) <u>Schedule Profile</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Award EMD Spiral 4B contract definitization			1Q
(U) Deliver 2 Navy LREs			1Q
(U) SIGINT High Band Subsystem (HBS) Demonstration			3Q
(U) Delivery of 1st Navy GH			1Q
(U) Delivery of 2nd Navy GH			2Q
(U) Delivery of AF5			2Q
(U) Delivery of AF 6			4Q
(U) Ultimate Load Testing (ULT)			4Q

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PE NUMBER: 0305887F

PE TITLE: Electronic Combat Intelligence Support

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305887F Electronic Combat Intelligence Support
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Cost (\$ in Millions)	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
Total Program Element (PE) Cost	0.000	0.000	0.963	0.972	0.989	1.022	1.039	0.000	0.000
7IOT Information Operations Technology	0.000	0.000	0.963	0.972	0.989	1.022	1.039	0.000	0.000

FY05: Transferred from PE 0303140F, INFOSEC, BPAC 674871, Information Operations Technology, into this PE.

(U) A. Mission Description and Budget Item Justification

(U) This program expedites Information Operations (IO) Technology transition from laboratory, industry, and academia to operational use via studies, rapid prototyping, and demonstrations. Program efforts directly support the AF IW MAP and the DoD IO Roadmap.

(U) The program office investigates and selects the highest potential IO technologies to meet specific shortfalls and deficiencies documented by major commands (MAJCOMs), unified commands, and IO agencies in Mission Area Plans (MAPs) and capabilities documents. All IO core capability areas are to be considered which include CND, EW, PSYOP, OPSEC, and military deception.

(U) The program office works directly with labs, industry users and battle labs to set priorities and find synergistic combinations of new technology, doctrine and training. Program efforts will be prioritized and guided by the Information Warfare (IW) Technical Planning Integrated Planning Team (TPIPT) in support of the Air Force IW MAP and the DoD IO Master Plan.

(U) Planned areas of study prototyping, and/or demonstration include techniquet and technologies for defending systems against sophisticated Information Warfare (IW) and computer network attacks, exploiting Integrated Air Defense Systems (IADSs), Command and Control Systems, and applying advanced IO applications to emerging physics, communications, directed energy, electronic sensors, and intelligence.

(U) This program funds the Panther Den (PD) program office at Hanscom AFB, MA. The Panther Den program office provides technical, program management, and security support to the programs funded by this PE, as well as, PD-classified projects funded via other PEs.

(U) Specific program content is classified. Current and historical project information is available in the PD Special Access Program (SAP) Report.

Exhibit R-2, RDT&E Budget Item Justification

DATE

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305887F Electronic Combat Intelligence Support

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget			0.000
(U) Current PBR/President's Budget	0.000	0.000	0.963
(U) Total Adjustments	0.000	0.000	
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			

(U) **Significant Program Changes:**

FY05: Transferred from PE 0303140F, INFOSEC, BPAC 674871, Information Operations Technology, into this PE.

Exhibit R-2a, RDT&E Project Justification

DATE
February 2004

BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0305887F Electronic Combat Intelligence Support			PROJECT NUMBER AND TITLE 7IOT Information Operations Technology		
Cost (\$ in Millions)	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
7IOT Information Operations Technology	0.000	0.000	0.963	0.972	0.989	1.022	1.039	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

FY05: Transferred from PE 0303140F, INFOSEC, BPAC 674871, Information Operations Technology, into this PE.

(U) A. Mission Description and Budget Item Justification

(U) This program expedites Information Operations (IO) Technology transition from laboratory, industry, and academia to operational use via studies, rapid prototyping, and demonstrations. Program efforts directly support the AF IW MAP and the DoD IO Roadmap.

(U) The program office investigates and selects the highest potential IO technologies to meet specific shortfalls and deficiencies documented by major commands (MAJCOMs), unified commands, and IO agencies in Mission Area Plans (MAPs) and capabilities documents. All IO core capability areas are to be considered which include CND, EW, PSYOP, OPSEC, and military deception.

(U) The program office works directly with labs, industry users and battle labs to set priorities and find synergistic combinations of new technology, doctrine and training. Program efforts will be prioritized and guided by the Information Warfare (IW) Technical Planning Integrated Planning Team (TPIPT) in support of the Air Force IW MAP and the DoD IO Master Plan.

(U) Planned areas of study prototyping, and/or demonstration include techniques and technologies for defending systems against sophisticated Information Warfare (IW) and computer network attacks, exploiting Integrated Air Defense Systems (IADSs), Command and Control Systems, and applying advanced IO applications to emerging physics, communications, directed energy, electronic sensors, and intelligence.

(U) This program funds the Panther Den (PD) program office at Hanscom AFB, MA. The Panther Den program office provides technical, program management, and security support to the programs funded by this PE, as well as, PD-classified projects funded via other PEs.

(U) Specific program content is classified. Current and historical project information is available in the PD Special Access Program (SAP) Report.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) The IO Technology Program will support the IW TPIPT and the IW Mission Area Team (MAT) through studies, rapid prototyping, and demonstrations of state-of-the-art IO technologies to meet the warfighters' IO requirements.	0.000	0.000	0.963
(U) Total Cost	0.000	0.000	0.963

Exhibit R-2a, RDT&E Project Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305887F Electronic Combat Intelligence Support	PROJECT NUMBER AND TITLE 710T Information Operations Technology
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(U) **C. Other Program Funding Summary (\$ in Millions)**

<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	

(U) N/A
 PE 0305887F studies will leverage current DoD lab efforts. Studies will be deconflicted with and will complement PE 0208021F, Information Warfare Support. Some aspects of this program will be protected under the PANTHER DEN Special Access Program. Data available upon request.

(U) **D. Acquisition Strategy**

All major contracts within this program element are awarded after full and open competition unless other than full and open is justified to the Program Executive Officer (PEO) or Designated Approval Authority (DAA).

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2004

BUDGET ACTIVITY			PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
07 Operational System Development			0305887F Electronic Combat Intelligence Support					7IOT Information Operations Technology				
<u>(U) Cost Categories</u>	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2003 Cost</u>	<u>FY 2003 Cost</u>	<u>FY 2003 Award Date</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(\$ in Millions)												
<u>(U) Product Development</u>												
LCM	CPFF	Hanscom AFB MA						0.522		Continuing	TBD	
BAE	JTSP	Hanscom AFB MA						0.158		Continuing	TBD	
Mitre	FFRDC	Hanscom AFB MA						0.283		Continuing	TBD	
Subtotal Product Development			0.000	0.000		0.000		0.963		Continuing	TBD	0.000
Remarks:												
<u>(U) Support</u>												
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Test & Evaluation</u>												
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Total Cost</u>			0.000	0.000		0.000		0.963		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE
February 2004

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0305887F Electronic Combat
Intelligence Support

PROJECT NUMBER AND TITLE
710T Information Operations
Technology

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PANTHER DEN SCHEDULE



	FY03	FY04	FY05	FY06	FY07	FY08	FY09
Panther Den Architecture							
Program Management							
Technical Oversight							
Security Oversight							

- Funding utilized for continual oversight functions—no specific milestones associated
- Individual programs within PD are funded independently and do have milestones
- Multiple PEs associated with PD
 - FY03 - FY04 PE 33140
 - FY05 - FY09 PE 35887

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Exhibit R-4a, RDT&E Schedule Detail

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305887F Electronic Combat
Intelligence Support

PROJECT NUMBER AND TITLE

7IOT Information Operations
Technology

(U) Schedule Profile

FY 2003

FY 2004

FY 2005

(U) IO Technology Study/Prototype/Bi-Annual Demos

2-4Q

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PE NUMBER: 0305906F
 PE TITLE: NCMC - TW/AA System

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305906F NCMC - TW/AA System
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	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 (\$ in Millions)									
Total Program Element (PE) Cost	14.600	57.107	64.822	68.416	54.106	37.812	24.511	Continuing	TBD
4806 N/UWSS NORAD/USSPACECOM Warfighting System	14.600	57.107	64.822	68.416	54.106	37.812	24.511	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

CCIC2S provides the future standards-based, interoperable architecture for a North American Aerospace Defense Command/US Strategic Command (NORAD/USSTRATCOM) Battle Management/C4I system of systems that complies with the Network Centric Enterprise Services (NCES), Joint Technical Architecture (JTA) standards and provides for DoD/Joint Command and Control (C2) interoperability. New Space C2 capability will be integrated with this new architecture along with the evolving legacy mission capability to provide a fused battlespace picture. CCIC2S addresses all NORAD CC and selected Combatant Commander USSTRATCOM missions including the Integrated Tactical Warning/Attack Assessment (ITW/AA) of missile, space, and air threats and Space Battle Management. CCIC2S will provide NORAD CC and Combatant Commander USSTRATCOM a C2 system that is interoperable with the NORAD/USSTRATCOM warfighting functions and supporting/supported Combatant Commanders; and, is flexible to enable it to extend to meet evolving mission needs (e.g., Space-Based Infrared System (SBIRS), Command and Control Battle Management and Communications (C2BMC), Space Control, Airborne Laser (ABL), Space-Based Laser, Computer Network Defense (CND) and Information Operations (IO)). The CCIC2S operational architecture will allow Combatant Commanders to better monitor world situations, make threat assessments, formulate Courses of Action (COAs), and develop force direction for synchronized warfighter operations. CCIC2S will consolidate the air/space battle management picture. This program is consistent with the Air Force Long Range Plan, Joint Vision 2010, and the Strategic Planning Guidance. The Joint Requirements Oversight Council (JROC) approved the CCIC2S Mission Needs Statement (MNS) on 18 May 1998. Combatant Commanders' Integrated Command and Control System (CCIC2S) Requirements Document (ORD) was approved 1 Dec 03.

This program element is in Budget Activity 7, Operational System Development, because the projects in this program element support development acquisition programs or upgrades in support of operational systems.

Exhibit R-2, RDT&E Budget Item Justification

DATE

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305906F NCMC - TW/AA System

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	15.639	67.933	64.992
(U) Current PBR/President's Budget	14.600	57.107	64.822
(U) Total Adjustments	-1.039	-10.826	
(U) Congressional Program Reductions	-0.105	-0.334	
Congressional Rescissions	-0.166	-0.492	
Congressional Increases			
Reprogrammings	-0.306	-10.000	
SBIR/STTR Transfer	-0.462		
(U) <u>Significant Program Changes:</u>			
None.			

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0305906F NCMC - TW/AA System			PROJECT NUMBER AND TITLE 4806 N/UWSS NORAD/USSPACECOM Warfighting System		
Cost (\$ in Millions)	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
4806 N/UWSS NORAD/USSPACECOM Warfighting System	14.600	57.107	64.822	68.416	54.106	37.812	24.511	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

CCIC2S provides the future standards-based, interoperable architecture for a North American Aerospace Defense Command/US Strategic Command (NORAD/USSTRATCOM) Battle Management/C4I system of systems that complies with the Network Centric Enterprise Services (NCES), Joint Technical Architecture (JTA) standards and provides for DoD/Joint Command and Control (C2) interoperability. New Space C2 capability will be integrated with this new architecture along with the evolving legacy mission capability to provide a fused battlespace picture. CCIC2S addresses all NORAD CC and selected Combatant Commander USSTRATCOM missions including the Integrated Tactical Warning/Attack Assessment (ITW/AA) of missile, space, and air threats and Space Battle Management. CCIC2S will provide NORAD CC and Combatant Commander USSTRATCOM a C2 system that is interoperable with the NORAD/USSTRATCOM warfighting functions and supporting/supported Combatant Commanders; and, is flexible to enable it to extend to meet evolving mission needs (e.g., Space-Based Infrared System (SBIRS), Command and Control Battle Management and Communications (C2BMC), Space Control, Airborne Laser (ABL), Space-Based Laser, Computer Network Defense (CND) and Information Operations (IO)). The CCIC2S operational architecture will allow Combatant Commanders to better monitor world situations, make threat assessments, formulate Courses of Action (COAs), and develop force direction for synchronized warfighter operations. CCIC2S will consolidate the air/space battle management picture. This program is consistent with the Air Force Long Range Plan, Joint Vision 2010, and the Strategic Planning Guidance. The Joint Requirements Oversight Council (JROC) approved the CCIC2S Mission Needs Statement (MNS) on 18 May 1998. Combatant Commanders' Integrated Command and Control System (CCIC2S) Requirements Document (ORD) was approved 1 Dec 03.

This program element is in Budget Activity 7, Operational System Development, because the projects in this program element support development acquisition programs or upgrades in support of operational systems.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Core C2 services: Continue Enterprise network infrastructure (Core C2) development and evolve architecture as the basis for providing interoperable, flexible command and control services to Air, Missile, and Space mission elements (fixed and deployed).	4.860	36.688	29.307
(U) Continued C2 of space forces/threat warning development. Completed first design increment of Missile Warning Release 1, and Space Surveillance Release 1, to include respective system design reviews. Also, delivered Processing Display System-Migration; replaced unsupportable legacy system with desktop strategic and missile warning display capability.	2.822		
(U) Continued evolution of C2 space battle manager through spiral development/delivery. Delivered two releases of Space Battle Management Core Systems (SBMCS); provided web-based access, increased navigational accuracy, space system monitoring and status tools, and interface to Global Command and Control System (GCCS) User	2.821		

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Exhibit R-2a, RDT&E Project Justification		DATE February 2004	
BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305906F NCMC - TW/AA System	PROJECT NUMBER AND TITLE 4806 N/UWSS NORAD/USSPACECOM Warfighting System	
Defined Operating Picture (UDOP).			
(U) Continued preliminary CCIC2S system engineering to define the path for new and upgraded missions (e.g., SBIRS and C2MBC, TBMCS, BCS-Fixed, Intel and ITW/AA) impacting fixed and mobile C2 nodes. This included spiral development release planning, communications architecture, new technology insertion, integrated scheduling, test planning and test safety into the CCIC2S network.		4.097	
(U) Sensor Management: Perform preliminary systems engineering and architecture development for Enterprise Sensor Management. This capability will automate system planning and scheduling of mission critical resources. Sensor Management provides a rapid response to real-time operational events, tip-offs from intel sources, cued events, and mission requests from NORAD/USSTRATCOM users and improves resource utilization.			0.793
(U) Data Fusion (DF): Perform preliminary systems engineering and architecture definition for Data Fusion capability. DF capability will provide battlespace awareness to local and global subscribers via data fusion and correlation products to enhance operational crew readiness and their ability to respond to rapid changes in warfighter conditions. Enterprise DF increases the fidelity and timeliness of situational awareness for preparation of pending theater, global, or space events without relinquishing human assessment or control.			0.700
(U) Air Mission Development/Test/Delivery: Continue Air mission capability incremental development (and deliver when complete) supporting Air Mission/Theater Battle Management Core System (TBMCS)/GCCS (Air Mission Release 2) integration in FY05. Includes software development, engineering, and test.		1.119	0.471
(U) Missile Mission Development/Test: Continue Missile Warning mission capability incremental development by providing GCCS-based core missile warning capability adaptable to operating locations and interoperable with other National Command Centers. Supports delivery of initial missile warning capability (Missile Warning Release 1) in FY05. Includes software development engineering, and test.		9.493	21.136
(U) Space Surveillance Mission Development/Test: Continue Space Surveillance mission development providing improved object tracking and cataloging, and collision avoidance planning of current and future space platforms. Support delivery of initial Space Surveillance Release 1 projected for FY05/06. Includes software development, engineering, and test.		6.163	5.500
(U) Space Defense/Control Mission Development/Test: Continue space mission support capability expansion in the AOCs for the Theater Warfighter as well as developing expanded Space C2, Strategic Defensive Counterspace (DCS), and Offensive Counterspace (OCS) capabilities. Supports delivery of initial Space Defense/Control Release 1 in FY05/06. Includes software development, engineering, and test.		3.644	6.915
(U) Total Cost		14.600	57.107 64.822

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305906F NCMC - TW/AA System

PROJECT NUMBER AND TITLE

4806 N/UWSS NORAD/USSPACECOM
Warfighting System(U) C. Other Program Funding Summary (\$ in Millions)(U) D. Acquisition Strategy

CCIC2S employs an incremental development acquisition strategy which enables rapid development and fielding of capability increments in response to validated requirements.

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Exhibit R-3, RDT&E Project Cost Analysis

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February 2004

BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305906F NCMC - TW/AA System	PROJECT NUMBER AND TITLE 4806 N/UWSS NORAD/USSPACECOM Warfighting System
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(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method</u> & Type	<u>Performing Activity &</u> Location	<u>Total</u> Prior to FY 2003 Cost	<u>FY</u> 2003 Cost	<u>FY</u> 2003 Award Date	<u>FY</u> 2004 Cost	<u>FY</u> 2004 Award Date	<u>FY</u> 2005 Cost	<u>FY</u> 2005 Award Date	<u>Cost to</u> Complete	<u>Total</u> Cost	<u>Target</u> Value of Contract
(U) <u>Product Development</u>												
Lockheed Martin	CP/AF	Colorado Springs, CO	26.208	13.248	Oct-02	52.625	Oct-03	59.728	Oct-04	Continuing	TBD	TBD
Systems Engineering Development & Integration (SEDI)	MIPR	Lockheed Martin (Denver, CO)	5.631							0.000	5.631	
Subtotal Product Development			31.839	13.248		52.625		59.728		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u>												
MITRE	CP/FF	Colorado Springs, CO	4.682	0.910	Oct-02	3.450	Nov-03	3.588	Nov-04	Continuing	TBD	TBD
A&AS	CP/FF	various, Colorado Springs, CO	1.264	0.401	Apr-03	0.716	Apr-04	0.737	Apr-05	Continuing	TBD	TBD
Program Support	Various	various, Colorado Springs, CO	0.775	0.041	May-03	0.316	Oct-03	0.769	Nov-04	Continuing	TBD	TBD
Subtotal Support			6.721	1.352		4.482		5.094		Continuing	TBD	TBD
Remarks:												
(U) Total Cost			38.560	14.600		57.107		64.822		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0305906F NCMC - TW/AA System

PROJECT NUMBER AND TITLE
4806 N/UWSS NORAD/USSPACECOM
Warfighting System



Exhibit R-4 CCIC2S

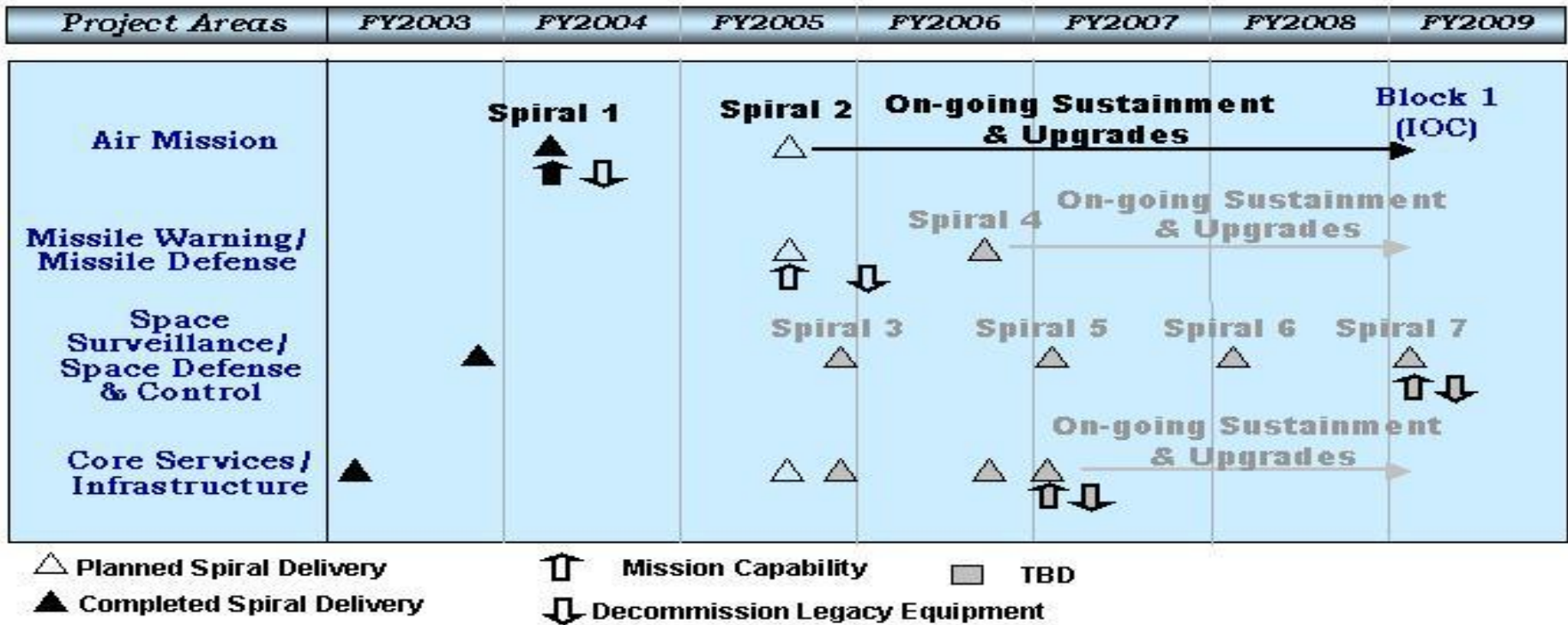


Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2004

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305906F NCMC - TW/AA System

PROJECT NUMBER AND TITLE

4806 N/UWSS NORAD/USSPACECOM
Warfighting System

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <u>Schedule Profile</u>			
(U) Air Mission Spiral Deliveries		2Q	3Q
(U) Missile Warning/Missile Defense Spiral Deliveries			3Q
(U) Space Surveillance/Space Defense & Control Spiral Deliveries	4Q		4Q
(U) Core Services/Infrastructure Spiral Deliveries	1Q		3-4Q

UNCLASSIFIED

PE NUMBER: 0305910F
 PE TITLE: SPACETRACK

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305910F SPACETRACK
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Cost (\$ in Millions)	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
Total Program Element (PE) Cost	20.289	104.694	161.838	150.837	213.575	402.513	429.571	Continuing	TBD
4930 Space Based Space Surveillance	10.200	65.752	109.233	84.472	115.357	196.170	204.388	Continuing	TBD
5011 Space Situational Awareness Initiatives	10.089	15.348	12.086	16.222	10.916	9.308	7.593	Continuing	TBD
A008 Sensor Service Life Extension Programs (Sensor SLEPs)	0.000	19.698	31.678	25.211	29.950	9.693	0.000	0.000	116.793
A009 Orbital Deep Space Imager (ODSI)	0.000	3.896	8.841	24.932	57.352	187.342	217.590	Continuing	TBD

FY03: Project 5011, Space Situational Awareness Initiatives, was changed from Project 5010 (same name) to correct an administrative error. This action did not change program content.

FY04: Project A008, Sensor Service Life Extension Programs (Sensor SLEPs), efforts were transferred from Project 5011, Space Situational Awareness Initiatives (this PE), in order to ensure positive tracking for the SLEP work.

FY04: Project A009, Orbital Deep Space Imager (ODSI), activities were transferred from Project 5011, Space Situational Awareness Initiatives (this PE), in order to ensure positive tracking for the ODSI work.

(U) A. Mission Description and Budget Item Justification

The SPACETRACK program element represents a worldwide Space Surveillance Network (SSN) of dedicated, collateral, and contributing electro-optical and radar sensors. The SSN is tasked to provide satellite tracking, space object identification and cataloging, satellite attack warning, timely notification to U.S. forces of satellite fly-over, space treaty monitoring, and scientific and technical intelligence gathering. The continued increase in satellite and orbital debris populations, as well as the increasing diversity in launch trajectories, non-standard orbits, and geosynchronous altitudes, necessitates continued modernization of the SSN to meet existing and future requirements and ensure their cost-effective supportability. The Spacetrack PE is organized to achieve Space Situation Awareness (SSA) by upgrading selected SSN sensors, tying sensors together in the information and architecture realm, and deploying new space-based sensors.

The Space Based Space Surveillance (SBSS) project acquires a constellation of satellites to conduct space surveillance. A constellation of space-based space surveillance satellites will provide timely space situational awareness to meet future space control operations. The SBSS is a follow-on to a successful Advanced Concept Technology Demonstration (ACTD) of the Mid-Course Space Experiment/Space Based Visible (MSX/SBV) sensor.

The SSA initiatives are a collection of linked development efforts to accelerate the evolution of the Space Surveillance Network (SSN) and its command and control (C2) infrastructure into an Air Force SSA capability to generate and disseminate the Space Common Operational Picture (Space COP) to the warfighter. SSA initiatives are the critical, enabling projects tying sensor information together to support the SSA required by offensive counterspace and defensive counterspace missions.

The SPACETRACK sensor Service Life Extension Programs (SLEPs) extend the life and upgrade the hardware and software. The SLEPS will improve operability and

Exhibit R-2, RDT&E Budget Item Justification

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305910F SPACETRACK

sustainability for space object identification, satellite tracking, and the imaging missions in support of US Strategic Command missions at the Eglin and Haystack radar sites.

The Air Force Space Surveillance System is a dedicated sensor (transferred from the Navy to the Air Force in FY04) that provides uncued detection of earth orbiting objects out to 17,250 miles (Project A008, Sensor Service Life Extension Programs).

The Orbital Deep Space Imager (ODSI) provides imagery of deep space objects for satellite characterization in support of overall battle space awareness.

All of these projects are Budget Activity 7, Operational Systems Development, because they involve development of or modifications to operational sensor network sites.

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	21.507	118.234	162.262
(U) Current PBR/President's Budget	20.289	104.694	161.838
(U) Total Adjustments	-1.218	-13.540	
(U) Congressional Program Reductions		-1.340	
Congressional Rescissions			
Congressional Increases			
Reprogrammings		-12.200	
SBIR/STTR Transfer	-1.218		

(U) Significant Program Changes:

1. FY04: Project A008, Sensor Service Life Extension Programs (Sensor SLEPs) efforts were transferred from Project 5011, Space Situational Awareness Initiatives (this PE).
2. FY04: Project A009, Orbital Deep Space Imager (ODSI), activities were transferred from Project 5011, Space Situational Awareness Initiatives (this PE).
3. FY04: OSD directed transfer of Navy Fence (PE 0305927N) to Air Force (PE 0305910F) in FY04 (\$1M).
4. FY04: Project 4930, Space Based Space Surveillance (SBSS), Block 10 was previously referred to as SBSS Pathfinder and Block 20 was previously referred to as SBSS Objective System.

Exhibit R-2a, RDT&E Project Justification

DATE
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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0305910F SPACETRACK			PROJECT NUMBER AND TITLE 4930 Space Based Space Surveillance			
Cost (\$ in Millions)		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
4930	Space Based Space Surveillance	10.200	65.752	109.233	84.472	115.357	196.170	204.388	Continuing	TBD
	Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The Space Based Space Surveillance (SBSS) constellation will conduct timely detection and tracking of all man-made objects in orbit around the earth. This includes collecting, processing, and communicating satellite metric and Space Object Identification (SOI) data. The SBSS will support the attainment of Space Surveillance Key Performance Parameters (KPPs) outlined in the USSPACECOM Capstone Requirements Document (CRD) for Space Control.

All of these projects are Budget Activity 7, Operational System Development, because they involve development of or modifications to operational sensor network sites.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Complete AoA	1.000	0.000	0.000
(U) Conduct concept definition studies	7.245	0.000	0.000
(U) Program operations	1.955	4.852	5.168
(U) Block 10 design, development, and risk reduction	0.000	60.900	97.065
(U) Block 10 launch segment	0.000	0.000	5.000
(U) Block 20 concept development	0.000	0.000	2.000
(U)	0.000		
(U)	0.000		
(U)	0.000		
(U) Total Cost	10.200	65.752	109.233

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) None	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

(U) D. Acquisition Strategy

Block 10 is a pathfinder (one satellite) to replace the aging Space-Based Visible (SBV) sensor. The Block 10 satellite is a pathfinder for the full constellation of space based sensors. Block 20 will provide more robust capability as a follow on to Block 10. The SBSS constellation will include four satellites when fully populated.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE
February 2004

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
07 Operational System Development				0305910F SPACETRACK				4930 Space Based Space Surveillance				
<u>(U) Cost Categories</u>	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2003 Cost</u>	<u>FY 2003 Cost</u>	<u>FY 2003 Award Date</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(\$ in Millions)												
<u>(U) Product Development</u>												
Block 10 System development (architecture development, system engineering & integration, spacecraft bus design & development, payload preliminary design, ground segment communications architecture, launch segment)	MAPIC CPAF	Northrup Grumman, Redondo Beach, CA	1.688	8.245	Oct-02	60.900	Mar-04	102.065	Oct-04	Continuing	TBD	
Concept definition studies for Block 20	TBD	TBD	0.000	0.000		0.000		2.000	Apr-05	Continuing	TBD	
Risk Reduction	MIPR	MIT/LL, Boston, MA	0.000	0.500	Nov-03	0.600	Dec-04	0.600	Nov-05	0.000	1.700	
Subtotal Product Development			1.688	8.745		61.500		104.665		Continuing	TBD	0.000
Remarks:												
<u>(U) Support</u>												
Program operations	Various	SMC, El Segundo, CA	0.320	1.455	Oct-02	4.252	Oct-04	4.568	Oct-03	Continuing	TBD	
Subtotal Support			0.320	1.455		4.252		4.568		Continuing	TBD	0.000
Remarks:												
<u>(U) Test & Evaluation</u>												
None			0.000	0.000		0.000		0.000		0.000	0.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Management</u>												
None			0.000	0.000		0.000		0.000		0.000	0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Total Cost</u>			2.008	10.200		65.752		109.233		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

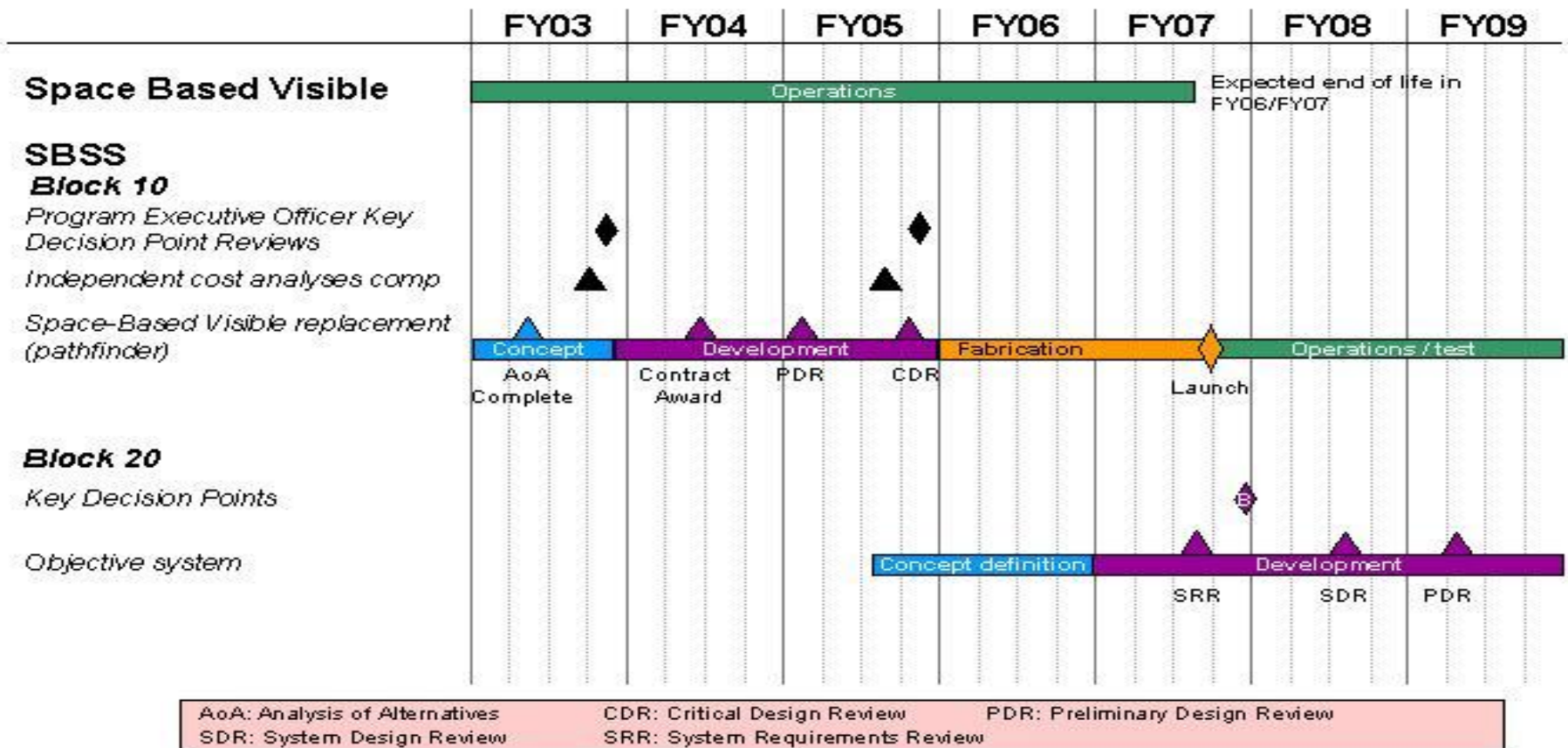
February 2004

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0305910F SPACETRACK

PROJECT NUMBER AND TITLE
4930 Space Based Space Surveillance

Space Based Space Surveillance



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Exhibit R-4a, RDT&E Schedule Detail

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305910F SPACETRACK

PROJECT NUMBER AND TITLE

**4930 Space Based Space
Surveillance**

(U) <u>Schedule Profile</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Complete AoA	2Q		
(U) Block 10 concept definition studies begin	1Q		
(U) Block 10 Acquisition Strategy Panel	2Q		
(U) Block 10 Program Review	4Q		4Q
(U) Block 10 development contract award		2Q	
(U) Block 10 Preliminary Design Review			1Q
(U) Block 10 Critical Design Review			4Q
(U) Block 20 new start pre-acquisition activities			3Q

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0305910F SPACETRACK			PROJECT NUMBER AND TITLE 5011 Space Situational Awareness Initiatives		
Cost (\$ in Millions)	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
5011 Space Situational Awareness Initiatives	10.089	15.348	12.086	16.222	10.916	9.308	7.593	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

Space Situation Awareness (SSA) Initiatives ties legacy Space Surveillance Network (SSN) sensors together in the architectural and information realm. SSAI is a critical activity in moving from surveillance-based operations to more real-time SSA.

Space Situation Awareness Command and Control (SSA C2) is a suite of projects to provide fused data and information to the Single Integrated Space Picture (SISP). SSA C2 collects and fuses space Intelligence, Surveillance, Reconnaissance, and Environment (ISRE) information. SSA C2 gathers data in focused ISRE areas, processes and fuses it into SSA information, and provides it to the SISP via the Combatant Commanders Integrated Command and Control System (CCIC2S). The FY05 objectives focus on improvements in space surveillance processing to greatly enhance position and timing data for the Air Force Space Command (AFSPC) satellite catalog. A key part of the FY05 objectives is development and initial use of an SSA Data Fusion Test Bed (SSA TB) to be used to integrate ISRE and evaluate the operational utility of enhancements.

The Space Situation Awareness Integration Office (SSAIO) stood up in direct response to OASD/C3I direction to AF to execute SSA Lead Service/System Integration (LS/SI). The Under Secretary of the Air Force (USecAF) assigned SSA LS/SI responsibilities to AFSPC to facilitate architecture development, investment planning, requirements allocation, and systems integration of SSA across DoD and other US Government organizations/agencies. Deliverables include DoD architecture compliant operational and systems views focused on short and mid-term SSA architectures presented in a formal Modernization Plan/Investment Strategy (MPIS) providing architecture/capabilities based recommendations and a source for service POM positions. The effort implements the National Space Security Architect (NSSA) SSA roadmap.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) SSA C2: Provide improved surveillance & reconnaissance information to SSA	4.991	9.851	8.081
(U) SSA C2: Provide intelligence data to SSA		0.500	0.500
(U) SSA C2: Provide space environmental data to SSA		0.500	0.500
(U) SSA C2: Technical support and requirements development		2.997	1.505
(U) SSAIO: Deliver SSA Architectures to support investment planning	1.486	1.500	1.500
(U) SLEPS: Begin Haystack Services Life Extension Program (SLEP) system design and engineering.	3.612		
(U)			
(U)			
(U)			

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305910F SPACETRACK	PROJECT NUMBER AND TITLE 5011 Space Situational Awareness Initiatives
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(U)										
(U)										
(U)										
(U)										
(U)										
(U)										
(U)										
(U)	Total Cost							10.089	15.348	12.086

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	

(U) N/A

(U) **D. Acquisition Strategy**

SSA C2: Acquire tools as necessary to optimize existing SSN sensors. Fund connectivity to collect data. Develop test bed to fuse data and check out in a CCIC2S environment prior to use in SISP. FY02 funding began to develop capabilities for improved processing, accuracy, analysis, data fusion, and dissemination of SSA to the space common operating picture. SSA C2 concept and technology development continues in FY05.

SSAIO: Review/update Space Surveillance Task Force results, develop Space Situation Awareness architectures, and initiate discussions with Services and other U.S. Government agencies by using existing engineering/study contract vehicles to obtain direct and infrastructure support from various space planning and development organizations across DoD and industry to include Federally Funded Research and Development Centers (FFRDCs).

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305910F SPACETRACK	PROJECT NUMBER AND TITLE 5011 Space Situational Awareness Initiatives
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(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
(U) <u>Product Development</u>												
Provide improved surveillance & reconnaissance information to SSA	various	various	0.772	4.991		9.851		8.581		Continuing	TBD	
Provide intelligence data to SSA	various	various				0.500				Continuing	TBD	
Provide space environmental data to SSA	various	various	2.505			0.500	Jun-30	0.500	Dec-15	Continuing	TBD	
Deliver SSA Architectures to support investment planning	various	various		1.486		1.500		1.500		Continuing	TBD	
SLEPS	various	various		3.612							3.612	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Product Development			3.277	10.089		12.351		10.581		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												
SSA C2 Technical support and requirements development	various	various	0.499			2.997		1.505		Continuing	TBD	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Support			0.499	0.000		2.997		1.505		Continuing	TBD	0.000

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305910F SPACETRACK	PROJECT NUMBER AND TITLE 5011 Space Situational Awareness Initiatives
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Remarks:								
(U) <u>Test & Evaluation</u>								
						0.000		
Subtotal Test & Evaluation	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Remarks:								
(U) <u>Management</u>								
						0.000		
Subtotal Management	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Remarks:								
(U) Total Cost	3.776	10.089	15.348	12.086	Continuing	TBD	0.000	

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0305910F SPACETRACK

PROJECT NUMBER AND TITLE
5011 Space Situational Awareness Initiatives

Space Situational Awareness Initiatives

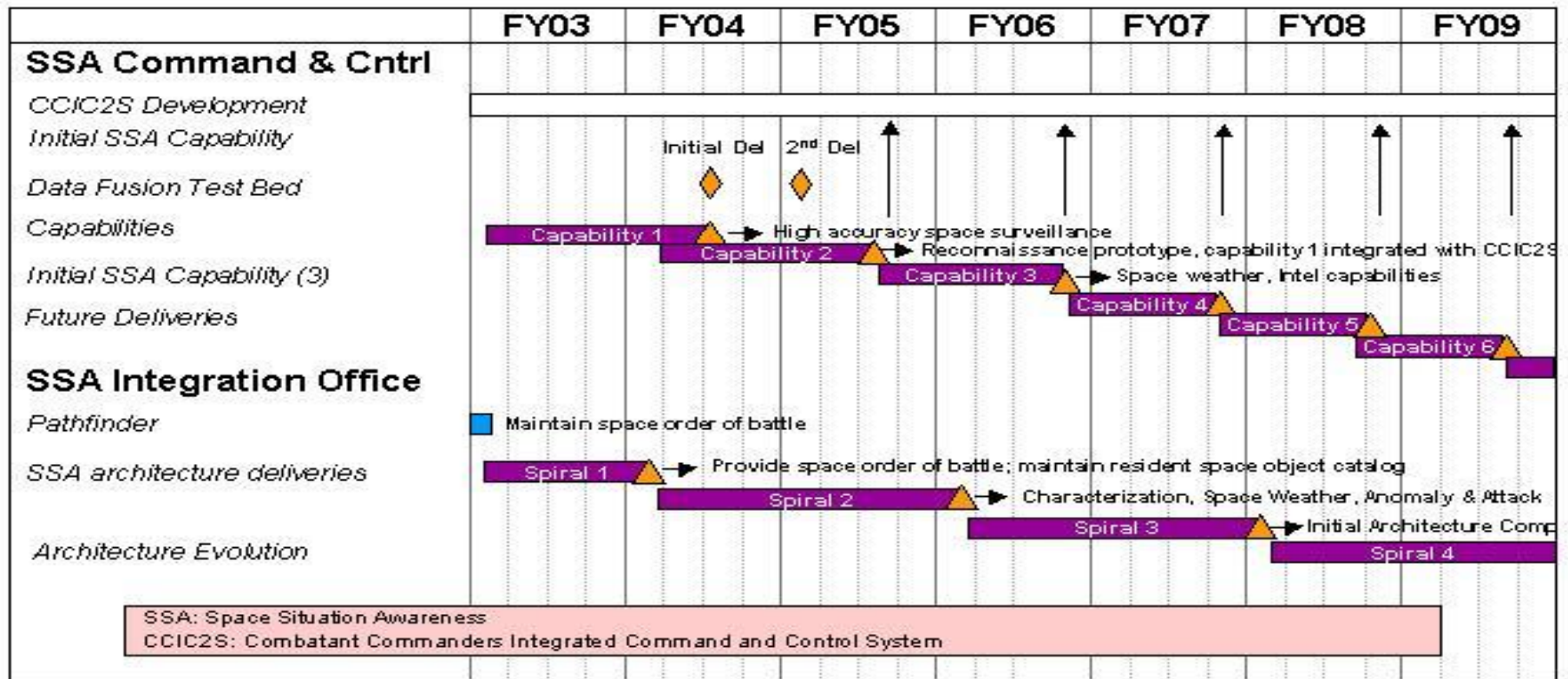


Exhibit R-4a, RDT&E Schedule Detail

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305910F SPACETRACK

PROJECT NUMBER AND TITLE

5011 Space Situational Awareness Initiatives

(U) Schedule Profile

FY 2003

FY 2004

FY 2005

(U) High accuracy space surveillance delivery (Capability 1)

3Q

(U) SSA C2 Fusion Test Bed Initial Delivery

3Q

(U) SSA C2 Fusion Test Bed Second Delivery

1Q

(U) Reconnaissance prototype and capability 1 integrated into CCIC2S (Capability 2)

3Q

(U) SSAIO Architecture Delivery - Spiral 1

1Q

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0305910F SPACETRACK			PROJECT NUMBER AND TITLE A008 Sensor Service Life Extension Programs (Sensor SLEPs)		
Cost (\$ in Millions)	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
A008 Sensor Service Life Extension Programs (Sensor SLEPs)	0.000	19.698	31.678	25.211	29.950	9.693	0.000	0.000	116.793
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

Project A008 efforts provide a means to achieve the objectives as established in the Capstone Requirements Document (CRD) as well as the additional benefit of enhancing Space Situational Awareness. In FY03 these projects were located in project 5011.

(U) A. Mission Description and Budget Item Justification

EGLIN SLEP - The AN/FPS-85 radar is a dedicated one-of-a-kind phased array radar located at Eglin AFB, Florida that provides near-earth and deep-space object data for Air Force Space Command (AFSPC). The radar detects, tracks, identifies, characterizes and monitors objects and assesses space threats in earth orbit. The radar tracks over 50% of objects logged by the SSN in the space catalog. The radar is the largest tracker of manned-flight-region objects and contributes significantly to both near-Earth and deep-space tracking missions. This SLEP is required to help achieve the Capstone Requirements Document (CRD). The program will replace unsupportable processing components before critical impact to system operations, improve efficiencies in operations & sustainment, consolidate site work centers, and establish a modern software maintenance environment. The SLEP will enable technology refreshes and posture the system to facilitate future upgraded capabilities.

Haystack Ultra-wide band resolution Satellite Imaging Radar (HUSIR) Upgrade is an X-band radar located in Westford, MA. The system currently yields a 25 centimeter range resolution that provides timely metric and space object identification (SOI) data to AFSPC in support of the space surveillance mission. The upgrade is an AFSPC applied research program that will build a W-band high power transmitter to significantly enhance imaging resolution from the existing 25 centimeters. This upgrade is required to help achieve the Capstone Requirements Document (CRD) objectives.

The Air Force Space Surveillance System (AFSSS) upgrade funding will be used to refine requirements for replacing the current system due to reach its end of life in 2010. An upgraded AFSSS will meet near-earth size and accuracy requirements in the CRD.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Eglin SLEP engineering design, risk mitigation and project development and other program support		14.448	19.917
(U) HUSIR engineering design, risk mitigation and project development and other program support		4.250	11.761
(U) Program support for Air Force Space Surveillance System (formerly Navy Space Surveillance System or "Fence") upgrade		1.000	
(U) Total Cost	0.000	19.698	31.678

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305910F SPACETRACK

PROJECT NUMBER AND TITLE

A008 Sensor Service Life Extension Programs (Sensor SLEPs)**(U) C. Other Program Funding Summary (\$ in Millions)****(U) D. Acquisition Strategy**

EGLIN will use the SENSOR contract with ITT Industries to execute the SLEP. Under this contract, the Government and contractor will work together through all stages of proposal development and contract modification process to achieve technical agreement prior to submittal of formal proposal. This non-MDAP program will use the National Security Space Acquisition Policy (NSSAP) 03-01.

The HUSIR program will employ the National Space Security Acquisition Policy 03-01, Evolutionary Acquisition concept. MIT/LL is performing the work under the master contract with ESC. MIT/LL is a non-profit Federally Funded Research & Development Center (FFRDC) program and the HUSIR upgrade is classified as "applied research" under the contract between MIT/LL and ESC.

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Exhibit R-3, RDT&E Project Cost Analysis										DATE February 2004		
BUDGET ACTIVITY 07 Operational System Development					PE NUMBER AND TITLE 0305910F SPACETRACK					PROJECT NUMBER AND TITLE A008 Sensor Service Life Extension Programs (Sensor SLEPs)		
<u>(U) Cost Categories</u>	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2003 Cost</u>	<u>FY 2003 Cost</u>	<u>FY 2003 Award Date</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(\$ in Millions)												
<u>(U) Product Development</u>												
Eglin SLEP: Develop open system architecture & extend system life through 2025.	PR/CPAF	ITT/Colorado				11.273	Dec-03	16.884	Dec-04	Continuing	TBD	
HUSIR: Build a W-band high-power transmitter & modify antenna for W-band operation.	PR/FP-LOE	Lincoln Lab/Massachusetts				5.761	Nov-03	11.808	Nov-04	Continuing	TBD	
HUSIR: Evaluate design of open system architecture development.	PR/FP-LOE	MITRE/Massachusetts				0.120	May-04	0.130	Nov-04	Continuing	TBD	
EGLIN: Evaluate design of development effort.	PR/FP-LOE	Sencom/Massachusetts				0.876	Oct-03	1.600	Nov-04	Continuing	TBD	
HUSIR: Evaluate design of development effort.	Various/Various	Various/Various				0.109	Apr-04	0.707	Nov-04	Continuing	TBD	
AFSSS: Requirements development, trade studies on siting/design alternatives.	various	various				0.736	Sep-04				0.736	
Subtotal Product Development			0.000	0.000		18.875		31.129		Continuing	TBD	0.000
Remarks:												
<u>(U) Support</u>												
Review & management of design/development efforts.	PR/FP-LOE	Sencom/Massachusetts				0.463	Oct-03	0.477	Nov-04	Continuing	TBD	
Review & management of design/development efforts.	Various/Various	SPO/Various				0.360	Sep-04	0.072	Nov-04	Continuing	TBD	
Subtotal Support			0.000	0.000		0.823		0.549		Continuing	TBD	0.000
Remarks:												
<u>(U) Test & Evaluation</u>												
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Management</u>												

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2004

BUDGET ACTIVITY	PE NUMBER AND TITLE			PROJECT NUMBER AND TITLE			
07 Operational System Development	0305910F SPACETRACK			A008 Sensor Service Life Extension Programs (Sensor SLEPs)			
Subtotal Management	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Remarks:							
(U) Total Cost	0.000	0.000	19.698	31.678	Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0305910F SPACETRACK

PROJECT NUMBER AND TITLE
A008 Sensor Service Life Extension Programs (Sensor SLEPs)

Eglin Radar SLEP

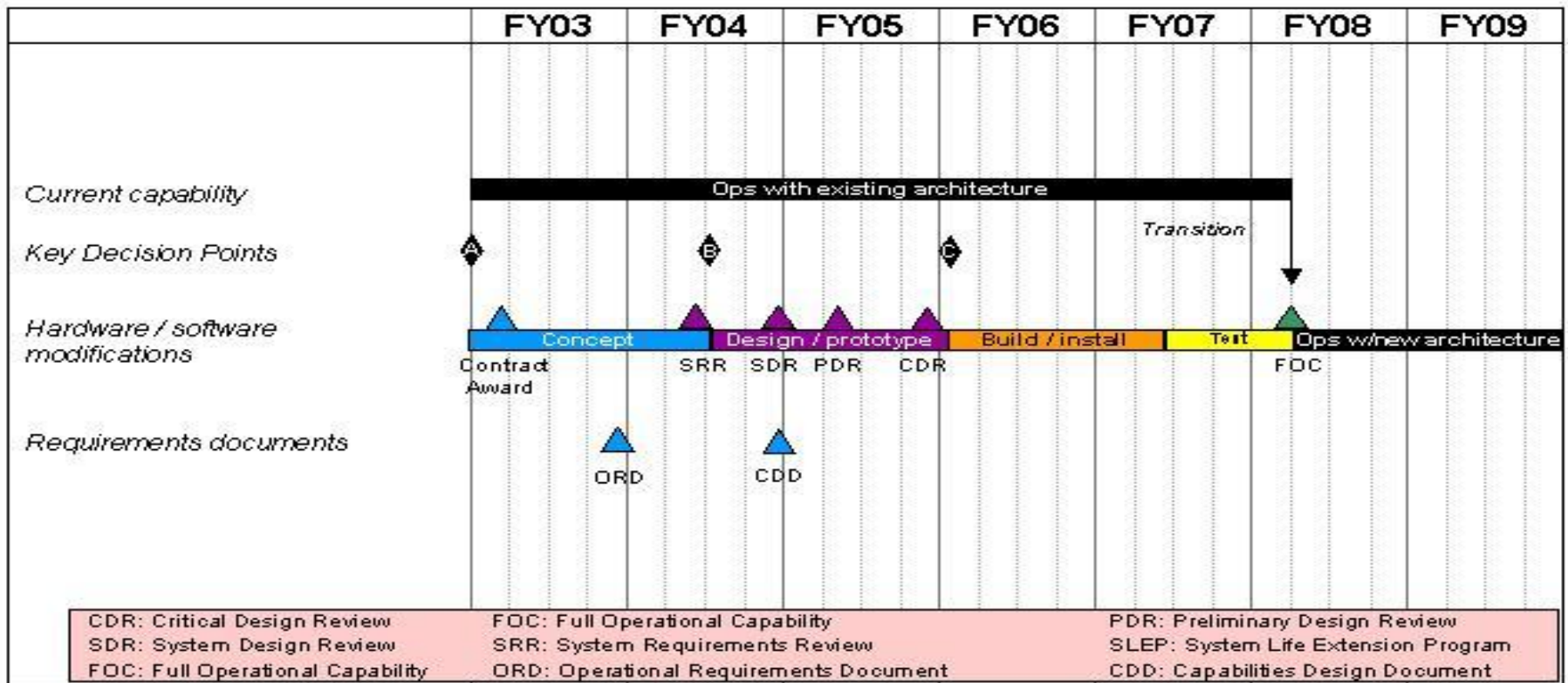


Exhibit R-4, RDT&E Schedule Profile

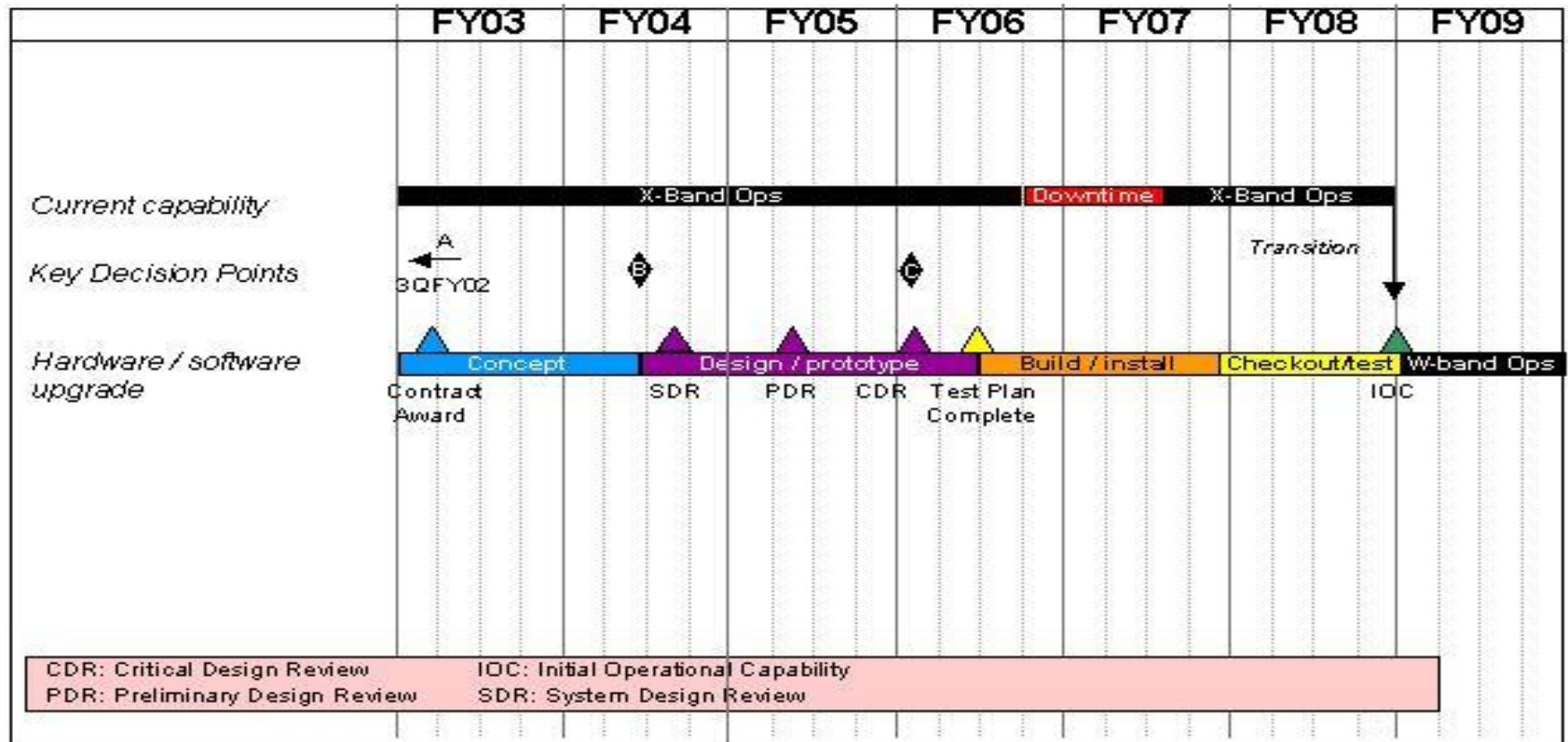
DATE
February 2004

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0305910F SPACETRACK

PROJECT NUMBER AND TITLE
A008 Sensor Service Life Extension Programs (Sensor SLEPs)

Haystack Radar Upgrade



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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305910F SPACETRACK	PROJECT NUMBER AND TITLE A008 Sensor Service Life Extension Programs (Sensor SLEPs)
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	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <u>Schedule Profile</u>			
(U) Eglin System Req Review		2Q	
(U) Eglin KDP-B Decision		3Q	
(U) Eglin System Design Review		4Q	
(U) Eglin Final Preliminary Design Review(PDR)			2Q
(U) Eglin Critical Design Review(CDR)			4Q
(U) HUSIR Contract Award	1Q		
(U) HUSIR Approved AF1067		2Q	
(U) HUSIR KDP-B		2Q	
(U) HUSIR SDR		3Q	
(U) HUSIR PDR			2Q

Exhibit R-2a, RDT&E Project Justification

DATE
February 2004

BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0305910F SPACETRACK			PROJECT NUMBER AND TITLE A009 Orbital Deep Space Imager (ODSI)		
Cost (\$ in Millions)	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
A009 Orbital Deep Space Imager (ODSI)	0.000	3.896	8.841	24.932	57.352	187.342	217.590	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

FY 2004: Project 5011, Space Situational Awareness Initiatives, was changed to separate activities for ease of description and execution by transferring the Orbital Deep Space Imager Project activities into Project A009, Orbital Deep Space Imager, with no change in funding.

(U) A. Mission Description and Budget Item Justification

The Orbital Deep Space Imager (ODSI) provides imagery of deep space objects for satellite characterization in support of overall battlespace awareness. ODSI will support the satisfaction of timeliness and characterization requirements as outlined in the USSPACECOM Space Control Capstone Requirements Document (CRD).

All of these projects are Budget Activity 7, Operational Systems Development, because they involve development of or modification to operational sensor network sites.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Conduct Concept definition studies	0.000	0.000	5.864
(U) Architecture development	0.000	0.213	0.485
(U) Conduct Pre-Phase A Activities	0.000	2.730	0.000
(U) Program Operations	0.000	0.953	2.492
(U) Total Cost	0.000	3.896	8.841

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) None	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

(U) D. Acquisition Strategy

The project will begin with Key Decision Point (KDP) A declaration in late FY04. Concept Definition Activities will continue through FY05, and culminate in an early FY06 KDP B decision. Subsequent 2QFY06 contracts follow. A single contractor will be selected in FY08 to complete design to CDR level. KDP C will be in FY09 followed by production start. First launch is planned for FY12.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2004

BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0305910F SPACETRACK				PROJECT NUMBER AND TITLE A009 Orbital Deep Space Imager (ODSI)				
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
<u>(U) Product Development</u>												
Conduct Pre-phase A Activities and Architecture Development	MAPIC CPAF	Northrop Grumman, Redondo Beach, CA	0.000	0.000		2.943	Feb-04	0.485	Nov-04	2.953	6.381	
Concept Definition Studies	TBD	TBD	0.000	0.000		0.000		5.864	Nov-04	Continuing	TBD	
Subtotal Product Development			0.000	0.000		2.943		6.349		Continuing	TBD	0.000
Remarks:												
<u>(U) Support</u>												
Program Operations	Various	SMC, El Segundo, CA	0.000	0.000		0.953	Feb-04	2.492	Oct-04	Continuing	TBD	
Subtotal Support			0.000	0.000		0.953		2.492		Continuing	TBD	0.000
Remarks:												
<u>(U) Test & Evaluation</u>												
None			0.000	0.000		0.000		0.000		0.000	0.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Management</u>												
None			0.000	0.000		0.000		0.000		0.000	0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Total Cost</u>			0.000	0.000		3.896		8.841		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0305910F SPACETRACK

PROJECT NUMBER AND TITLE
A009 Orbital Deep Space Imager (ODSI)

Spacetrack Schedule: ODSI Development

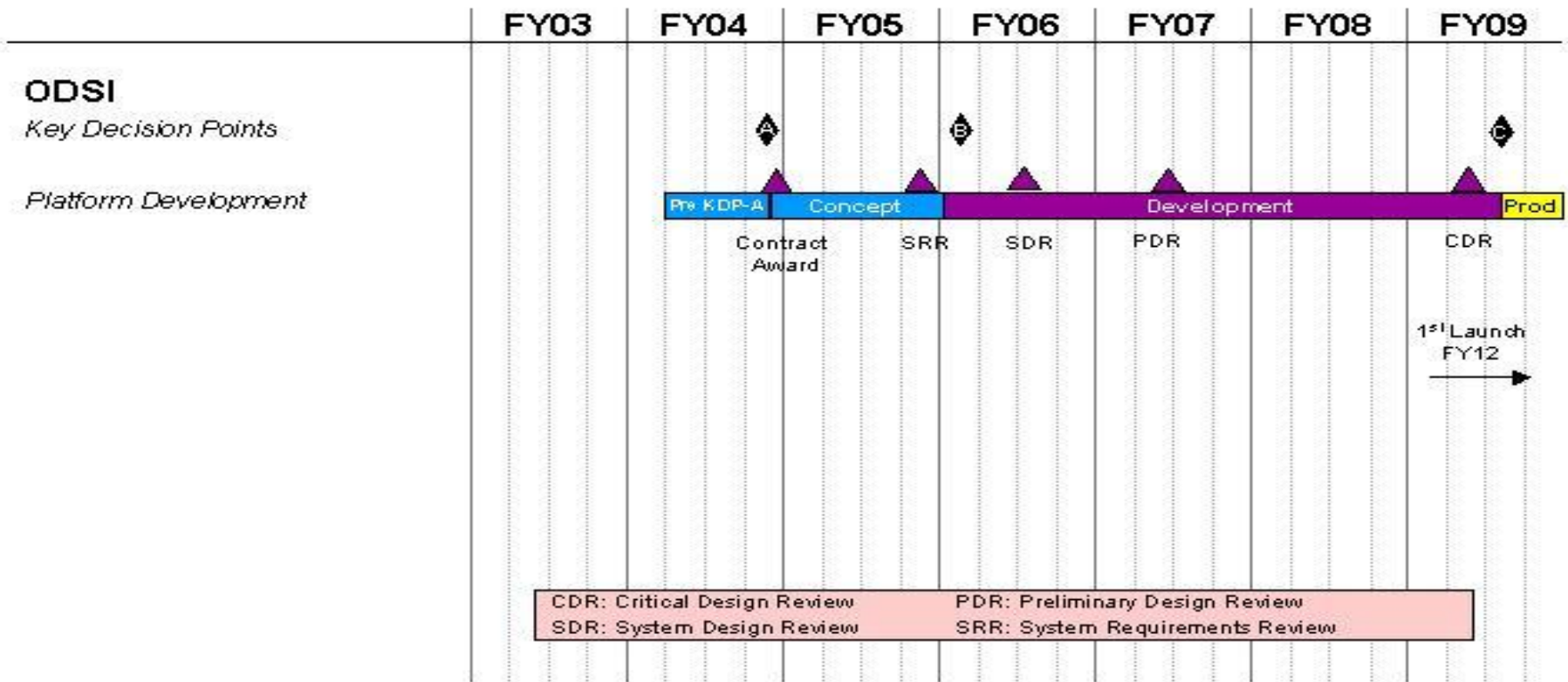


Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2004

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305910F SPACETRACK

PROJECT NUMBER AND TITLE

A009 Orbital Deep Space Imager
(ODSI)

(U) Schedule Profile

FY 2003

FY 2004

FY 2005

(U) KDP A

4Q

(U) Begin concept definition studies

1Q

(U) System Requirements Review

3Q

(U) Conduct Phase B independent program assessment

4Q

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PE NUMBER: 0305911F
 PE TITLE: Defense Support Program

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305911F Defense Support Program
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Cost (\$ in Millions)	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
Total Program Element (PE) Cost	1.935	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1,927.968
3615 Shield/Alert	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	71.029
3624 Defense Support Program	1.935	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1,856.939

In FY2003, Project number 3615, SHIELD/Alert effort transferred to Space Based Infrared System (SBIRS) Engineering and Manufacturing Development, PE 0604441F. Project 3624, Defense Support Program, was completed.

(U) A. Mission Description and Budget Item Justification

The Defense Support Program (DSP) is a system of satellites in geostationary orbits, fixed and mobile ground processing stations, one multi-purpose facility, and a ground communications network. DSP's primary mission is to provide strategic and tactical warning and limited attack assessment of a ballistic missile attack. Shield/ALERT (Attack and Launch Early Reporting to Theater) was a ground station mission processing capability which exploits inherent satellite capability to provide theater missile warning and cueing.

DSP is an operational system and is funded in Budget Activity 7, Operational Systems Support because it supports integrating DSP to the new Evolved Expendable Launch Vehicle (EELV) and related support activities.

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	2.090	0.000	
(U) Current PBR/President's Budget	2.024	0.000	
(U) Total Adjustments	-0.066	0.000	
(U) Congressional Program Reductions	-0.057		
Congressional Rescissions			
Congressional Increases			
Reprogrammings	-0.009		
SBIR/STTR Transfer			

(U) Significant Program Changes:

- (U) FY03: SHIELD effort transferred to the Space Based Infrared System (SBIRS) High program.
- (U) FY03: DSP project was completed.

Exhibit R-2a, RDT&E Project Justification

DATE
February 2004

BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0305911F Defense Support Program			PROJECT NUMBER AND TITLE 3624 Defense Support Program		
Cost (\$ in Millions)	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
3624 Defense Support Program	1.935	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1,856.939
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

In FY2003, project 3624, Defense Support Program was completed.

(U) A. Mission Description and Budget Item Justification

The Defense Support Program (DSP) system provides a space-based surveillance system to detect and report missile and space launches and nuclear detonations in near real time during pre-, trans-, and post-attack periods. The DSP system consists of a constellation of satellites in geostationary orbits, fixed and mobile ground processing stations, one multi-purpose facility, and a ground communications network. DSP's primary mission is to provide strategic and tactical warning and limited attack assessment of a ballistic missile attack. DSP also detects and reports nuclear detonation events and provides information for theater warning and exploitation. This project funds the DSP-to-SBIRS transition activities and EELV mission unique engineering integration. The FY03 program funds mission unique engineering efforts to integrate DSP-23 on EELV.

Budget Activity Justification:

DSP is an operational system and is funded in Budget activity 7, Operational systems Support because it supports integrating DSP to the new Evolved Expendable Launch Vehicle (EELV) and related support activities.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments/Planned Program	0.000	0.000	
(U) Complete integration efforts for DSP 23 on Evolved Expendable Launch Vehicle (EELV).	2.024		
(U) No Activity.		0.000	
(U) Total Cost	2.024	0.000	0.000

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u> <u>Actual</u>	<u>FY 2004</u> <u>Estimate</u>	<u>FY 2005</u> <u>Estimate</u>	<u>FY 2006</u> <u>Estimate</u>	<u>FY 2007</u> <u>Estimate</u>	<u>FY 2008</u> <u>Estimate</u>	<u>FY 2009</u> <u>Estimate</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) AF RDT&E									
(U) Other APPN									
(U) Missile Procurement (PE 0305911F, BA-05, P-28)	113.517	113.067	29.406	31.920	37.312	33.372	34.159	0.000	5,156.355
(U) Related RDT&E:									
(U) PE 0604441F - SBIRS High EMD	775.395	617.229	508.919	375.645	311.900	381.936	342.046	292.104	5,947.482

(U) D. Acquisition Strategy

Exhibit R-2a, RDT&E Project Justification

DATE

February 2004

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305911F Defense Support Program

PROJECT NUMBER AND TITLE

3624 Defense Support Program

DSP has finished the production of satellites through DSP 23. Current contract efforts include support for Flight 22 and 23 launch and sustainment for post production storage testing, launch preparation, and on orbit testing. These efforts were added to the existing DSP Spacecraft and Sensor Post Production Support contracts. The Space Based Infrared Systems (SBIRS) satellites will be the follow-on system to DSP.

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Exhibit R-3, RDT&E Project Cost Analysis										DATE February 2004		
BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0305911F Defense Support Program				PROJECT NUMBER AND TITLE 3624 Defense Support Program				
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u> Prior to FY 2003 Cost	<u>FY</u> 2003 Cost	<u>FY</u> 2003 Award	<u>FY</u> 2004 Cost	<u>FY</u> 2004 Award	<u>FY</u> 2005 Cost	<u>FY</u> 2005 Award	<u>Cost to Complete</u>	<u>Total</u> Cost	<u>Target</u> Value of Contract
<u>(U) Product Development</u>												
Previous DSP Contracts (1960's-1980's)	Various		1,536.317							0.000	1,536.317	
Boeing	FFP		3.162							0.000	3.162	
Aerojet*	C/CPAF		25.719							0.000	25.719	
Aerojet	C/CPAF		9.025							0.000	9.025	
Aerojet	C/CPFF		25.743							0.000	25.743	
Aerojet	C/CPAF		2.578							0.000	2.578	
Loral	C/FPI/AF/CPF		37.732							0.000	37.732	
DOE	P.O.		10.724							0.000	10.724	
Loral	C/CPAF		22.975							0.000	22.975	
Subtotal Product Development			1,673.975	0.000		0.000		0.000		0.000	1,673.975	0.000
Remarks: * EAC is also funded by other appropriations.												
<u>(U) Support</u>												
Various	MIPRs		9.706							0.000	9.706	
Aerojet	C/ CPFF		1.305							0.000	1.305	
Aerojet/ Consolidated	C/ FFP		4.724							0.000	4.724	
FFRDC	MORD		42.109							0.000	42.109	
Other Gov't Cost			35.036							0.000	35.036	
TRW	C/CPFF		9.872							0.000	9.872	
TRW Consolidated	C/CPAF		0.292							0.000	0.292	
PRC	C/FPIF		7.579							0.000	7.579	
SPARTA	C/CPAF		0.150							0.000	0.150	
Subtotal Support			110.773	0.000		0.000		0.000		0.000	110.773	0.000
Remarks:												
<u>(U) Test & Evaluation</u>												
Program Office Support	Various		68.101							0.000	68.101	
Subtotal Test & Evaluation			68.101	0.000		0.000		0.000		0.000	68.101	0.000

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2004

BUDGET ACTIVITY	PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE			
07 Operational System Development	0305911F Defense Support Program				3624 Defense Support Program			

Remarks:								
(U) <u>Management</u>								
					0.000			
Subtotal Management	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Remarks:								
(U) Total Cost	1,852.849	0.000	0.000	0.000	0.000	1,852.849	0.000	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305911F Defense Support Program

PROJECT NUMBER AND TITLE

3624 Defense Support Program

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Exhibit R-4a, RDT&E Schedule Detail

DATE

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305911F Defense Support Program

PROJECT NUMBER AND TITLE

3624 Defense Support Program

(U) Schedule Profile

FY 2003

FY 2004

FY 2005

(U) DSP 22 Launch

(U) DSP 23 Launch (FY05)

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PE NUMBER: 0305913F

PE TITLE: NUDET Detection System (Space)

Exhibit R-2, RDT&E Budget Item Justification								DATE February 2004	
BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0305913F NUDET Detection System (Space)					
Cost (\$ in Millions)	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
Total Program Element (PE) Cost	20.754	35.428	35.398	32.607	28.011	28.939	35.090	Continuing	TBD
2808 Nuc Detonation Det Sys (sensors)	20.754	35.428	35.398	32.607	28.011	28.939	35.090	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

The Nuclear Detonation (NUDET) Detection System (NDS) provides a worldwide, highly survivable capability to detect, locate, and report any nuclear detonations in the earth's atmosphere or in near space in near-real time. The NDS supports NUDET detection requirements for USNORTHCOM/NORAD (Integrated Tactical Warning and Attack Assessment (ITW/AA)), USSTRATCOM (Nuclear Force Management), and AFTAC (Treaty Monitoring). NDS consists of space and ground segments. The space segment consists of NUDET detection sensors (optical, x-ray, dosimeters and electromagnetic pulse (EMP) sensor) on Global Positioning System (GPS) satellites, and Defense Support Program (DSP) satellites (optical, x-rays, and neutron and gamma rays). The ground segment includes the Integrated Correlation and Display System (ICADS) and the Ground NDS Terminals (GNT).

This NDS program element funds Research and Development of ICADS, GNT, and NDS analysis payload (NAP). ICADS provides a fixed ground receiving station. GNT provides a survivable ground receiving station. NAP improves existing NDS capability and will be integrated onto GPS Block IIR satellites 7-8/11-13 and IIRM satellites 1-4. DOE funds EMP sensor research and production. GPS Space & Control (PE 0305165F) funds sensor integration for the first 12 Block IIF satellites with ground segment development remaining in the NDS PE.

This program is in Budget Activity 7 - Operational System Development because it is a post Milestone III program.

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	20.865	35.834	35.491
(U) Current PBR/President's Budget	20.754	35.428	35.398
(U) Total Adjustments	-0.111	-0.406	
(U) Congressional Program Reductions		-0.406	
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer	-0.111		
(U) <u>Significant Program Changes:</u>			

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development							PE NUMBER AND TITLE 0305913F NUDET Detection System (Space)		PROJECT NUMBER AND TITLE 2808 Nuc Detonation Det Sys (sensors)	
Cost (\$ in Millions)	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	
2808 Nuc Detonation Det Sys (sensors)	20.754	35.428	35.398	32.607	28.011	28.939	35.090	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

(U) A. Mission Description and Budget Item Justification

The Nuclear Detonation (NUDET) Detection System (NDS) provides a worldwide, highly survivable capability to detect, locate, and report any nuclear detonations in the earth's atmosphere or in near space in near-real time. The NDS supports NUDET detection requirements for USNORTHCOM/NORAD (Integrated Tactical Warning and Attack Assessment (ITW/AA)), USSTRATCOM (Nuclear Force Management), and AFTAC (Treaty Monitoring). NDS consists of space and ground segments. The space segment consists of NUDET detection sensors (optical, x-ray, dosimeters and electromagnetic pulse (EMP) sensor) on Global Positioning System (GPS) satellites, and Defense Support Program (DSP) satellites (optical, x-rays, and neutron and gamma rays). The ground segment includes the Integrated Correlation and Display System (ICADS) and the Ground NDS Terminals (GNT).

This NDS program element funds Research and Development of ICADS, GNT, and NDS analysis payload (NAP). ICADS provides a fixed ground receiving station. GNT provides a survivable ground receiving station. NAP improves existing NDS capability and will be integrated onto GPS Block IIR satellites 7-8/11-13 and IIRM satellites 1-4. DOE funds EMP sensor research and production. GPS Space & Control (PE 0305165F) funds sensor integration for the first 12 Block IIF satellites with ground segment development remaining in the NDS PE.

This program is in Budget Activity 7 - Operational System Development because it is a post Milestone III program.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments/Planned Program			
(U) Continue ICADS and GNT development	15.072	27.292	26.866
(U) Continue NDS sensor on-orbit qualification	1.189	2.604	2.642
(U) Continue Mission and Program support and system studies	1.100	1.860	2.131
(U) Continue Technical Support	3.393	3.672	3.759
(U) Total Cost	20.754	35.428	35.398

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to Complete</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>		
(U) AF RDT&E									
(U) Other APPN									
(U) Operations & Maintenance, (PE	8.666	8.055	8.820	9.692	10.524	10.376	10.588	Continuing	TBD

Exhibit R-2a, RDT&E Project Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305913F NUDET Detection System (Space)	PROJECT NUMBER AND TITLE 2808 Nuc Detonation Det Sys (sensors)
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(U) C. Other Program Funding Summary (\$ in Millions)

0305913F, BA 1, Operating Forces

Other Procurement, (PE

(U)	0305913F, BA 3 - Electronics and Telecom Equipment, P-63)	7.793	10.706	7.554	9.334	12.304	15.392	26.567	Continuing	TBD
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(U) Related RDT&E:

(U) PE 0305165F, NAVSTAR GPS (Space/Ground Segment)

(U) PE 0305911F, Defense Support Program

(U) D. Acquisition Strategy

The NDS Acquisition Strategy is to develop and procure components to sustain the U. S. NDS capability for the GPS Block IIR, IIF, and future generation satellites; funding is sent by Military Interdepartmental Purchase Request (MIPR) from DoD and Department of Energy (DoE) to Sandia and Los Alamos National Laboratories on existing DOE contracts.

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Exhibit R-3, RDT&E Project Cost Analysis										DATE February 2004		
BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0305913F NUDET Detection System (Space)				PROJECT NUMBER AND TITLE 2808 Nuc Detonation Det Sys (sensors)				
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
<u>(U) Product Development</u>												
ICADS and GNT	MIPR	Department of Energy; Sandia National Laboratory, Albuquerque NM	68.672	14.985	Dec-02	27.292	Dec-03	26.866	Dec-04	Continuing	TBD	
GNT: Intermetrics	CPFF		1.262							0.000	1.262	
SAIC (Intg/Grd Supt)	Time/Matls		4.787							0.000	4.787	
Combined GOSC/NAP: Lockheed Martin	FFP		6.166							0.000	6.166	
SAIC	Time/Matl		0.432							0.000	0.432	
W-Sensor: SRI (Stanford Rsch Inst.)	CPFF		0.415							0.000	0.415	
On-orbit sensor testing	MIPR	Department of Energy; Los Alamos National Laboratory, Los Alamos NM, Sandia National Laboratory, Albuquerque NM	6.630	1.189	Dec-02	2.604	Dec-03	2.642	Dec-04	Continuing	TBD	
N/A											0.000	
Subtotal Product Development			88.364	16.174		29.896		29.508		Continuing	TBD	0.000
Remarks:												
<u>(U) Support</u>												
Mission Support	Various		4.822	1.100		1.789		2.046		Continuing	TBD	
Prog Contractual Spt.	Various		5.185							0.000	5.185	
Technical Support	Various		4.432	3.393		3.672		3.759		Continuing	TBD	
N/A											0.000	
Subtotal Support			14.439	4.493		5.461		5.805		Continuing	TBD	0.000
Remarks:												
<u>(U) Test & Evaluation</u>												
17th TS, Schriever AFB CO	Various		0.156	0.087		0.071		0.085		Continuing	TBD	
N/A											0.000	

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

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BUDGET ACTIVITY	PE NUMBER AND TITLE			PROJECT NUMBER AND TITLE			
07 Operational System Development	0305913F NUDET Detection System (Space)			2808 Nuc Detonation Det Sys (sensors)			
Subtotal Test & Evaluation	0.156	0.087	0.071	0.085	Continuing	TBD	0.000
Remarks:							
(U) <u>Management</u>							
	0.000						
Subtotal Management	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Remarks:							
(U) Total Cost	102.959	20.754	35.428	35.398	Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

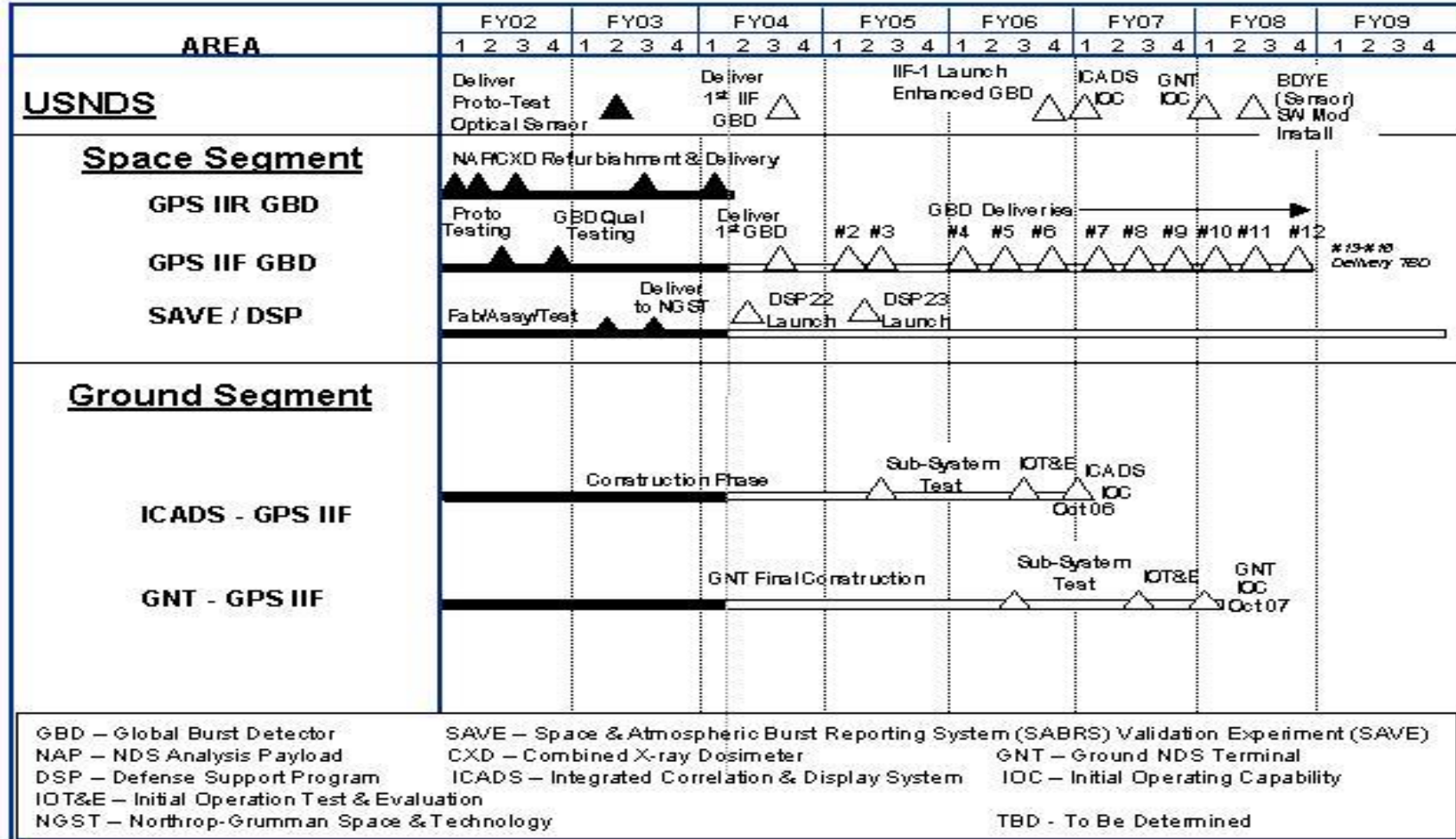
DATE

February 2004

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0305913F NUDET Detection System
(Space)

PROJECT NUMBER AND TITLE
2808 Nuc Detonation Det Sys
(sensors)



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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305913F NUDET Detection System (Space)	PROJECT NUMBER AND TITLE 2808 Nuc Detonation Det Sys (sensors)
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(U) <u>Schedule Profile</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) GPS IIF Use Case Model Review	2Q		
(U) GPS IIF System Specification Review	1Q		3Q
(U) JROC ORD approval	4Q		
(U) Space & Atmospheric Burst Reporting System (SABRS) Validation Experiment (SAVE) DSP Qual unit delivery		2Q	
(U) IIF-1 Global Burst Detector (GBD)* delivery		3Q	
(U) ICADS IIF Hardware Install			3Q
(U) Enhanced Radiometer (EnRad)* launch		4Q	
(U) GPS IIF Phase Review	1Q	1Q	1Q
(U) GPS IIF Phase Review	3Q	3Q	3Q
* GBD and EnRad are funded by DOE			

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PE NUMBER: 0305917F
 PE TITLE: Space Architect

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305917F Space Architect
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Cost (\$ in Millions)	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
Total Program Element (PE) Cost	0.000	12.446	12.907	12.808	13.038	13.828	13.912	Continuing	TBD
4746 National Security Space Architect	0.000	12.446	12.907	12.808	13.038	13.828	13.912	Continuing	TBD

Note 1: In FY2004, Project #4746, National Security Space Architect, efforts were transferred from PE 0305917D8Z, National Security Space Architect.

(U) A. Mission Description and Budget Item Justification

The National Security Space Architect (NSSA) is an independent joint Department of Defense (DoD) and Intelligence Community (IC) organization chartered by Memorandum of Agreement between the Secretary of Defense and the Director of Central Intelligence. The NSSA is responsible for developing and integrating future space architectures and capabilities for the mid- and long-term across the entire range of national security (DoD, IC, and civil agencies) space and space-related missions in response to validated and emerging needs, and expanding technology opportunities. Specifically, the NSSA develops architectures and strategic plans across the national security space enterprise in a collaborative manner with representatives of all affected organizations, spanning the missions and functions of military, intelligence, civil and commercial space sectors. In January 2001, the Commission to Assess United States National Security Space Management and Organization (the Space Commission) endorsed the NSSA and recommended expanding its roles and responsibilities. As a result, the NSSA was realigned to report to the Under Secretary of the Air Force and the Director of the National Reconnaissance Office (USecAF/DNRO). NSSA's expanded roles and responsibilities include conducting an annual assessment of the consistency of defense and intelligence space programs with national security space policy, planning guidance, and architectural decisions; supporting development of the National Security Space Plan by the USecAF/DNRO; and assisting the USecAF/DNRO with assessments of trades between space and non-space solutions to meet user requirements, as well as appropriate integration of space with land, sea, and air components. The NSSA obtains direct support from various space planning and development organizations across the federal government and industry for space architecture planning and development. Funding in this document incorporates DoD requirements only and represents approximately seventy percent of the total funding required. Intelligence Community requirements and funding to support the NSSA efforts are not included in this program element.

This program is in Budget Activity 7 because the architecture studies affect the design and acquisition of operational systems.

Exhibit R-2, RDT&E Budget Item Justification

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February 2004

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305917F Space Architect

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	0.000	12.589	12.941
(U) Current PBR/President's Budget	0.000	12.446	12.907
(U) Total Adjustments	0.000	-0.143	
(U) Congressional Program Reductions		-0.143	
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0305917F Space Architect			PROJECT NUMBER AND TITLE 4746 National Security Space Architect		
Cost (\$ in Millions)	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
4746 National Security Space Architect	0.000	12.446	12.907	12.808	13.038	13.828	13.912	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The National Security Space Architect (NSSA) is an independent joint Department of Defense (DoD) and Intelligence Community (IC) organization chartered by Memorandum of Agreement between the Secretary of Defense and the Director of Central Intelligence. The NSSA is responsible for developing and integrating future space architectures and capabilities for the mid- and long-term across the entire range of national security (DoD, IC, and civil agencies) space and space-related missions in response to validated and emerging needs, and expanding technology opportunities. Specifically, the NSSA develops architectures and strategic plans across the national security space enterprise in a collaborative manner with representatives of all affected organizations, spanning the missions and functions of military, intelligence, civil and commercial space sectors. In January 2001, the Commission to Assess United States National Security Space Management and Organization (the Space Commission) endorsed the NSSA and recommended expanding its roles and responsibilities. As a result, the NSSA was realigned to report to the Under Secretary of the Air Force and the Director of the National Reconnaissance Office (USecAF/DNRO). NSSA's expanded roles and responsibilities include conducting an annual assessment of the consistency of defense and intelligence space programs with national security space policy, planning guidance, and architectural decisions; supporting development of the National Security Space Plan by the USecAF/DNRO; and assisting the USecAF/DNRO with assessments of trades between space and non-space solutions to meet user requirements, as well as appropriate integration of space with land, sea, and air components. The NSSA obtains direct support from various space planning and development organizations across the federal government and industry for space architecture planning and development. Funding in this document incorporates DoD requirements only and represents approximately seventy percent of the total funding required. Intelligence Community requirements and funding to support the NSSA efforts are not included in this program element.

This program is in Budget Activity 7 because the architecture studies affect the design and acquisition of operational systems.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Architectural Development Effort or Study to include such topics as: Responsive Space Operations; Space Protection; Objective Blue Force Tracking; Integrated Force Application; and Space Control and Information Operations		7.914	8.257
(U) National Security Space (NSS) Plan Development		0.500	0.500
(U) NSS Program Assessment		3.032	3.100
(U) Architecture Transition Planning and Implementation Support		1.000	1.050
(U) Total Cost	0.000	12.446	12.907

Exhibit R-2a, RDT&E Project Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305917F Space Architect	PROJECT NUMBER AND TITLE 4746 National Security Space Architect
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(U) **C. Other Program Funding Summary (\$ in Millions)**

<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	

(U) Intelligence Community*
*Available in the Intelligence Community budget.

(U) **D. Acquisition Strategy**

RDT&E funds will be used to obtain direct technical and management support from various space planning and development organizations across the DoD and industry, including Federally Funded Research & Development Centers (FFRDCs) and contracted System Engineering and Technical Assistance in direct support of DoD space architecture planning and development. Funds will be applied to existing contract vehicles.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

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BUDGET ACTIVITY		PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE				
07 Operational System Development		0305917F Space Architect						4746 National Security Space Architect				
(U) Cost Categories	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2003 Cost</u>	<u>FY 2003 Cost</u>	<u>FY 2003 Award Date</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(\$ in Millions)												
(U) <u>Product Development</u>												
None											0.000	
None											0.000	
Subtotal Product Development			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Support</u>												
None											0.000	
None											0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Test & Evaluation</u>												
None											0.000	
None											0.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Space Architect</u>												
Science Applications International Corp; Computer Science Corp; SPARTA, Inc; AEGIS Research Corp; Aerospace Corp; MITRE	FFRDC & SETA Level of Effort					12.446		12.907		Continuing	TBD	
(U) Total Cost			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												

Exhibit R-4, RDT&E Schedule Profile

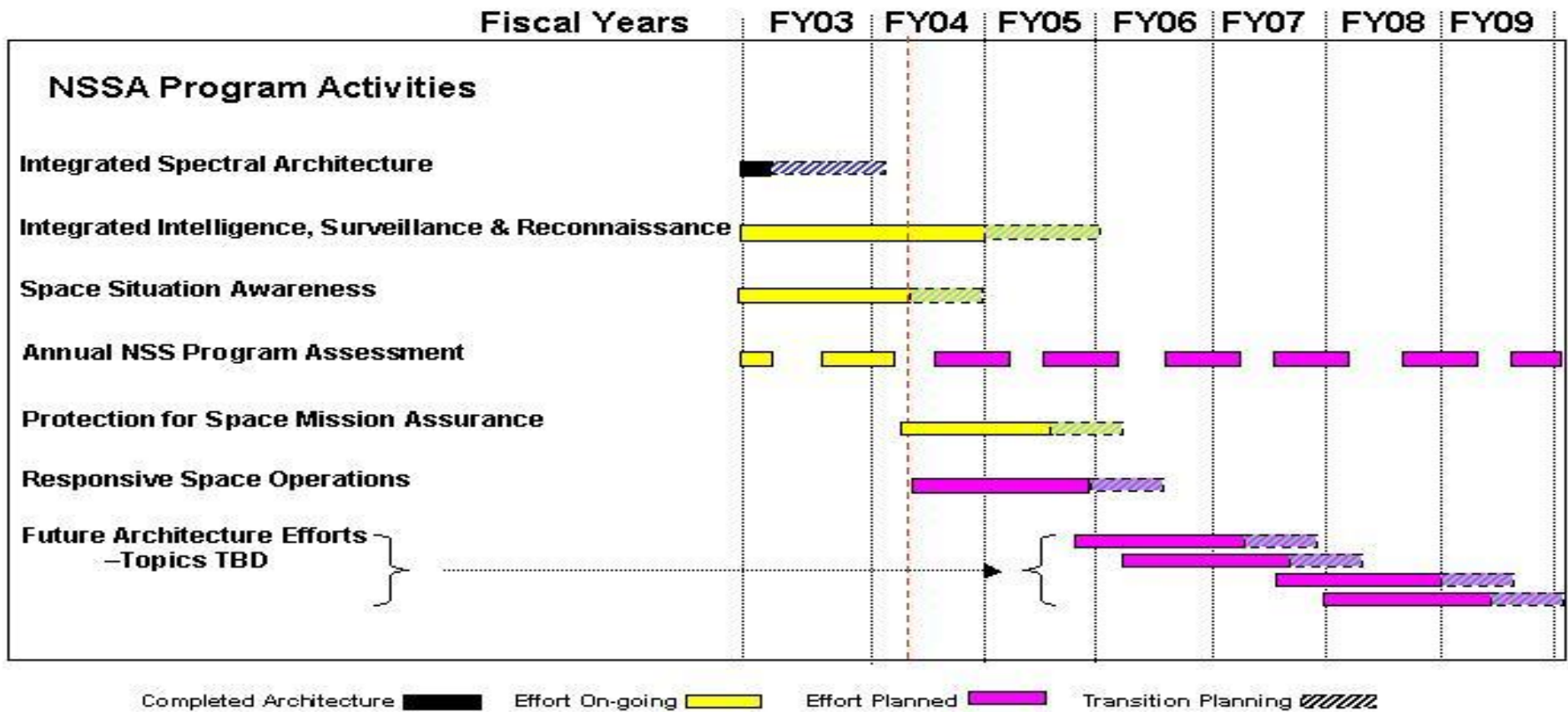
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BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0305917F Space Architect

PROJECT NUMBER AND TITLE
4746 National Security Space Architect



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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305917F Space Architect	PROJECT NUMBER AND TITLE 4746 National Security Space Architect
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	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <u>Schedule Profile</u>			
(U) Complete support to Integrated Intelligence, Surveillance & Reconnaissance Architecture Development Effort		1Q	
(U) Initiate Architectural Development efforts for Protection of Space Mission Assurance		2Q	
(U) Initiate architectural development efforts for Responsive Space Operations		2Q	
(U) Complete support to Space Situational Awareness Architecture Development Effort		4Q	
(U) Initiate annual National Security Space Program Assessment		1Q	1Q
(U) Incorporate the integrated space technology roadmap into NSS Plan		1Q	1Q
(U) Assist NSS partners in architectural development efforts for Blue Force Situational Awareness (US Army) and Environmental Sensing (NOAA)		1-4Q	1-4Q
(U) Support transition planning and implementation efforts for completed Architectural development efforts		1-4Q	1-4Q
(U) Support USecAF in continuing development of NSS Plan		1-4Q	1-4Q
(U) Complete annual National Security Space (NSS) Program Assessment			3Q
(U) Initiate architectural developments for one or more of the following topics: Integrated Force Applications, Objective Blue Force Tracking, Space Control & Information Operations			3Q
(U) Complete additional I-ISR trades and analyses as directed by USecAF			4Q
(U) Support USecAF in continuing development of Future Architecture Efforts			4Q

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PE NUMBER: 0308601F
 PE TITLE: Modeling and Simulation Support

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0308601F Modeling and Simulation Support
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Cost (\$ in Millions)	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
Total Program Element (PE) Cost	1.936	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5052 JTC/SIL MUSE	1.936	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

In FY04, Project 675052, Joint Technology Center/Systems Integration Laboratory (JTC/SIL) efforts are reflected in the Joint Military Intelligence Program/Defense Air Reconnaissance Program (Program Element 0305206F).

(U) A. Mission Description and Budget Item Justification

The Joint Technology Center/System Integration Laboratory Multiple Unmanned Aerial Vehicle (UAV) Simulation Environment (JTC/SIL MUSE) provides and develops simulations of Unmanned Aerial Vehicles. Specifically, their tactical and strategic reconnaissance uses and how their imagery products are used in the DoD reconnaissance system. These simulations are applied for the development of the Army's Tactical UAV (TUAV), the Navy's Vertical Takeoff UAV (VTUAV), Air Force's Predator medium altitude Endurance UAV (EUAV) and the Air Force's Global Hawk high altitude EUAV.

This program is in BA 7 to support the development activity of JTC/SIL MUSE.

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	1.953	0.000	0.000
(U) Current PBR/President's Budget	1.936	0.000	0.000
(U) Total Adjustments	-0.017	0.000	
(U) Congressional Program Reductions	-0.022		
Congressional Rescissions	0.000		
Congressional Increases	0.042		
Reprogrammings	-0.037		
SBIR/STTR Transfer	0.000		

(U) Significant Program Changes:

In FY04, Project 675052, Joint Technology Center/Systems Integration Laboratory Multiple UAV Simulation Environment (JTC/SIL MUSE) work transferred to Program Element 0305206F.

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0308601F Modeling and Simulation Support			PROJECT NUMBER AND TITLE 5052 JTC/SIL MUSE		
Cost (\$ in Millions)	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
5052 JTC/SIL MUSE	1.936	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

In FY04, Project 675052, Joint Technology Center/Systems Integration Laboratory Multiple Unmanned Aerial Vehicle (UAV) Simulation Environment (JTC/SIL MUSE) work transferred to Program Element 0305206F.

(U) A. Mission Description and Budget Item Justification

The Joint Technology Center/System Integration Laboratory Multiple Unmanned Aerial Vehicle (UAV) Simulation Environment (JTC/SIL MUSE) provides and develops simulations of Unmanned Aerial Vehicles. Specifically, their tactical and strategic reconnaissance uses and how their imagery products are used in the DoD reconnaissance system. These simulations are applied for the development of the Army's Tactical UAV (TUAV), the Navy's Vertical Takeoff UAV (VTUAV), Air Force's Predator medium altitude Endurance UAV (EUAV) and the Air Force's Global Hawk high altitude EUAV.

This program is in BA 7 to support the development activity of JTC/SIL MUSE.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) JTC/SIL MUSE	1.936	0.000	0.000
(U) Total Cost	1.936	0.000	0.000

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) N/A								Continuing	TBD

(U) D. Acquisition Strategy

All major contracts for JTC/SIL MUSE will be awarded after full and open competition.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2004

BUDGET ACTIVITY			PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
07 Operational System Development			0308601F Modeling and Simulation Support					5052 JTC/SIL MUSE				
(U) <u>Cost Categories</u>	<u>Contract Method</u>	<u>Performing Activity &</u>	<u>Total</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to</u>	<u>Total</u>	<u>Target</u>
(Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>& Type</u>	<u>Location</u>	<u>Prior to FY</u>	<u>2003</u>	<u>2003</u>	<u>2004</u>	<u>2004</u>	<u>2005</u>	<u>2005</u>	<u>Complete</u>	<u>Cost</u>	<u>Value of</u>
			<u>2003</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>			<u>Contract</u>
			<u>Cost</u>		<u>Date</u>		<u>Date</u>		<u>Date</u>			
(U) <u>Product Development</u>												
JTC/SIL MUSE	MIPR	Redstone Arsenal, AL	0.000	1.936	May-03	0.000		0.000		Continuing	TBD	
Subtotal Product Development			0.000	1.936		0.000		0.000		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Test & Evaluation</u>												
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U)												
Subtotal			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			0.000	1.936		0.000		0.000		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

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February 2004

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0308601F Modeling and Simulation Support

PROJECT NUMBER AND TITLE

5052 JTC/SIL MUSE

JTC/SIL MUSE

Acquisition Milestones	FY03	FY04	FY05	FY06	FY07	FY09	FY10	FY11
System Simulation Interfaces	3-4Q							

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0308601F Modeling and Simulation Support	PROJECT NUMBER AND TITLE 5052 JTC/SIL MUSE
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(U) <u>Schedule Profile</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Air Force Synthetic Environment for Reconnaissance and Surveillance (AFSERS) Modeling/System Simulation Interface	3-4Q		

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PE NUMBER: 0308699F
 PE TITLE: Shared Early Warning System

Exhibit R-2, RDT&E Budget Item Justification								DATE February 2004	
BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0308699F Shared Early Warning System					
Cost (\$ in Millions)	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
Total Program Element (PE) Cost	3.604	3.210	3.345	3.376	3.423	3.476	3.531	Continuing	TBD
4838 Shared Early Warning System	3.604	3.210	3.345	3.376	3.423	3.476	3.531	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

The Shared Early Warning System (SEWS) resulted from Presidential foreign policy initiatives beginning in 1996. Arrangements are negotiated with individual countries on a bilateral basis to provide selected region-specific missile warning information. These efforts were initially handled on an ad hoc basis through the Office of the Secretary of Defense, the Joint Staff, and the National Reconnaissance Office (NRO). SEWS was established in December 1998 as a formal DoD program with the Air Force as the lead service. It is centrally managed to eliminate the previous ad hoc approach. Regional U.S. Theater Combatant Commanders and other policy makers strongly support these efforts based on political and operational benefits. SEWS is comprised of: program management by the System Program Office (including the use of Federally Funded Research & Development Centers (FFRDC) and Systems Engineering and Technical Assistance contractors); design, development, and acquisition of a common SEWS architecture; design, development, and test of a Joint Data Exchange Center (JDEC) in Moscow, Russia; development of a multi-lingual, web-based infrastructure to provide Pre-Launch Notification System information; and site preparation for additional systems, as required. This program is in Budget Activity 7 - Operational System Development, because it supports work on currently operating systems and/or upgrades still in engineering development

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	4.027	3.254	3.354
(U) Current PBR/President's Budget	3.604	3.210	3.345
(U) Total Adjustments	-0.423	-0.044	
(U) Congressional Program Reductions	-0.002	-0.016	
Congressional Rescissions	-0.043	-0.028	
Congressional Increases			
Reprogrammings	-0.132		
SBIR/STTR Transfer	-0.246		
(U) <u>Significant Program Changes:</u>			

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0308699F Shared Early Warning System			PROJECT NUMBER AND TITLE 4838 Shared Early Warning System		
Cost (\$ in Millions)	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
4838 Shared Early Warning System	3.604	3.210	3.345	3.376	3.423	3.476	3.531	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The Shared Early Warning System (SEWS) resulted from Presidential foreign policy initiatives beginning in 1996. Arrangements are negotiated with individual countries on a bilateral basis to provide selected region-specific missile warning information. These efforts were initially handled on an ad hoc basis through the Office of the Secretary of Defense, the Joint Staff, and the National Reconnaissance Office (NRO). SEWS was established in December 1998 as a formal DoD program with the Air Force as the lead service. It is centrally managed to eliminate the previous ad hoc approach. Regional U.S. Theater Combatant Commanders and other policy makers strongly support these efforts based on political and operational benefits. SEWS is comprised of: program management by the System Program Office (including the use of Federally Funded Research & Development Centers (FFRDC) and Systems Engineering and Technical Assistance contractors); design, development, and acquisition of a common SEWS architecture; design, development, and test of a Joint Data Exchange Center (JDEC) in Moscow, Russia; development of a multi-lingual, web-based infrastructure to provide Pre-Launch Notification System information; and site preparation for additional systems, as required.

This program is in Budget Activity 7 - Operational System Development, because it supports work on currently operating systems and/or upgrades still in engineering development

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments/Planned Program	0.000	0.000	0.000
(U) Continue SEWS design, development, and test efforts to include but not be limited to: SEWS common architecture, SEWS initiatives as identified by theater commanders, a JDEC system planned to be installed in Moscow, and a Pre-Launch Notification System.	3.604	3.210	3.345
(U) Total Cost	3.604	3.210	3.345

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to Complete</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>		
(U) Other APPN									
(U) OPAF (PE 0308699F, Comm									
(U) Elect Mods, P-1 Line Item #75, BA 3)	1.673	0.192	0.286	1.518	0.285	0.292	0.298	Continuing	TBD

Note: Fiscal years 2003 and 2006 provide for major technological refreshes of the SEWS system.

(U) D. Acquisition Strategy

SEWS employs an incremental development acquisition strategy which enables rapid development and fielding of capability increments in response to validated

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0308699F Shared Early Warning System

PROJECT NUMBER AND TITLE

4838 Shared Early Warning System

requirements.

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY			PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
07 Operational System Development			0308699F Shared Early Warning System					4838 Shared Early Warning System				
<u>(U) Cost Categories</u>	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to</u>	<u>Total</u>	<u>Target</u>
(Tailor to WBS, or System/Item Requirements) (\$ in Millions)			<u>Prior to FY</u>	<u>2003</u>	<u>2003</u>	<u>2004</u>	<u>2004</u>	<u>2005</u>	<u>2005</u>	<u>Complete</u>	<u>Cost</u>	<u>Value of</u>
			<u>2003</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>			<u>Contract</u>
			<u>Cost</u>		<u>Date</u>		<u>Date</u>		<u>Date</u>			
<u>(U) Product Development</u>												
Lockheed Martin	SS/CPAF	Colorado Springs, CO	7.015	2.100	Oct-03	1.018	Oct-04	1.559	Oct-05	Continuing	TBD	TBD
SPAWAR	MIPR	San Diego, CA	0.631							0.000	0.631	
NRO	MIPR	Washington, DC	4.162							0.000	4.162	
Navy	MIPR	San Diego, CA	0.000	0.353	Apr-03	0.363	Apr-04	0.376	Apr-05	Continuing	TBD	TBD
DTRA	MIPR	Alexandria, VA	0.187			0.369	Jul-04			Continuing	TBD	TBD
Various Ctrs/Gov Agencies	MIPR/AF		2.844	0.054	Jan-03	0.120	Jan-04	0.021	Jan-05	Continuing	TBD	TBD
Subtotal Product Development			14.839	2.507		1.870		1.956		Continuing	TBD	TBD
Remarks:												
<u>(U) Support</u>												
MITRE	SS/CPFF	Colorado Springs, CO	2.021	0.242	Oct-02	0.500	Oct-03	0.518	Oct-04	Continuing	TBD	TBD
A&AS	C/R	Colorado Springs, CO	3.298	0.585	Oct-02	0.763	Oct-03	0.790	Oct-04	Continuing	TBD	TBD
PMA	N/A	Colorado Springs, CO	1.148	0.270	Jan-03	0.010	Oct-03	0.010	Oct-04	Continuing	TBD	TBD
Subtotal Support			6.467	1.097		1.273		1.318		Continuing	TBD	TBD
Remarks:												
<u>(U) Test & Evaluation</u>												
AFSPC 17th Test Squadron	AF	Shriever AFB, Colorado Springs, CO	0.328	0.000		0.067	Aug-04	0.071	Aug-05	Continuing	TBD	TBD
Subtotal Test & Evaluation			0.328	0.000		0.067		0.071		Continuing	TBD	TBD
Remarks:												
<u>(U) Total Cost</u>			21.634	3.604		3.210		3.345		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0308699F Shared Early Warning System

PROJECT NUMBER AND TITLE
4838 Shared Early Warning System

Exhibit R-4 SEWS

Fiscal Year	FY02				FY03				FY04				FY05				FY06				FY07				FY08				FY09			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Incremental development of common system architecture									▲		△		△		△		△		△		△		△		△		△		△		△	
<p>Schedule reflects planned software drops every six months, stemming from the spiral development schedule and used to keep Combatant Commanders' SEWS capabilities in step with those acquired by partner nations.</p>																																

- ☆ Major Event or Milestone
- ▬ Planned Ongoing Activity
- ▬ Ongoing Activity that is Complete
- ▲ Completed Event
- △ Planned Task(s)

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Exhibit R-4a, RDT&E Schedule Detail		DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0308699F Shared Early Warning System	PROJECT NUMBER AND TITLE 4838 Shared Early Warning System
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(U) <u>Schedule Profile</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Incremental development of common system architecture	1-3Q	1-3Q	1-3Q

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PE NUMBER: 0401115F
 PE TITLE: C-130 AIRLIFT SQUADRONS

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0401115F C-130 AIRLIFT SQUADRONS
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	Cost (\$ in Millions)	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
	Total Program Element (PE) Cost	130.254	104.486	150.242	179.074	141.943	108.574	41.530	38.127	961.890
4885	Avionics Modernization Program (AMP)	130.254	104.486	150.242	179.074	141.943	108.574	41.530	38.127	961.890

In FY 2003, Project 674726, Avionics Modernization Program (AMP), was changed to Project 674885 (same name) to correct an administrative error. This action did not change program content nor its funding.

(U) A. Mission Description and Budget Item Justification

The C-130 Avionics Modernization Program (AMP) consolidates and installs the mandated DOD Navigation/Safety mods, the Global Air Traffic Management (GATM) systems and the C-130 Broad Area Review requirements on the AF's 490 C/AC/EC/HC/LC/MC-130s that are not being replaced with new C/CC/EC/WC-130Js. These mandated mods are incorporated with various other Reliability, Maintainability, and Sustainability (RM&S) upgrades to include: ETCAS, TAWS, replacement of APN-59 & APQ-175 radars, N-1/C-12 compass, dual autopilots, dual flight management systems and HF/UHF/VHF datalink to constitute C-130 AMP. AMP will allow the AF's 490 C/AC/EC/HC/LC/MC-130s complete access to the GATM-controlled international air space. Also, AMP and USSOCOM's Common Architecture for Penetration (CAAP) have been combined to eliminate any duplication of effort in these avionics programs.

The USAF's C-130 fleet consists of 15 different mission design series (MDS) to be modified by the AMP. Within each of these MDSs are multiple variants (C-130H2, etc.) to be modified by AMP. These multiple different models and cockpit configurations create significant logistics support and aircrew training inefficiencies. Also, these differences greatly complicate aircrew and aircraft interoperability at forward operating locations. C-130 AMP standardizes the cockpit configurations and avionics for these different variants into a single cockpit configuration by installing a core avionics package, thus eliminating many of these significant logistics, interoperability and training problems. (Note: The new C/CC/EC/WC-130J aircraft are not included in this C-130 AMP program).

Shown here are RDT&E funds for C-130 AMP. SOCOM's AC/EC/MC-130s will have additional CAAP equipment installed along with AMP. This unique equipment is funded in MFP-11, and these funds are not shown here.

The Boeing Company was awarded the AMP contract on 30 July 01. Each C-130 variant or group of variants will require a specific kit development and test. Then, each will proceed through development and production serially. This waterfall approach will result in an orderly development and production sequencing for the 15 different C-130 MDSs.

Development activities continue to focus on two areas: AMP's architecture and kit development for the first Combat Delivery aircraft (C-130H2) and the first Special Mission aircraft (MC-130H), as well as software development of the SOF AMP and Common Avionics Architecture for Penetration (CAAP) capabilities.

A Restructure Engineering Change Proposal (ECP) 1302 was awarded to Boeing 20 Aug 03. The ECP rebaselines the program due to funding reductions in FYs 03/04 resulting in delays in System Development and Demonstration program for up to 2 years.

C-130 Avionics Modernization Program (AMP): This project is in Budget Activity 7, Operational Systems Development as it is a major avionics and cockpit configuration modernization to the AF's C/AC/EC/HC/LC/MC/-130 fleet of aircraft.

Exhibit R-2, RDT&E Budget Item Justification

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0401115F C-130 AIRLIFT SQUADRONS

Development to replace the Jet Assisted Take-Off Rocket Motors (JATO) bottles.

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	155.102	105.381	150.636
(U) Current PBR/President's Budget	130.254	104.486	150.242
(U) Total Adjustments	-24.848	-0.895	
(U) Congressional Program Reductions	-3.876	-0.895	
Congressional Rescissions			
Congressional Increases			
Reprogrammings	-19.985		
SBIR/STTR Transfer	-0.987		

(U) **Significant Program Changes:**

As a result of the AF decision to slip AMP production from FY05 to FY06, RDT&E funding needed to be realigned to the new profile. The \$19.985M in FY03 includes various BTRs to other AF programs reflecting the revised AMP plan.

Exhibit R-2a, RDT&E Project Justification

DATE

February 2004

BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0401115F C-130 AIRLIFT SQUADRONS			PROJECT NUMBER AND TITLE 4885 Avionics Modernization Program (AMP)		
Cost (\$ in Millions)	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
4885 Avionics Modernization Program (AMP)	130.254	104.486	150.242	179.074	141.943	108.574	41.530	38.127	961.890
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

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Exhibit R-2a, RDT&E Project Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0401115F C-130 AIRLIFT SQUADRONS	PROJECT NUMBER AND TITLE 4885 Avionics Modernization Program (AMP)
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(U) Accomplishments/Planned Program	95.224	79.856	116.762
(U) Ramp-up and design specification began in FY03, allowing software coding to proceed at full speed and developmental hardware acquisition to begin. Detailed design work will continue for both Group A and B equipment for the 13 follow-on C-130 MDSs. A Restructure ECP 1302 was awarded to Boeing 20 Aug 2003.			
(U) Engineering Change Orders (ECO), Govt Furnished Parts and Information (GFP/GFI) and Award Fee	7.030	7.430	14.990
(U) Developmental Test and Evaluation	10.160	9.700	9.740
(U) Training System development upgrades	5.370	1.500	1.800
(U) Program office support (TDY, training and supplies).	12.470	6.000	6.950
(U) Continue developmental hardware acquisition. Detailed design work will continue for both Group A and B equipment on the follow-on MDSs. Continue development of the training systems based on the results of the Training Systems Requirements Analysis (TSRA). Continue acquisition of the avionics hardware to support the software integration efforts associated with both the Core Operational Flight Program (OFP) and the Combat Talon OFP. Coding and unit testing for the software integration facility will continue.			
(U) Total Cost	130.254	104.486	150.242

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E									
(U) Other APPN									
PE 0401115F, Avionics									
(U) Modernization Program (AMP),				111.600	156.880	247.280	424.330	2,386.740	3,326.830
BP1100									

(U) D. Acquisition Strategy

The C-130 AMP contract was awarded 30 July 2001. The contract is a Cost-Plus Award Fee contract to develop and install AMP kits for the 490 aircraft within the AF's AC/C/EC/HC/LC/MC-130 fleet. Revisions to the AF training system is an option under the AMP contract, which will modify the various Training Programs and Weapons Systems Trainers to the AMP configuration.

A Restructure Engineering Change Proposal (ECP) 1302 was awarded to Boeing 20 Aug 2003. The ECP rebaselines the program due to funding reductions in the FYs 03/04 resulting in delays in System Development and Demonstration program for up to 2 years.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2004

BUDGET ACTIVITY		PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE				
07 Operational System Development		0401115F C-130 AIRLIFT SQUADRONS						4885 Avionics Modernization Program (AMP)				
(U) <u>Cost Categories</u>	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to</u>	<u>Total</u>	<u>Target</u>
(Tailor to WBS, or System/Item Requirements) (\$ in Millions)			<u>Prior to FY</u>	<u>2003</u>	<u>2003</u>	<u>2004</u>	<u>2004</u>	<u>2005</u>	<u>2005</u>	<u>Complete</u>	<u>Cost</u>	<u>Value of</u>
			<u>2003</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>			<u>Contract</u>
			<u>Cost</u>		<u>Date</u>		<u>Date</u>		<u>Date</u>			
(U) <u>Product Development</u>												
Boeing, Long Beach, CA	CPAF		38.977	107.624	Dec-02	88.786	Dec-03	133.552	Dec-04	469.041	837.980	
Subtotal Product Development			38.977	107.624		88.786		133.552		469.041	837.980	0.000
Remarks: Note: Funds shown here contain System Design & Development, ECO, Training System Upgrades and the Award Fee.												
(U) <u>Support</u>												
Program Support Office	N/A		18.340	12.470		6.000		6.950		26.370	70.130	
Subtotal Support			18.340	12.470		6.000		6.950		26.370	70.130	0.000
Remarks: Award Dates vary throughout the year depending on activity (TDY, Training, Contractor Support)												
(U) <u>Test & Evaluation</u>												
Various			6.010	10.160	Jan-03	9.700	Jan-04	9.740	Jan-05	18.170	53.780	
Subtotal Test & Evaluation			6.010	10.160		9.700		9.740		18.170	53.780	0.000
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			63.327	130.254		104.486		150.242		513.581	961.890	0.000

Exhibit R-4, RDT&E Schedule Profile

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February 2004

BUDGET ACTIVITY
07 Operational System Development

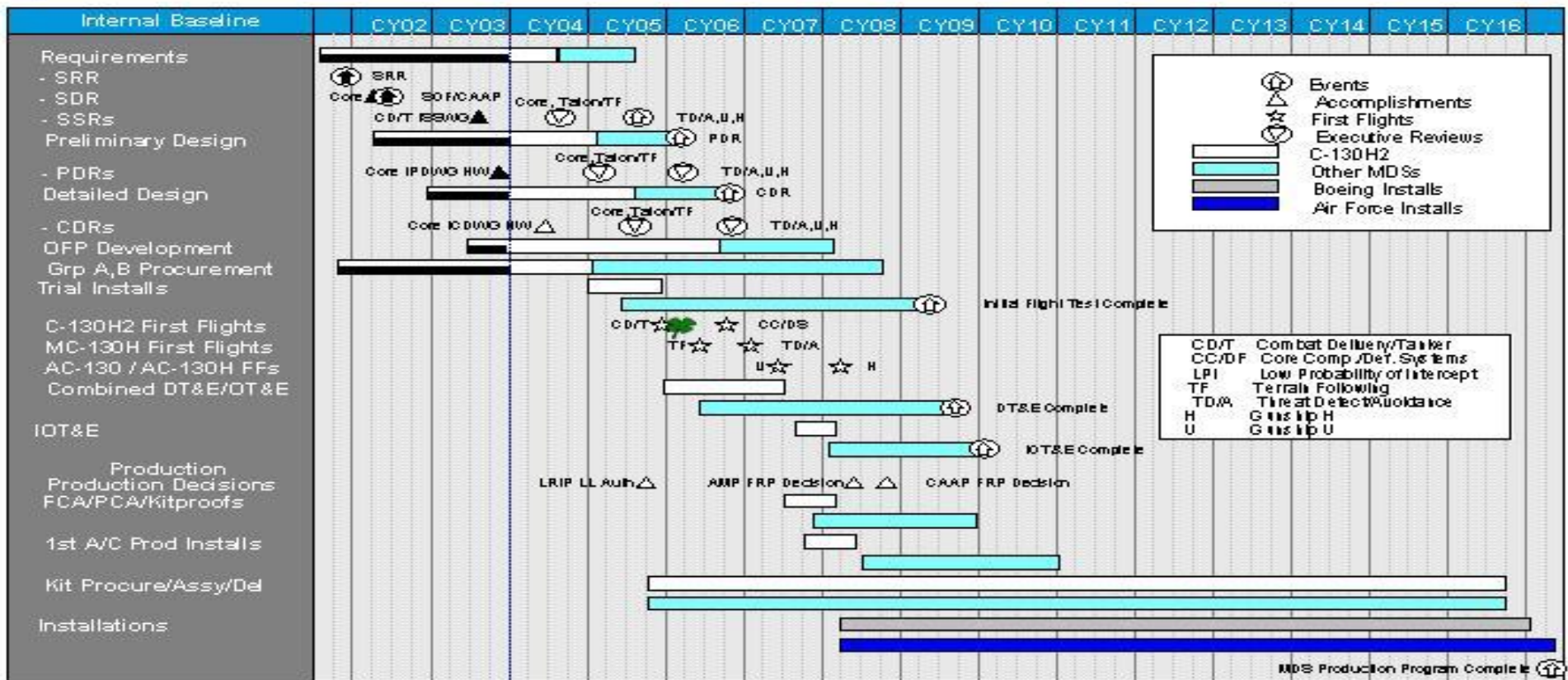
PE NUMBER AND TITLE
0401115F C-130 AIRLIFT
SQUADRONS

PROJECT NUMBER AND TITLE
4885 Avionics Modernization
Program (AMP)



U.S. AIR FORCE

C-130 Avionics Modernization Program Master Schedule



Events

- ⊕ Accomplishments
- ★ First Flights
- ⊕ Executive Reviews

Installs

- █ C-130H2
- █ Other MD Ss
- █ Boeing Installs
- █ Air Force Installs

CD/T Combat Delivery/Tanker
CC/DF Core Comp/Def Systems
LPI Low Probability of Intercept
TF Terrain Following
TD/A Threat Detect/Avoidance
H Gas Trip H
U Gas Trip U

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0401115F C-130 AIRLIFT SQUADRONS	PROJECT NUMBER AND TITLE 4885 Avionics Modernization Program (AMP)
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	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <u>Schedule Profile</u>			
(U) Core Preliminary Design Review (PDR)		1Q	
(U) C-130 SOF/AMP PDR		2Q	
(U) AMP Hardware Concept Design Review (CDR)			4Q
(U) AMP Software CDR			4Q

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Exhibit R-2, RDT&E Budget Item Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0401119F C-5 Airlift Squadrons
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Cost (\$ in Millions)	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
Total Program Element (PE) Cost	273.750	346.541	332.982	317.664	208.106	66.652	16.585	0.000	1,909.734
4495 Avionics Modernization Program	80.700	65.502	10.927	0.000	0.000	0.000	0.000	0.000	360.763
4835 Reliability Enhancement & Reengining Program	193.050	281.039	322.055	317.664	208.106	66.652	16.585	0.000	1,548.971

The OSD payback to the AF FY05 PBD resulted in 3600 funds being added to C-5 RERP through FY09. This action causes a conflict with the RERP schedule provided as an Exhibit to the FY05 PBR. Funding should have been on the 3010 line in APAF. Overall schedule for RERP has to be restructured, which will occur in the FY06 POM cycle.

(U) A. Mission Description and Budget Item Justification

674495: Avionics Modernization Program (AMP): Phase I of an Air Force planned two-phase modernization effort for the C-5. It implements Global Air Traffic Management (GATM) and navigation/safety capability and the All Weather Flight Control System (AWFCS). It installs Deputy Secretary of Defense (DepSecDef) directed navigation/safety equipment: Terrain Awareness and Warning System (TAWS) and Traffic Alert and Collision Avoidance System (TCAS), reducing the threat of controlled flight into terrain and mid-air collisions. GATM capability, which encompasses communications, navigation, and surveillance requirements will be incorporated into the aircraft to meet current and future International Civil Aviation Organization (ICAO)/Federal Aviation Administration (FAA) requirements and to progress towards free flight capability. The AWFCS portion of AMP replaces low reliability Line Replaceable Units (LRUs) in the automatic flight control system and replaces aging, non-supportable mechanical instruments in the engine and flight systems. Connectivity to mobility command and control capabilities will also be incorporated in the AMP design. The TCAS portion was accelerated ahead of the rest of the AMP mod and was completed 31 Oct 02. Two AMP RDT&E test articles were funded in FY99 for installation and flight test in FY02/03/04/05. AMP's first flight occurred in Dec 02. Currently, two of four software blocks have been developed and are undergoing flight test. This project is comprised of low technical risk efforts supporting fielded weapons systems and, therefore, was assigned to Budget Activity 7, Operational Systems Development.

674835: Reliability Enhancement and Re-engining Program (RERP): Phase II of an Air Force planned two-phase modernization effort for the C-5. It improves aircraft reliability, maintainability and availability. RERP will enable the C-5 to achieve wartime mission requirements by increasing fleet availability (mission capable rate, departure reliability) while reducing total ownership costs (TOC). This effort centers around replacing TF-39 engines with a more reliable, commercially Off-the-Shelf (COTS) turbofan engine with increased takeoff thrust and stage three noise compliance. These new engines (along with new pylons, wing attach fittings and upgrades, and thrust reversers) increase payload capability and access to Global Air Traffic Management (GATM) airspace. The modification also decreases aircraft time to climb, increases engine-out climb gradient for takeoff, improves transportation system throughput, and decreases engine removals. Additionally, numerous other system modifications will be performed (e.g., auxiliary power units, electrics, hydraulics, fuel system, fire suppression system, pressurization/air conditioning system, landing gear, and airframe) to increase fleet availability and reduce total ownership costs. Three RDT&E test articles were funded in FY04 for installation and flight test in FY05/06/07. RERP's Preliminary Design Review (PDR) completed in Jan 03 and the Air-vehicle Critical Design Review (CDR) is scheduled to complete in Feb 04. This project is comprised of low technical risk efforts supporting fielded weapons systems and, therefore, was assigned to Budget Activity 7, Operational Systems Development.

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2004

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0401119F C-5 Airlift Squadrons

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	284.730	356.570	455.232
(U) Current PBR/President's Budget	273.750	346.541	332.982
(U) Total Adjustments	-10.980	-10.029	
(U) Congressional Program Reductions		0.000	
Congressional Rescissions		-3.029	
Congressional Increases			
Reprogrammings	-2.855	-7.000	
SBIR/STTR Transfer	-8.125		

(U) **Significant Program Changes:**

FY04 PB:

The C-5 RDT&E funding requirement was reduced by \$10.0M. This was a result of Congressional rescissions (-\$3.0M) and reprogramming action (-\$7.0M) to satisfy National Defense Authorization Act requirements.

FY05 PBR:

The C-5 RDT&E funding requirement has been reduced by \$122.2M since the FY04 PBR submittal. Funding for the reliability enhancement and re-engining program (RERP) was reduced by \$132.2M and funding for the avionics modernization program (AMP) was increased by \$10.0M. Reprogramming actions from C-5 RERP RDT&E (-\$30.6M) were made to AMP RDT&E (\$10.0M) and AMP APAF (\$20.6M) to keep the program on schedule. An additional reduction in RERP RDT&E (-\$93.3M) was made to fund higher priority Air Force efforts. Additional reductions were taken for other reprogramming actions (-\$7.2M) and inflation savings (-\$1.1M).

Exhibit R-2a, RDT&E Project Justification

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February 2004

BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0401119F C-5 Airlift Squadrons			PROJECT NUMBER AND TITLE 4495 Avionics Modernization Program		
Cost (\$ in Millions)	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
4495 Avionics Modernization Program	80.700	65.502	10.927	0.000	0.000	0.000	0.000	0.000	360.763
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

674495: Avionics Modernization Program (AMP): Phase I of an Air Force planned two-phase modernization effort for the C-5. It implements Global Air Traffic Management (GATM) and navigation/safety capability and the All Weather Flight Control System (AWFCS). It installs Deputy Secretary of Defense (DepSecDef) directed navigation/safety equipment: Terrain Awareness and Warning System (TAWS) and Traffic Alert and Collision Avoidance System (TCAS), reducing the threat of controlled flight into terrain and mid-air collisions. GATM capability, which encompasses communications, navigation, and surveillance requirements will be incorporated into the aircraft to meet current and future International Civil Aviation Organization (ICAO)/Federal Aviation Administration (FAA) requirements and to progress towards free flight capability. The AWFCS portion of AMP replaces low reliability Line Replaceable Units (LRUs) in the automatic flight control system and replaces aging, non-supportable mechanical instruments in the engine and flight systems. Connectivity to mobility command and control capabilities will also be incorporated in the AMP design. The TCAS portion was accelerated ahead of the rest of the AMP mod and was completed 31 Oct 02. Two AMP RDT&E test articles were funded in FY99 for installation and flight test in FY02/03/04/05. AMP's first flight occurred in Dec 02. Currently, two of four software blocks have been developed and are undergoing flight test. This project is comprised of low technical risk efforts supporting fielded weapons systems and, therefore, was assigned to Budget Activity 7, Operational Systems Development.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) System Engineering/Program Management	9.743	13.177	1.602
(U) AMP Kit Design/Development/Contractor Test	60.530	40.305	6.673
(U) Prototype Fabrication/Install	3.012	2.825	1.337
(U) Mission Support	3.603	3.650	1.000
(U) Government Flight Test Cost	3.812	5.545	0.315
(U) Total Cost	80.700	65.502	10.927

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E									
(U) Other APPN									
(U) BA-5, C-5 Mods, Avionics Aircraft Procurement, AF, Modernization Program, BP-11	58.347	76.894	89.721	93.845				186.900	508.986

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0401119F C-5 Airlift Squadrons	PROJECT NUMBER AND TITLE 4495 Avionics Modernization Program
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(U) C. Other Program Funding Summary (\$ in Millions)

Aircraft Procurement, AF,							
(U) BA-5, C-5 Mods, Avionics Modernization Program, BP-16	11.522	14.369			24.300	50.191	
(U) Aircraft Procurement, AF, BA-5, C-5 Mods, Reliability Enhancement and Re-engining Program, BP-11			235.406	596.149	817.142	7,216.303	8,865.001

(U) D. Acquisition Strategy

Avionics Modernization Program: Program acquisition strategy establishes a single integrating contractor (Lockheed Martin Aero) to modify and qualify integrated Commercial Off-the-Shelf (COTS) line replaceable units (LRUs) and software to meet C-5 performance and Global Air Traffic Management (GATM) requirements, update existing C-5 engineering and technical data, develop interface control specifications based on performance requirements, prototype the new system, and support ground and flight testing. AMP contract awarded to the Lockheed Martin Aero/Honeywell team on 22 January 1999. \$9.7M in FY99 procurement was added in the FY00 PB to accelerate Traffic Alert and Collision Avoidance System (TCAS) installations ahead of the rest of AMP. The AMP modification is planned for the entire C-5 fleet.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

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BUDGET ACTIVITY		PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE				
07 Operational System Development		0401119F C-5 Airlift Squadrons						4495 Avionics Modernization Program				
(U) <u>Cost Categories</u>	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to</u>	<u>Total</u>	<u>Target</u>
(Tailor to WBS, or System/Item Requirements) (\$ in Millions)			<u>Prior to FY</u>	<u>2003</u>	<u>2003</u>	<u>2004</u>	<u>2004</u>	<u>2005</u>	<u>2005</u>	<u>Complete</u>	<u>Cost</u>	<u>Value of</u>
			<u>2003</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>			<u>Contract</u>
			<u>Cost</u>		<u>Date</u>		<u>Date</u>		<u>Date</u>			
(U) <u>Product Development</u>												
Lockheed Martin Aero	CPAF		183.652	73.285	Oct-02	56.307	Oct-03	9.612	Oct-04	0.000	322.856	323.856
N/A											0.000	
Subtotal Product Development			183.652	73.285		56.307		9.612		0.000	322.856	323.856
Remarks:												
(U) <u>Support</u>												
WR-ALC/LT			4.900	0.925		1.517					7.342	7.342
ASC/GRA			8.555	2.678		2.133		1.000			14.366	13.366
N/A											0.000	
Subtotal Support			13.455	3.603		3.650		1.000		0.000	21.708	20.708
Remarks:												
(U) <u>Test & Evaluation</u>												
418 Test Squadron (Edwards AFB)			6.527	3.812		5.545		0.315			16.199	16.199
N/A											0.000	
Subtotal Test & Evaluation			6.527	3.812		5.545		0.315		0.000	16.199	16.199
Remarks:												
(U) <u>Management</u>											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			203.634	80.700		65.502		10.927		0.000	360.763	360.763

Exhibit R-4, RDT&E Schedule Profile

DATE

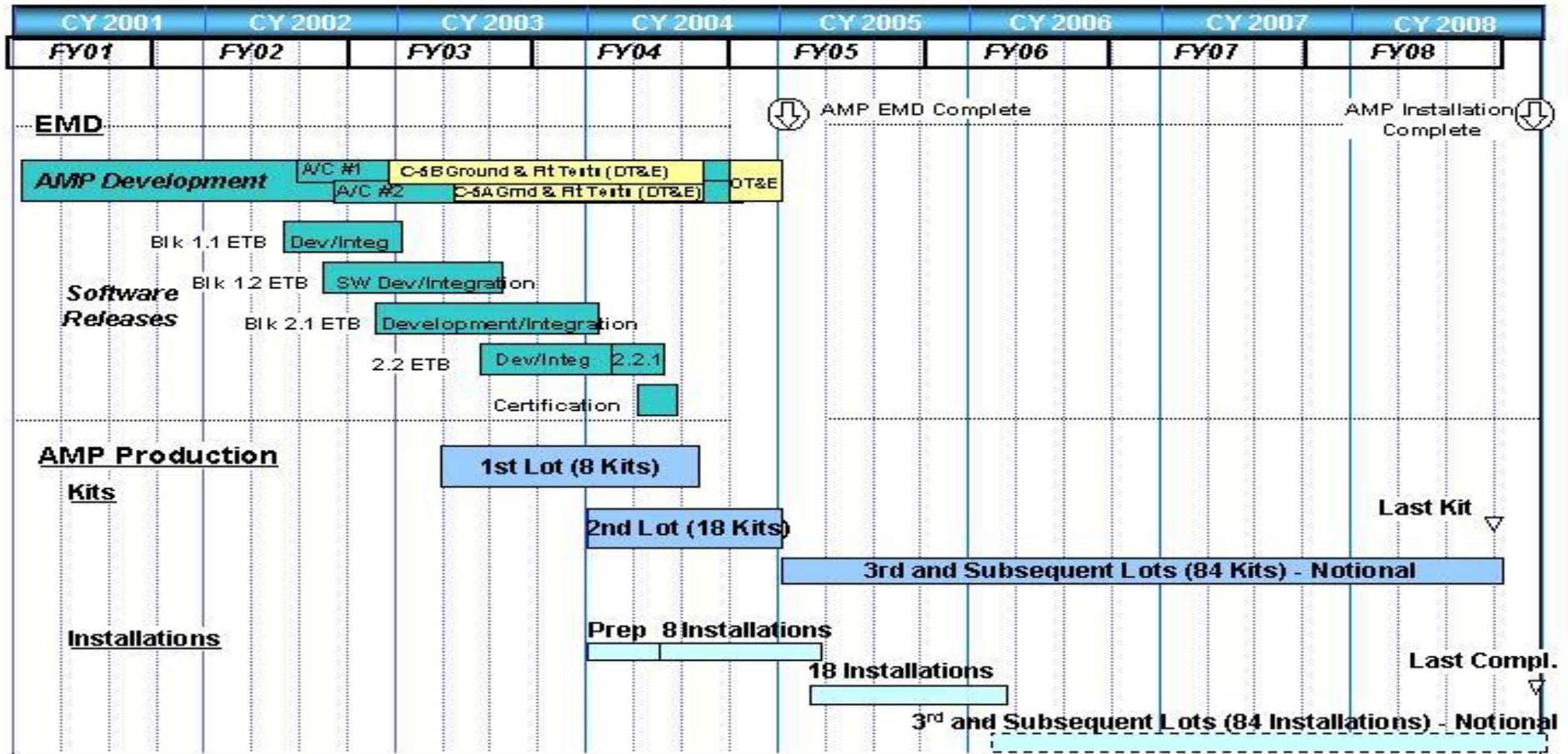
February 2004

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0401119F C-5 Airlift Squadrons

PROJECT NUMBER AND TITLE
4495 Avionics Modernization Program

C-5 AMP SCHEDULE



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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0401119F C-5 Airlift Squadrons	PROJECT NUMBER AND TITLE 4495 Avionics Modernization Program
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	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <u>Schedule Profile</u>			
(U) Acquisition Strategy Panel (FY97/4)			
(U) Contract Award (FY99/1)			
(U) Preliminary Design Review (PDR) (FY00/3)			
(U) Critical Design Review (CDR) (FY01/3)			
(U) TCAS Kit Installations Start (FY00/2)			
(U) TCAS Kit Installations End (FY03/1)	1Q		
(U) AMP Prototype Installation Start (FY02/3)			
(U) First Flight/Developmental Test Start (FY03/1)	1Q		
(U) Production Installation Start (FY04/3)		3Q	
(U) AMP EMD Complete (FY05/2)			2Q
Prod Installation Complete (FY07/2)			

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0401119F C-5 Airlift Squadrons			PROJECT NUMBER AND TITLE 4835 Reliability Enhancement & Reengining Program			
Cost (\$ in Millions)	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	
4835 Reliability Enhancement & Reengining Program	193.050	281.039	322.055	317.664	208.106	66.652	16.585	0.000	1,548.971	
Quantity of RDT&E Articles	0	3	0	0	0	0	0			

(U) A. Mission Description and Budget Item Justification

674835: Reliability Enhancement and Re-engining Program (RERP): Phase II of an Air Force planned two-phase modernization effort for the C-5. It improves aircraft reliability, maintainability and availability. RERP will enable the C-5 to achieve wartime mission requirements by increasing fleet availability (mission capable rate, departure reliability) while reducing total ownership costs (TOC). This effort centers around replacing TF-39 engines with a more reliable, commercially Off-the-Shelf (COTS) turbofan engine with increased takeoff thrust and stage three noise compliance. These new engines (along with new pylons, wing attach fittings and upgrades, and thrust reversers) increase payload capability and access to Global Air Traffic Management (GATM) airspace. This modification also decreases aircraft time to climb, increases engine-out climb gradient for takeoff, improves transportation system throughput, and decreases engine removals. Additionally, numerous other system modifications will be performed (e.g., auxiliary power units, electrics, hydraulics, fuel system, fire suppression system, pressurization/air conditioning system, landing gear, and airframe) to increase fleet availability and reduce total ownership costs. Three RDT&E test articles were funded in FY04 for installation and flight test in FY05/06/07. RERP's Preliminary Design Review (PDR) completed in Jan 03 and the Air-vehicle Critical Design Review (CDR) is scheduled to complete in Feb 04. This project is comprised of low technical risk efforts supporting fielded weapons systems and, therefore, was assigned to Budget Activity 7, Operational Systems Development.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Systems Engineering/Program Management	12.872	24.279	21.551
(U) RERP Design/Development	126.877	140.279	169.331
(U) Prototype Fabrication/Install	44.130	105.210	116.993
(U) Mission Support	5.596	5.171	5.680
(U) Government Test Support	3.575	6.100	8.500
(U)			
(U) Total Cost	193.050	281.039	322.055

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E									
(U) Other APPN									
(U) Aircraft Procurement, AF, BA-5, C-5 Mods, Reliability					235.406	596.149	817.142	7,216.303	8,865.001

Exhibit R-2a, RDT&E Project Justification

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February 2004

BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0401119F C-5 Airlift Squadrons	PROJECT NUMBER AND TITLE 4835 Reliability Enhancement & Reengining Program
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(U) C. Other Program Funding Summary (\$ in Millions)

Enhancement and Re-engining Program, BP-11

Aircraft Procurement, AF,

(U) BA-5, C-5 Mods, Avionics Modernization Program, BP-11 Aircraft Procurement, AF,	58.347	76.894	89.721	93.845	186.900	508.986
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(U) BA-5, C-5 Mods, Avionics Modernization Program, BP-16	11.522	14.369	24.300	50.191
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(U) D. Acquisition Strategy

Reliability Enhancement and Re-engining Program (RERP): The approved FY02 acquisition strategy called for the modification of the entire C-5 aircraft fleet starting with the 50 B-models first. System Development & Demonstration (SDD) includes 1 C-5A and 2 C-5Bs. The program acquisition strategy is to consider every opportunity to use commercially available components and processes to modernize C-5 products and processes to meet or exceed required system performance and support, so as to renew the weapon system until 2040. The program acquisition strategy also seeks to construct a government/industry partnership to identify solutions, assign responsibility, and execute to achieve AMC requirements. Fleet availability, ownership cost, and system performance will be used to balance solutions against program cost. Lockheed Martin Aero has been selected as the prime contractor through a sole source arrangement. Lockheed has selected General Electric (Powerplant) and Goodrich (Pylon) as the major subcontractors.

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0401119F C-5 Airlift Squadrons	PROJECT NUMBER AND TITLE 4835 Reliability Enhancement & Reengining Program
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(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u> Prior to FY 2003 Cost	<u>FY</u> 2003 Cost	<u>FY</u> 2003 Award Date	<u>FY</u> 2004 Cost	<u>FY</u> 2004 Award Date	<u>FY</u> 2005 Cost	<u>FY</u> 2005 Award Date	<u>Cost to Complete</u>	<u>Total</u> Cost	<u>Target</u> Value of Contract
(U) <u>Product Development</u>												
Lockheed Martin Aero (Pre-EMD)	FFP		46.738							0.000	46.738	46.738
Lockheed Martin Aero (SDD)	CPAF		79.802	183.879	Oct-02	269.768	Oct-03	307.875	Oct-04	577.817	1,419.141	1,419.142
											0.000	
Subtotal Product Development			126.540	183.879		269.768		307.875		577.817	1,465.879	1,465.880
Remarks:												
(U) <u>Support</u>												
WR-ALC/LT			5.121	2.238		2.068		2.272		6.916	18.615	18.615
ASC/GRA			7.682	3.358		3.103		3.408		10.374	27.925	27.925
N/A											0.000	
Subtotal Support			12.803	5.596		5.171		5.680		17.290	46.540	46.540
Remarks:												
(U) <u>Test & Evaluation</u>												
418 Test Squadron (Edwards AFB)			4.477	3.575		6.100		8.500		13.900	36.552	36.552
N/A											0.000	
Subtotal Test & Evaluation			4.477	3.575		6.100		8.500		13.900	36.552	36.552
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			143.820	193.050		281.039		322.055		609.007	1,548.971	1,548.972

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0401119F C-5 Airlift Squadrons

PROJECT NUMBER AND TITLE
4835 Reliability Enhancement & Reengining Program

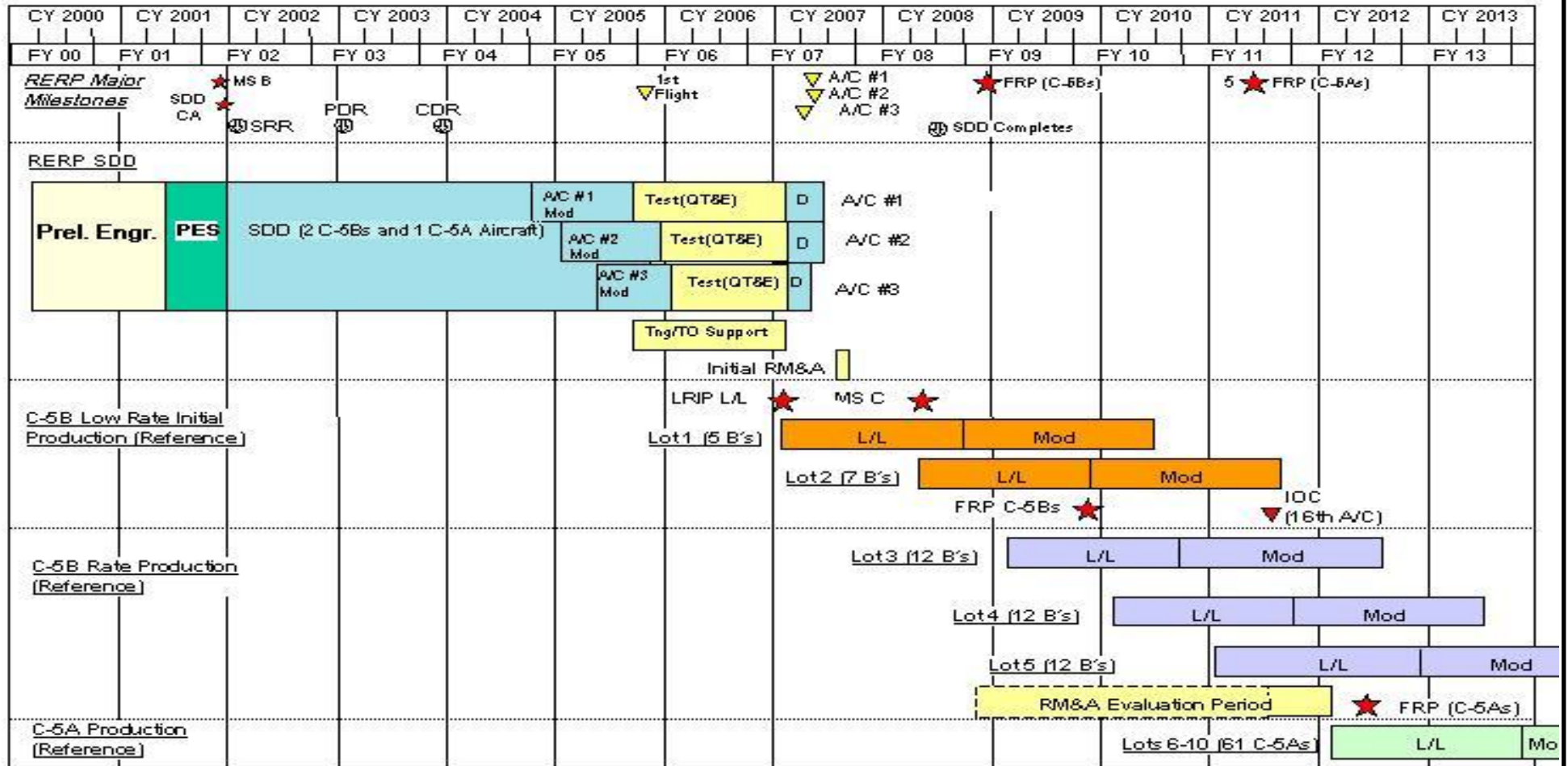


Exhibit R-4a, RDT&E Schedule Detail	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0401119F C-5 Airlift Squadrons	PROJECT NUMBER AND TITLE 4835 Reliability Enhancement & Reengining Program
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	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <u>Schedule Profile</u>			
(U) Acquisition Strategy Panel (ASP) (FY00/1)			
(U) Pre-EMD Contract Award (FY00/2)			
(U) Milestone B/DAB (FY02/1)			
(U) SDD Contract Award (FY02/1)			
(U) SDD Start (FY02/1)			
(U) Preliminary Design Review (PDR)(FY03/2)	2Q		
(U) Critical Design Review (CDR)(FY04/1)		1Q	
(U) First Prototype Flight (FY06/1)			
(U) MS C (FY07/2)			
(U) LRIP Installations Begin (FY08/1)			
(U) SDD Complete (FY08/4)			

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PE NUMBER: 0401130F
 PE TITLE: C-17 Aircraft

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0401130F C-17 Aircraft
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Cost (\$ in Millions)	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
Total Program Element (PE) Cost	155.805	183.913	199.692	141.141	166.101	119.989	154.049	0.000	7,139.869
2569 C-17 Aircraft	155.805	183.913	199.692	141.141	166.101	119.989	154.049	0.000	7,094.986
4886 Large Aircraft Infrared Counter Measures (LAIRCM)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	44.883

FY02 and later funds for LAIRCM were ZBTed to PE 41134F.

(U) A. Mission Description and Budget Item Justification

The C-17 can perform the entire spectrum of airlift missions and is specifically designed to operate effectively and efficiently in both strategic and theater environments. Airlift provides essential flexibility when responding to contingencies on short notice anywhere in the world. It is a major element of America's national security strategy and constitutes the most responsive means of meeting U.S. mobility requirements. Specific tasks associated with the airlift mission include deployment, employment (airland and airdrop), sustaining support, retrograde, and combat redeployment. The C-17 provides a vast increase in overall airlift capability necessary to replace and exceed the capabilities lost from retiring the aging C-141 fleet from the Air Force inventory. Not only can the C-17 deliver outsize cargo to austere tactical environments, but it also reduces ground time during airland operations. The C-17 will perform the airlift mission well into this century. RDT&E efforts support producibility enhancements and performance improvements.

This program is budget activity 7, Operational System Development, because the program has completed Milestone III and is continuing producibility and performance improvements to support full-rate production and increase the operational capability of the C-17 through programmed modifications.

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	153.797	184.089	200.215
(U) Current PBR/President's Budget	155.805	183.913	199.692
(U) Total Adjustments	2.008	-0.176	
(U) Congressional Program Reductions			
Congressional Rescissions		-1.576	
Congressional Increases		1.400	
Reprogrammings	2.008		
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			
None			

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0401130F C-17 Aircraft			PROJECT NUMBER AND TITLE 2569 C-17 Aircraft			
Cost (\$ in Millions)	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	
2569 C-17 Aircraft	155.805	183.913	199.692	141.141	166.101	119.989	154.049	0.000	7,094.986	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

(U) A. Mission Description and Budget Item Justification

The C-17 can perform the entire spectrum of airlift missions and is specifically designed to operate effectively and efficiently in both strategic and theater environments. Airlift provides essential flexibility when responding to contingencies on short notice anywhere in the world. It is a major element of America's national security strategy and constitutes the most responsive means of meeting U.S. mobility requirements. Specific tasks associated with the airlift mission include deployment, employment (airland and airdrop), sustaining support, retrograde, and combat redeployment. The C-17 provides a vast increase in overall airlift capability necessary to replace and exceed the capabilities lost from retiring the aging C-141 fleet from the Air Force inventory. Not only can the C-17 deliver outsize cargo to austere tactical environments, but it also reduces ground time during airland operations. The C-17 will perform the airlift mission well into this century. RDT&E efforts support producibility enhancements and performance improvements.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Performance Improvement Development & Testing	89.869	110.141	130.882
(U) Systems Engineering/Program Management	38.871	44.212	34.700
(U) Producibility Enhancement/Performance Improvement (PE/PI) Contractor Flight Test	16.715	19.560	21.110
(U) Producibility Enhancement/Performance Improvement (PE/PI) Government Flight Test	10.350	10.000	13.000
(U) Total Cost	155.805	183.913	199.692

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) APAF, MYP, BA02, PE0401130F	3140.601	2089.574	2512.479	2584.833	2250.517	197.103	54.835	0.000	12,829.942
(U) APAF, ICS, PE0401130F	536.347	906.743	945.560	779.440	777.944	729.190	823.846	0.000	5,499.070
(U) APAF, A/C Mods, BA05, PE0401130F	90.744	48.737	89.144	314.235	369.068	564.703	695.782	0.000	2,172.413
(U) MilCon, Facilities, PE0401130F	73.133	70.047	64.800	92.400	148.800	7.400	1.400	0.000	457.980

(U) D. Acquisition Strategy

The C-17 Acquisition Strategy is based on five separate contracts to support the entire scope of the C-17 weapon system. These five contracts are: 1) a multi-year procurement (MYP) aircraft contract (to economically purchase the full complement of production aircraft) - (APAF); 2) a Producibility Enhancement and Performance Improvement (PE/PI) contract (to develop cost reduction changes, capability enhancements, and design fixes to service-revealed problems) - (RDT&E, APAF); 3) a Flexible Sustainment (field support) contract (to support the current and future fielded aircraft) - (APAF); 4) a MYP engine contract (for Government Furnished Equipment

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0401130F C-17 Aircraft

PROJECT NUMBER AND TITLE

2569 C-17 Aircraft

[GFE] engines) - (APAF); and 5) a set of simulator and training contracts: two aircrew training systems (ATS) contracts (one for aircrew simulators and one for training & concurrency upgrades), and a maintenance training device contract (for devices & concurrency upgrades) - (APAF).

The congressionally mandated Mobility Requirements Study (MRS), initially forwarded to Congress on 23 Jan 92 and updated in 1995 and again in 2001, validated the need for the C-17 aircraft. Two C-17 Defense Acquisition Board (DAB) decisions, contained in the 3 Nov 95 and 1 Feb 96 USD(A&T) Acquisition Decision Memoranda (ADM), directed the Air Force to proceed with a 120-aircraft production program and pursue a multi-year procurement for the last 80 aircraft. The FY96 Supplemental Appropriations Act and FY97 Defense Appropriations Act approved a 7-year MYP program. The Air Force is proceeding with an 80-aircraft MYP program (along with engines to support them) to complete a 120-aircraft total purchase at the maximum affordable rate (FY97-03 Quantity: 8-9-13-15-12-15-15), beginning with the economic order quantity (EOQ) funding in FY96. Sixty additional C-17s have been programmed at the end of the 80-aircraft MYP to replace Air Mobility Command's (AMC's) C-141 aircraft and meet requirements not included in the 120 aircraft program. The adjusted program is (FY03-07 Quantity): 15-11-14-15-13.

During FY05 the Air Force will continue evaluation of commercial C-17 Civil Reserve Air Fleet (CRAF) applications and feasibility. The Air Force will also continue evaluating the design changes required for an FAA-certifiable version of the C-17.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2004

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
07 Operational System Development				0401130F C-17 Aircraft				2569 C-17 Aircraft				
(U) <u>Cost Categories</u>	<u>Contract Method</u>	<u>Performing Activity &</u>	<u>Total</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to</u>	<u>Total</u>	<u>Target</u>
(Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>& Type</u>	<u>Location</u>	<u>Prior to FY</u>	<u>2003</u>	<u>2003</u>	<u>2004</u>	<u>2004</u>	<u>2005</u>	<u>2005</u>	<u>Complete</u>	<u>Cost</u>	<u>Value of</u>
			<u>2003</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>			<u>Contract</u>
			<u>Cost</u>		<u>Date</u>		<u>Date</u>		<u>Date</u>			
(U) <u>Product Development</u>												
Boeing	C,FPI/FP		5,341.904							0.000	5,341.904	
Boeing	C,CPFF		579.746	145.275	Jan-03	171.074	Jan-04	186.543	Jan-05	515.773	1,598.411	
Pratt & Whitney	C,FP		25.346							0.000	25.346	
Boeing	C,FPI		83.885							0.000	83.885	
Pratt & Whitney	FP+EPA		7.506							0.000	7.506	
None											0.000	
Subtotal Product Development			6,038.387	145.275		171.074		186.543		515.773	7,057.052	0.000
Remarks:												
(U) <u>Support</u>												
Mission Support OGC	PO		97.615							0.000	97.615	
Site Activation OGC	PO		1.539							0.000	1.539	
Miscellaneous			22.400							0.000	22.400	
None											0.000	
Subtotal Support			121.554	0.000		0.000		0.000		0.000	121.554	0.000
Remarks:												
(U) <u>Test & Evaluation</u>												
Combined Test Force	PO		268.745	10.400	Jan-03	12.700	Jan-04	13.000	Jan-05	64.700	369.545	
Wright Labs/Arnold Eng Dev Center	PO		10.379	0.130	Jan-03	0.139	Jan-04	0.149	Jan-05	0.807	11.604	
Other	PO		3.030							0.000	3.030	
None											0.000	
Subtotal Test & Evaluation			282.154	10.530		12.839		13.149		65.507	384.179	0.000
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2004

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0401130F C-17 Aircraft

PROJECT NUMBER AND TITLE

2569 C-17 Aircraft

(U) Total Cost

6,442.095	155.805	183.913	199.692	581.280	7,562.7	0.000
					85	

Exhibit R-4, RDT&E Schedule Profile

DATE

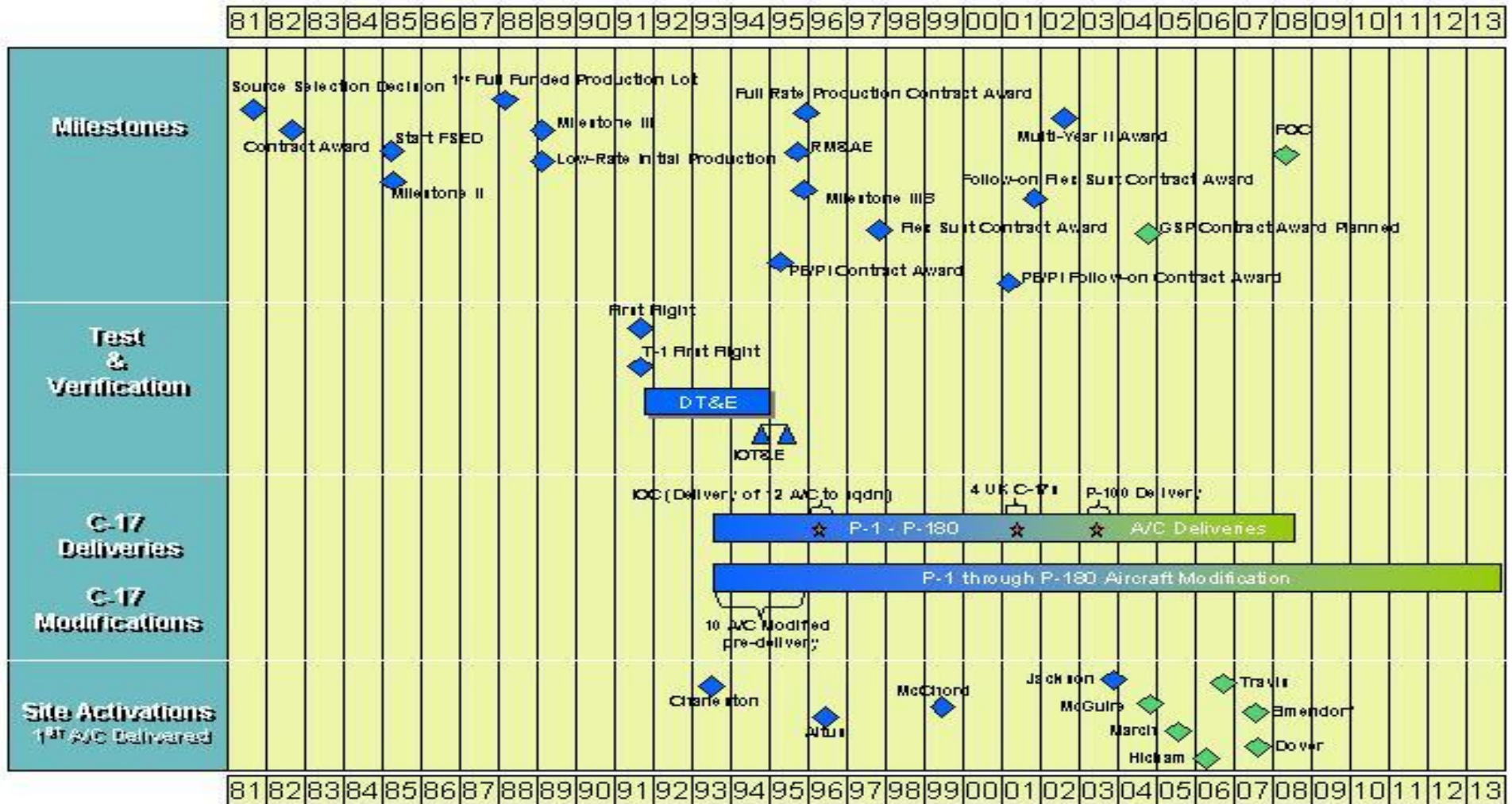
February 2004

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0401130F C-17 Aircraft

PROJECT NUMBER AND TITLE
2569 C-17 Aircraft

C-17 Schedule



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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0401130F C-17 Aircraft	PROJECT NUMBER AND TITLE 2569 C-17 Aircraft
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	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <u>Schedule Profile</u>			
(U) Incremental Funding of Ongoing Performance Improvement Projects	1-3Q	1-3Q	1-3Q
(U) T1 Integrated Drive Generator	3Q		
(U) Liquid Oxygen Bottle Crew Armor (12.7 mm)		1Q	
(U) Night Vision Goggle Lighting	2Q		
(U) Commercial Application Initiative	3Q		
(U) Army Secure Communication Requirements (SECOMP-1)		1-2Q	
(U) Precision Air Drop System (PADS) Demo	4Q		
(U) GATM/SAASM RNP Improvements		2-3Q	
(U) Formation Flying		2Q	
(U) Mission Computer /Core Integrated Processor		3Q	
(U) Flight Test Data Archive		2Q	
(U) Software Product Improvement Change Request (PICR)		2-4Q	

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PE NUMBER: 0401132F
 PE TITLE: C-130J PROGRAM

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0401132F C-130J PROGRAM
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Cost (\$ in Millions)	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
Total Program Element (PE) Cost	1.890	13.436	36.305	13.545	56.506	27.420	71.221	0.000	217.755
5061 C-130J	1.890	13.436	36.305	13.545	56.506	27.420	71.221	0.000	217.755

(U) A. Mission Description and Budget Item Justification

C-130J program RDT&E funding provides for:

- 1) Participation in the international Co-operative Systems and Software Upgrade Requirements Management (COSSURM). COSSURM participants include the United Kingdom, Australia, Italy, Denmark, and the United States. COSSURM provides a mechanism to jointly identify, collect, define, analyze and price requirements. By combining requirements and resources under COSSURM, each participating country will save in aircraft upgrade costs.

- 2) The development, integration, and testing of International Civil Aviation Organization (ICAO), Federal Aviation Administration (FAA), and DOD-mandated Global Air Traffic Management (GATM) and navigation safety (nav safety) capabilities for the C-130J weapon system.

- 3) The development, integration, and testing of aircraft modifications necessary to correct deficiencies identified in qualification and operational testing of this platform.

- 4) The development, integration, and testing of C-130J enhancements identified by Air Mobility Command (AMC), which is the USAF lead operating command for the C-130J weapon system.

The C-130J is a medium-size transport aircraft capable of performing a variety of combat delivery (tactical airlift) operations across a broad range of mission environments. The C-130J-30 aircraft, with its extended (by 15 ft) fuselage, provides additional cargo carrying capacity for the USAF combat delivery mission. Special mission variants of the C-130J conduct airborne psychological operations (EC-130J) and weather reconnaissance (WC-130J). These aircraft must be capable of worldwide operations.

USAF C-130J aircraft, in their present Block 5.3 configuration, are partially GATM/nav safety compliant. Capabilities provided in the Block 5.3 configuration include Required Navigation Performance (RNP)-10 (miles), RNP-5, Basic Area Navigation (BRNAV), Traffic Alert and Collision Avoidance System (TCAS) Version 7.0, FM immunity for Instrument Landing System (aka protected ILS), and the aircraft communications system software necessary to operate VHF communications radios with 8.33 MHz frequency separation.

These RDT&E funds will enable development, integration, and testing of the remaining GATM/nav safety requirements needed on USAF C-130J aircraft. These capabilities include RNP-4, RNP-1, Terrain Approach Warning System (TAWS), Selective Availability Anti-Spoofing Module (SAASM) Global Positioning System (GPS), Local Area Augmentation System (LAAS), Wide Area Augmentation System (WAAS), Mode Select (Mode S) Beacon Transponder System with data link capability and growth to Mode 5, Automatic Dependent Surveillance-Address (ADS-A), Automatic Dependent Surveillance-Broadcast (ADS-B), satellite communications (SATCOM) voice and data link capability, high frequency data link (HFDL), Controller-Pilot Data Link Communications (CPDLC), and AMC Mobility 2000 (M2K)

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2004

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0401132F C-130J PROGRAM

communications.

The current C-130J Operational Requirements Document (ORD), validated 17 Apr 99, identifies the GATM/nav safety requirements for the C-130J. Supplemental guidance for the various GATM/nav safety requirements is provided via numerous ICAO, FAA, and DOD standards. Where possible, the C-130J GATM/nav safety solution set will be common with other USAF/AMC weapon systems performing similar GATM/nav safety upgrades.

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	9.300	13.551	37.800
(U) Current PBR/President's Budget	1.890	13.436	36.305
(U) Total Adjustments	-7.410	-0.115	
(U) Congressional Program Reductions			
Congressional Rescissions	-0.199	-0.115	
Congressional Increases			
Reprogrammings	-6.928		
SBIR/STTR Transfer	-0.283		
(U) <u>Significant Program Changes:</u>			
None			

Exhibit R-2a, RDT&E Project Justification

DATE

February 2004

BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT NUMBER AND TITLE			
07 Operational System Development				0401132F C-130J PROGRAM			5061 C-130J			
Cost (\$ in Millions)	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	
5061 C-130J	1.890	13.436	36.305	13.545	56.506	27.420	71.221	0.000	217.755	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

(U) A. Mission Description and Budget Item Justification

C-130J program RDT&E funding provides for:

- 1) Participation in the international Co-operative Systems and Software Upgrade Requirements Management (COSSURM). COSSURM participants include the United Kingdom, Australia, Italy, Denmark, and the United States. COSSURM provides a mechanism to jointly identify, collect, define, analyze and price requirements. By combining requirements and resources under COSSURM, each participating country will save in aircraft upgrade costs.
- 2) The development, integration, and testing of International Civil Aviation Organization (ICAO), Federal Aviation Administration (FAA), and DOD-mandated Global Air Traffic Management (GATM) and navigation safety (nav safety) capabilities for the C-130J weapon system.
- 3) The development, integration, and testing of aircraft modifications necessary to correct deficiencies identified in qualification and operational testing of this platform.
- 4) The development, integration, and testing of C-130J enhancements identified by Air Mobility Command (AMC), which is the USAF lead operating command for the C-130J weapon system.

The C-130J is a medium-size transport aircraft capable of performing a variety of combat delivery (tactical airlift) operations across a broad range of mission environments. The C-130J-30 aircraft, with its extended (by 15 ft) fuselage, provides additional cargo carrying capacity for the USAF combat delivery mission. Special mission variants of the C-130J conduct airborne psychological operations (EC-130J) and weather reconnaissance (WC-130J). These aircraft must be capable of worldwide operations.

USAF C-130J aircraft, in their present Block 5.3 configuration, are partially GATM/nav safety compliant. Capabilities provided in the Block 5.3 configuration include Required Navigation Performance (RNP)-10 (miles), RNP-5, Basic Area Navigation (BRNAV), Traffic Alert and Collision Avoidance System (TCAS) Version 7.0, FM immunity for Instrument Landing System (aka protected ILS), and the aircraft communications system software necessary to operate VHF communications radios with 8.33 MHz frequency separation.

These RDT&E funds will enable development, integration, and testing of the remaining GATM/nav safety requirements needed on USAF C-130J aircraft. These capabilities include RNP-4, RNP-1, Terrain Approach Warning System (TAWS), Selective Availability Anti-Spoofing Module (SAASM) Global Positioning System (GPS), Local Area Augmentation System (LAAS), Wide Area Augmentation System (WAAS), Mode Select (Mode S) Beacon Transponder System with data link capability and growth to Mode 5, Automatic Dependent Surveillance-Address (ADS-A), Automatic Dependent Surveillance-Broadcast (ADS-B), satellite communications (SATCOM) voice and data link capability, high frequency data link (HFDDL), Controller-Pilot Data Link Communications (CPDLC), and AMC Mobility 2000 (M2K) communications.

Exhibit R-2a, RDT&E Project Justification

DATE

February 2004

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0401132F C-130J PROGRAM

PROJECT NUMBER AND TITLE

5061 C-130J

The current C-130J Operational Requirements Document (ORD), validated 17 Apr 99, identifies the GATM/nav safety requirements for the C-130J. Supplemental guidance for the various GATM/nav safety requirements is provided via numerous ICAO, FAA, and DOD standards. Where possible, the C-130J GATM/nav safety solution set will be common with other USAF/AMC weapon systems performing similar GATM/nav safety upgrades.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) COSSURM payment	1.890	0.000	1.441
(U) Initiate non-recurring engineering design and software development for GATM/nav safety requirements and aircraft deficiencies/product improvements.		13.436	
(U) Continue non-recurring engineering design and software development. Conduct laboratory testing of GATM/nav safety hardware and software modifications. Procure and install hardware on flight test aircraft and one C-130J weapon system trainer.			34.864
(U) Total Cost	1.890	13.436	36.305

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Other APPN									
(U) PE 0401132F, C-130J									
(U) Procurement (BP1100)									
(U) Mod MN-_1701 Blk 6.0			9.800	21.573	29.551	18.419	2.000	0.000	81.343
(U) Mod MN-_6298 Blk 7.0					7.000	18.751	43.875	45.725	115.351
(U) Mod MN-_5222 Blk 8.0							15.223	154.925	170.148

(U) D. Acquisition Strategy

C-130J aircraft will be modified using a 'block upgrade' strategy. The full GATM/nav safety requirement will be met in four block upgrades: Block 6.0, which begins with FY04 RDT&E funding and continues with FY05 RDT&E funding, Block 7.0, which will start in FY06, Block 8.0, which will start in FY08, and Block 9.0, which will start in FY10. The proportion of GATM/nav safety requirements allocated to Blocks 6.0 thru 9.0 was determined via a design trade study conducted by Lockheed Martin (the C-130J prime contractor) and verified by the C-130J system program office and AMC.

Lockheed Martin will be the prime contractor for these efforts, perform the non-recurring engineering and, following the successful conclusion of flight testing and certification of each block upgrade, will provide production retrofit kits on USAF C-130J aircraft. Installation will be performed by contractor, depot, and Air Force personnel.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2004

BUDGET ACTIVITY			PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
07 Operational System Development			0401132F C-130J PROGRAM					5061 C-130J				
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
<u>(U) Product Development</u>												
Aeronautical Systems Center (AFMC), WPAFB, OH	CPFF	Lockheed Martin Aeronautics, Marietta GA				13.436	Mar-04	31.864	Nov-04		45.300	
Subtotal Product Development			0.000	0.000		13.436		31.864		0.000	45.300	0.000
Remarks:												
<u>(U) Support</u>												
TBD												0.000
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Test & Evaluation</u>												
Air Force Materiel Command (DT&E)								3.000	Mar-05		3.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		3.000		0.000	3.000	0.000
Remarks:												
<u>(U) Management</u>												
COSSURM				1.890				1.441	Nov-04		3.331	
Subtotal Management			0.000	1.890		0.000		1.441		0.000	3.331	0.000
Remarks:												
<u>(U) Lockheed Martin Aeronautics, Marietta, GA</u>												
<u>(U) Total Cost</u>			0.000	1.890		13.436		36.305		0.000	51.631	0.000
Remarks:												

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0401132F C-130J PROGRAM

PROJECT NUMBER AND TITLE
5061 C-130J

Requirements / Contracting

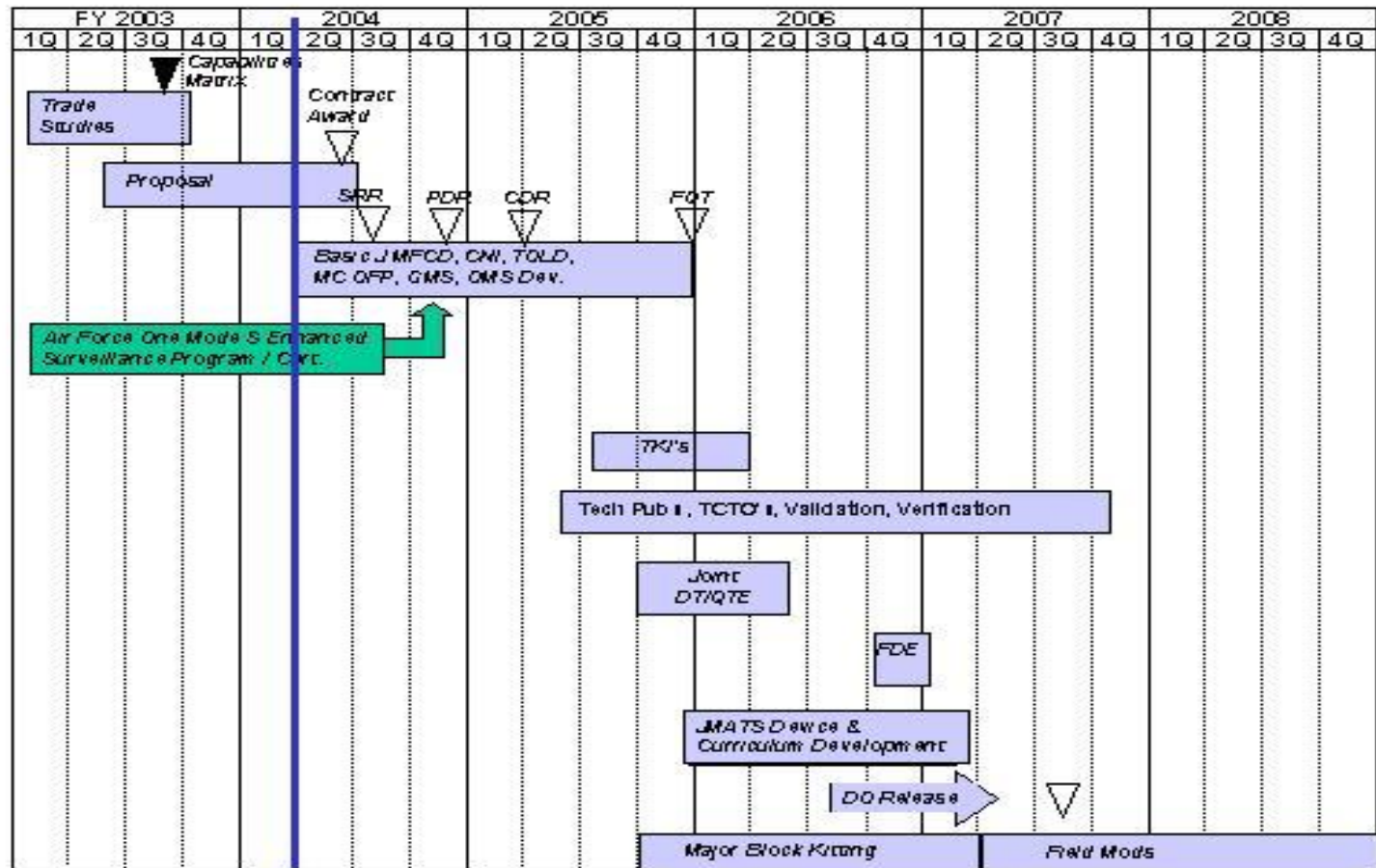
Design / Development

Publications

Testing

Training

Fielding



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Exhibit R-4a, RDT&E Schedule Detail		DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0401132F C-130J PROGRAM	PROJECT NUMBER AND TITLE 5061 C-130J
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	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <u>Schedule Profile</u>			
(U) Block 6.0 FY04 contract award		2Q	
(U) Block 6.0 FY05 contract award			1Q
(U) Block 6.0 DT&E payment to AFFTC			2Q
(U) Start of Block 6.0 DT&E			4Q

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PE NUMBER: 0401134F

PE TITLE: Large Aircraft InfraRed Counter Measures (LAIRCM)

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0401134F Large Aircraft InfraRed Counter Measures (LAIRCM)
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	Cost (\$ in Millions)	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
	Total Program Element (PE) Cost	51.311	45.543	73.684	52.652	18.053	61.472	0.000	9.448	286.887
4942	Large Aircraft Infrared Counter Measures (LAIRCM)	51.311	45.543	73.684	52.652	18.053	61.472	0.000	9.448	286.887

(U) A. Mission Description and Budget Item Justification

The Large Aircraft Infrared Countermeasures System (LAIRCM) provides a significantly improved defensive capability for transport and tanker aircraft versus today's use of flares against the proliferating IR Man-Portable Air Defense Systems (MANPADS) threat. LAIRCM is a colorless, eye-safe multi band laser mounted in a small pointer/tracker turret. This system will require no operator intervention after activation and will consist of an advanced integrated missile warning system or systems and an active laser turret countermeasures system. The number of turrets per aircraft is determined by the size and IR signature of the aircraft. Today, the C-17 will be equipped with three turrets, the smaller turbo-prop C-130s with two. The multi-command Operational Requirements Document (ORD) -- LAIRCM ORD 314-92, was validated on 3 Aug 98. LAIRCM will meet AMC's Nov 02 Urgent & Compelling Need by equipping 12 C-17s and 8 C-130s with existing LAIRCM Phase I hardware by end FY04.

The current plan will equip 137 AF airlift and tanker aircraft with LAIRCM (71 C-17s, 32 C-130s, 22 KC-135s and 12 KC-10s). The first C-17 of the 20 LAIRCM-equipped aircraft (12 C-17s and 8 C-130s) was delivered in May 03 with the 137th aircraft (a KC-10) being delivered in FY10. The first LAIRCM-equipped C-130 is currently undergoing test -- scheduled completion is Feb 04. This 137 aircraft fleet is sized to support two simultaneous Small Scale Contingencies (2 SSC) for approximately one month.

In FY03, LAIRCM Phase II began development of a new, smaller laser/turret assembly, referred to as the mini-turret. This smaller, less expensive, but more capable turret is programmed for production start in late FY06. Development of the Next Generation Advanced Missile Warning System (NexGen MWS) will begin in May 04 with production and incorporation into LAIRCM beginning in early FY07. The C-17s will be retrofitted with this Phase II hardware when it becomes available. The LAIRCM-equipped KC-135 development funding starts in FY05 with production in FY07. Development for the LAIRCM-equipped KC-10 starts in FY08 with production and installation beginning in FY09.

Large Aircraft IR Countermeasures Program (LAIRCM): This project is in Budget Activity 7, Operational Systems Development as it is an electronic countermeasures systems upgrade to four existing weapons systems (C-17, C-130, KC-135 and KC-10).

Exhibit R-2, RDT&E Budget Item Justification

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0401134F Large Aircraft InfraRed Counter Measures (LAIRCM)

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	46.795	45.946	73.877
(U) Current PBR/President's Budget	51.311	45.543	73.684
(U) Total Adjustments	4.516	-0.403	
(U) Congressional Program Reductions	-0.503		
Congressional Rescissions		-0.403	
Congressional Increases			
Reprogrammings	5.019		
SBIR/STTR Transfer			

(U) **Significant Program Changes:**

LAIRCM deliveries have been accelerated 12 months and delivered the first LAIRCM-equipped C-17 in May 2003 under the LAIRCM Lite program. This program will take the first 12 production turrets and install them in the tailcones of the first nine C-17s. The 2 forward-mounted turrets will be retrofitted to the first nine aircraft in FY04 when additional turrets become available. This LAIRCM tail-only interim installation will significantly improve the C-17's survivability in the near-term, but does not meet the ORD requirements. Hence, the two forward turrets will be retrofitted IAW the original LAIRCM design for the C-17.

Exhibit R-2a, RDT&E Project Justification

DATE

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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0401134F Large Aircraft InfraRed Counter Measures (LAIRCM)			PROJECT NUMBER AND TITLE 4942 Large Aircraft Infrared Counter Measures (LAIRCM)		
Cost (\$ in Millions)	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
4942 Large Aircraft Infrared Counter Measures (LAIRCM)	51.311	45.543	73.684	52.652	18.053	61.472	0.000	9.448	286.887
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) **A. Mission Description and Budget Item Justification**

The Large Aircraft Infrared Countermeasures System (LAIRCM) provides a significantly improved defensive capability for transport and tanker aircraft versus today's use of flares against the proliferating IR Man-Portable Air Defense Systems (MANPADS) threat. LAIRCM is a colorless, eye-safe multi band laser mounted in a small pointer/tracker turret. This system will require no operator intervention after activation and will consist of an advanced integrated missile warning system or systems and an active laser turret countermeasures system. The number of turrets per aircraft is determined by the size and IR signature of the aircraft. Today, the C-17 will be equipped with three turrets, the smaller turbo-prop C-130s with two. The multi-command Operational Requirements Document (ORD) -- LAIRCM ORD 314-92, was validated on 3 Aug 98. LAIRCM will meet AMC's Nov 02 Urgent & Compelling Need by equipping 12 C-17s and 8 C-130s with existing LAIRCM Phase I hardware by end FY04.

The current plan will equip 137 AF airlift and tanker aircraft with LAIRCM (71 C-17s, 32 C-130s, 22 KC-135s and 12 KC-10s). The first C-17 of the 20 LAIRCM-equipped aircraft (12 C-17s and 8 C-130s) was delivered in May 03 with the 137th aircraft (a KC-10) being delivered in FY10. The first LAIRCM-equipped C-130 is currently undergoing test -- scheduled completion is Feb 04. This 137 aircraft fleet is sized to support two simultaneous Small Scale Contingencies (2 SSC) for approximately one month.

In FY03, LAIRCM Phase II began development of a new, smaller laser/turret assembly, referred to as the mini-turret. This smaller, less expensive, but more capable turret is programmed for production start in late FY06. Development of the Next Generation Advanced Missile Warning System (NexGen MWS) will begin in May 04 with production and incorporation into LAIRCM beginning in early FY07. The C-17s will be retrofitted with this Phase II hardware when it becomes available. The LAIRCM-equipped KC-135 development funding starts in FY05 with production in FY07. Development for the LAIRCM-equipped KC-10 starts in FY08 with production and installation beginning in FY09.

Large Aircraft IR Countermeasures Program (LAIRCM): This project is in Budget Activity 7, Operational Systems Development as it is an electronic countermeasures systems upgrade to four existing weapons systems (C-17, C-130, KC-135 and KC-10).

(U) **B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Complete development of Basic LAIRCM system, support equipment, technical orders, etc.	6.520	13.599	
(U) Complete integration of the basic LAIRCM system onto the C-17 and C-130 platforms. Modify the first C-17 and C-130 begin OT&E.	25.317	4.736	
(U) Develop the mini-turret		18.800	18.886
(U) Develop installation of LAIRCM on the KC-135			13.834
(U) Develop the Next Generation Missile Warning System (NexGen MWS)			29.903
(U) Government testing and risk reduction	14.447	1.623	2.590
(U) Program office support (TDY, A&AS contract support, training, supplies and award fee.	5.027	6.785	8.471

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Exhibit R-2a, RDT&E Project Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0401134F Large Aircraft InfraRed Counter Measures (LAIRCM)	PROJECT NUMBER AND TITLE 4942 Large Aircraft Infrared Counter Measures (LAIRCM)
--	---	--

(U) Total Cost	51.311	45.543	73.684
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(U) **C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to Complete</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>		
(U) AF RDT&E									
(U) Other APPN									
(U) PE 41134F, C-17 Procurement (BP1100)	56.311	28.990	40.327	93.645	115.307	118.062	256.131	23.800	732.573
(U) PE 41134F, C-130 Procurement (BP1100)	37.318	42.162	29.483	5.552	65.185	0.000	0.000	0.000	179.700
(U) PE 41134F, KC-135 Procurement (BP1100)	0.000	0.000	0.000	0.000	50.279	0.000	0.000	0.000	50.279

(U) **D. Acquisition Strategy**

Integration of the LAIRCM subsystems will be accomplished by Northrop Grumman, who was awarded this CPAF contract on 28 Sep 01. Boeing went on contract to integrate LAIRCM on the C-17s on 18 Jan 02. The contract for integration of LAIRCM on the C-130 was awarded to Northrop Grumman as a modification to the current contract on 7 Jun 02. The contract to install LAIRCM on the KC-135 aircraft will be awarded in FY04. The NexGen Missile Warning System will award a development contract in May 04 to two companies to develop NexGen MWS prototypes. In late FY06, an open competition will determine the NexGen MWS contractor, with production deliveries beginning in FY07.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2004

BUDGET ACTIVITY			PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
07 Operational System Development			0401134F Large Aircraft InfraRed Counter Measures (LAIRCM)					4942 Large Aircraft Infrared Counter Measures (LAIRCM)				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
(U) <u>Product Development</u>												
Northrop Grumman	CPAF	Equipment manufacturer, Rolling Meadows, IL	30.101	18.281	Sep-01	19.338		1.300		0.000	69.020	TBD
Boeing	CPAF	LAIRCM installs; Long Beach, CA	10.641	20.773	Jun-02	16.607		62.623			110.644	TBD
Subtotal Product Development			40.742	39.054		35.945		63.923		0.000	179.664	TBD
Remarks: TBD												
(U) <u>Support</u>												
ASC/GRI			8.845	5.532		5.799		8.471			28.647	
AFRL			2.100			2.176					4.276	
Subtotal Support			10.945	5.532		7.975		8.471		0.000	32.923	0.000
Remarks:												
(U) <u>Test & Evaluation</u>												
Various Gov't Test Organizations	Various		6.989	6.725		1.623		1.290			16.627	
VIPER Laser											0.000	
Subtotal Test & Evaluation			6.989	6.725		1.623		1.290		0.000	16.627	0.000
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Total System Cost</u>												
(U) Total Cost			58.676	51.311		45.543		73.684		0.000	229.214	TBD
Remarks:												

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0401134F Large Aircraft InfraRed Counter Measures (LAIRCM)

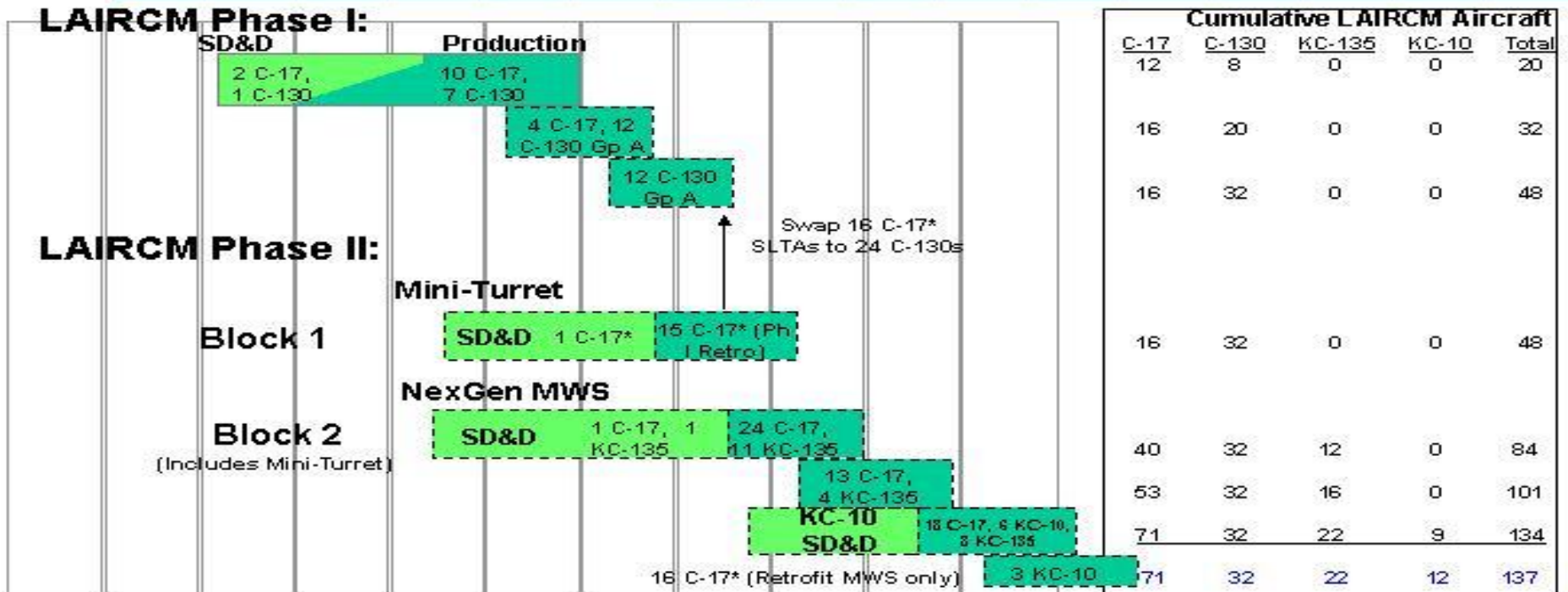
PROJECT NUMBER AND TITLE
4942 Large Aircraft Infrared Counter Measures (LAIRCM)



Evolutionary Acquisition Plan (As of Oct 03)

U.S. AIR FORCE

00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15
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Note: 16 Phase I C-17's will be retrofitted w/ Phase II equipment. This removed Phase I will go on C-130s. All C-130s will be equipped with Phase I only. KC-10s and KC-135s will receive only Phase II equipment

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0401134F Large Aircraft InfraRed Counter Measures (LAIRCM)	PROJECT NUMBER AND TITLE 4942 Large Aircraft Infrared Counter Measures (LAIRCM)
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	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <u>Schedule Profile</u>			
(U) C-17 Aircraft Integration (Jan 02 - Nov 03)	2Q		
(U) C-17 #1 modification and OT&E (Feb 03 - Nov 03)	4Q		
(U) C-130 Aircraft Integration (April 02 - Nov 03)	3Q		
(U) C-130 # 1 Modification and OT&E (Oct 03 - May 04)		1-3Q	
(U) Operational Assessment: (Jun - Jul 02)	3-4Q		
(U) C-17 LRIP decision (Aug 02)	1Q		
(U) C-130 LRIP decision (Dec 02)	1Q		
(U) Phase II SDD (FY03-FY06)		1Q	
(U) Full Rate Production decision (Jul 04)		4Q	
(U) Phase II SDD (FY04-FY06)		1Q	

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PE NUMBER: 0401218F
PE TITLE: KC-135s

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0401218F KC-135s
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Cost (\$ in Millions)	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
Total Program Element (PE) Cost	1.908	3.147	1.079	1.489	15.511	1.118	1.136	Continuing	TBD
4456 KC-X NEXT GENERATION TANKER	0.000	0.000	0.000	0.000	14.409	0.000	0.000	0.000	0.000
4494 KC-135 Aging Aircraft Program	1.908	3.147	1.079	1.489	1.102	1.118	1.136	Continuing	TBD

Due to database error, \$14.409M in FY07 for BPAC 674456 should be in PE 0401221F KC-135 Replacement Tanker. Funds will be moved in FY06 POM.

(U) A. Mission Description and Budget Item Justification

This program, in part, supports the aging aircraft corrosion and fatigue project CORAL REACH. CORAL REACH studies include the analysis and testing efforts in the area of aging aircraft, to include structural, corrosion, fatigue, and stress corrosion cracking. Additionally, the Functional System Integrity Program (FSIP) proactively examines individual aircraft systems for potential impacts due to aging components. The USAF will utilize these activities to improve KC-135 Programmed Depot Maintenance efficiency and to provide direction for future aging aircraft efforts to maintain the KC-135 as a viable airframe.

Boom Operator Weapon System Trainers (BOWST) - These funds will be used to develop and field two high-fidelity devices which simulate the environment in a KC-135 boom pod and allow realistic training of aerial refueling procedures across the spectrum of operational situations. The devices will be placed at the KC-135 Combat Crew Training School, and will replace the current Boom Operator Part Task Trainers.

These efforts are low technical risk supporting a fielded weapon system and, therefore, is assigned to Budget Activity 7, Operational Systems Development.

The KC-X replacement platform has not been determined.

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	1.465	1.473	1.082
(U) Current PBR/President's Budget	1.908	3.147	1.079
(U) Total Adjustments	0.443	1.674	
(U) Congressional Program Reductions	-0.015	-0.026	
Congressional Rescissions			
Congressional Increases		1.700	
Reprogrammings	0.490		
SBIR/STTR Transfer	-0.032		
(U) <u>Significant Program Changes:</u>			
None			

Exhibit R-2a, RDT&E Project Justification

DATE
February 2004

BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0401218F KC-135s			PROJECT NUMBER AND TITLE 4494 KC-135 Aging Aircraft Program			
Cost (\$ in Millions)	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	
4494 KC-135 Aging Aircraft Program	1.908	3.147	1.079	1.489	1.102	1.118	1.136	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

(U) A. Mission Description and Budget Item Justification

This program, in part, supports the aging aircraft corrosion and fatigue project CORAL REACH. CORAL REACH studies include the analysis and testing efforts in the area of aging aircraft, to include structural, corrosion, fatigue, and stress corrosion cracking. Additionally, the Functional System Integrity Program (FSIP) proactively examines individual aircraft systems for potential impacts due to aging components. The USAF will utilize these activities to improve KC-135 Programmed Depot Maintenance efficiency and to provide direction for future aging aircraft efforts to maintain the KC-135 as a viable airframe.

Boom Operator Weapon System Trainers (BOWST) - These funds will be used to develop and field two high-fidelity devices which simulate the environment in a KC-135 boom pod and allow realistic training of aerial refueling procedures across the spectrum of operational situations. The devices will be placed at the KC-135 Combat Crew Training School, and will replace the current Boom Operator Part Task Trainers.

These efforts are low technical risk supporting a fielded weapon system and, therefore, is assigned to Budget Activity 7, Operational Systems Development.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments/Planned Program	0.000	0.000	0.000
(U) Corrosion/crack growth rate and fatigue determination and testing	0.244	0.893	0.248
(U) Basic materials test and predictive technique	0.438	0.052	0.054
(U) Functional Systems Integrity Program (FSIP)	0.581	0.103	0.526
(U) Mission support/contractor support	0.645	0.473	0.251
(U) Boom Operator Weapon System Trainer	0.000	1.626	0.000
(U) Total Cost	1.908	3.147	1.079

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Other APPN		2.500							2.500
PE#0401218F/KC-135 Squadrons, Aircraft Procurement, AF, BA-5, KC-135 Mods, BOWST, BP-11									

(U) D. Acquisition Strategy

The acquisition strategy consists primarily of separate task orders (with separate statements of work) ranging from fixed price to cost plus contracts. These task orders address a myriad of aging aircraft activities against existing contract vehicles, such as the SPO-managed KC-135 Fleet Support Contract and Design Engineering Program contracts managed through the Air Logistics Centers.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2004

BUDGET ACTIVITY			PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
07 Operational System Development			0401218F KC-135s					4494 KC-135 Aging Aircraft Program				
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u> Prior to FY 2003 Cost	<u>FY</u> 2003 Cost	<u>FY</u> 2003 Award Date	<u>FY</u> 2004 Cost	<u>FY</u> 2004 Award Date	<u>FY</u> 2005 Cost	<u>FY</u> 2005 Award Date	<u>Cost to</u> Complete	<u>Total</u> Cost	<u>Target</u> Value of Contract
<u>(U) Product Development</u>												
C/KC-135 Fleet Support	SS/FFP	Boeing, Wichita, KS	2.405	0.825	Jul-03	1.252	Mar-04	0.900	Mar-05	Continuing	TBD	
Subtotal Product Development			2.405	0.825		1.252		0.900		Continuing	TBD	0.000
Remarks:												
<u>(U) Support</u>												
Design Engineering Program (DEP)	C/FP	ARINC, Oklahoma City, other support ctrs.	0.198	1.083	Sep-03	0.119	Jan-04	0.126	Jan-05	Continuing	TBD	
Subtotal Support			0.198	1.083		0.119		0.126		Continuing	TBD	0.000
Remarks:												
<u>(U) Test & Evaluation</u>												
Testing	Project Order/MIPR	Wright Labs, Dayton, OH, NASA, VA, etc.	0.119			1.776	Dec-03	0.053	Dec-04	Continuing	TBD	
Subtotal Test & Evaluation			0.119	0.000		1.776		0.053		Continuing	TBD	0.000
Remarks:												
<u>(U) Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Total Cost</u>			2.722	1.908		3.147		1.079		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0401218F KC-135s

PROJECT NUMBER AND TITLE
4494 KC-135 Aging Aircraft Program

KC-135 R-4 Schedule Profile

Fiscal Year	FY03				FY04				FY05				FY06				FY07				FY08				FY09				FY10							
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Corrosion & Fatigue Testing	■		■		■		■																													
Materials Test & Predictive Tech		■	■			■	■																													
FSIP (see note 1)	■																																			
Mission Support	■																																			
Boom Operator Weapon System Trainer							■	■																												
Note 1: FSIP will continue to examine additional aircraft systems as required while monitoring those systems that have previously been examined.																																				

- ☆ Major Event or Milestone
- Planned Ongoing Activity
- Ongoing Activity that is Complete
- ▲ Completed Event
- △ Planned Task(s)

Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2004

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0401218F KC-135s

PROJECT NUMBER AND TITLE

4494 KC-135 Aging Aircraft Program

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <u>Schedule Profile</u>			
(U) Corrosion & Fatigue Testing	1Q	1Q	1-4Q
(U) Materials Test & Predictive Tech	2Q	1Q	1-4Q
(U) FSIP	1-4Q	1-4Q	1-4Q
(U) Mission Support	1-4Q	1-4Q	1-4Q
(U) Boom Operator Weapon System Trainer		2Q	1Q

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Exhibit R-2, RDT&E Budget Item Justification								DATE February 2004	
BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0401219F KC-10S					
Cost (\$ in Millions)	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
Total Program Element (PE) Cost	20.149	2.286	18.452	0.000	0.000	0.000	0.000	0.000	89.150
4496 KC-10 GATM	20.149	2.286	18.452	0.000	0.000	0.000	0.000	0.000	89.150

(U) **A. Mission Description and Budget Item Justification**

Global Air Traffic Management (GATM) is based on evolving Communication, Navigation and Surveillance (CNS) and Free Flight concepts. Key elements of its architecture are Flight Management System (FMS), Dual Multi-Mode Receiver (MMR), Dual Communications Management Unit (CMU), and Communications Datalinks (HF, VHF, SATCOM). Communications upgrades include a data link to augment/replace voice communications. These upgrades include Beyond Line of Sight (BLOS) data links and Line of Sight (LOS) digital data links. The navigation capabilities include a fully integrated GPS and advanced flight management system. The surveillance capabilities include automatic aircraft position reporting (both enroute and oceanic).

This effort supports a fielded weapon system and is assigned to Budget Activity 7, Operational Systems Development.

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	10.278	2.306	0.000
(U) Current PBR/President's Budget	20.149	2.286	18.452
(U) Total Adjustments	9.871	-0.020	
(U) Congressional Program Reductions	-0.111	-0.020	
Congressional Rescissions			
Congressional Increases			
Reprogrammings	10.110		
SBIR/STTR Transfer	-0.128		

(U) **Significant Program Changes:**

FY03 BTRs = \$9.9M to support program restructure
FY05 program development restructure

Exhibit R-2a, RDT&E Project Justification

DATE
February 2004

BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0401219F KC-10S			PROJECT NUMBER AND TITLE 4496 KC-10 GATM		
Cost (\$ in Millions)	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
4496 KC-10 GATM	20.149	2.286	18.452	0.000	0.000	0.000	0.000	0.000	89.150
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

Global Air Traffic Management (GATM) is based on evolving Communication, Navigation and Surveillance (CNS) and Free Flight concepts. Key elements of its architecture are Flight Management System (FMS), Dual Multi-Mode Receiver (MMR), Dual Communications Management Unit (CMU), and Communications Datalinks (HF, VHF, SATCOM). Communications upgrades include a data link to augment/replace voice communications. These upgrades include Beyond Line of Sight (BLOS) data links and Line of Sight (LOS) digital data links. The navigation capabilities include a fully integrated GPS and advanced flight management system. The surveillance capabilities include automatic aircraft position reporting (both enroute and oceanic).

This effort supports a fielded weapon system and is assigned to Budget Activity 7, Operational Systems Development.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments/Planned Program	0.000	0.000	0.000
(U) System Engineering	12.685	1.524	12.301
(U) Program Management	3.772	0.651	3.019
(U) FAA Certification	2.571	0.111	3.132
(U) Award Fee	1.061	0.000	0.000
(U) Mission Support	0.060	0.000	0.000
(U) Total Cost	20.149	2.286	18.452

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E									
(U) Other APPN	2.219	8.320	6.455	63.404	31.848	35.000	34.000	129.839	311.085

PE#401219F / KC-10 Squadrons, Aircraft Procurement, AF, BA-5, KC-10 Mods, GATM, BP-11

(U) D. Acquisition Strategy

A sole source cost plus award fee contract was awarded to Boeing, the aircraft manufacturer, for the Engineering, Manufacturing, and Development (EMD) effort. The contract is managed at the KC-10 System Program Office at OC-ALC. Installs are planned to be performed by the KC-10 Contractor Logistic Support Contractor.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2004

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
07 Operational System Development				0401219F KC-10S				4496 KC-10 GATM				
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
<u>(U) Product Development</u>												
KC10/MD10 Growth Path Study	T&M	Boeing, OK	0.636								0.636	
GATM Sys Eng/Program Mgt/FAA Cert	SS/CPAF	Boeing, KS	68.015	19.028	Oct-02	2.286	Oct-03	18.452	Dec-04		107.781	
GATM Award Fee	SS/CPAF	Boeing, KS	5.498	1.061	Aug-03						6.559	
Subtotal Product Development			74.149	20.089		2.286		18.452		0.000	114.976	0.000
Remarks:												
<u>(U) Support</u>												
Support Contractors	T&M	ARINC, other support contractors	0.252	0.060	Mar-03						0.312	
AF Mission Support System (AFMSS)	T&M	Hanscom AFB	0.020								0.020	
Subtotal Support			0.272	0.060		0.000		0.000		0.000	0.332	0.000
Remarks:												
<u>(U) Test & Evaluation</u>												
Test Planning	T&M	418 Test Squadrn AFFTC (Edwards AFB)	0.072								0.072	
EMC/EMI Analysis	T&M	Joint Spectrum Center, OH	0.097								0.097	
A/W/E Software Upgrade	T&M	McClellan AFB	1.075								1.075	
Subtotal Test & Evaluation			1.244	0.000		0.000		0.000		0.000	1.244	0.000
Remarks:												
<u>(U) Management</u>												
Program Office		OC-ALC	0.138								0.138	
Subtotal Management			0.138	0.000		0.000		0.000		0.000	0.138	0.000
Remarks:												
<u>(U) Boeing</u>												
<u>(U) Total Cost</u>			75.803	20.149		2.286		18.452		0.000	116.690	0.000
Remarks:												

Exhibit R-4, RDT&E Schedule Profile

DATE
February 2004

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0401219F KC-10S

PROJECT NUMBER AND TITLE
4496 KC-10 GATM

KC-10S R-4 GATM Schedule Profile

Fiscal Year	FY03				FY04				FY05				FY06				FY07				FY08				FY09		FY	
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	1	2
Acquisition Strategy Plan (1QFY99)	▲																											
EMD Contract Award (2QFY00)	▲																											
Prototype Installation	☆																											
Production Decision												◆																
First Flight			☆																									
Flight Certification Test*								█	☆																			
1st Production Aircraft Delivery (TBD)												◆																
Low Rate Production (TBD)												◆																

☆ Major Event or Milestone

█ Planned Ongoing Activity

█ Ongoing Activity that is Complete

▲ Completed Event

△ Planned Task(s)

◆ To Be Determined (TBD - Based on successful prototype completion)

* Testing is included in Systems Engineering.

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Exhibit R-4a, RDT&E Schedule Detail		DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0401219F KC-10S	PROJECT NUMBER AND TITLE 4496 KC-10 GATM
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	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <u>Schedule Profile</u>			
(U) Acquisition Strategy Plan (1QFY99)			
(U) EMD Contract Award (2QFY00)			
(U) Prototype Installation (3QFY02 - 1QFY03)			
(U) Production Decision (TBD)			
(U) First Flight	2Q		
(U) Flight Certification Test			1Q
(U) 1st Production Aircraft Delivery (TBD)			
(U) Low Rate Initial Production (TBD)			

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PE NUMBER: 0408011F
 PE TITLE: SPECIAL TACTICS/COMBAT CONTROL

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0408011F SPECIAL TACTICS/COMBAT CONTROL
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Cost (\$ in Millions)	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
Total Program Element (PE) Cost	0.000	0.000	1.067	0.748	0.000	0.485	0.000	0.000	0.000
5138 ST System Development	0.000	0.000	1.067	0.748	0.000	0.485	0.000	0.000	0.000

In FY05, this is a new PE.

(U) A. Mission Description and Budget Item Justification

This program will develop the Laser Integrated Target Engagement System (LITES). LITES is a suite of equipment for Combat Controllers to perform Terminal Attack Control for air-dropped precision weapons. The current set of equipment is too unwieldy, heavy and includes a human error factor. Combat Controllers operate dismounted at altitudes of up to 10,000 feet with approximately 150 pounds of equipment. They calculate coordinates with pencil and paper and then transmit data to aircraft via voice over radio. Current targeting equipment is limited in range, to line-of-sight, and information management. LITES is an integrated system combining the capabilities of multiple systems into a small, lightweight, waterproof, interoperable and upgradeable system. Functionality is required for current and future War on Terrorism operations by supporting air-dropped precision attack weapons, the capture of target data from stand-off distances of up to 10 kilometers, and provides aircrew digital information that is needed to quickly, effectively and accurately deliver weapons on time, on target.

This program is in Budget Activity 4, Advanced Component Development & Prototypes (ACD&P) because the efforts demonstrates technology, component and subsystem maturity, and provides risk reduction.

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget			0.000
(U) Current PBR/President's Budget	0.000	0.000	1.067
(U) Total Adjustments	0.000	0.000	
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			

Exhibit R-2a, RDT&E Project Justification

DATE
February 2004

BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0408011F SPECIAL TACTICS/COMBAT CONTROL			PROJECT NUMBER AND TITLE 5138 ST System Development		
Cost (\$ in Millions)	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
5138 ST System Development	0.000	0.000	1.067	0.748	0.000	0.485	0.000	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

This program will develop the Laser Integrated Target Engagement System (LITES). LITES is a suite of equipment for Combat Controllers to perform Terminal Attack Control for air-dropped precision weapons. The current set of equipment is too unwieldy, heavy and includes a human error factor. Combat Controllers operate dismounted at altitudes of up to 10,000 feet with approximately 150 pounds of equipment. They calculate coordinates with pencil and paper and then transmit data to aircraft via voice over radio. Current targeting equipment is limited in range, to line-of-sight, and information management. LITES is an integrated system combining the capabilities of multiple systems into a small, lightweight, waterproof, interoperable and upgradeable system. Functionality is required for current and future War on Terrorism operations by supporting air-dropped precision attack weapons, the capture of target data from stand-off distances of up to 10 kilometers, and provides aircrew digital information that is needed to quickly, effectively and accurately deliver weapons on time, on target.

This program is in Budget Activity 4, Advanced Component Development & Prototypes (ACD&P) because the efforts demonstrates technology, component and subsystem maturity, and provides risk reduction.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) System and equipment development.			0.867
(U) System test and evaluation.			0.200
(U) Total Cost	0.000	0.000	1.067

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Not Applicable									

(U) D. Acquisition Strategy

The spiral development acquisition strategy will focus on meeting immediate requirements with current technology while pursuing future spirals for improved accuracy, increased vertical and horizontal integration, and reduced weight.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2004

BUDGET ACTIVITY			PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
07 Operational System Development			0408011F SPECIAL TACTICS/COMBAT CONTROL					5138 ST System Development				
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
(U) <u>Product Development</u>												
Various	TBD	TBD	0.000	0.000		0.000		0.867	Jan-05	0.560	1.427	TBD
Subtotal Product Development			0.000	0.000		0.000		0.867		0.560	1.427	TBD
Remarks:												
(U) <u>Support</u>											0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Test & Evaluation</u>												
Various	TBD	TBD	0.000			0.000		0.200	Apr-05	0.188	0.388	TBD
Subtotal Test & Evaluation			0.000	0.000		0.000		0.200		0.188	0.388	TBD
Remarks:												
(U) <u>Management</u>											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			0.000	0.000		0.000		1.067		0.748	1.815	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0408011F SPECIAL
TACTICS/COMBAT CONTROL

PROJECT NUMBER AND TITLE
5138 ST System Development

BAO Kit Development

BAO KIT Milestone FY06-FY11																																
	FY04				FY05				FY06				FY07				FY08				FY09				FY10				FY11			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
LITES			▲																													
BRITES											▲																					
SOFNET											▲																					
BATMAN																																
TAC Ear Plug												▲																				
M 2 MT											▲																					
UAVs (BAT CAM)												▲																				
First Production Delivery				▲																												

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Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2004

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0408011F SPECIAL
TACTICS/COMBAT CONTROL

PROJECT NUMBER AND TITLE

5138 ST System Development

(U) Schedule Profile

FY 2003

FY 2004

FY 2005

(U) LITES IOC

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PE NUMBER: 0605024F

PE TITLE: Anti-Tamper Technology Executive Agent

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0605024F Anti-Tamper Technology Executive Agent
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Cost (\$ in Millions)	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
Total Program Element (PE) Cost	8.474	8.780	7.858	7.785	7.776	7.753	7.727	0.000	0.000
5066 Anti-Tamper Technology Executive Agent	8.474	8.780	7.858	7.785	7.776	7.753	7.727	0.000	0.000

(U) A. Mission Description and Budget Item Justification

The Air Force is the DoD Executive Agent for implementing Anti-Tamper (AT) policy, developing AT technology, establishing and maintaining a data bank/library, providing proper security mechanisms, and conducting effective validation . The purpose of developing AT measures is to protect critical technologies in U.S. weapon systems that may be sold to foreign governments or that could possibly fall into enemy hands. AT technology will permit the U.S. to preserve its critical weapons systems lead while also satisfying customer needs. Furthermore, AT will add longevity to critical technologies by deterring efforts to reverse engineer, or develop weapon countermeasures against a system or system component.

As Executive Agent, the Air Force will coordinate the technology development among the Services, DoD Agencies and laboratories, and with industry. The Anti-Tamper technology development will occur in the following areas: advanced sensor hardware, generic electronic hardware, signature control, access detection & denial, software, and effectiveness. In the advanced sensor hardware area, antenna arrays, focal plane arrays, & T/R modules are areas of importance for AT technology development. AT technology for other advanced sensor hardware will also be developed as required. In the general electronic hardware area, AT technology development will be evaluated first for memory circuits and processors, followed by other electronic hardware. In the signature control area, AT technology development will be evaluated for radar absorbing materials and other low observable techniques. AT technology development for other signature control areas will be evaluated on a case-by-case basis. Measures of Effectiveness (MOEs) and the verification and validation of Anti-Tamper are also areas required further development. The program management activities will coordinate the technology development and establish the Anti-Tamper data bank/library.

Anti-Tamper validation is a significant responsibility assigned to the Air Force from OSD. All DoD acquisition programs, Foreign Military Sales, and Direct Commercial Sales with critical technology/critical information are required to have an Anti-Tamper plan with appropriate validation. The resources required to review Anti-Tamper plans and conduct Anti-Tamper validation began to ramp-up in late FY03. Currently, there are approximately eight recognized Anti-Tamper experts throughout DoD. Based on Anti-Tamper validation requirement projections, this number needs to expand to approximately 40 DoD experts by FY07.

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2004

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0605024F Anti-Tamper Technology Executive Agent

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	8.000	7.855	7.879
(U) Current PBR/President's Budget	8.474	8.780	7.858
(U) Total Adjustments	0.474	0.925	
(U) Congressional Program Reductions			
Congressional Rescissions	-0.102	-0.075	
Congressional Increases	1.000	1.000	
Reprogrammings	-0.184		
SBIR/STTR Transfer	-0.240		
(U) <u>Significant Program Changes:</u>			
None			

Exhibit R-2a, RDT&E Project Justification

DATE

February 2004

BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0605024F Anti-Tamper Technology Executive Agent			PROJECT NUMBER AND TITLE 5066 Anti-Tamper Technology Executive Agent		
Cost (\$ in Millions)	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
5066 Anti-Tamper Technology Executive Agent	8.474	8.780	7.858	7.785	7.776	7.753	7.727	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) **A. Mission Description and Budget Item Justification**

The Air Force is the DoD Executive Agent for implementing Anti-Tamper (AT) policy, developing AT technology, establishing and maintaining a data bank/library, providing proper security mechanisms, and conducting effective validation. The purpose of developing AT measures is to protect critical technologies in U.S. weapon systems that may be sold to foreign governments or that could possibly fall into enemy hands. AT technology will permit the U.S. to preserve its critical weapons systems lead while also satisfying customer needs. Furthermore, AT will add longevity to critical technologies by deterring efforts to reverse engineer, or develop weapon countermeasures against a system or system component.

As Executive Agent, the Air Force will coordinate the technology development among the Services, DoD Agencies and laboratories, and with industry. The Anti-Tamper technology development will occur in the following areas: advanced sensor hardware, generic electronic hardware, signature control, access detection & denial, software, and effectiveness. In the advanced sensor hardware area, antenna arrays, focal plane arrays, & T/R modules are areas of importance for AT technology development. AT technology for other advanced sensor hardware will also be developed as required. In the general electronic hardware area, AT technology development will be evaluated first for memory circuits and processors, followed by other electronic hardware. In the signature control area, AT technology development will be evaluated for radar absorbing materials and other low observable techniques. AT technology development for other signature control areas will be evaluated on a case-by-case basis. Measures of Effectiveness (MOEs) and the verification and validation of Anti-Tamper are also areas required further development. The program management activities will coordinate the technology development and establish the Anti-Tamper data bank/library.

Anti-Tamper validation is a significant responsibility assigned to the Air Force from OSD. All DoD acquisition programs, Foreign Military Sales, and Direct Commercial Sales with critical technology/critical information are required to have an Anti-Tamper plan with appropriate validation. The resources required to review Anti-Tamper plans and conduct Anti-Tamper validation began to ramp-up in late FY03. Currently, there are approximately eight recognized Anti-Tamper experts throughout DoD. Based on Anti-Tamper validation requirement projections, this number needs to expand to approximately 40 DoD experts by FY07.

(U) **B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments/Planned Program	0.000	0.000	0.000
(U) Anti-Tamper Technology Development	6.820	5.482	4.060
(U) Anti-Tamper Verification & Validation	1.040	1.555	2.055
(U) Database & Website	0.000	0.667	0.667
(U) Program Management Activity	0.614	1.076	1.076
(U) Total Cost	8.474	8.780	7.858

Project 5066

R-1 Shopping List - Item No. 116-4 of 116-8

Exhibit R-2a (PE 0605024F)

Exhibit R-2a, RDT&E Project Justification

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February 2004

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

**0605024F Anti-Tamper Technology
Executive Agent**

PROJECT NUMBER AND TITLE

**5066 Anti-Tamper Technology
Executive Agent****(U) C. Other Program Funding Summary (\$ in Millions)****(U) D. Acquisition Strategy**

Program Research and Development Announcements (PRDAs) will be used for the Anti-Tamper technology development. A sole source contract will be used for some of the technical support.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE
February 2004

BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0605024F Anti-Tamper Technology Executive Agent				PROJECT NUMBER AND TITLE 5066 Anti-Tamper Technology Executive Agent				
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
<u>(U) Anti-Tamper Technology Development</u>												
AFRL/XPJ	PRDA			5.615						0.000	5.615	
AFRL/AT-SPI	PRDA					4.982		3.560		Continuing	TBD	
Sandia National Lab	Sole Source			1.205		0.500		0.500		Continuing	TBD	
Subtotal Anti-Tamper Technology Development			0.000	6.820		5.482		4.060		Continuing	TBD	0.000
Remarks:												
<u>(U) Anti-Tamper Verification & Validation</u>												
Air Force AT Field Agent (413 FLTS/OLHN)	MIPR			0.100		0.300		0.500		Continuing	TBD	
Navy AT Field Agent (PMR-51)	MIPR			0.200		0.400		0.500		Continuing	TBD	
Army AT Field Agent (Aviation & Missile Cmd/Redstone)	MIPR			0.350		0.400		0.500		Continuing	TBD	
DoD Executive Agent Field Agent (AFRL/AT-SPI)	MIPR			0.200		0.305		0.305		Continuing	TBD	
Sandia National Lab	Sole Source			0.190		0.150		0.250		Continuing	TBD	
Subtotal Anti-Tamper Verification & Validation			0.000	1.040		1.555		2.055		Continuing	TBD	0.000
Remarks:												
<u>(U) Database and Website</u>												
AFRL/AT-SPI	MIPR			0.000		0.667		0.667		Continuing	TBD	
Subtotal Database and Website			0.000	0.000		0.667		0.667		Continuing	TBD	0.000
Remarks:												
<u>(U) Management</u>												
AFRL/XPJ	MIPR			0.614						0.000	0.614	
AFRL/AT-SPI	MIPR			0.000		1.076		1.076		Continuing	TBD	
Subtotal Management			0.000	0.614		1.076		1.076		Continuing	TBD	0.000
Remarks:												
<u>(U) Total Cost</u>			0.000	8.474		8.780		7.858		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

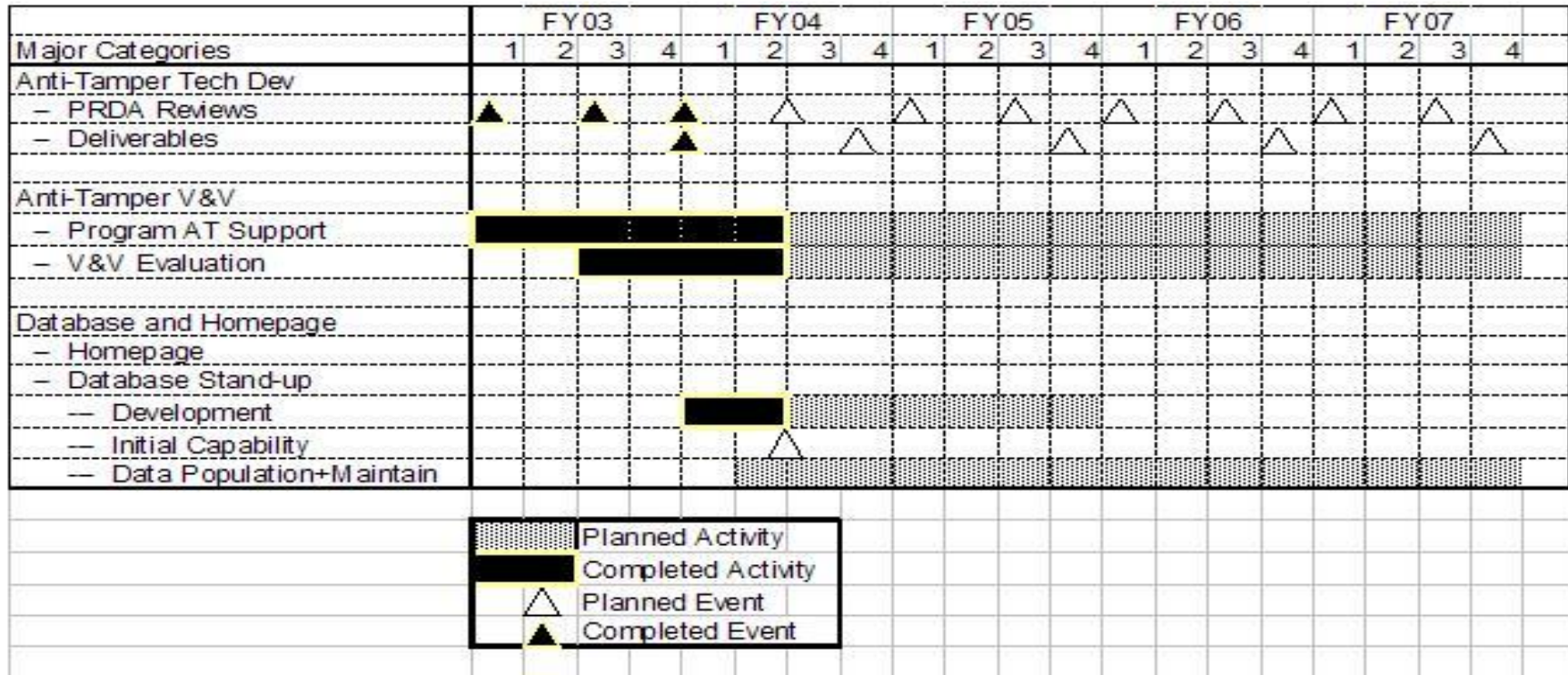
February 2004

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0605024F Anti-Tamper Technology
Executive Agent

PROJECT NUMBER AND TITLE
5066 Anti-Tamper Technology
Executive Agent

PE060524F – Anti-Tamper (14 Jan 04)



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Exhibit R-4a, RDT&E Schedule Detail

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

**0605024F Anti-Tamper Technology
Executive Agent**

PROJECT NUMBER AND TITLE

**5066 Anti-Tamper Technology
Executive Agent**

(U) Schedule Profile

FY 2003

FY 2004

FY 2005

(U) Anti-Tamper Technology Development

(U) -- PRDA Reviews

1-3Q

1-3Q

1-3Q

(U) -- PRDA Deliverables

4Q

4Q

4Q

(U) Anti-Tamper Verification & Validation

1-4Q

1-4Q

1-4Q

(U) Database and Website

1-4Q

1-4Q

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PE NUMBER: 0702207F
 PE TITLE: Depot Maintenance (Non-IF)

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0702207F Depot Maintenance (Non-IF)
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Cost (\$ in Millions)	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
Total Program Element (PE) Cost	2.209	1.394	1.431	1.401	1.423	1.446	1.469	Continuing	TBD
3326 Precision Measurement & Calibration	2.209	1.394	1.431	1.401	1.423	1.446	1.469	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

This program develops, tests, and evaluates national and Air Force measurement standards (hardware) and calibration equipment in support of all Air Force programs and activities, including Precision Measurement Equipment Laboratories (PMELs) worldwide. Metrology research and development provides technology to support systems in all phases of development and acquisition, as well as Air Force R&D laboratories, test ranges, ground test facilities, and operational weapons systems support. Rapidly changing technology requires continuing research and development of measurement standards and calibration equipment to ensure modern weapon systems meet Air Force readiness objectives. This program addresses all metrology disciplines and includes the technology areas of laser, infrared, microwave, millimeter wave, optical, physical, mechanical, electrical, electronic, and ionizing radiation measurements. Metrology is a technical discipline devoted to the science of measurements and to the study and improvement of measurement technology. Measurements are the foundation of military system development, quality assurance, hardware conformance testing and system readiness tests. The integrity of these tests is assured through calibration and traceability assurance schemes. The capability to measure and calibrate must parallel the emergence of new technology, new ranges, and new capabilities of military systems. Lack of new measurement capability impedes or blocks the successful exploitation of new technologies, especially in the movement from development laboratory to production to deployment. R&D efforts are essential within the DoD to pace these requirements, otherwise, these same new systems will suffer time delays, excessive cost, and increased risk due to unreliable test results in all phases of development, production, deployment and operation.

This program is in budget activity 7 - Operational System Development because it supports operational systems.

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	2.296	1.406	1.435
(U) Current PBR/President's Budget	2.209	1.394	1.431
(U) Total Adjustments	-0.087	-0.012	
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings	-0.087	-0.012	
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			
None			

Exhibit R-2a, RDT&E Project Justification

DATE

February 2004

BUDGET ACTIVITY		PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
07 Operational System Development		0702207F Depot Maintenance (Non-IF)					3326 Precision Measurement & Calibration			
Cost (\$ in Millions)	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	
3326 Precision Measurement & Calibration	2.209	1.394	1.431	1.401	1.423	1.446	1.469	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

(U) A. Mission Description and Budget Item Justification

This program develops, tests, and evaluates national and Air Force measurement standards (hardware) and calibration equipment in support of all Air Force programs and activities, including Precision Measurement Equipment Laboratories (PMELs) worldwide. Metrology research and development provides technology to support systems in all phases of development and acquisition, as well as Air Force R&D laboratories, test ranges, ground test facilities, and operational weapons systems support. Rapidly changing technology requires continuing research and development of measurement standards and calibration equipment to ensure modern weapon systems meet Air Force readiness objectives. This program addresses all metrology disciplines and includes the technology areas of laser, infrared, microwave, millimeter wave, optical, physical, mechanical, electrical, electronic, and ionizing radiation measurements. Metrology is a technical discipline devoted to the science of measurements and to the study and improvement of measurement technology. Measurements are the foundation of military system development, quality assurance, hardware conformance testing and system readiness tests. The integrity of these tests is assured through calibration and traceability assurance schemes. The capability to measure and calibrate must parallel the emergence of new technology, new ranges, and new capabilities of military systems. Lack of new measurement capability impedes or blocks the successful exploitation of new technologies, especially in the movement from development laboratory to production to deployment. R&D efforts are essential within the DoD to pace these requirements, otherwise, these same new systems will suffer time delays, excessive cost, and increased risk due to unreliable test results in all phases of development, production, deployment and operation.

This program is in budget activity 7 - Operational System Development because it supports operational systems.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Continue development of national measurement standards to support Air Force infrared / laser / electro-optical weapon systems and support equipment.	1.010	0.510	0.590
(U) Continue development of standards for electrical measurements to support high accuracy electronic test equipment.	0.480	0.235	0.186
(U) Continue development of standards for radar support, RF communication systems, and radar cross section range measurements.	0.515	0.330	0.275
(U) Continue the development of improved calibration standards to support physical, mechanical and electro-mechanical support equipment.	0.129	0.120	0.175
(U) Continue the development of national standards for calibration of ionizing radiation hazard instrumentation.	0.000	0.034	0.030
(U) Continue development of improved standards and procedures to support chemical/biological measurements	0.075	0.165	0.175
(U) Total Cost	2.209	1.394	1.431

Exhibit R-2a, RDT&E Project Justification

DATE

February 2004

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0702207F Depot Maintenance (Non-IF)

PROJECT NUMBER AND TITLE

3326 Precision Measurement & Calibration

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	

(U) AF RDTE

0.000

(U) **D. Acquisition Strategy**

Primarily accomplish through intergovernmental transfer between the Department of Defense and other Federal Departments.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2004

BUDGET ACTIVITY			PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
07 Operational System Development			0702207F Depot Maintenance (Non-IF)					3326 Precision Measurement & Calibration				
<u>(U) Cost Categories</u>	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to</u>	<u>Total</u>	<u>Target</u>
(Tailor to WBS, or System/Item Requirements) (\$ in Millions)			<u>Prior to FY</u>	<u>2003</u>	<u>2003</u>	<u>2004</u>	<u>2004</u>	<u>2005</u>	<u>2005</u>	<u>Complete</u>	<u>Cost</u>	<u>Value of</u>
			<u>2003</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>			<u>Contract</u>
			<u>Cost</u>		<u>Date</u>		<u>Date</u>		<u>Date</u>			
<u>(U) Product Development</u>												
National Institute of Standards & Technology Department of Energy	MIPR (DD FORM 448)		20.421	2.110		1.284		1.306		Continuing	TBD	
AFMC	MIPR (DD FORM 448)		0.510	0.075		0.085		0.100		Continuing	TBD	
Subtotal Product Development	In House		0.211	0.024		0.025		0.025		Continuing	TBD	
Remarks:			21.142	2.209		1.394		1.431		Continuing	TBD	0.000
<u>(U) Support</u>												
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Test & Evaluation</u>												
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Total Cost</u>			21.142	2.209		1.394		1.431		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile		DATE February 2004
BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0702207F Depot Maintenance (Non-IF)	PROJECT NUMBER AND TITLE 3326 Precision Measurement & Calibration

A schedule is not applicable due to the nature of this PE

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Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2004

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0702207F Depot Maintenance (Non-IF)

PROJECT NUMBER AND TITLE

3326 Precision Measurement & Calibration

(U) Schedule Profile

FY 2003

FY 2004

FY 2005

(U) A schedule for Depot Maintenance PE is Not Applicable due to the nature of this project.

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PE NUMBER: 0708011F
 PE TITLE: Industrial Preparedness

Exhibit R-2, RDT&E Budget Item Justification								DATE February 2004	
BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0708011F Industrial Preparedness					
Cost (\$ in Millions)	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
Total Program Element (PE) Cost	45.340	57.007	38.012	38.782	38.237	40.768	41.400	0.000	0.000
2865 Manufacturing Technology	45.340	57.007	38.012	38.782	38.237	40.768	41.400	0.000	0.000

(U) A. Mission Description and Budget Item Justification

The DoD Manufacturing Technology (ManTech) program is mandated by Section 2521, Title 10, United States Code, to create an affordable, world-class industrial base manufacturing capability responsive to warfighter's needs. The Air Force ManTech major program tenets are: improvement of manufacturing processes and technologies; collaboration with Government program offices, industry, and academia; investments in technologies beyond reasonable risk level for industry alone; cost-sharing; multiple system/customer applications; potential for significant return on investment; and customer commitment to implement. To this end, ManTech develops, demonstrates, and transitions advanced manufacturing processes and technologies to reduce costs, improve quality/capability, and shorten cycle times of weapon systems during design, development, production, and sustainment. ManTech projects include efforts that respond to Government program office acquisition and sustainment requirements to reduce cost, schedule, cycle time, and risks during transition of technology. Where mature processes are not available, laboratory-developed initial process capabilities are matured and inserted into weapon system programs. ManTech objectives are conducted through partnership with all industry levels, from large prime contractors to small material and parts vendors. Program planning centers on the aeronautical, sustainment, armament/directed energy, and command, control, intelligence, surveillance, and reconnaissance sectors of the industrial base. Note: In FY 2003, Congress added \$3.2 million for Prototype Low-Observable Coatings Development, \$2.0 million for Laser Peening for F-119 Engine, \$1.5 million for Technology Insertion Demonstration and Evaluation, and \$1.0 million for Bipolar Wafer-Cell Nickel-Metal Hydride Aircraft Battery. Note: In FY 2004 Congress added \$17.947 million for Applied Research & Technology in Transition (\$9.717 million), Bipolar Wafer Nickel Metal Hydride Battery Development (\$1.983 million), Doyle Center-TIDE Program (\$2.479 million), Electronic Industry-Wide Network for Characteristics and Specifications (\$0.992 million), Prototype Low Observable Coatings (\$2.776 million).

ManTech is in Budget Activity 7, Operational System Development, since it provides support for systems in design, production, and/or operational use. ManTech is part of the Industrial Preparedness Program Element supporting the Defense Planning Guidance and the Air Force Planning Guidance.

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2004

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0708011F Industrial Preparedness

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	44.381	39.396	40.112
(U) Current PBR/President's Budget	45.340	57.007	38.012
(U) Total Adjustments	0.959	17.611	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.489	
Congressional Increases		18.100	
Reprogrammings	2.000		
SBIR/STTR Transfer	-1.041		
(U) <u>Significant Program Changes:</u>			
Not applicable.			

Exhibit R-2a, RDT&E Project Justification

DATE

February 2004

BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0708011F Industrial Preparedness			PROJECT NUMBER AND TITLE 2865 Manufacturing Technology			
Cost (\$ in Millions)	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	
2865 Manufacturing Technology	45.340	57.007	38.012	38.782	38.237	40.768	41.400	0.000	0.000	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

(U) A. Mission Description and Budget Item Justification

The DoD Manufacturing Technology (ManTech) program is mandated by Section 2521, Title 10, United States Code, to create an affordable, world-class industrial base manufacturing capability responsive to warfighter's needs. The Air Force ManTech major program tenets are: improvement of manufacturing processes and technologies; collaboration with Government program offices, industry, and academia; investments in technologies beyond reasonable risk level for industry alone; cost-sharing; multiple system/customer applications; potential for significant return on investment; and customer commitment to implement. To this end, ManTech develops, demonstrates, and transitions advanced manufacturing processes and technologies to reduce costs, improve quality/capability, and shorten cycle times of weapon systems during design, development, production, and sustainment. ManTech projects include efforts that respond to Government program office acquisition and sustainment requirements to reduce cost, schedule, cycle time, and risks during transition of technology. Where mature processes are not available, laboratory-developed initial process capabilities are matured and inserted into weapon system programs. ManTech objectives are conducted through partnership with all industry levels, from large prime contractors to small material and parts vendors. Program planning centers on the aeronautical, sustainment, armament/directed energy, and command, control, intelligence, surveillance, and reconnaissance sectors of the industrial base. Note: In FY 2003, Congress added \$3.2 million for Prototype Low-Observable Coatings Development, \$2.0 million for Laser Peening for F-119 Engine, \$1.5 million for Technology Insertion Demonstration and Evaluation, and \$1.0 million for Bipolar Wafer-Cell Nickel-Metal Hydride Aircraft Battery. Note: In FY 2004 Congress added \$17.947 million for Applied Research & Technology in Transition (\$9.717 million), Bipolar Wafer Nickel Metal Hydride Battery Development (\$1.983 million), Doyle Center-TIDE Program (\$2.479 million), Electronic Industry-Wide Network for Characteristics and Specifications (\$0.992 million), Prototype Low Observable Coatings (\$2.776 million).

ManTech is in Budget Activity 7, Operational System Development, since it provides support for systems in design, production, and/or operational use. ManTech is part of the Industrial Preparedness Program Element supporting the Defense Planning Guidance and the Air Force Planning Guidance.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) MAJOR THRUST: Manufacturing Technology (ManTech) -- Manufacturing of Aeronautical Survivability and Modernization. Pursue affordable and efficient manufacturing ManTech investigations for critical, high quality, reliable structural, propulsion, stealth, and electronic components and assemblies required for existing and next generation aircraft.	20.499	16.087	10.034
(U) IN FY 2003: Continued high-value pilot efforts to verify advantages of flexible manufacturing, commercial/military integration, quality processing, and supplier improvements (e.g., Composites Affordability Initiative). Completed metals affordability initiatives focused on laser forming, casting, welding, and forging. Continued activities aimed at manufacture of more affordable low-observable coatings. Started effort to reduce high-cycle fatigue damping in engine components. Initiated rapid response productivity improvement effort to address manufacturing issues related to agile acquisition of low-rate production airframes.			

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Exhibit R-2a, RDT&E Project Justification		DATE February 2004	
BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0708011F Industrial Preparedness	PROJECT NUMBER AND TITLE 2865 Manufacturing Technology	
(U) IN FY 2004: Complete manufacturability efforts of laser components for the Affordable Missile Warning Sensor for large aircraft. Continue high value pilot efforts to verify advantages of flexible manufacturing, commercial/military integration, quality processing, and supplier improvements (e.g., Composites Affordability Initiative). Investigate and develop manufacturing capabilities for more affordable low-observable structures. Continue effort to reduce high-cycle fatigue damping in engine components. Initiate/continue rapid response producibility improvement efforts with selected high value programs.			
(U) IN FY 2005: Continue high-value pilot efforts to verify advantages of flexible manufacturing, commercial/military integration, quality processing, and supplier improvements. Initiate/continue rapid response productivity improvement efforts with selected high value programs.			
(U) MAJOR THRUST: ManTech -- Manufacturing for Sustainment/Readiness. Pursue cost-effective repair and manufacturing technologies for affordable sustainment components		12.185	8.085 11.539
(U) IN FY 2003: Pursued cost-effective repair and manufacturing technologies for affordable sustainment of aircraft and turbine engine components. Continued pilot efforts to assess benefits derived from inserting electronic parts obsolescence management tools into weapon system production programs. Continued technical effort to extend the life of critical, high-value rotating engine components exposed to high-cycle fatigue environments (Engine Rotor Life Extension effort).			
(U) IN FY 2004: Pursue cost-effective repair and manufacturing technologies for affordable sustainment of aircraft and turbine engine components. Complete pilot efforts to demonstrate benefits from inserting electronic parts obsolescence management tools into weapon system production programs. Maintain technical effort to extend the life of critical, high-value rotating engine components, which have been exposed to high-cycle fatigue environments (e.g., Engine Rotor Life Extension effort). Initiate and continue rapid response producibility improvement efforts with selected high value programs.			
(U) IN FY 2005: Continue cost-effective repair and manufacturing technologies for affordable sustainment of aircraft and turbine engine components. Continue technical effort to extend the life of critical, high-value rotating engine components, which have been exposed to high-cycle fatigue environments. Complete effort to reduce high-cycle fatigue damping in engine components. Initiate and continue rapid response productivity improvement efforts with selected high-value programs.			
(U) MAJOR THRUST: Manufacturing for Armament and Directed Energy Systems. Develop efficient and cost-effective manufacturing methods for high performance, high reliability electronics and materials for advanced tactical missiles and aircraft missile sensors.		4.094	4.735 2.827
(U) IN FY 2003: Continued development of efficient and cost-effective manufacturing methods for high performance and reliable electronics for advanced tactical missiles and aircraft missile sensors. Continued joint program with Navy to provide a lower drift-rate Inertial Measurement Unit (IMU) for Micro-Electro-Mechanical Systems. Completed rapid			

Project 2865

R-1 Shopping List - Item No. 218-4 of 218-11

Exhibit R-2a (PE 0708011F)

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Exhibit R-2a, RDT&E Project Justification		DATE February 2004	
BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0708011F Industrial Preparedness	PROJECT NUMBER AND TITLE 2865 Manufacturing Technology	
<p>response productivity improvement efforts to increase production (surge) rate of IMUs for precision-guided munitions and provide high-quality glass material acceptable for use in airborne laser turret windows.</p>			
<p>(U) IN FY 2004: Continue to pursue efficient and cost-effective manufacturing methods for high performance and reliable components for advanced tactical missiles, aircraft missile sensors (e.g., Inertial Measurement Unit for Micro-Electro-Mechanical Systems effort), and directed energy systems. Initiate manufacturing technology efforts supporting producibility/affordability improvements in high priority precision-guided munitions components. Initiate and continue rapid response producibility improvement efforts with selected high-value programs.</p>			
<p>(U) IN FY 2005: Continue to pursue efficient and cost-effective manufacturing methods for high performance and reliable electronics for advanced tactical missiles and aircraft missile sensors. Continue manufacturing technology efforts supporting precision-guided munitions fuse, battery, inertial measurement unit, and next generation inertial navigation units. Initiate and continue rapid response productivity improvement efforts with selected high-value programs.</p>			
<p>(U) MAJOR THRUST: Manufacturing of C2ISR Electronics. Address critical manufacturing issues for various command, control, intelligence, surveillance, and reconnaissance platforms.</p>	<p>1.119</p>	<p>10.153</p>	<p>13.612</p>
<p>(U) IN FY 2003: Developed risk reduction efforts addressing critical manufacturing issues for various command, control, intelligence, surveillance, and reconnaissance platforms. Focused efforts on components such as electronically scanned arrays to improve producibility, reliability, and affordability.</p>			
<p>(U) IN FY 2004: Continue efforts to address critical electronics manufacturing technologies for various command, control, intelligence, surveillance, and reconnaissance platforms. Focus efforts on components such as electronically scanned arrays to improve producibility, reliability, and affordability. Initiate and continue rapid response producibility improvement efforts with selected high value programs.</p>			
<p>(U) IN FY 2005: Continue efforts to address critical electronics manufacturing technologies for various command, control, intelligence, surveillance, and reconnaissance platforms in order to improve affordability and producibility. Efforts will focus primarily on active electronically scanned array components. Initiate and continue rapid response producibility improvement efforts with selected high value programs. Continue major multi-year and cross-sector effort on Active Electronically Scanned Arrays (AESA) to enable improved manufacturing processes, reduced integration and test, and reduce production costs for all users and developers of advanced conformal AESA systems.</p>			
<p>(U) CONGRESSIONAL ADD: Advanced Low Observable Coatings.</p>	<p>3.093</p>	<p>2.776</p>	
<p>(U) IN FY 2003: Developed tasks associated with Prototype Low-Observable Coatings Development (e.g., increase sputtering rate during coating application).</p>			
<p>(U) IN FY 2004: Produce coatings via improved manufacturing process and begin system level demonstration, test, and evaluation.</p>			
<p>(U) IN FY 2005: NOT APPLICABLE</p>			

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Exhibit R-2a, RDT&E Project Justification		DATE February 2004	
BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0708011F Industrial Preparedness	PROJECT NUMBER AND TITLE 2865 Manufacturing Technology	
(U)			
(U) CONGRESSIONAL ADD: Technical Insertion Demonstration and Evaluation.		1.451	2.479
(U) IN FY 2003: Developed tasks associated with Technology Insertion Demonstration and Evaluation (e.g., supply chain requirements definition, system development, and demonstration).			
(U) IN FY 2004: Continue tasks associated with Technology Insertion Demonstration and Evaluation.			
(U) IN FY 2005: NOT APPLICABLE			
(U)			
(U) CONGRESSIONAL ADD: Nickel Hydride Battery.		0.966	1.983
(U) IN FY 2003: Developed tasks associated with Bipolar Wafer-Cell Nickel-Metal Hydride Aircraft Battery (e.g., performance testing and environmental testing).			
(U) IN FY 2004: Continue test and evaluation; design and implement additional production scale-up efficiencies and automation.			
(U) IN FY 2005: NOT APPLICABLE.			
(U)			
(U) CONGRESSIONAL ADD: Laser Shock Peening for F119 Engines.		1.933	0.000
(U) IN FY 2003: Develop tasks associated with Laser Peening for F-119 Engine (e.g., increase damage tolerance of integrally bladed rotors).			
(U) IN FY 2004: NOT APPLICABLE.			
(U) IN FY 2005: NOT APPLICABLE.			
(U)			
(U) CONGRESSIONAL ADD: Applied Research & Technology in Transition.		0.000	9.717
(U) IN FY 2003: NOT APPLICABLE.			
(U) IN FY 2004: Develop tasks associated with Applied Research & Technology in Transition. Begin to develop a Center for Aerospace Manufacturing Technology (CAMT) at the University of Missouri - Rolla dedicated to research on advanced aerospace manufacturing.			
(U) IN FY 2005: NOT APPLICABLE.			
(U)			
(U) CONGRESSIONAL ADD: Electronic Industry-Wide Network for Characteristics & Specifications.		0.000	0.992
(U) IN FY 2003: NOT APPLICABLE.			
(U) IN FY 2004: Develop tasks associated with Electronic Industry-Wide Network for Characteristics & Specifications.			
(U) IN FY 2005: NOT APPLICABLE.			
(U)			
(U)			
(U) Total Cost		45.340	57.007 38.012

Exhibit R-2a, RDT&E Project Justification

DATE

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0708011F Industrial Preparedness

PROJECT NUMBER AND TITLE

2865 Manufacturing Technology

(U) C. Other Program Funding Summary (\$ in Millions)

(U) D. Acquisition Strategy

All major contracts in this Program Element were awarded after full and open competition.

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Exhibit R-3, RDT&E Project Cost Analysis										DATE February 2004		
BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0708011F Industrial Preparedness				PROJECT NUMBER AND TITLE 2865 Manufacturing Technology				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2003 Cost</u>	<u>FY 2003 Cost</u>	<u>FY 2003 Award Date</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Advanced Technology Inst	Coop Agmt		0.825							0.000	0.825	
Aerojet-General Corp	Coop Agmt		2.150							0.000	2.150	
Anteon	Various		6.686	0.966						0.000	7.652	
AT&T Government Solutions	Cost Plus		0.300							0.000	0.300	
Boeing	Various		25.670	1.180		0.582		0.625		0.000	28.057	
Central State University	Cost Share		0.312	0.088						0.000	0.400	
Doyle Center for MTech, PA	Various		0.000	0.000		2.500					2.500	
Electro Energy Inc	Various		0.000			2.000					2.000	
Frontier Technologies	Cost Plus		0.365	0.192						0.000	0.557	
GE	Coop Agmt		0.898							0.000	0.898	
General Atomics	Various		0.000			2.800					2.800	
GRC	Cost Plus		2.470			1.000				0.000	3.470	
Honeywell	Various		2.690	1.500		0.750		0.238		0.000	5.178	
KBSI	Cost Share		3.350							0.000	3.350	
Lockheed Martin	Various		14.874	1.371		0.966		0.575		0.000	17.786	
LSP Technologies	Cost Share		6.901	1.933						0.000	8.834	
Mississippi State University	Cost Share		0.250							0.000	0.250	
MIT	Coop Agmt		10.456							0.000	10.456	
Motorola	Tech Int Agr		1.939							0.000	1.939	
Northrop Grumman	Various		25.185	4.744		4.366		2.900		0.000	37.195	
Pratt & Whitney	Tech Int Agr		5.950							0.000	5.950	
Raytheon	Coop Agmt		1.100							0.000	1.100	
TMCI	Cost Plus		1.635							0.000	1.635	
TRW	Coop Agmt		4.615							0.000	4.615	
Univ Dayton Res Inst	Cost Plus		3.300	5.004		4.646		6.696		0.000	19.646	
Univ Maryland	Coop Agmt		2.250	0.300		9.800				0.000	12.350	
UTC	Various		0.530	0.300						0.000	0.830	
Various	Various		76.839	27.762		27.597		26.978		Continuing	TBD	

Project 2865

R-1 Shopping List - Item No. 218-8 of 218-11

Exhibit R-3 (PE 0708011F)

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Exhibit R-3, RDT&E Project Cost Analysis						DATE February 2004		
BUDGET ACTIVITY	PE NUMBER AND TITLE			PROJECT NUMBER AND TITLE				
07 Operational System Development	0708011F Industrial Preparedness			2865 Manufacturing Technology				
Subtotal Product Development	201.540	45.340	57.007	38.012	Continuing	TBD	0.000	
Remarks:								
(U) <u>Support</u>								
In house support							0.000	
Subtotal Support	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Remarks:								
(U) <u>Test & Evaluation</u>								
Subtotal Test & Evaluation	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Remarks:								
(U) <u>Management</u>								
Subtotal Management	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Remarks:								
(U)								
Subtotal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Remarks:								
(U) Total Cost	201.540	45.340	57.007	38.012	Continuing	TBD	0.000	

Exhibit R-4, RDT&E Schedule Profile

DATE

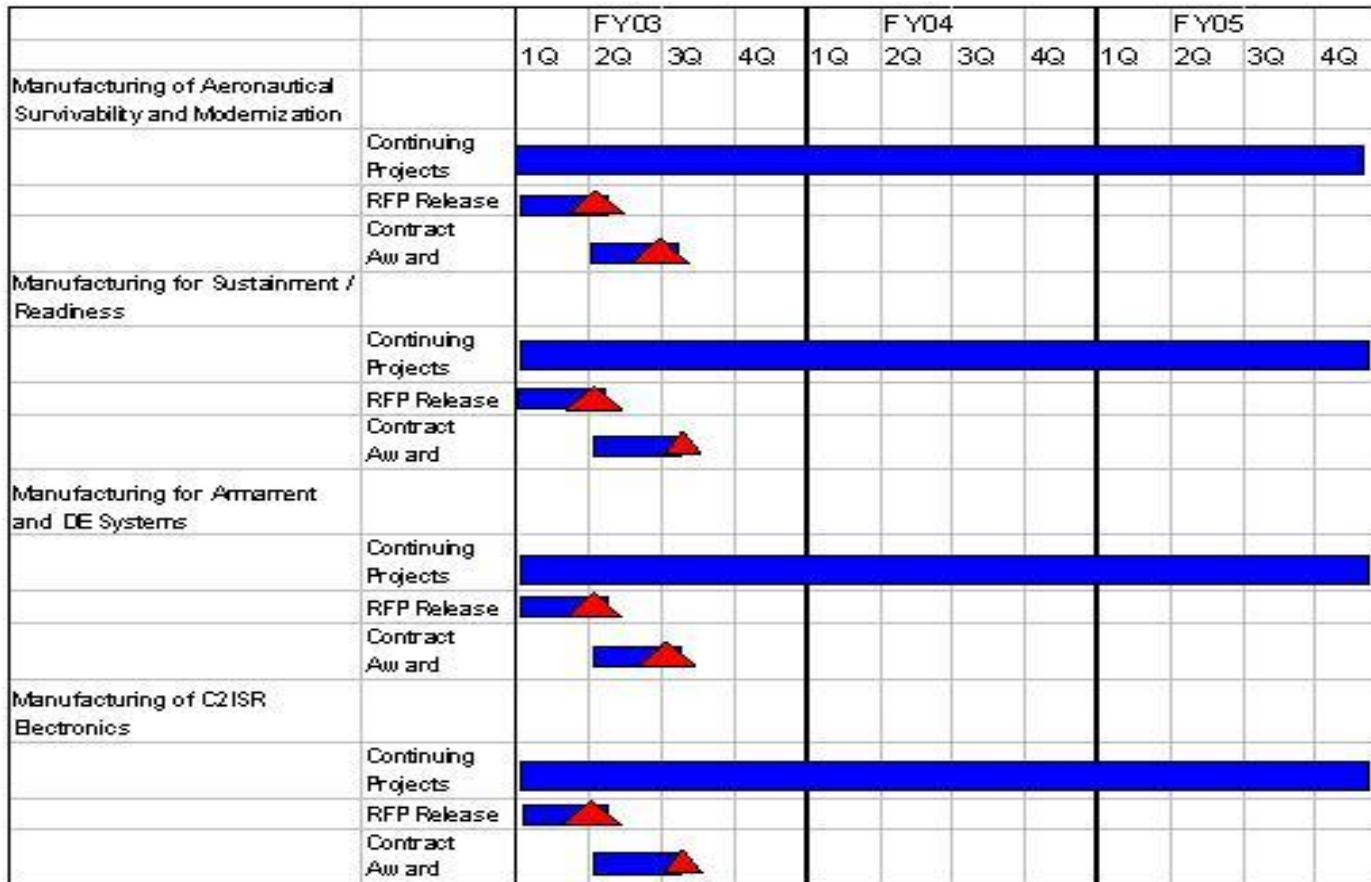
February 2004

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0708011F Industrial Preparedness

PROJECT NUMBER AND TITLE
2865 Manufacturing Technology

ManTech Schedule Summary



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Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2004

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0708011F Industrial Preparedness

PROJECT NUMBER AND TITLE

2865 Manufacturing Technology

(U) <u>Schedule Profile</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Manufacturing Technology for Aeronautical Survivability and Modernization.	1-4Q	1-4Q	1-4Q
(U) Request for Proposal Release	2Q	2Q	2Q
(U) Contract Awards	3Q	3Q	3Q
(U) Manufacturing Technology for Sustainment / Readiness	1-4Q	1-4Q	1-4Q
(U) Request for Proposal Release	1Q	1Q	1Q
(U) Contract Awards	2Q	2Q	2Q
(U) Manufacturing for Armament and Directed Energy Systems.	1-4Q	1-4Q	1-4Q
(U) Request for Proposal Release	1Q	1Q	1Q
(U) Contract Awards	2Q	2Q	2Q
(U) Mfg for command, control, intel, surveillance, and reconnaissance (C2ISR) electronics	1-4Q	1-4Q	1-4Q
(U) Request for Proposal Release	1Q	1Q	1Q
(U) Contract Awards	2Q	2Q	2Q

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PE NUMBER: 0708012F
 PE TITLE: Logistic Support Activities

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0708012F Logistic Support Activities
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Cost (\$ in Millions)	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
Total Program Element (PE) Cost	8.718	1.381	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5054 CAM Modernization	8.718	1.381	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

In FY 2003, Project 5054, Core Automated Maintenance System (CAMS) Modernization efforts were transferred from PE 0708611F, Support Systems Development, Project 4654, Integrated Maintenance Data System (IMDS), in order to modernize the CAMS system.

In FY 2004, Congress added \$1.4 Million RDT&E funds to Logistics Support Activities (in CAM Modernization project 5054) for Reliability and Maintainability Information System (REMIS).

In FY 2004, the cost estimates for CAM Modernization were adjusted to \$1.381 million. The delta of \$1.381 million is a result of incorrect project code. The adjustment occurred after official database lock and has been approved as of Jan 04.

(U) A. Mission Description and Budget Item Justification

Core Automated Maintenance System (CAMS) is the standard Air Force base-level automated maintenance information management system for managing weapon systems worldwide. The system supports aircraft, communications-electronics, and support equipment maintenance activities at worldwide operating bases, Air National Guard/AF Reserve sites, and selected North Atlantic Treaty Organization (NATO) locations. CAMS provides on-line remote terminals connected to the Standard Base-Level Computer (SBLC) system throughout the maintenance complexes. CAMS automates aircraft history, aircraft scheduling, aircrew debriefing processes, and provides a common interface for entering base-level maintenance data into other logistics management systems.

This program is in Budget Activity 7, Operational System Development, because projects are being engineered to support operational weapon systems already in existence.

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	10.375	0.000	0.000
(U) Current PBR/President's Budget	8.718	1.381	0.000
(U) Total Adjustments	-1.657	1.381	
(U) Congressional Program Reductions	-0.178	-0.007	
Congressional Rescissions		-0.012	
Congressional Increases		1.400	
Reprogrammings	-1.203		
SBIR/STTR Transfer	-0.276		

(U) Significant Program Changes:

In FY 2003, CAMS modernization efforts such as database redesign and data standardization, necessary to bring CAMS into compliance with Global Combat Support System - AF (GCSS-AF) requirements, were completed. In FY 2004, the CAMS system baseline was passed off to the Integrated Maintenance Data System (IMDS)

Exhibit R-2, RDT&E Budget Item Justification

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0708012F Logistic Support Activities

development effort for future enhancements. IMDS funding is in PE 0708611F, project 4654. The funding shown in FY 2004 is a Congressional Add for REMIS, not CAMS.

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0708012F Logistic Support Activities			PROJECT NUMBER AND TITLE 5054 CAM Modernization		
Cost (\$ in Millions)	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
5054 CAM Modernization	8.718	1.381	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

Core Automated Maintenance System (CAMS) is the standard Air Force base-level automated maintenance information management system for managing weapon systems worldwide. The system supports aircraft, communications-electronics, and support equipment maintenance activities at worldwide operating bases, Air National Guard/AF Reserve sites, and selected North Atlantic Treaty Organization (NATO) locations. CAMS provides on-line remote terminals connected to the Standard Base-Level Computer (SBLC) system throughout the maintenance complexes. CAMS automates aircraft history, aircraft scheduling, aircrew debriefing processes, and provides a common interface for entering base-level maintenance data into other logistics management systems.

This program is in Budget Activity 7, Operational System Development, because projects are being engineered to support operational weapon systems already in existence.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments/Planned Program	0.000	0.000	
(U) CAMS Modernization	7.974		
(U) Support Contractors (MCR, SenCom)	0.312		
(U) System Program Office (SPO) Operations	0.432		
(U) REMIS GCSS-AF migration/Modernization		1.381	
(U) Total Cost	8.718	1.381	0.000

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Not Applicable									

(U) D. Acquisition Strategy

All major contracts awarded after full and open competition.

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0708012F Logistic Support Activities	PROJECT NUMBER AND TITLE 5054 CAM Modernization
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(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u> Prior to FY 2003 Cost	<u>FY</u> 2003 Cost	<u>FY</u> 2003 Award Date	<u>FY</u> 2004 Cost	<u>FY</u> 2004 Award Date	<u>FY</u> 2005 Cost	<u>FY</u> 2005 Award Date	<u>Cost to Complete</u>	<u>Total</u> Cost	<u>Target</u> Value of Contract
(U) <u>Product Development</u> CAMS Modernization											0.000	
- Software Development	MIPR	Engineering, Standard Systems Group, Maxwell AFB-Gunter Annex, AL	0.000	3.723	Oct-02	0.000		0.000		0.000	3.723	3.723
- Software Development	C & CPAF	Information Technology Services (ITS), Maxwell AFB-Gunter Annex, AL	0.000	4.251	Dec-02	0.000		0.000		0.000	4.251	4.251
REMISS - GCSS-AF Migration/Modernization	C & CPAF	Northrop Grumman Information Technology, Wright Patterson AFB, OH	0.000	0.000		1.381	Apr-04	0.000		Continuing	TBD	TBD
Subtotal Product Development			0.000	7.974		1.381		0.000		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u> Support Contractors	C & FP	Maxwell AFB-Gunter Annex, AL	0.000	0.312	Dec-02	0.000		0.000		0.000	0.312	0.312
Subtotal Support			0.000	0.312		0.000		0.000		0.000	0.312	0.312
Remarks:												
(U) <u>Management</u> System Program Office (SPO) Operations	MIPR	Maxwell AFB-Gunter Annex, AL	0.000	0.432	Oct-02	0.000		0.000		0.000	0.432	0.432
Subtotal Management			0.000	0.432		0.000		0.000		0.000	0.432	0.432
Remarks:												

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY	PE NUMBER AND TITLE			PROJECT NUMBER AND TITLE			
07 Operational System Development	0708012F Logistic Support Activities			5054 CAM Modernization			
Subtotal	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Remarks:							
(U) Total Cost	0.000	8.718	1.381	0.000	Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0708012F Logistic Support Activities

PROJECT NUMBER AND TITLE
5054 CAM Modernization

Exhibit R-4: CAMS Schedule Profile

13 Jan. 04

Fiscal Year	FY 03				FY 04				FY 05				FY 06				FY 07				FY 08				FY 09				FY 10			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
CAMS 7R1 Unisys CDB	█				█																											
REMIS GCSS-AF Migration/Modernization								△																								

- ☆ Major Event or Milestone
- █ Planned Ongoing Activity
- █ Ongoing Activity that is Complete
- ▲ Completed Event
- △ Planned Task(s)

Exhibit R-4a, RDT&E Schedule Detail

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0708012F Logistic Support Activities

PROJECT NUMBER AND TITLE

5054 CAM Modernization

(U) **Schedule Profile**

FY 2003

FY 2004

FY 2005

(U) Complete CAMS 7R1Unisys Centralized Database Software Development

1Q

4Q

(U) Start REMIS GCSS-AF Migration/Modernization

3Q

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PE NUMBER: 0708026F

PE TITLE: Productivity, Reliability, Availability, Maintainability Program

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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0708026F Productivity, Reliability, Availability, Maintainability Program
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Cost (\$ in Millions)	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
Total Program Element (PE) Cost	9.154	8.924	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2146 PRAM	9.154	8.924	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Note: Program was terminated in FY 2004 due to higher Air Force priorities.

(U) A. Mission Description and Budget Item Justification

This program emphasizes the rapid incorporation of reliability and maintainability (R&M) technology 'fixes' that will improve the operational capability of weapon systems and equipment at a significantly lower cost. Productivity, Reliability, Availability, Maintainability (PRAM) accomplishes this by utilizing existing off-the-shelf and emerging technologies and adapting them to specific Air Force and joint-Service weapon systems and processes to solve near-term deficiencies. It relies on Major Command and field support to implement the adapted-technology when the initial investment is complete. PRAM is a key tool for reducing the total ownership cost of fielded systems and supporting infrastructure. Average project length is twenty-seven months. PRAM currently provides services to all three Air Force Material Command centers as well as the Air Force Space Command Space and Missile Systems Center. Note: In FY 2003, Congress added \$2.8 million for Modeling/ Re-engineering for Oklahoma City Air Logistics Center and \$2.1 million for Aircraft Turbine Engine Sustainment.

This program is in Budget Activity 7, Operational System Development, because it provides support to systems in operational use.

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	9.512	0.000	0.000
(U) Current PBR/President's Budget	9.154	8.924	0.000
(U) Total Adjustments	-0.358	8.924	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.076	
Congressional Increases		9.000	
Reprogrammings			
SBIR/STTR Transfer	-0.358		

(U) Significant Program Changes:

Program funding was reduced due to higher priority Air Force requirements.

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0708026F Productivity, Reliability, Availability, Maintainability Program			PROJECT NUMBER AND TITLE 2146 PRAM		
Cost (\$ in Millions)	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
2146 PRAM	9.154	8.924	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

Note: Program was terminated in FY 2004 due to higher Air Force priorities.

(U) **A. Mission Description and Budget Item Justification**

This program emphasizes the rapid incorporation of reliability and maintainability (R&M) technology 'fixes' that will improve the operational capability of weapon systems and equipment at a significantly lower cost. Productivity, Reliability, Availability, Maintainability (PRAM) accomplishes this by utilizing existing off-the-shelf and emerging technologies and adapting them to specific Air Force and joint-Service weapon systems and processes to solve near-term deficiencies. It relies on Major Command and field support to implement the adapted-technology when the initial investment is complete. PRAM is a key tool for reducing the total ownership cost of fielded systems and supporting infrastructure. Average project length is twenty-seven months. PRAM currently provides services to all three Air Force Material Command centers as well as the Air Force Space Command Space and Missile Systems Center. Note: In FY 2003, Congress added \$2.8 million for Modeling/ Re-engineering for Oklahoma City Air Logistics Center and \$2.1 million for Aircraft Turbine Engine Sustainment.

This program is in Budget Activity 7, Operational System Development, because it provides support to systems in operational use.

(U) **B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) MAJOR THRUST: The Productivity, Reliability, Availability and Maintainability (PRAM) program facilitates transitioning of technologies to improve reliability and maintainability of fielded systems. The program accomplishes this by utilizing existing off-the-shelf and emerging technologies and adapting them to specific systems.	4.459	0.000	0.000
(U) In FY 2003: Completed previous year subsystem Productivity, Reliability, Availability and Maintainability (PRAM) projects to reduce total ownership costs of Air Force systems such as: combining the attributes of three types of support equipment; transitioning commercial off-the-shelf equipment to the F-16 aircraft; developing a powder coating technique that is applicable to various systems; and transitioning new materials that present an improved strength-to-weight ratio resulting in greater payloads for both space and aircraft missions. Completed airframe, subsystem, life support, and space reliability and maintainability (R&M) efforts that reduce operations and support (O&S) costs by reducing the overall maintenance burden, improving capabilities, reliability, and mission readiness. Completed aero support equipment efforts to reduce Air Force O&M costs. Expanded the current base infrastructure R&M tracking method for contingency data associated with system usage/configuration, premature failures, cost, and supply. Completed development of improved efficiency air compressor. Completed the existing space and missile systems reliability efforts to reduce Air Force O&S costs within the air armaments enterprise. Completed development of a non-destructive test protocol that duplicates actual flight conditions for precision-guided munitions and cruise missiles. Transitioned technology to improve R&M of munitions handling systems. Developed and			

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Exhibit R-2a, RDT&E Project Justification		DATE February 2004	
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE	
07 Operational System Development	0708026F Productivity, Reliability, Availability, Maintainability Program	2146 PRAM	
completed Aircraft Turbine Engine Sustainment.			
(U) In FY 2004: Not Applicable.			
(U) In FY 2005: Not Applicable.			
(U)			
(U) CONGRESSIONAL ADD: Turbine Engine Sustainment Initiative.		2.683	3.470
(U) In FY 2003: Continued to develop non-destructive inspection technology to identify embedded defects in turbine engine components.			0.000
(U) In FY 2004: Complete the multi-year, multi-task effort to develop non-destructive inspection tools to identify embedded defects in turbine engine components and deliver the technology for evaluation.			
(U) In FY 2005: Not Applicable.			
(U)			
(U) CONGRESSIONAL ADD: Modeling and Re-engineering at Oklahoma City Air Logistics Center.		2.012	0.000
(U) In FY 2003: Completed a multi-year, multi-task effort to install lean production cells to reduce man-hours and increase production throughput on turbine engines.			0.000
(U) In FY 2004: Not Applicable.			
(U) In FY 2005: Not Applicable.			
(U)			
(U) CONGRESSIONAL ADD: Lean Depot Engine Repair (LEADER).		0.000	4.462
(U) In FY 2003: Not Applicable.			0.000
(U) In FY 2004: Continue the multi-year, multi-task effort to install lean production cells to reduce man-hours and increase production throughput on turbine engines.			
(U) In FY 2005: Not Applicable.			
(U)			
(U) CONGRESSIONAL ADD: Inspection Technology for Turbine Engines.		0.000	0.992
(U) In FY 2003: Not Applicable.			0.000
(U) In FY 2004: Complete the multi-year, multi-task effort to develop non-destructive inspection tools to identify embedded defects in turbine engine components and deliver the prototype system for evaluation.			
(U) In FY 2005: Not Applicable.			
(U) Total Cost		9.154	8.924
			0.000

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0708026F Productivity, Reliability, Availability, Maintainability Program	PROJECT NUMBER AND TITLE 2146 PRAM
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(U) **C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	

(U) AF RDT&E

(U) Other APPN

(U) Related Activities:

(U) PE 0605011F, RDT&E for Aging Aircraft.

(U) **D. Acquisition Strategy**

All projects within this Program Element are awarded competitively, either by full and open competition, or by amending task order contracts with competition for subcontracts.

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0708026F Productivity, Reliability, Availability, Maintainability Program	PROJECT NUMBER AND TITLE 2146 PRAM
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(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u> Prior to FY 2003 Cost	<u>FY</u> 2003 Cost	<u>FY</u> 2003 Award Date	<u>FY</u> 2004 Cost	<u>FY</u> 2004 Award Date	<u>FY</u> 2005 Cost	<u>FY</u> 2005 Award Date	<u>Cost to Complete</u>	<u>Total</u> Cost	<u>Target</u> Value of Contract
(U) <u>Product Development</u>												
Numerous	Various		3.028	2.909		8.924				0.000	14.861	
General Atomics	Various		9.903	4.267						0.000	14.170	
Lockheed Martin	Various		0.510							0.000	0.510	
ARINC	T&M		1.750							0.000	1.750	
Battelle	T&M		0.000							0.000	0.000	
Lockheed Sanders	T&M		0.000							0.000	0.000	
Southwest Research	T&M		0.000							0.000	0.000	
CACI	T&M		0.000	0.100						0.000	0.100	
NCI Information Systems	T&M		0.000							0.000	0.000	
General Dynamics	TBD		0.000	0.600						0.000	0.600	
None											0.000	
Subtotal Product Development			15.191	7.876		8.924		0.000		0.000	31.991	0.000
Remarks:												
(U) <u>Support</u>												
UDRI	TDB		0.000								0.000	
In-house support											0.000	
None											0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Test & Evaluation</u>												
None											0.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	1.278		0.000		0.000		0.000	1.278	0.000
Remarks:												
(U) Total Cost			15.191	9.154		8.924		0.000		0.000	33.269	0.000

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Exhibit R-4a, RDT&E Schedule Detail

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

**0708026F Productivity, Reliability,
Availability, Maintainability Program**

PROJECT NUMBER AND TITLE

2146 PRAM

(U) <u>Schedule Profile</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Blade Tip Repair at Oklahoma City Air Logistics Center: (Congressional Add)	4Q		
(U) Modeling/Re-engineering at Oklahoma City Air Logistics Center		3Q	3Q
(U) Aircraft Turbine Engine Sustainment (Congressional Add)	3Q	3Q	3Q
(U) Inspection Technology for Turbine Engines (Congressional Add)	2Q		
(U) Portable Power Coating Process Warner Robbins Air Logistics Center: Develop a portable application for applying powder coating to landing gear components	2Q	2Q	
(U) Powder Coating Process for Damages Warner Robbins Air Logistics Center: Develop and evaluate processes suitable for the repair of damaged powder coating	3Q		
(U) Cost of Corrosion	3Q		

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PE NUMBER: 0708611F

PE TITLE: Support Systems Development

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0708611F Support Systems Development
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Cost (\$ in Millions)	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
Total Program Element (PE) Cost	50.035	72.843	50.238	48.647	49.419	50.210	50.984	Continuing	TBD
3318 Product Data Systems Modernization (PDSM)	4.311	7.731	5.523	3.387	3.375	3.429	3.481	Continuing	TBD
4654 Integrated Maintenance Data System (IMDS)	16.999	45.546	24.586	24.940	25.349	25.754	26.152	Continuing	TBD
4926 Reengineering and Enabling Technologies	7.110	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5042 Log Application Logistics Integration (LALI)	9.544	7.074	7.116	7.184	7.318	7.435	7.550	Continuing	TBD
5044 Log Application ILS-S (LAJLS-S)	12.071	12.492	13.013	13.136	13.377	13.592	13.801	Continuing	TBD

In FY 2003, Congress added \$7.7 Million RDT&E funds to SSD (in the IMDS project 4654) for Center for Aircraft Support/System Infrastructure (CASI) (\$3.0 million), Aging Aircraft Data Environment for C-5 and C-17 (\$1.5 million), Commodity Management Systems Consolidation (CMSC) (\$1.7 million), and Low Emission/Efficient Hybrid Aviation Refueling Truck Propulsion (\$1.5 million). The Air Force has provided these amounts to the correct program offices for execution.

In FY 2004, Congress added \$19.8 Million RDT&E funds to SSD (in the IMDS project 4654) for Center for Aircraft Support/System Infrastructure (CASI) (\$1.2 million), C-5/C-17 SCME Aging Aircraft (\$3.0 million), Low Emission/Efficient Hybrid Aviation Refueling Truck Propulsions (\$2.5 million), Teleoperated Semiautonomous Robot for Aging Aircraft Maintenance (\$1.5 million), Fuel Cell-Based Common Core Power Production (\$4.0 million), Performance Based Logistics/Maintenance Steering Group 3 (\$1.2 million), Special Operations Aircraft Depot Maintenance (\$1.2 million), Heavy Duty Hybrid Electric (\$3.0 million), AF Center of Acquisition Reengineering & Enabling Technologies (\$1.2 million), and Information Assurance for Enabling Technologies (\$1.0 million). The Air Force is working to identify and provide these amounts to the correct program offices for execution.

In FY2003, the cost estimates for PDSM were adjusted to \$4.311 million. The delta of \$7.809 million is a result of incorrect project code. The adjustment occurred after official database lock and has been approved as of Jan 04.

In FY2003, the cost estimates for IMDS were adjusted to \$16.999 million. The delta of \$1.794 million is a result of reprogramming. The adjustment occurred after official database lock and has been approved as of Jan 04.

In FY2003, the cost estimates for RET were adjusted to \$7.110 million. The delta of \$7.110 million is a result of reprogramming. The adjustment occurred after official database lock and has been approved as of Jan 04.

In FY2003, the cost estimates for LALI were adjusted to \$9.544 million. The delta of \$2.411 million is a result of reprogramming. The adjustment occurred after official database lock and has been approved as of Jan 04.

In FY2003, the cost estimates for LAJLS-S were adjusted to \$12.071 million. The delta of \$0.082 million is a result of reprogramming. The adjustment occurred after official database lock and has been approved as of Jan 04.

(U) A. Mission Description and Budget Item Justification

Exhibit R-2, RDT&E Budget Item Justification

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February 2004

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0708611F Support Systems Development

This program element supports five separate programs. PDSM (project 3318) updates Air Force digital data standards to commercial industry standards supporting the Joint Computer-Aided Acquisition Logistic Support (JCALS) System which is being phased out of the inventory and supported by the modernization program Enhanced Technical Information Management System (ETIMS). IMDS (project 4654) develops and fields an Air Force standard maintenance information system to integrate information systems supporting Air Force maintenance activities into a single open architecture, modern decision support system that is compatible with the Global Combat Support System - Air Force (GCSS-AF) architecture. This enhanced decision support system will increase operational production capability and support system efficiency, while decreasing mobility infrastructure requirements and cost of operations. Reengineering and Enabling Technologies (RET) (project 4926) provides for continuing analytical research and studies in reengineering and enabling technologies. LAILS-S, (project 5044), will modernize the existing legacy Standard Base Supply System (SBSS). LALI, (project 5042), is the effort to migrate existing Installations and Logistics (IL) legacy systems to the common GCSS-AF Integration Framework (IF)

This program is a Budget Activity 7, Operational System Development, because projects are being engineered to support already operational weapon systems.

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	35.813	54.034	50.369
(U) Current PBR/President's Budget	50.035	72.843	50.238
(U) Total Adjustments	14.222	18.809	
(U) Congressional Program Reductions	-0.751	-0.364	
Congressional Rescissions		-0.627	
Congressional Increases	7.700	19.800	
Reprogrammings	7.273		
SBIR/STTR Transfer			

(U) **Significant Program Changes:**

In FY 2004, Congress added \$19.8 million RDT&E funds to Support System Development (SSD) for new activities not related to SSD programmed projects.

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Exhibit R-2a, RDT&E Project Justification

DATE
February 2004

BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0708611F Support Systems Development			PROJECT NUMBER AND TITLE 3318 Product Data Systems Modernization (PDSM)		
Cost (\$ in Millions)	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
3318 Product Data Systems Modernization (PDSM)	4.311	7.731	5.523	3.387	3.375	3.429	3.481	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

This project implements the Air Force Technical Order (TO) Functionality and the final phase out of the Joint Computer-Aided Acquisition Logistic Support (JCALS) system that is supported by the modernization program Enhanced Technical Information Management System (ETIMS). The Automated Civil Engineering System (ACES) is the modernization of the Interim Work Information Management System (IWIMS) legacy system that supports Civil Engineering Management Information System (CEMIS) requirements.

This program is in Budget Activity 7, Operational System Development, because projects are being engineered to support operational weapon systems already in existence.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments/Planned Program	0.000	0.000	
(U) Manage AF technical data activities	0.499	0.653	0.497
(U) Automated Civil Engineer Systems (ACES)	0.453	0.485	0.015
(U) Technical Order (TO) Architecture Integration	0.000	0.313	0.290
(U) Continue Integrator/Developer	3.359	5.179	4.021
(U) Integration with Technical Management systems/Integration/Migration	0.000	0.814	0.400
(U) Support and Sustain Technical Data Integration Lab	0.000	0.287	0.300
(U) Total Cost	4.311	7.731	5.523

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Not Applicable									

(U) D. Acquisition Strategy

All major contracts awarded after full and open competition.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE
February 2004

BUDGET ACTIVITY 07 Operational System Development			PE NUMBER AND TITLE 0708611F Support Systems Development					PROJECT NUMBER AND TITLE 3318 Product Data Systems Modernization (PDSM)				
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
<u>(U) Product Development</u>												
Software Factory (ACES)	MIPR	SSG/BICE, Maxwell AFB- Gunter Annex, AL	1.396	0.453	Oct-02	0.485	Oct-03	0.015	Oct-04	Continuing	TBD	TBD
Subtotal Product Development			1.396	0.453		0.485		0.015		Continuing	TBD	TBD
Remarks:												
<u>(U) Support</u>												
LOGTEC/MTC	C, FP	MSG/MM, Wright Patterson AFB, OH	13.700	2.216	Jan-03	1.050	Jan-04	1.087	Jan-05	Continuing	TBD	TBD
Intergraph	C, FP	MSG/MM, Wright Patterson AFB, OH		1.639	May-03	5.688	Aug-04	3.663	Aug-05	Continuing	TBD	TBD
Subtotal Support			13.700	3.855		6.738		4.750		Continuing	TBD	TBD
Remarks:												
<u>(U) Management</u>												
System Program Office (SPO) Operations	MIPR	MSG/MM, Wright Patterson AFB, OH	0.736	0.003	Oct-03	0.508	Oct-04	0.758	Oct-05	Continuing	TBD	TBD
Subtotal Management			0.736	0.003		0.508		0.758		Continuing	TBD	TBD
Remarks:												
<u>(U) Total Cost</u>			15.832	4.311		7.731		5.523		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0708611F Support Systems
Development

PROJECT NUMBER AND TITLE
3318 Product Data Systems
Modernization (PDSM)

Exhibit R-4 BA 07 PEC 78611F BPAC 3318 PDSM

Fiscal Year	FY2003				FY2004				FY2005				
	1	2	3	4	1	2	3	4	1	2	3	4	
(U) ACES Fire Department Implementation	▲												
(U) ACES Personnel & Readiness Implementation	▲												
(U) ACES Explosive Ordnance Disposal Software Development/Delivery	▲				★								
(U) ACES Implementation/Modernization Complete													▲
(U) ITU Architecture Integration (S1/S2/S3/S4)			▲		▲	▲	▲						▲
(U) Deltair Train Capstone C+ISP (S1/S2/S3/S4)					▲	▲	▲	▲					▲
(U) Begin Detailed Requirements Analysis (S1/S2/S3/S4)				▲	▲	▲	▲	▲					▲
(U) Complete Operational Architecture Business Model (S1/S2/S3/S4)			▲		▲	▲	▲	▲					▲
(U) Develop Integration Strategy (S1/S2/S3/S4)				▲	▲	▲	▲	▲					▲
(U) Perform Hardware Trade-Off Analysis (S1/S2/S3/S4)			▲	▲	▲	▲	▲	▲					▲
(U) Develop Training Strategy (S1/S2/S3/S4)				▲	▲	▲	▲	▲					▲
(U) Develop/Update TO Help Desk and Users Guide (S1/S2/S3/S4)				▲	▲	▲	▲	▲					▲
(U) Identify Hardware Acquisition Vehicle (S1/S2/S3/S4)			▲										▲
(U) Baseline C+ISP (S1/S2/S3/S4)				▲	▲	▲	▲	▲					▲
(U) Begin Detailed Systems Architecture (S1/S2/S3/S4)				▲	▲	▲	▲	▲					▲
(U) Develop Legacy Systems Integration Plan (S1/S2/S3/S4)				▲	▲	▲	▲	▲					▲
(U) Develop Change Management Strategy (S1/S2/S3/S4)				▲	▲	▲	▲	▲					▲
(U) Develop Test Plan (S1/S2/S3/S4)					▲	▲	▲	▲					▲
(U) Train Users (S1/S2/S3/S4)								▲	▲	▲	▲	▲	▲
(U) Deploy Spiral 1								★					
(U) Deploy Spiral 2									★				
(U) Deploy Spiral 3											★		
(U) Deploy Spiral 4												★	

★ Major Event or Milestone ▬ Planned Ongoing Activity ■ Ongoing Activity that is Complete ▲ Completed Event △ Planned Task(s)

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0708611F Support Systems Development	PROJECT NUMBER AND TITLE 3318 Product Data Systems Modernization (PDSM)
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	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <u>Schedule Profile</u>			
(U) ACES Fire Department Implementation	1Q		
(U) ACES Personnel & Readiness Implementation	1-3Q		
(U) ACES Explosive Ordinance Disposal S/W Development/Delivery	1-4Q	1Q	
(U) ACES Implementation Modernization Complete		2-4Q	1Q
(U) TO Architecture Integration (S1/S2/S3/S4)	3Q	2-4Q	
(U) Deliver Draft Capstone C4ISP (S1/S2/S3/S4)		2-4Q	1Q
(U) Begin Detailed Requirements Analysis (S1/S2/S3/S4)	3-4Q	3Q	1Q
(U) Complete Operational Architecture Business Model (S1/S2/S3/S4)		2-4Q	2Q
(U) Develop Integration Strategy (S1/S2/S3/S4)		1-4Q	2Q
(U) Perform Hardware Trade-Off Analysis (S1/S2/S3/S4)	3-4Q	1-4Q	1-2Q
(U) Develop Training Strategy (S1/S2/S3/S4)	4Q	3Q	1-2Q
(U) Develop/Update TO Help Desk and Users Guide (S1/S2/S3/S4)		2Q	1-2Q
(U) Identify Hardware Acquisition Vehicle (S1/S2/S3/S4)	3Q		
(U) Baseline C4ISP (S1/S2/S3/S4)		2Q	1-2Q
(U) Begin Detailed Systems Architecture (S1/S2/S3/S4)	4Q	1-3Q	1Q
(U) Develop Legacy Systems Integration Plan (S1/S2/S3/S4)	4Q	2-4Q	
(U) Develop Change Management Strategy (S1/S2/S3/S4)	4Q	2-4Q	1Q
(U) Develop Test Plan (S1/S2/S3/S4)		1-4Q	1Q
(U) Train Users (S1/S2/S3/S4)		3-4Q	2-3Q
(U) Deploy Spiral 1		3Q	
(U) Deploy Spiral 2		4Q	
(U) Deploy Spiral 3			3Q
(U) Deploy Spiral 4			4Q
Note: S1/S2/S3/S4 denotes Spiral 1, Spiral 2, Spiral 3, and Spiral 4			

Exhibit R-2a, RDT&E Project Justification

DATE

February 2004

BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0708611F Support Systems Development			PROJECT NUMBER AND TITLE 4654 Integrated Maintenance Data System (IMDS)		
Cost (\$ in Millions)	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
4654 Integrated Maintenance Data System (IMDS)	16.999	45.546	24.586	24.940	25.349	25.754	26.152	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

In FY 2003, Project 4654, Integrated Maintenance Data Systems efforts transferred \$10.375 million to PE 0708012F, Logistics Support Activities, in order to provide funding to modernize Project 5054, Core Automated Maintenance Systems (CAMS).

In FY 2003, Congress added an additional \$7.7 million RDT&E funds to Support Systems Development (SSD) (in the IMDS project 4654) for Center for Aircraft System/Support Infrastructure (CASI) (\$3.0 million), Aging Aircraft Data Environment for C-5 and C-17 (\$1.5 million), CMSC (\$1.7 million), and Low Emission/Efficient Hybrid Aviation Refueling Truck Propulsion (\$1.5 million).

In FY 2004, Congress added \$19.8 million RDT&E funds to SSD (in the IMDS project 4654) for Center for Aircraft Support/System Infrastructure (CASI) (\$1.2 million), C-5/C-17 SCME Aging Aircraft (\$3.0 million), Low Emission/Efficient Hybrid Aviation Refueling Truck Propulsions (\$2.5 million), Teleoperated Semiautonomous Robot for Aging Aircraft Maintenance (\$1.5 million), Fuel Cell-Based Common Core Power Production (\$4.0 million), Performance Based Logistics/Maintenance Steering Group 3 (\$1.2 million), Special Operations Aircraft Depot Maintenance (\$1.2 million), Heavy Duty Hybrid Electric (\$3.0 million), AF Center of Acquisition Reengineering & Enabling Technologies (\$1.2 million), and Information Assurance for Enabling Technologies (\$1.0 million). The Air Force is working to identify and provide these amounts to the correct program offices for execution.

(U) **A. Mission Description and Budget Item Justification**

The Integrated Maintenance Data System (IMDS) is an information technology program to provide maintenance personnel with all maintenance information under one system. It will have distributed databases, which will link designated existing legacy systems until their eventual transition to full operation under IMDS, as well as providing an integrated tool for interfacing with certain other legacy systems that will be sustained for the foreseeable future. It will display electronic technical manuals, provide easy-to-use data entry, record maintenance actions, and link all external data sources (maintainer, supervisor, warehouse and supply).

This program is in Budget Activity 7, Operational System Development, because projects are being engineered to support operational weapon systems already in existence.

(U) **B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments/Planned Program	0.000	0.000	0.000
(U) IMDS System	5.763	14.755	12.878
(U) Contractor Support (MITRE, MCR, Titan/SenCom, DSD, Sumaria Systems)	2.610	3.784	5.992
(U) System Program Office (SPO) Operations	2.937	5.207	5.716
(U) Low Emission/Efficient Hybrid Aviation Refueling Truck Propulsion	1.422	2.500	
(U) Center for Aircraft System/Support Infrastructure	2.845	1.200	
(U) C-5/C17 SCME Aging Aircraft	1.422	3.000	
(U) Teleoperated Semiautonomous Robot for Aging Aircraft Maintenance		1.500	

Project 4654

R-1 Shopping List - Item No. 221-8 of 221-27

Exhibit R-2a (PE 0708611F)

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Exhibit R-2a, RDT&E Project Justification

DATE

February 2004

BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0708611F Support Systems Development	PROJECT NUMBER AND TITLE 4654 Integrated Maintenance Data System (IMDS)
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(U) Fuel Cell-Based Common Core Power Production		4.000	
(U) Commodity Management System Consolidation		2.000	
(U) Performance Based Logistics/Maintenance Steering Group 3		1.200	
(U) Special Operations Aircraft Depot Maintenance		1.200	
(U) Heavy Duty Hybrid Electric		3.000	
(U) AF Center of Acquisition Reengineering & Enabling Technologies		1.200	
(U) Information Assurance for Enabling Technologies		1.000	
(U) Total Cost	16.999	45.546	24.586

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Other Procurement AF, IMDS (PE 0708611F).	2.546	2.533	2.577	2.560	2.601	2.658	2.710	Continuing	TBD
(U) Operations & Maintenance AF, IMDS (PE 0708611F)	0.000	1.745	1.714	1.802	1.831	1.885	1.924	Continuing	TBD

(U) **D. Acquisition Strategy**

All major contracts awarded after full and open competition.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE
February 2004

BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0708611F Support Systems Development	PROJECT NUMBER AND TITLE 4654 Integrated Maintenance Data System (IMDS)
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(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
(U) <u>Product Development</u>												
Gold - Cots solution	C/CPAF	Andersen Consulting, Ft Walton, FL	57.274							0.000	57.274	
IMDS System											0.000	
Software Development	MIPR	Engineering, SSG, Maxwell AFB-Gunter Annex, AL	2.216	0.057	Oct-02	1.663	Oct-03	0.535	Oct-04	Continuing	TBD	TBD
GCSS-AF Systems Integration	C/CPAF	LMSI-O, Owego, NY	0.000	0.260	Mar-03	1.643	Nov-03	0.000		Continuing	TBD	TBD
Gold - Cots solution	C/FP/FFP	TSRI, Montgomery, AL	0.492	0.000		0.000		0.000		0.000	0.492	0.492
Gold - Cots solution	C/FP	SEI, Montgomery, AL	0.700	0.000		0.000		0.000		0.000	0.700	0.700
Software Development	C/FP	General Dynamics, Montgomery, AL	0.000	1.597	Nov-02	2.029	Nov-03	0.000		Continuing	TBD	TBD
Air Force Knowledge System	MIPR	MSG, Wright Patterson AFB, OH	0.000	3.000	Oct-02	1.656	Oct-03	1.656	Oct-04	Continuing	TBD	TBD
Portal	C/FP	General Dynamics, Montgomery, AL	2.285	0.000		0.000		0.000		0.000	2.285	2.285
Meta Data Library	MIPR	MSG, Wright Patterson AFB, OH	0.000	0.450	Oct-02	0.000		0.000		0.000	0.450	0.450
Software Development	C/FP	Northrop-Grumman IT, Montgomery, AL	0.000	0.399	Dec-02	3.000	Dec-03	2.972	Dec-04	Continuing	TBD	TBD
	C/FP	General Dynamics, Montgomery, AL	0.000	0.000		3.300	Jan-04	4.983	Jan-05	Continuing	TBD	TBD
	C/FP	Lockheed Martin, Southwest Research Institute, San Antonio, TX (PRIME) and Mack Truck Inc, Hagerstown, MD (Sub)	0.000	0.000		1.464	Dec-03	2.732	Dec-04	Continuing	TBD	TBD
Low Emission/Efficient Hybrid Aviation Refueling Truck Propulsion	C/CPFF		0.000	1.422	Aug-03	2.500	Aug-04	0.000		Continuing	TBD	TBD

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Exhibit R-3, RDT&E Project Cost Analysis									DATE February 2004			
BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0708611F Support Systems Development				PROJECT NUMBER AND TITLE 4654 Integrated Maintenance Data System (IMDS)				
Center for Aircraft System/Support Infrastructure	SS/FP	TMI/CACI, OK	2.780	2.845	Sep-03	1.200	Sep-04	0.000	Continuing	TBD	TBD	
C-5/C17 SCME Aging Aircraft	C/FP	Intergraph Corp, Huntsville, AL	0.000	1.422	Jun-03	3.000	Apr-04	0.000	Continuing	TBD	TBD	
Teleoperated Semiautonomous Robot for Aging Aircraft Maintenance	TBD	TBD	0.000	0.000		1.500	May-04	0.000	Continuing	TBD	TBD	
Fuel Cell-Based Common Core Power Production	TBD	TBD	0.000	0.000		4.000	May-04	0.000	Continuing	TBD	TBD	
Commodity Management System Consolidation	TBD	TBD	0.000	0.000		2.000	May-04	0.000	Continuing	TBD	TBD	
Performance Based Logistics/Maintenance Steering Group 3	TBD	TBD	0.000	0.000		1.200	May-04	0.000	Continuing	TBD	TBD	
Special Operations Aircraft Depot Maintenance	TBD	TBD	0.000	0.000		1.200	May-04	0.000	Continuing	TBD	TBD	
Heavy Duty Hybrid Electric	TBD	TBD	0.000	0.000		3.000	May-04	0.000	Continuing	TBD	TBD	
AF Center of Acquisition Reengineering & Enabling Technologies	TBD	TBD	0.000	0.000		1.200	May-04	0.000	Continuing	TBD	TBD	
Information Assurance for Enabling Technologies	TBD	TBD	0.000	0.000		1.000	May-04	0.000	Continuing	TBD	TBD	
Subtotal Product Development			65.747	11.452		36.555		12.878	Continuing	TBD	TBD	
Remarks:												
(U) <u>Support</u>												
Contractor Support	C/FP	MITRE, MCR, Titan/SenCom, DSD, Sumaria Systems, Montgomery, AL	10.058	2.610	Dec-02	3.784	Dec-03	5.992	Dec-04	Continuing	TBD	TBD
Subtotal Support			10.058	2.610		3.784		5.992	Continuing	TBD	TBD	
Remarks:												
(U) <u>Management</u>												
System Program Office Operations	MIPR	SSG, Maxwell AFB-Gunter Annex, AL	5.818	2.937	Oct-02	5.207	Oct-03	5.716	Oct-04	Continuing	TBD	TBD
Subtotal Management			5.818	2.937		5.207		5.716	Continuing	TBD	TBD	
Remarks:												

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2004

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

**0708611F Support Systems
Development**

PROJECT NUMBER AND TITLE

**4654 Integrated Maintenance Data
System (IMDS)**

(U) Total Cost

81.623	16.999	45.546	24.586	Continuing	TBD	TBD
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Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2004

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0708611F Support Systems Development

PROJECT NUMBER AND TITLE

4654 Integrated Maintenance Data System (IMDS)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Schedule Profile			
(U) IMDS Functional Baseline (FB)	2Q	1-4Q	1-4Q
(U) FB Legacy Systems Review	2-4Q		
(U) Tool Accountability System Phase II	4Q	3Q	
(U) IMDS Alternative of Analysis (AoA)		4Q	3Q
(U) IMDS Phase II Analysis			4Q
(U) COTS Gap Analysis		4Q	1-4Q

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0708611F Support Systems Development			PROJECT NUMBER AND TITLE 4926 Reengineering and Enabling Technologies		
Cost (\$ in Millions)	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
4926 Reengineering and Enabling Technologies	7.110	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

This program provides for continuing analytical research and studies in reengineering and enabling technologies. It provides quick response assistance for senior Air Force officials and others in the Business Process Reengineering (BPR) and change management arenas. Using reengineering processes and enabling technologies, existing processes and their associated activities can be analyzed to identify work that is value added, non-value added, and wasted. It will assist senior leaders with removing duplication of effort, unnecessary product generation delays and non-productive activities and provide significant improvements in product quality.

The Air Force acquisition community is pursuing excellence through business process redesign and the associated enabling technologies. This program provides for developing a center of excellence in BPR and for mentoring Headquarters Air Force (HAF) leaders in the proper application of BPR principles for their initiatives. It will maintain information on the state of the art in BPR paradigms and tailor their application for the HAF and SAF/AQ environment. It will also capture lessons learned and other feedback from BPR applications for change management and process improvement strategies.

This program is in Budget Activity 7, Operational System Development, because projects are being engineered to support operational weapon systems already in existence.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments/Planned Program			
(U) Acquisition Reengineering Studies	5.860	0.000	0.000
(U) Scientist and Engineers Transformation Initiative	1.250	0.000	0.000
(U) Total Cost	7.110	0.000	0.000

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Not Applicable									

(U) D. Acquisition Strategy

All major contracts awarded after full and open competition.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2004

BUDGET ACTIVITY			PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
07 Operational System Development			0708611F Support Systems Development					4926 Reengineering and Enabling Technologies				
<u>(U) Cost Categories</u>	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to</u>	<u>Total</u>	<u>Target</u>
(Tailor to WBS, or System/Item Requirements) (\$ in Millions)			<u>Prior to FY</u>	<u>2003</u>	<u>2003</u>	<u>2004</u>	<u>2004</u>	<u>2005</u>	<u>2005</u>	<u>Complete</u>	<u>Cost</u>	<u>Value of</u>
			<u>2003</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>			<u>Contract</u>
			<u>Cost</u>		<u>Date</u>		<u>Date</u>		<u>Date</u>			
<u>(U) Product Development</u>												
Acquisition Reengineering Studies	C/GSA	CLR, Arlington, VA	0.000	5.860	Apr-03	0.000		0.000		Continuing	TBD	TBD
Scientist and Engineers Transformation Initiative	C/GSA	Various	0.000	1.250	Apr-03	0.000		0.000		Continuing	TBD	TBD
Subtotal Product Development			0.000	7.110		0.000		0.000		Continuing	TBD	TBD
Remarks:												
<u>(U) Total Cost</u>			0.000	7.110		0.000		0.000		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0708611F Support Systems
Development

PROJECT NUMBER AND TITLE
4926 Reengineering and Enabling
Technologies

Exhibit R-4: Reengineering and Enabling Technologies Schedule Profile

28 Jan. 04

Fiscal Year	FY 03				FY 04			
	1	2	3	4	1	2	3	4
Acquisition Reengineering Studies				▲		△		
Scientist and Engineering Transformation Initiative				▲		△		

- ☆ Major Event or Milestone
- ▬ Planned Ongoing Activity
- ▬ Ongoing Activity that is Complete
- ▲ Completed Event
- △ Planned Task(s)

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0708611F Support Systems Development	PROJECT NUMBER AND TITLE 4926 Reengineering and Enabling Technologies
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	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <u>Schedule Profile</u>			
(U) Acquisition Reengineering Studies	1-4Q	2Q	
(U) Scientist and Engineers Transformation Initiative	1-4Q	2Q	

Exhibit R-2a, RDT&E Project Justification

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February 2004

BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0708611F Support Systems Development			PROJECT NUMBER AND TITLE 5042 Log Application Logistics Integration (LALI)		
Cost (\$ in Millions)	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
5042 Log Application Logistics Integration (LALI)	9.544	7.074	7.116	7.184	7.318	7.435	7.550	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

Log Application Logistics Integration is the effort to migrate existing Installations and Logistics (IL) legacy systems to the common GCSS-AF Integration Framework. The target is a suite of software components that are continuously updated or refined to embrace emerging best practices and commercial information technology innovations. The strategic plan is the creation of a logistics enterprise system using common software and hardware products requiring a smaller number of interfacing transactions.

This program is in Budget Activity 7, Operational System Development, because projects are being engineered to support operational weapons systems already in existence.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments/Planned Program	0.000	0.000	0.000
(U) Program Management Office (PMO) Support	1.629	1.859	1.805
(U) PMO Task	0.336	0.346	0.357
(U) Base Support	0.334	0.544	0.540
(U) Support Contractors	4.430	4.198	4.288
(U) Integration Task Contracts	2.815	0.127	0.126
(U) Total Cost	9.544	7.074	7.116

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to Complete</u>	<u>Total Cost</u>
	Actual	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate		
(U) Not Applicable									

(U) D. Acquisition Strategy

All major contracts awarded after full and open competition.

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Exhibit R-3, RDT&E Project Cost Analysis										DATE February 2004		
BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0708611F Support Systems Development				PROJECT NUMBER AND TITLE 5042 Log Application Logistics Integration (LALI)				
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
<u>(U) Product Development</u>												
Support Contractor (Portfolio Management, Architecture, & Data Management)	C/FP	Greentree, Wright Patterson AFB, OH	0.000	0.629	Feb-03	0.600	Feb-04	0.620	Feb-05	Continuing	TBD	TBD
Support Contractor (Data Management, Enterprise Architecture, & System Modernization support)	C/FP	Oracle, Maxwell AFB-Gunter Annex, AL	0.000	0.923	Feb-03	1.042	Feb-04	1.048	Feb-05	Continuing	TBD	TBD
Engineering Support	C/FP	MITRE Maxwell AFB-Gunter Annex, AL	0.000	0.573	Mar-03	0.000		0.000		0.000	0.573	0.573
Portal/Systems Engineering Support (Integration Task)	C/FP	Various, Maxwell AFB-Gunter Annex, AL	0.000	0.076	Oct-02	0.082	Oct-03	0.083	Oct-04	Continuing	TBD	TBD
Portal/Systems Engineering Support (Integration Task)	MIPR	Engineering, SSG, Maxwell AFB-Gunter Annex, AL	0.000	0.039	Oct-02	0.045	Oct-03	0.043	Oct-04	Continuing	TBD	TBD
Logistics Integration (Integration Task)	C/CPAF	Lockheed Martin Mission Systems, Owego, NY	0.000	2.700	Aug-03	0.000		0.000		Continuing	TBD	TBD
PMO Tasks	MIPR	SSG, Maxwell AFB-Gunter Annex, AL	0.000	0.336	Oct-02	0.346	Oct-03	0.357	Oct-04	Continuing	TBD	TBD
Subtotal Product Development			0.000	5.276		2.115		2.151		Continuing	TBD	TBD
Remarks:												
<u>(U) Support</u>												
Support Contractor	C/FP	DSD, Maxwell AFB-Gunter Annex, AL	0.000	0.868	Feb-03	1.641	Feb-04	1.691	Feb-05	Continuing	TBD	TBD
Support Contractor	C/FP	MITRE, Maxwell AFB,	0.000	0.573	Oct-02	0.000		0.000		0.000	0.573	0.573

Project 5042

R-1 Shopping List - Item No. 221-20 of 221-27

Exhibit R-3 (PE 0708611F)

2023

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Exhibit R-3, RDT&E Project Cost Analysis										DATE February 2004				
BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0708611F Support Systems Development				PROJECT NUMBER AND TITLE 5042 Log Application Logistics Integration (LALI)						
Subtotal Support Remarks: (U) <u>Test & Evaluation</u>				Gunter Annex, AL				0.000	1.441	1.641	1.691	Continuing	TBD	TBD
PMO Support	MIPR	SSG, Maxwell AFB-Gunter Annex, AL	0.000	0.179	Oct-02	0.387	Oct-03	0.366	Oct-04	Continuing	TBD	TBD		
Support Contractor	C/FP	MITRE, Maxwell AFB-Gunter Annex, AL	0.000	0.573	Sep-03	0.000		0.000		0.000	0.573	0.573		
Support Contractor	C/FP	Optimization Technology INC, Maxwell AFB-Gunter Annex, AL	0.000	0.291	Feb-03	0.915	Feb-04	0.929	Feb-05	Continuing	TBD	TBD		
Subtotal Test & Evaluation Remarks: (U) <u>Management</u>								0.000	1.043	1.302	1.295	Continuing	TBD	TBD
PMO Support (System Program Office management and operations)	MIPR	SSG, Maxwell AFB-Gunter Annex, AL	0.000	1.450	Oct-02	1.472	Oct-03	1.439	Oct-04	Continuing	TBD	TBD		
Base Support	MIPR	SSG, Maxwell AFB-Gunter Annex, AL	0.000	0.334	Oct-02	0.544	Oct-30	0.540	Oct-04	Continuing	TBD	TBD		
Subtotal Management Remarks: (U) Total Cost								0.000	9.544	7.074	7.116	Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0708611F Support Systems
Development

PROJECT NUMBER AND TITLE
5042 Log Application Logistics
Integration (LALI)

Exhibit R-4: Logistics Integration Schedule Profile

9 Jan. 04

Fiscal Year	FY 03				FY 04				FY 05				FY 06				FY 07				FY 08				FY 09				FY 10			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Deployable Laptop (9iAS)	▲																															
Metadata Repository Automate/updates	▲				△																				△							
Program Handbooks			▲								△																					
Enterprise Architecture Plan	▲				△																				△							
Logistics Data Interface Transition Plan			▲						△																							
Operational Safety, Suitability, & Effectiveness Plan			▲																													
Portfolio Management Process					△																				△							
Logistics Information Requirements Analysis/updates					△																								△			

- ☆ Major Event or Milestone
- ▬ Planned Ongoing Activity
- ▬ Ongoing Activity that is Complete
- ▲ Completed Event
- △ Planned Task(s)

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Exhibit R-4a, RDT&E Schedule Detail

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0708611F Support Systems Development

PROJECT NUMBER AND TITLE

5042 Log Application Logistics Integration (LALI)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <u>Schedule Profile</u>			
(U) Deployable Laptop (9iAS)	1Q		
(U) Metadata Repository (Automate/Updates)	1Q	2Q	1-4Q
(U) Program Handbooks	3Q		3Q
(U) Architecture Plan Integrated Data Warehouse (IDW) Preliminary Architecture	2Q	3Q	
(U) Logistics Data Interface Transition Plan	4Q		1-4Q
(U) Operational Safety, Suitability, and Effectiveness Plan	4Q		
(U) Portfolio Management Process		3-4Q	1-4Q
(U) Logistics Information Requirements Analysis/Updates		3-4Q	1-4Q

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development							PE NUMBER AND TITLE 0708611F Support Systems Development		PROJECT NUMBER AND TITLE 5044 Log Application ILS-S (LAILS-S)	
Cost (\$ in Millions)	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	
5044 Log Application ILS-S (LAILS-S)	12.071	12.492	13.013	13.136	13.377	13.592	13.801	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

(U) A. Mission Description and Budget Item Justification

The primary focus of the Log Application Integrated Logistics System - Supply (LAILS-S) is the modernization of the Standard Base Supply System (SBSS) to seamlessly integrate with other logistics systems-to provide total asset visibility, facilitate regionalization, and enable the war fighter to control, order, receive, and exploit materiel in a cheaper and more efficient manner.

This program is in Budget Activity 7, Operational System Development, because projects are being engineered to support operational weapon systems already in existence.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments/Planned Program			
(U) Logistics Business Area Integration	1.103	0.885	0.925
(U) Component Development	5.908	4.338	6.000
(U) Acquisition & Integration Support (Logistics Requirements Analysis)	0.603	1.617	0.465
(U) System Program Office (SPO) Operations (Labor, Management Support)	3.476	1.779	2.506
(U) Enterprise Resource Planning (ERP) Solution	0.981	3.873	3.117
(U) Total Cost	12.071	12.492	13.013

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) None									

(U) D. Acquisition Strategy

All major contracts awarded after full and open competition.

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0708611F Support Systems Development	PROJECT NUMBER AND TITLE 5044 Log Application ILS-S (LAILS-S)
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(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
(U) <u>Product Development</u>												
Logistics Business Area Integration	C/CPAF	Lockheed Martin, Montgomery, AL	0.000	1.103	Aug-03	0.885	Jan-04	0.925	Jan-05	Continuing	TBD	TBD
Component Development	C/CPAF	Keane Federal System, McLean, VA	0.000	5.908	Feb-03	4.338	Mar-04	6.000	Mar-05	Continuing	TBD	TBD
ERP Solution											0.000	
- Planning & Analysis Study	C/FP	Bearing Point, Mclean, VA	0.000	0.500	Jan-03					Continuing	TBD	TBD
- Planning & Analysis Study	MIPR	MSG, Wright Patterson AFB, OH	0.000	0.481	Dec-02					Continuing	TBD	TBD
- ERP Task Order	C/CPAF	Keane Federal System, McLean, VA				3.873	Mar-04	3.117	Mar-05	Continuing	TBD	TBD
Subtotal Product Development			0.000	7.992		9.096		10.042		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u>												
Acquisition & Integration Contract Support	C/FP	Support Contractors (DSD, MCR, Sumaria Systems, etc.), Montgomery, AL	0.000	0.603	Jan-03	1.617	Jan-04	0.465	Jan-05	Continuing	TBD	TBD
Subtotal Support			0.000	0.603		1.617		0.465		Continuing	TBD	TBD
Remarks:												
(U) <u>Management</u>												
SPO Operations	MIPR	Standard Systems Group, Maxwell AFB-Gunter Annex, AL	0.000	3.476	Oct-02	1.779	Oct-03	2.506	Oct-04	Continuing	TBD	TBD
Subtotal Management			0.000	3.476		1.779		2.506		Continuing	TBD	TBD
Remarks:												
(U) Total Cost			0.000	12.071		12.492		13.013		Continuing	TBD	TBD

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Exhibit R-4a, RDT&E Schedule Detail

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0708611F Support Systems Development

PROJECT NUMBER AND TITLE

5044 Log Application ILS-S (LAILS-S)

(U) <u>Schedule Profile</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Supply Modernization	1-4Q	1Q	
(U) --Release 2	1Q		
(U) --Release 3	3Q		
(U) Enterprise Resource Planning	1-4Q	1-4Q	1-4Q
(U) Visible Inventory Position		3Q	
(U) Web Mission Capable Asset Sourcing System		1-2Q	
(U) Audit Trail		1Q	
(U) Enterprise Solution-Supply		4Q	2Q

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PE NUMBER: 0708612F

PE TITLE: Computer Resources Support Improvement Program

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0708612F Computer Resources Support Improvement Program
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Cost (\$ in Millions)	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
Total Program Element (PE) Cost	2.049	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
4851 Embedded Comp Res Spt Prog Impr	2.049	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

Note: Program terminated to meet higher AF priorities.

(U) A. Mission Description and Budget Item Justification

This crosscutting program improves the support of mission-critical software intensive systems for numerous Air Force weapon systems. It validates, matures and supports the rapid transition of emerging software technologies to improve the capabilities of AF weapon systems in response to changing mission or changing threat requirements. This program also develops and transitions effective technologies to organizations in order to enhance their ability to develop, acquire, manage, and sustain mission critical software.

This program is in Budget Activity 7, Operational System Development, because it provides support to operational systems.

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	2.094	0.000	
(U) Current PBR/President's Budget	2.049	0.000	
(U) Total Adjustments	-0.045	0.000	
(U) Congressional Program Reductions	-0.022		
Congressional Rescissions			
Congressional Increases			
Reprogrammings	-0.023		
SBIR/STTR Transfer			

(U) Significant Program Changes:

Not applicable.

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0708612F Computer Resources Support Improvement Program			PROJECT NUMBER AND TITLE 4851 Embedded Comp Res Spt Prog Impr			
Cost (\$ in Millions)	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	
4851 Embedded Comp Res Spt Prog Impr	2.049	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

Note: Program terminated in FY 2003 due to higher Air Force priorities.

(U) **A. Mission Description and Budget Item Justification**

This crosscutting program improves the support of mission-critical software intensive systems for numerous Air Force weapon systems. It validates, matures and supports the rapid transition of emerging software technologies to improve the capabilities of AF weapon systems in response to changing mission or changing threat requirements. This program also develops and transitions effective technologies to organizations in order to enhance their ability to develop, acquire, manage, and sustain mission critical software.

This program is in Budget Activity 7, Operational System Development, because it provides support to operational systems.

(U) **B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Continued development of technologies and methodologies that will incrementally upgrade legacy systems to support their cost-effective employment and sustainment. Conducted life cycle cost and trade off analyses of the different technologies and methodologies. Continued demonstrating, in designated aircraft, the processes and tools for wrapping embedded software, real-time object request broker technology, and emulation technology into fielded weapon systems. Continued transition of these technologies as they mature and are validated.	0.458		
(U) Developed and implemented enhancements to the Reconfigurable Aerospace Computer Emulators to improve the reliability and maintainability of aging on-board aerospace computers. Continued validation of developed technologies to incrementally upgrade on-board computers with commercial microprocessor-based computer emulation technology. Demonstrated the backward compatibility of these technologies and enhancements with existing mission critical software.	0.060		
(U) Continue development of a Virtual Engineering Environment (VEE) for software development. Continue developing test environments incorporating new technologies and commercial-off-the-shelf (COTS) components. Conduct trade off analyses of these technologies and COTS components. Continue demonstrations to validate the effectiveness of VEE in supporting software development and sustainment for weapon systems. Transition VEE to selected weapon system programs.	0.060		
(U) Continue the Embedded Systems Interoperability Demonstration. Continue integration and testing of open systems hardware, software, and simulated tactical communications links. Continue simulation testing to evaluate the real-time communications capabilities of these open system components. Complete affordability analyses. Develop test plans and procedures to conduct flight testing that will evaluate the real-time communications capabilities of	0.515		

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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0708612F Computer Resources Support Improvement Program	PROJECT NUMBER AND TITLE 4851 Embedded Comp Res Spt Prog Impr
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these components.	
(U) Continued development of Embedded Information System Re-engineering (EISR) technologies. Completed development of an automated re-engineering capability to evolve software for embedded information systems. Continued development of the software tools necessary to implement re-engineering technologies. Continued testing and demonstrations of EISR technologies with pilot programs. Transitioned the EISR technologies to designated software support activities.	0.320
(U) Continued the development of Assured Middleware For Real-Time Embedded Systems. Developed Information Assurance (IA) techniques and technologies for embedded information systems in aerospace and ground-based platforms. Conducted domain analyses to define the requirements for IA technologies. Evaluated commercial-off-the-shelf (COTS) IA technologies and their capabilities in real-time environments. Conducted trade off analyses of these technologies and COTS components. Developed strategies for implementing multi-level secure real-time operating systems that support a secure real-time Common Object Request Broker Architecture.	0.420
(U) Continued analyses of Real-Time (RT) Java for Embedded Systems to investigate RT Java applicability to the infosphere and embedded information system applications. Continued demonstrations of the functionality of legacy Operational Flight Programs (OFPs) implemented in RT Java. Continued analyses of the implementation of RT Java OFPs with current OFPs implemented in higher-order languages. Continued demonstrations of the capability of RT Java OFPs to support the interoperability between the Command, Control, Communications, and Intelligence.	0.216
(U) Total Cost	2.049 0.000 0.000

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u> <u>Actual</u>	<u>FY 2004</u> <u>Estimate</u>	<u>FY 2005</u> <u>Estimate</u>	<u>FY 2006</u> <u>Estimate</u>	<u>FY 2007</u> <u>Estimate</u>	<u>FY 2008</u> <u>Estimate</u>	<u>FY 2009</u> <u>Estimate</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) AF RDT&E									
(U) Other APPN									
(U) PE 0708612F/3080	2.069	0.000	0.000	0.000	0.000			Continuing	TBD
(U) PE 0708612F/3400	8.794	0.000	0.000	0.000	0.000			Continuing	TBD

(U) D. Acquisition Strategy

All major contracts within this Program Element were awarded after full and open competition.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2004

BUDGET ACTIVITY			PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
07 Operational System Development			0708612F Computer Resources Support Improvement Program					4851 Embedded Comp Res Spt Prog Impr				
<u>(U) Cost Categories</u>	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2003 Cost</u>	<u>FY 2003 Cost</u>	<u>FY 2003 Award Date</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Science Applications International Corporation	DO	N/A		0.000						Continuing	TBD	
TRW	DO	N/A		0.000						Continuing	TBD	
Boeing	DO	N/A		1.045						Continuing	TBD	
Lockheed-Martin	DO	N/A		0.814						Continuing	TBD	
Raytheon	DO	N/A		0.190						Continuing	TBD	
Subtotal Product Development			0.000	2.049		0.000		0.000		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												0.000
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Test & Evaluation</u>												0.000
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u>												0.000
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			0.000	2.049		0.000		0.000		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
**0708612F Computer Resources
Support Improvement Program**

PROJECT NUMBER AND TITLE
**4851 Embedded Comp Res Spt Prog
Impr**

		FY03			
		1Q	2Q	3Q	4Q
Enterprise Strategy for Aging Avionics	Continuing Projects	████████████████████			
Embedded Systems Interoperability Demonstration	Continuing Projects	████████████████████			
Embedded Information Systems Re-engineering	Continuing Projects	████████████████████			
Assured Middleware for Real-Time Embedded Systems	Continuing Projects	████████████████████			
Incremental Upgrade of Legacy Systems	Continuing Projects	████████████████████			
Reconfigurable Aerospace Computer Emulator	Continuing Projects	████████████████████			
Real-Time Defense Information Infrastructure	Continuing Projects	████████████████████			
Common Operational Environment Support	Continuing Projects	████████████████████			
Virtual Engineering Environment	Continuing Projects	████████████████████			
Real-Time Java for Embedded Systems	Continuing Projects	████████████████████			

Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2004

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0708612F Computer Resources
Support Improvement Program

PROJECT NUMBER AND TITLE

4851 Embedded Comp Res Spt Prog
Impr

(U) Schedule Profile

- (U) Enterprise Strategy for Aging Avionics
- (U) Embedded Systems Interoperability Demonstration
- (U) Embedded Information Systems Re-engineering
- (U) Assured Middleware for Real-Time Embedded Systems
- (U) Incremental Upgrade of Legacy Systems
- (U) Reconfigurable Aerospace Computer Emulator
- (U) Real-Time Defense Information Infrastructure Common Operational Environment Support
- (U) Virtual Engineering Environment
- (U) Real-Time Java for Embedded Systems

FY 2003

- 1-4Q
- 1-4Q
- 1-4Q
- 1-4Q
- 1-4Q
- 1-4Q
- 1-4Q
- 1-4Q
- 1-4Q

FY 2004

FY 2005

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PE NUMBER: 0808716F
 PE TITLE: OTHER PERSONNEL ACTIVITIES

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0808716F OTHER PERSONNEL ACTIVITIES
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Cost (\$ in Millions)	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
Total Program Element (PE) Cost	0.000	0.000	0.110	0.110	0.110	0.110	0.110	Continuing	TBD
5141 DEOMI Faculty Research	0.000	0.000	0.110	0.110	0.110	0.110	0.110	Continuing	TBD

In FY05, this is a new PE.

(U) A. Mission Description and Budget Item Justification

The Defense Equal Opportunity Management Institute (DEOMI) provides grants to the civilian academic community to conduct research on military and civilian equal opportunity issues using standard social science methodology. The research methodology includes developing a literature review proposing hypotheses and methods of research. The grantee will then gather appropriate data, draw conclusions and present discussions, recommendations and reports based on their funding.

Previously the US Air Force provided Operations & Maintenance (O&M) funding to DEOMI as their contribution. However, beginning with 2005, it was determined that Research, Development, Test & Evaluation (RDT&E) funding would be more proper.

This program is in Budget Activity 7 as it provides support to operational forces.

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	0.000	0.000	0.000
(U) Current PBR/President's Budget	0.000	0.000	0.110
(U) Total Adjustments	0.000	0.000	
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			

Exhibit R-2a, RDT&E Project Justification

DATE
February 2004

BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0808716F OTHER PERSONNEL ACTIVITIES			PROJECT NUMBER AND TITLE 5141 DEOMI Faculty Research		
Cost (\$ in Millions)	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
5141 DEOMI Faculty Research	0.000	0.000	0.110	0.110	0.110	0.110	0.110	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The Defense Equal Opportunity Management Institute (DEOMI) provides grants to the civilian academic community to conduct research on military and civilian equal opportunity issues using standard social science methodology. The research methodology includes developing a literature review proposing hypotheses and methods of research. The grantee will then gather appropriate data, draw conclusions and present discussions, recommendations and reports based on their funding.

Previously the US Air Force provided Operations & Maintenance (O&M) funding to DEOMI as their contribution. However, beginning with 2005, it was determined that Research, Development, Test & Evaluation (RDT&E) funding would be more proper.

This program is in Budget Activity 7 as it provides support to operational forces.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Conduct research on military and civilian equal opportunity issues.	0.000	0.000	0.110
(U)			
(U)			
(U) Total Cost	0.000	0.000	0.110

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Not Applicable									

(U) D. Acquisition Strategy

Grants will be awarded competitively.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2004

BUDGET ACTIVITY			PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
07 Operational System Development			0808716F OTHER PERSONNEL ACTIVITIES					5141 DEOMI Faculty Research				
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
(U) <u>Product Development</u>												
DEOMI	Grant	Various	0.000	0.000		0.000		0.110	Apr-05	Continuing	TBD	TBD
Subtotal Product Development			0.000	0.000		0.000		0.110		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u>											0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Test & Evaluation</u>											0.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u>											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			0.000	0.000		0.000		0.110		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0808716F OTHER PERSONNEL
ACTIVITIES

PROJECT NUMBER AND TITLE
5141 DEOMI Faculty Research

DEOMI Grant Schedule

Fiscal Year	FY 04				FY 05				FY 06				FY 07				FY 08				FY 09				FY 10				FY 11			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Receive Proposal						△				△				△				△				△				△				△		
Award Grant							△				△				△				△				△				△				△	

Exhibit R-4a, RDT&E Schedule Detail

DATE

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0808716F OTHER PERSONNEL
ACTIVITIES

PROJECT NUMBER AND TITLE

5141 DEOMI Faculty Research

(U) Schedule Profile

FY 2003

FY 2004

FY 2005

(U) Receive Grants

2Q

(U) Award Grants

3Q

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PE NUMBER: 0901212F
 PE TITLE: SERVICE-WIDE SUPPORT

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0901212F SERVICE-WIDE SUPPORT
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Cost (\$ in Millions)	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
Total Program Element (PE) Cost	3.687	4.333	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5060 Joint Personnel Adjudication System (JPAS)	3.687	4.333	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

In FY2004 and FY2005, DoD is transitioning the JPAS program from the Air Force to the newly re-aligned Defense Security Service (DSS).

(U) A. Mission Description and Budget Item Justification

Joint Personnel Adjudication System (JPAS) is the Department of Defense (DoD) personnel security migrations system for the DoD Central Adjudication Facilities (CAFs) and DoD Security Managers and Special Security Officers. JPAS represents the virtual consolidation of the DoD CAFs and ensures standardization and re-engineering of core personnel security and adjudication processes. JPAS will use centralized databases with centralized computer processing and application programs. Two applications support JPAS: the Joint Adjudication Management System (JAMS, DoD CAF personnel only) and the Joint Clearance and Access Verification System (JCAVS) for approximately 20,000 CAF customers (non-SCI and SCI {Sensitive Compartmented Information} security managers) and 10,000 industry security managers. JPAS is also a DoD E-government program and the first phase was implement on 20 December 02 as per Office of Management and Budget (OMB) mandate.

This effort is in Budget Activity 07, Operational System Development, because the program modernizes Automated Information Systems (AIS).

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	3.980	4.392	0.000
(U) Current PBR/President's Budget	3.687	4.333	0.000
(U) Total Adjustments	-0.293	-0.059	
(U) Congressional Program Reductions		-0.022	
Congressional Rescissions		-0.037	
Congressional Increases	-0.040		
Reprogrammings			
SBIR/STTR Transfer	-0.253		

(U) Significant Program Changes:

Funding request for out years pending program review. Congressional add of \$20 Million RDT&E in FY 2004 placed in PE 0305128F.

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0901212F SERVICE-WIDE SUPPORT			PROJECT NUMBER AND TITLE 5060 Joint Personnel Adjudication System (JPAS)		
Cost (\$ in Millions)	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
5060 Joint Personnel Adjudication System (JPAS)	3.687	4.333	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

Joint Personnel Adjudication System (JPAS) is the Department of Defense (DoD) personnel security migrations system for the DoD Central Adjudication Facilities (CAFs) and DoD Security Managers and Special Security Officers. JPAS represents the virtual consolidation of the DoD CAFs and ensures standardization and re-engineering of core personnel security and adjudication processes. JPAS will use centralized databases with centralized computer processing and application programs. Two applications support JPAS: the Joint Adjudication Management System (JAMS, DoD CAF personnel only) and the Joint Clearance and Access Verification System (JCAVS) for approximately 20,000 CAF customers (non-SCI and SCI {Sensitive Compartmented Information} security managers) and 10,000 industry security managers. JPAS is also a DoD E-government program and the first phase was implement on 20 December 02 as per Office of Management and Budget (OMB) mandate.

This effort is in Budget Activity 07, Operational System Development, because the program modernizes Automated Information Systems (AIS).

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments/Planned Program	0.000	0.000	
(U) Implement/Integrate Automated Continuing Evaluation System (ACES)	1.291		
(U) Interface Enhancements	0.891	0.196	
(U) Public Key Infrastructure (PKI)/Common Access Card (CAC)	0.921		
(U) Govt Program Office Infrastructure	0.584		
(U) E-Report for Adjudication-Implementation		3.672	
(U) Interoperability with DoD Criminal Agencies - Requirements/Programming		0.295	
(U) Interoperability with Defense Finance and Accounting Services (DFAS) - Requirements/Programming		0.170	
(U) Total Cost	3.687	4.333	0.000

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E (PE0305128F)	0.000	20.000	0.000	0.000	0.000	0.000	0.000		

(U) D. Acquisition Strategy

All contracts for JPAS services are under the auspices of General Services Administration/National Capitol Region (GSA/NCR)-Info Tech Solution and are Firm Fixed Price (FFP). Contracts were recompeted in FY02 and awarded.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2004

BUDGET ACTIVITY			PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
07 Operational System Development			0901212F SERVICE-WIDE SUPPORT					5060 Joint Personnel Adjudication System (JPAS)				
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
<u>(U) Product Development</u>												
EDS	C/FFP	Annapolis Junction, Md.	0.000	2.241	Oct-02	2.846	Oct-03			Continuing	TBD	TBD
											0.000	
Subtotal Product Development			0.000	2.241		2.846		0.000		Continuing	TBD	TBD
Remarks:												
<u>(U) Test & Evaluation</u>												
HAI - IV&V; Training	C/FFP	Arlington, Va.	0.000	0.975	Oct-02	1.002	Oct-03			Continuing	TBD	TBD
											0.000	
Subtotal Test & Evaluation			0.000	0.975		1.002		0.000		Continuing	TBD	TBD
Remarks:												
<u>(U) Management</u>												
Program Office	MIPR	AFCAF, Bolling AFB, Wash. DC	0.000	0.471	Oct-02	0.485	Oct-03			Continuing	TBD	TBD
Subtotal Management			0.000	0.471		0.485		0.000		Continuing	TBD	TBD
Remarks:												
<u>(U) Total Cost</u>			0.000	3.687		4.333		0.000		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0901212F SERVICE-WIDE SUPPORT

PROJECT NUMBER AND TITLE
5060 Joint Personnel Adjudication System (JPAS)

Exhibit R-4 JPAS Schedule Profile

Fiscal Year	FY 03				FY 04				FY 05			
	1	2	3	4	1	2	3	4	1	2	3	4
ACES IOC				▲								
ACES FOC								△				
E-RFA								△				
DoD Crim Agency Interface												△
DFAS Interface												△
OPM Interface								△				
PKICAC								△				
IV&V Testing	■											

- ☆ Major Event or Milestone
- Planned Ongoing Activity
- Ongoing Activity that is Complete
- ▲ Completed Event
- △ Planned Task(s)

Exhibit R-4a, RDT&E Schedule Detail

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0901212F SERVICE-WIDE SUPPORT

PROJECT NUMBER AND TITLE

5060 Joint Personnel Adjudication System (JPAS)

(U) Schedule Profile

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Implement/Integrate ACES- IOC	4Q		
(U) Implement/Integrate ACES- FOC		4Q	
(U) E-RFA Implementation		4Q	
(U) Identify and develop requirements/interface with DoD Criminal Agencies			1Q
(U) Identify and develop requirements/interface with DFAS			1Q
(U) Expand interface with Office of Personnel Management (OPM)		2Q	
(U) PKI/CAC		1Q	
(U) IV&V Testing	1-4Q	1-4Q	1-4Q

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PE NUMBER: 0901218F
 PE TITLE: Civilian Compensation Program

Exhibit R-2, RDT&E Budget Item Justification								DATE February 2004	
BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0901218F Civilian Compensation Program					
Cost (\$ in Millions)	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
Total Program Element (PE) Cost	14.189	7.069	7.272	7.405	7.603	7.725	7.792	Continuing	TBD
4139 Civilian Compensation Program	14.189	7.069	7.272	7.405	7.603	7.725	7.792	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

This program element provides for payment of civilian compensation benefits for disability due to personal injury sustained while in the performance of duty or due to employment-related disease according to the Federal Employees Compensation Act (FECA) under Title 5 U.S.C., Chapter 81. The Department of Labor (DOL) administers this program and charges the Department of the Air Force for its employee costs; therefore, this is a MUST PAY bill for Air Force. The PE excludes manpower authorizations and costs.

This Program Element (PE) is in Budget Activity 7 in support of payment of civilian compensation benefits for disability due to personal injury sustained while in the performance of duty or due to employment-related disease according to the Federal Employees Compensation Act (FECA) under Title 5 U.S.C., Chapter 81.

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	7.057	7.130	7.291
(U) Current PBR/President's Budget	14.189	7.069	7.272
(U) Total Adjustments	7.132	-0.061	
(U) Congressional Program Reductions		-0.061	
Congressional Rescissions			
Congressional Increases			
Reprogrammings	7.132		
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			
N/A			

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Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0901218F Civilian Compensation Program			PROJECT NUMBER AND TITLE 4139 Civilian Compensation Program		
Cost (\$ in Millions)	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
4139 Civilian Compensation Program	14.189	7.069	7.272	7.405	7.603	7.725	7.792	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

This program element provides for payment of civilian compensation benefits for disability due to personal injury sustained while in the performance of duty or due to employment-related disease according to the Federal Employees Compensation Act (FECA) under Title 5 U.S.C., Chapter 81. The Department of Labor (DOL) administers this program and charges the Department of the Air Force for its employee costs; therefore, this is a MUST PAY bill for Air Force. The PE excludes manpower authorizations and costs.

This Program Element (PE) is in Budget Activity 7 in support of payment of civilian compensation benefits for disability due to personal injury sustained while in the performance of duty or due to employment-related disease according to the Federal Employees Compensation Act (FECA) under Title 5 U.S.C., Chapter 81.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments/Planned Program	0.000	0.000	
(U) Continue a program to compensate employees assigned to RDT&E facilities for worked-related injury or disease.	14.189	7.069	7.272
(U) Total Cost	14.189	7.069	7.272

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u> <u>Actual</u>	<u>FY 2004</u> <u>Estimate</u>	<u>FY 2005</u> <u>Estimate</u>	<u>FY 2006</u> <u>Estimate</u>	<u>FY 2007</u> <u>Estimate</u>	<u>FY 2008</u> <u>Estimate</u>	<u>FY 2009</u> <u>Estimate</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) AF RDT&E									
(U) Other APPN									
(U) Operation and Maintenance	25.759	0.000	0.000	0.000	0.000	0.000	0.000	0.000	TBD

(U) D. Acquisition Strategy

Not Applicable.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2004

BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0901218F Civilian Compensation Program	PROJECT NUMBER AND TITLE 4139 Civilian Compensation Program
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(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
(U) <u>Product Development</u> Not Applicable Subtotal Product Development Remarks:			0.000	0.000		0.000		0.000		0.000	0.000	0.000
(U) <u>Support</u> Not Applicable Subtotal Support Remarks:			0.000	0.000		0.000		0.000		0.000	0.000	0.000
(U) <u>Test & Evaluation</u> Not Applicable Subtotal Test & Evaluation Remarks:			0.000	0.000		0.000		0.000		0.000	0.000	0.000
(U) <u>Management</u> Not Applicable Subtotal Management Remarks:			0.000	0.000		0.000		0.000		0.000	0.000	0.000
(U) <u>NA</u> Not Applicable											0.000	
(U) Total Cost Remarks:			0.000	0.000		0.000		0.000		0.000	0.000	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0901218F Civilian Compensation Program

PROJECT NUMBER AND TITLE

4139 Civilian Compensation Program

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UNCLASSIFIED

Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2004

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0901218F Civilian Compensation Program

PROJECT NUMBER AND TITLE

4139 Civilian Compensation Program

(U) Schedule Profile

FY 2003

FY 2004

FY 2005

(U) Not Applicable

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Exhibit R-2, RDT&E Budget Item Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0901538F FIRST
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	Cost (\$ in Millions)	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
	Total Program Element (PE) Cost	14.551	13.284	15.732	13.233	13.839	14.068	14.281	Continuing	TBD
5036	Financial Information Resource System (FIRST)	14.551	13.284	15.732	13.233	13.839	14.068	14.281	Continuing	TBD

(U) **A. Mission Description and Budget Item Justification**

The Financial Information Resource System (FIRST) is a software development effort that will provide an integrated, modern, seamless financial management system that enables authorized users (from Air Staff to base level) to plan, program, and execute their budgets. FIRST is ultimately envisioned to be the foundation for the Air Force's Planning, Programming, Budgeting, and Execution (PPBE) system. FIRST will be developed using the Spiral Development approach and maximize use of Commercial and Government Off The Shelf (COTS & GOTS) products. The core capabilities include Enterprise Data View (formerly called Acquire Accounting), Budget Formulation, Funds Management, Budget Execution, and Cost Modeling. Additional increments of FIRST will continue development of legacy system's capability contained in the Automated Business Services System (ABSS) and the Obligation Adjustment Reporting System (OARS). In accordance with Air Force Financial Management direction, the Budget Enactment Management Information System (BEMIS) legacy system functionality will not be incorporated into FIRST. FIRST will be compliant with the Clinger-Cohen Act, Business Management Modernization Program (BMMP), the Joint Technical Architecture (JTA), Global Combat Support System-Air Force (GCSS-AF) Integration Framework, Command, Control, Communications, Computer, Intelligence, Surveillance and Reconnaissance (C4ISR) guidelines, and incorporate Public Key Infrastructure initiatives (such as electronic signature capability). FIRST will be integrated onto the GCSS-AF architecture.

Enterprise Data View (formerly Acquire Accounting) provides flexible, easy-to-use report generation and decision support tools for Air Force managers, incorporates the new DoD Standard Fiscal Codes (SFC) into FIRST, and delivers timely budget execution data to minimize the budget community's dependency on formal end-of-month accounting reports. The Budget Formulation capability provides for programming, budget formulation, budget justification processes and documentation. It encompasses the budget exercise process, which affects all organizational levels and all users, and is based on core financial and selected program information used to build the Air Force budget. Funds Management encompasses the methods and procedures for maintaining control over the status of adjustments to the President's Budget (PB), receipt and distribution of program authority and budget authorizations in accordance with established business rules. Budget Execution provides analysis tools and execution data to budget offices at all levels. It includes analysis tools for monitoring budget execution information, determining unfunded requirements, and fiscal year-end processing. Cost Modeling provides interactive cost modeling capability for manpower, flying hours, civilian pay, and other similar model driven costs based on resource information. Additionally, program will continue to incorporate legacy systems as required

This program is in Budget Activity 7, Operational System Development, because the program modernizes Automated Information Systems (AIS).

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2004

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0901538F FIRST

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	21.326	13.464	15.773
(U) Current PBR/President's Budget	14.551	13.284	15.732
(U) Total Adjustments	-6.775	-0.180	
(U) Congressional Program Reductions	-0.369	-0.066	
Congressional Rescissions		-0.114	
Congressional Increases			
Reprogrammings	-5.639		
SBIR/STTR Transfer	-0.767		

(U) **Significant Program Changes:**

FIRST development effort was realigned to coincide with delivery of OSD Financial Management Modernization Program (FMMP) architecture. This has resulted in reduced FY2003 and FY2004 funding requirements and re-ordering of priorities of the development efforts.

Exhibit R-2a, RDT&E Project Justification

DATE
February 2004

BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0901538F FIRST			PROJECT NUMBER AND TITLE 5036 Financial Information Resource System (FIRST)		
Cost (\$ in Millions)	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
5036 Financial Information Resource System (FIRST)	14.551	13.284	15.732	13.233	13.839	14.068	14.281	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The Financial Information Resource System (FIRST) is a software development effort that will provide an integrated, modern, seamless financial management system that enables authorized users (from Air Staff to base level) to plan, program, and execute their budgets. FIRST is ultimately envisioned to be the foundation for the Air Force's Planning, Programming, Budgeting, and Execution (PPBE) system. FIRST will be developed using the Spiral Development approach and maximize use of Commercial and Government Off The Shelf (COTS & GOTS) products. The core capabilities include Enterprise Data View (formerly called Acquire Accounting), Budget Formulation, Funds Management, Budget Execution, and Cost Modeling. Additional increments of FIRST will continue development of legacy system's capability contained in the Automated Business Services System (ABSS) and the Obligation Adjustment Reporting System (OARS). In accordance with Air Force Financial Management direction, the Budget Enactment Management Information System (BEMIS) legacy system functionality will not be incorporated into FIRST. FIRST will be compliant with the Clinger-Cohen Act, Business Management Modernization Program (BMMP), the Joint Technical Architecture (JTA), Global Combat Support System-Air Force (GCSS-AF) Integration Framework, Command, Control, Communications, Computer, Intelligence, Surveillance and Reconnaissance (C4ISR) guidelines, and incorporate Public Key Infrastructure initiatives (such as electronic signature capability). FIRST will be integrated onto the GCSS-AF architecture.

Enterprise Data View (formerly Acquire Accounting) provides flexible, easy-to-use report generation and decision support tools for Air Force managers, incorporates the new DoD Standard Fiscal Codes (SFC) into FIRST, and delivers timely budget execution data to minimize the budget community's dependency on formal end-of-month accounting reports. The Budget Formulation capability provides for programming, budget formulation, budget justification processes and documentation. It encompasses the budget exercise process, which affects all organizational levels and all users, and is based on core financial and selected program information used to build the Air Force budget. Funds Management encompasses the methods and procedures for maintaining control over the status of adjustments to the President's Budget (PB), receipt and distribution of program authority and budget authorizations in accordance with established business rules. Budget Execution provides analysis tools and execution data to budget offices at all levels. It includes analysis tools for monitoring budget execution information, determining unfunded requirements, and fiscal year-end processing. Cost Modeling provides interactive cost modeling capability for manpower, flying hours, civilian pay, and other similar model driven costs based on resource information. Additionally, program will continue to incorporate legacy systems as required

This program is in Budget Activity 7, Operational System Development, because the program modernizes Automated Information Systems (AIS).

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Application Development, Test, and Support for Enterprise Data View (formerly Acquire Accounting) capability	3.911	1.840	1.962
(U) Application Development & Test for Budget Formulation capability	2.153	5.724	7.036

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Exhibit R-2a, RDT&E Project Justification

DATE

February 2004

BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0901538F FIRST	PROJECT NUMBER AND TITLE 5036 Financial Information Resource System (FIRST)
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(U) Application Development & Test for Funds Management/Budget Execution capability	0.040	0.057	0.062
(U) Development of legacy system functionality into FIRST (e.g., ABSS, OARS)	7.557	4.846	5.272
(U) GCSS-AF Test & Integration	0.867	0.717	1.300
(U) Government Independent Test and Assessment	0.023	0.100	0.100
(U)			
(U) Total Cost	14.551	13.284	15.732

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Other Procurement, AF (PE 0901538F)	1.177	1.868	0.725	0.744	0.772	0.789	0.805	Continuing	TBD
(U) O&M, AF (PE 0308610F)	3.300	3.500	3.500	3.500	3.500	3.500	3.500	Continuing	TBD

(U) D. Acquisition Strategy

All major contracts awarded after full and open competition.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2004

BUDGET ACTIVITY			PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
07 Operational System Development			0901538F FIRST					5036 Financial Information Resource System (FIRST)				
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
<u>(U) Product Development</u>												
Accenture (Application Developer)	C/CPAF	Accenture, Fairborn, Ohio	0.000	13.661	Apr-03	12.467	Apr-04	14.332	Apr-05	Continuing	TBD	68.475
Lockheed Martin Mission Systems (LMMS) GCSS-AF Integrator	C/CPAF	LMMS, Fairborn, Ohio	0.000	0.867	Dec-02	0.717	Dec-03	1.300	Dec-04	Continuing	TBD	TBD
Subtotal Product Development			0.000	14.528		13.184		15.632		Continuing	TBD	TBD
Remarks:												
<u>(U) Test & Evaluation</u>												
Joint Interoperability Test Center (JITC)	MIPR	JITC, Fort Huachuca, Arizona	0.000	0.023	Oct-02	0.100	Oct-03	0.100	Oct-04	Continuing	TBD	TBD
Subtotal Test & Evaluation			0.000	0.023		0.100		0.100		Continuing	TBD	TBD
Remarks:												
<u>(U) Total Cost</u>			0.000	14.551		13.284		15.732		Continuing	TBD	TBD

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0901538F FIRST	PROJECT NUMBER AND TITLE 5036 Financial Information Resource System (FIRST)
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	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <u>Schedule Profile</u>			
(U) Complete Enterprise Data View (EDV) GCSS-AF Staging	3Q	1Q	
(U) EDV Production Ready		1Q	
(U) Complete Budget Formulation (BF) Analysis Model	1Q		
(U) Complete BF COTS/GOTS Evaluation		2Q	
(U) Complete BF Functional Design		3Q	
(U) Complete BF Spiral 1			1Q
(U) Complete BF Spiral 2			3Q
(U) Begin BF Spiral 3			3Q
(U) Select ABSS COTS/Enterprise Integrator		3Q	
(U) Select ABSS Extended Service Provider		4Q	
(U) ABSS FOC			4Q



DEPARTMENT OF THE AIR FORCE

HEADQUARTERS AIR FORCE MATERIEL COMMAND
WRIGHT-PATTERSON AIR FORCE BASE OHIO

MEMORANDUM FOR SAF/FMBIZ

FROM: HQ AFMC/MS(CEP)
4225 Logistics Avenue
Wright-Patterson AFB OH 45433-5746

SUBJECT: FY 2005 Research Development Test and Evaluation (RDT&E) Construction Program
President's Budget Investment Call

1. In accordance with Air Force Instruction (AFI) 65-601, Volume 1, Chapter 13, we are submitting for your review, Air Staff coordination, and congressional notification the AFMC FY 2005 RDT&E Construction Program and changes to the FY 2004 President's Budget Investment Call.

<u>FY</u>	<u>Project #</u>	<u>Title</u>	<u>PE</u>	<u>(\$000)</u>	<u>Remarks</u>
2003	MXRD033001	Minor Construction	2.75.81F	99	New FY03 Project
	FTFA031026	Minor Construction	6.26.02F	459	New FY03 Project
	Multiple	Minor Construction	6.33.19F	65	New FY03 Projects
	Multiple	Minor Construction	6.58.76F	49.5	New FY03 Projects
2004	MHMOV011664	Minor Construction	6.22.02F	275	Moved from FY03
	Multiple	Minor Construction	6.22.03F	1050	New FY04 Projects
	ZHTV030043	Minor Construction	6.22.04F	70	New FY04 Project
	Multiple	Minor Construction	6.26.02F	1301	New FY04 Projects
	FTFA012544	Minor Construction	6.58.76F	450	New FY04 Project
2005	FSPM031269	Minor Construction	6.26.02F	582	New FY05 Project

Each of the projects has been reviewed and we find that they meet the RDT&E funding criteria as outlined in AFI 65-601. The RDT&E (Appn 3600) Minor Construction requirements are listed by Program Element but are line item listed by base on the attached DD Form 1391s.

2. Our point of contact for this effort is Mr. Art Rosenfelder, HQ AFMC/MS(CEPD), DSN 787-7610.

TODD A. GRIMES, P.E.
Acting Chief, Programs Division
Command Civil Engineer
Directorate of Mission Support

Attachment:
DD Forms 1391, Misc Minor Construction

cc:
HQ USAF/ILEC
HQ AFMC/FMA/DRS/DOR
HQ AFRL/DS
SAF/AQXR

1. COMPONENT AIR FORCE	FY 2004 MILITARY CONSTRUCTION PROJECT DATA (computer generated)			2. DATE	
3. INSTALLATION AND LOCATION WRIGHT PATTERSON AIR FORCE BASE, OHIO			4. PROJECT TITLE MINOR CONSTRUCTION < \$750,000		
5. PROGRAM ELEMENT 62204	6. CATEGORY CODE 318-612	7. PROJECT NUMBER ZHTV030043	8. PROJECT COST (\$000) EEIC 529 70		
9. COST ESTIMATES					
ITEM		U/M	QUANTITY	UNIT	COST
CONSTRUCT SUPPORT FACILITY FOR GEOLAB		LS			56.0
SUPPORTING FACILITIES					0.0
SUBTOTAL					56.0
PROFIT AND OVERHEAD (25 %)					14.0
TOTAL FUNDED COST					70.0
UNFUNDED COST (0 %)					0.0
TOTAL REQUEST					70.0
10. Description of Proposed Construction: Excavate and accomplish site demolition, provide all labor and materials to provide a 40'x25' concrete pad and to construct 10' x 20' supporting storage building. Provide power and intercom, LAN, and telephone communications connections to adjacent lab facility 20620.					
11. Requirement: As required. <u>PROJECT:</u> Construct Support Facility for the GEOLAB. (Minor Construction using FY04 RDT&E funds). <u>REQUIREMENT:</u> An on-base support facility is required for mobile laboratories used in the "ladar" sensors research program to permit calibration of research data, downloading of data, and the safe movement and parking of the mobile labs. <u>CURRENT SITUATION:</u> The GEOLAB is a mobile facility (trailer containing electronics and research apparatus) supporting the "ladar" (laser + radar) R&D effort. The GEOLAB is used to provide optical lab support of ground-to-test range, ground-to-air, and pre-deployment testing at remote test sites. Information collected at the remote sites is stored in the GEOLAB and "downloaded" into permanent Sensors Directorate laboratories in 20622 when the the GEOLAB returns to base. Presently there are two GEOLABs operated in rotation; one in the field, the other on-base. The GEOLABs are rotated into a privately owned vehicle (POV) parking lot in the rear of 20622. This parking lot does not have a clear view of the on-base Area B test range and the southwest to northwest night sky, which the GEOLAB must use to calibrate research apparatus and do comparison testing between remote and on-base results. The lot is also congested, making it difficult to maneuver the GEOLAB trailer to its parking site. Lack of space also means that in the event both GEOLABs are needed on base only one can be accommodated, resulting in a GEOLAB standing idle at a remote location until space can be made available. <u>IMPACT IF NOT PROVIDED:</u> Failure to relocate the GEOLAB to a dedicated parking pad (with supporting storage space and utilities) will adversely impact the accuracy of the research results due to the difficulty of calibrating apparatus caused by poor visibility, leading to delays in the research program as experimental data has to be double-checked and experiments re-accomplished. The congested POV parking lot also puts the GEOLAB trailers at risk of damage due to the difficulty of maneuvering the trailers through tight clearances.					

1. COMPONENT AIR FORCE	FY 2004 MILITARY CONSTRUCTION PROJECT DATA (computer generated)			2. DATE	
3. INSTALLATION AND LOCATION WRIGHT PATTERSON AIR FORCE BASE, OHIO			4. PROJECT TITLE MINOR CONSTRUCTION < \$750,000		
5. PROGRAM ELEMENT 62203	6. CATEGORY CODE 812-226	7. PROJECT NUMBER ZHTV030042	8. PROJECT COST (\$000) EEIC 529 450		
9. COST ESTIMATES					
ITEM		U/M	QUANTITY	UNIT	COST
POWER SUPPLY TO THE CARL FACILITY		LS			360.0
SUPPORTING FACILITIES					0.0
SUBTOTAL					360.0
PROFIT AND OVERHEAD (25 %)					90.0
TOTAL FUNDED COST					450.0
UNFUNDED COST (0 %)					0.0
TOTAL REQUEST					450.0
10. Description of Proposed Construction: Excavate, construct concrete duct bank, access manholes, high voltage cables and terminations, and motor control center feeder. Relocate conflicting utilities as required. Backfill and restore surface to pavement or grass.					
11. Requirement: As required. <u>PROJECT:</u> Provide power supply to the Compressor Aero Research Laboratory (CARL) facility. (Minor Construction using FY04 RDT&E funds) <u>REQUIREMENT:</u> An electrical supply is needed to support a relocated test rig used for research on turbine and compressor technology to be incorporated in new and improved aircraft propulsion systems. <u>CURRENT SITUATION:</u> The CARL facility is a research apparatus consisting of fan rigs and high load compressors, and is used to conduct research on the physics of compressor technology and turbine fan design, as well as development of the same. The present location of the CARL apparatus is in an antiquated, soon-to-be demolished facility 1.7 miles distant from the Propulsion Directorate complex, resulting in difficulties in communications and collaborative research and development between CARL and the remainder of the Propulsion Directorate research laboratories. In order to facilitate collaborative research and improve communications, CARL will be relocated to an underutilized test cell in the Propulsion Laboratory complex. As part of the relocation effort electric power must be provided to the test apparatus, requiring the construction of an underground duct bank and high voltage cable to connect to a nearby power substation. <u>IMPACT IF NOT PROVIDED:</u> The apparatus is used three times a week on average to conduct research and experiments in turbine and compressor technology. Failure to provide the electrical connection will render the CARL facility unusable, causing experimentation to cease and disrupting research and development of turbines and compressors.					

1. COMPONENT AIR FORCE	FY 2004 MILITARY CONSTRUCTION PROJECT DATA (computer generated)			2. DATE	
3. INSTALLATION AND LOCATION WRIGHT PATTERSON AIR FORCE BASE, OHIO			4. PROJECT TITLE MINOR CONSTRUCTION < \$750,000		
5. PROGRAM ELEMENT 62203	6. CATEGORY CODE 318-612	7. PROJECT NUMBER ZHTV030016B	8. PROJECT COST (\$000) EEIC 529 299.7		
9. COST ESTIMATES					
ITEM		U/M	QUANTITY	UNIT	COST
ADD TO MECHANICAL ROOM SUPPORTING FACILITIES		SM	185	1,296	239.8 0.0
SUBTOTAL					239.8
PROFIT AND OVERHEAD (25 %)					59.9
TOTAL FUNDED COST					299.7
UNFUNDED COST (0 %)					0.0
TOTAL REQUEST					299.7
10. Description of Proposed Construction: Excavate, provide foundations and slab, exterior skin, and interior utilities and finishes. All labor and materials needed to construct a mechanical room addition to 20018H.					
11. Requirement: As required. <u>PROJECT:</u> Add to Mechanical Room building 20018H. (Minor Construction using FY04 RDT&E funds) <u>REQUIREMENT:</u> Expansion of the existing mechanical room is required to support the consolidation and replacement of laboratory chillers that provide climate control necessary to maintain controlled environments used to conduct valid and accurate research on propulsion systems, turbines, aircraft power devices and systems, and fuels and lubricants. <u>CURRENT SITUATION:</u> The propulsion laboratory complex, containing 23 separate laboratories, test cells, and research/testing apparatus in seven facilities, require reliable climate control for propulsion, fuels, and lubricants research. Climate control is provided in part by three chillers. These chillers are over 20 years old and have reached the end of their service life, as indicated by increasing frequency of breakdowns and service calls. The chillers will be replaced by three new chillers, configured as a central chiller plant with a supporting mechanical room to house ancillary mechanical and electrical equipment such as pumps and controls. <u>IMPACT IF NOT PROVIDED:</u> Failure to provide a chilled water supply will adversely impact the ability of AFRL to conduct propulsion research. Research associated with the development of propulsion and related technologies (such as turbine engines, advanced propulsion systems, fuels, and lubricants, and aircraft power devices and systems) will be disrupted. <u>ADDITIONAL:</u> This project is a companion project to a repair project ZHTV030016A, Replace Chillers.					

1. COMPONENT AIR FORCE	FY 2003 MILITARY CONSTRUCTION PROJECT DATA (computer generated)			2. DATE	
3. INSTALLATION AND LOCATION HANSCOM AIR FORCE BASE, MASSACHUSETTS			4. PROJECT TITLE MINOR CONSTRUCTION <\$750,000		
5. PROGRAM ELEMENT 27581	6. CATEGORY CODE 317-315	7. PROJECT NUMBER MXRD033001	8. PROJECT COST (\$000) EEIC 529 99		
9. COST ESTIMATES					
ITEM		U/M	QUANTITY	UNIT	COST
SECURE CONFERENCE RM ACQ MGT FAC B1630					99.0
SUPPORTING FACILITIES					0.0
SUBTOTAL					99.0
PROFIT AND OVERHEAD (0 %)					0.0
TOTAL FUNDED COST					99.0
UNFUNDED COST (0 %)					0.0
TOTAL REQUEST					99.0
10. Description of Proposed Construction: This project will include the installation of interior partitions, insulation, secure door, cypher lock, electrical and HVAC work. Included in this project are all necessary alarms, fire prevention systems, electrical equipment hookups, communications and security requirements.					
11. Requirement: As required. <u>PROJECT:</u> Construct secure conference room Acquisition Management Facility B 1630. (Minor Construction using FY03 RDT&E funds.) <u>REQUIREMENT:</u> This is a new mission requirement in support of the MC2A Program Office. The conference room is required to provide facilities for classified discussions of the new program office in support of the upgraded Joint Starts Program. <u>CURRENT SITUATION:</u> The facility occupied by the program office does not have any secure conference room areas. <u>IMPACT IF NOT PROVIDED:</u> If this project is not provided the program office will not be able to conduct meetings that discuss sensitive material. This situation will negatively impact on how the program office operates by limiting the flow of information to program managers.					

1. COMPONENT AIR FORCE	FY 2004 MILITARY CONSTRUCTION PROJECT DATA (computer generated)			2. DATE	
3. INSTALLATION AND LOCATION KIRTLAND AIR FORCE BASE, NEW MEXICO			4. PROJECT TITLE MINOR CONSTRUCTION < \$750,000		
5. PROGRAM ELEMENT 62202	6. CATEGORY CODE 312-477	7. PROJECT NUMBER MHMV011664	8. PROJECT COST (\$000) EEIC 529 275		
9. COST ESTIMATES					
ITEM		U/M	QUANTITY	UNIT	COST
CONSTRUCT LAB SUPPORT SPACE B472		LS			275.0
SUPPORTING FACILITIES					0.0
SUBTOTAL					<hr/> 275.0
PROFIT AND OVERHEAD (0 %)					0.0
TOTAL FUNDED COST					<hr/> 275.0
UNFUNDED COST (0 %)					0.0
TOTAL REQUEST					<hr/> 275.0
10. Description of Proposed Construction: Construct additional secure laboratory support space adjacent to the high bay Science and Technology (S&T) labs in building 472 with secure access and sound attenuation to STC 45. Addition will be lightweight concrete slab on open web steel bar joists.					
11. Requirement: As required. <u>PROJECT:</u> Construct Lab Support Space B472. (Minor Construction using FY04 RDT&E funds) <u>REQUIREMENT:</u> Additional lab support space for analysis, engineering, and management support is required adjacent to the high bay S&T labs to improve efficiencies and reduce S&T costs. <u>CURRENT SITUATION:</u> Existing facility scope is inadequate to provide for the additional square footage of secure lab support space needed in bldg 472. Current lab support space is housed in other facilities remote from their associated high bay labs. <u>IMPACT IF NOT PROVIDED:</u> Operational costs will continue to be higher than necessary due to the split operation.					

1. COMPONENT AIR FORCE	FY 2005 PROJECT DATA (computer generated)			2. DATE	
3. INSTALLATION AND LOCATION EGLIN AIR FORCE BASE, FLORIDA			4. PROJECT TITLE MINOR CONSTRUCTION <\$750,000		
5. PROGRAM ELEMENT 62602	6. CATEGORY CODE 317-311	7. PROJECT NUMBER FTFA031269	8. PROJECT COST (\$000) EEIC 529 581.6		
9. COST ESTIMATES					
ITEM		U/M	QUANTITY	UNIT	COST
PRIMARY FACILITIES					501.6
LDERF OFFICE AND MACHINE SHOP		SM	418	1,200	(501.6)
SUPPORTING FACILITIES					80.0
PAVING		LS			(30.0)
UTILITIES		LS			(40.0)
SITE WORK		LS			(10.0)
SUBTOTAL					581.6
PROFIT AND OVERHEAD (0 %)					0.0
TOTAL FUNDED COST					581.6
UNFUNDED COST (0 %)					0.0
TOTAL REQUEST					581.6
10. Description of Proposed Work: Single story metal building with sloped metal roof to house offices, administrative space, and a machine shop, electronics shop and a plating room. Facility will have mechanical room space for full HVAC including shops areas, and building will have bathrooms and functionally unique space with a high bay roll-up door to allow access to interior. Paving and utility connections are included.					
11. Requirement: 418 SM Adequate: 0 SM Substandard: 0 SM					
<u>PROJECT:</u> Construct LDERF Office and Machine Shop. (Minor Construction using FY05 RDT&E funds).					
<u>REQUIREMENT:</u> Permanent office space is required to support research and development integration activities at the newly designated test site, C-86 on the Eglin range. This new facility will house between 10-15 scientists, engineers and technicians, providing all offices, conference rooms, machine shops, haz-mat storage and general purpose storage areas as the Laser Detection and Ranging (LADAR) Development and Evaluation Research Facility (LDERF) for AFRL/MNGS.					
<u>CURRENT SITUATION:</u> The current facility at range site C-3 was built as a temporary office location as a tenant on the Base Installation Security Services (BISS) group range. The BISS pre-planned expansion and current construction efforts are interfering with LDERF operations and will force a termination of all outdoor range activities in early FY04. The current work space is insufficient for the number of in-house projects under investigation, there is inadequate storage for the amount of research equipment that is required, and there is insufficient office space to house the dozen or more research scientists, engineers and technicians. A new range is being developed in FY03 at C-86, and that will be supplemented by the construction of this new facility with enhanced capabilities.					
<u>IMPACT IF NOT PROVIDED:</u> All of the USAF electro-optics research for air delivered munitions guidance is conducted at this facility. The future of all advanced munitions research is, therefore, in jeopardy with the termination of operations. Many joint DoD, DoE and Defense Advanced Research Projects Agency (DARPA) LADAR development programs, several of which are managed from this site, and ongoing support to national					

1. COMPONENT AIR FORCE	FY 2005 PROJECT DATA (computer generated)			2. DATE
3. INSTALLATION AND LOCATION EGLIN AIR FORCE BASE, FLORIDA			4. PROJECT TITLE MINOR CONSTRUCTION <\$750,000	
5. PROGRAM ELEMENT 62602	6. CATEGORY CODE 317-311	7. PROJECT NUMBER FTFA031269	8. PROJECT COST (\$000) EEIC 529 581.6	
<p>intelligence agencies will also be disrupted. The overall impact of deferral of this program will be the inability to construct a permanent research facility that would otherwise enable continued operations and expanded facilities matching the growth of AFRL investment in this technology.</p> <p><u>ADDITIONAL:</u> This facility serves as a follow-on enhancement to a newly created range. Range C-86 is being constructed in two phases to provide a complete and useable facility. This project for the admin and shop space enhances that range, also as a complete and useable facility.</p>				

1. COMPONENT AIR FORCE	FY 2004 PROJECT DATA (computer generated)			2. DATE
3. INSTALLATION AND LOCATION EGLIN AIR FORCE BASE, FLORIDA			4. PROJECT TITLE MINOR CONSTRUCTION < \$1,000,000	
5. PROGRAM ELEMENT 62602	6. CATEGORY CODE 317-311	7. PROJECT NUMBER FTFA031026A	8. PROJECT COST (\$000) EEIC 529 529.8	
9. COST ESTIMATES				
ITEM	U/M	QUANTITY	UNIT	COST
PRIMARY FACILITIES				449.8
LDERF SITE RELOCATION, PHASE II	SM	418	1,076	(449.8)
SUPPORTING FACILITIES				80.0
SEPTIC TANK	LS			(20.0)
WATER WELL	LS			(60.0)
SUBTOTAL				529.8
PROFIT AND OVERHEAD (0 %)				0.0
TOTAL FUNDED COST				529.8
UNFUNDED COST (0 %)				0.0
TOTAL REQUEST				529.8
10. Description of Proposed Work: Construct a pre-engineered metal building with sloped metal roof and high bay doors to contain laser laboratories and an indoor lasing range. Facility will also have mechanical room space for HVAC, bathrooms and functionally unique space for lab equipment, plus required storage for research and development supplies and equipment.				
11. Requirement: As Required.				
<u>PROJECT:</u> Provide for LDERF relocation, phase II. (Minor construction using FY04 RDT&E funds).				
<u>REQUIREMENT:</u> The Laser Detection and Ranging component of the LDERF requires an indoor range for certain tests on lasing equipment. Indoor laboratories are also required to allow on-site modifications to equipment and efficient data collection and analysis of test results.				
<u>CURRENT SITUATION:</u> The Base Intrusion Security Systems (BISS) function of the 46th Test Wing shares a range with the Laser Detection and Ranging (LADAR) element of the LADAR Development and Evaluation Research (LDERF), a component of AFRL. Since the 9-11 attack, the BISS ops tempo has increased dramatically to the point that it affects the mission of the LDERF with frequent work-arounds (mission planning and shut-downs) required due to conflicting uses of the range. LDERF will be moved across the road and a dedicated range will be developed in phase one of this effort under the approval authority of the Laboratory Revitalization Demonstration Program (LRDP). BISS will close the range at C-3 to LDERF in late FY03.				
<u>IMPACT IF NOT PROVIDED:</u> The LDERF will continue to work around the scheduling of the increased ops tempo of the BISS operation, until FY03 which is when BISS will close the range to LDERF due to conflicting missions. A new range is being developed under phase I of this project, but to add the laboratory space in this phase with the indoor range will expand the R&D capabilities for more intensive testing.				
<u>ADDITIONAL:</u> This is phase II of a two part single undertaking which, when combined, will bring the total project requirement close to the \$1.0M approval threshold for LRDP projects. Phase I clears the range and brings in trailers, Phase II adds a building for increased capabilities. Each phase provides a complete and useable product. Air Force				

1. COMPONENT AIR FORCE	FY 2004 PROJECT DATA (computer generated)		2. DATE
3. INSTALLATION AND LOCATION EGLIN AIR FORCE BASE, FLORIDA		4. PROJECT TITLE MINOR CONSTRUCTION < \$1,000,000	
5. PROGRAM ELEMENT 62602	6. CATEGORY CODE 317-311	7. PROJECT NUMBER FTFA031026A	8. PROJECT COST (\$000) EEIC 529 529.8
<p>Under Secretary of Defense letter dated 28 Jul 99; subject "Modification of the DoD Laboratory Revitalization Demonstration Program" allows commanders of selected defense laboratories greater flexibility in undertaking facility modernization initiatives by increasing the maximum dollar threshold applicable to minor construction projects. The legislation raises the threshold for minor military construction for the laboratories included in the program. Facilities and structures constructed under this authority should be in direct support of research, development, test, and evaluation at the designated laboratories. AFRL has been designated as eligible for this program.</p>			

1. COMPONENT AIR FORCE	FY 2003 PROJECT DATA (computer generated)			2. DATE
3. INSTALLATION AND LOCATION EGLIN AIR FORCE BASE, FLORIDA			4. PROJECT TITLE MINOR CONSTRUCTION < \$1,000,000	
5. PROGRAM ELEMENT 62602	6. CATEGORY CODE 317-311	7. PROJECT NUMBER FTFA031026	8. PROJECT COST (\$000) EEIC 529 459.3	
9. COST ESTIMATES				
ITEM	U/M	QUANTITY	UNIT	COST
PRIMARY FACILITIES				20.0
LDERF SITE RELOCATION, PHASE I	LS			(20.0)
SUPPORTING FACILITIES				439.3
UXO CLEARING	AC	141	350	(49.4)
UTILITIES	LS			(30.0)
PAVING	SY	1,870	31	(58.0)
PERIMETER PROTECTION	LS			(20.0)
CLEAR CUTTING AND RE-SEEDING	AC	141	2,000	(282.0)
SUBTOTAL				459.3
PROFIT AND OVERHEAD (0 %)				0.0
TOTAL FUNDED COST				459.3
UNFUNDED COST (0 %)				0.0
TOTAL REQUEST				459.3
10. Description of Proposed Work: Perform a UXO sweep and clear-cut 141 acres of medium density vegetation to create a new lasing range on Eglin reservation just west of site C-53. Establish range perimeter to prevent intrusion. Bring in electricity, and make connections to temporary trailer and provide access roads and parking so the range will be fully operational until planned future construction can provide permanent facilities.				
11. Requirement: As Required.				
<u>PROJECT:</u> Provide for LDERF site relocation, phase I. (Minor construction using FY03 RDT&E funds).				
<u>REQUIREMENT:</u> The laser Detection and Ranging component of the LDERF requires an open, dedicated range for safe lasing and evaluation of tests. Two configurations are required for current testing scenarios, a 1 KM 20 degree arc, and a convergent 2 KM 10 degree arc, each superimposed over one another.				
<u>CURRENT SITUATION:</u> The Base Intrusion Security Systems (BISS) function of the 46 Test Wing shares a range with the Laser Detection and Ranging (LADAR) element of LADAR Development and Evaluation Research (LDERF), a component of AFRL. Since the 9-11 attack, the BISS ops tempo has increased dramatically to the point that it affects the mission of the LADAR, with frequent work-arounds (mission planning and shut-downs) required due to conflicting uses of the range. LDERF will be moved across the road and a dedicated range will be developed under the guidelines of the Laboratory Revitalization Demonstration Program (LRDP). BISS will close the range to LDERF in FY03.				
<u>IMPACT IF NOT PROVIDED:</u> The LDERF will continue to work around the scheduling of the increased ops tempo of the BISS operation, until FY03 which is when BISS will close the range to LDERF due to conflicting missions. The LDERF requires an outdoor range to conduct relevant testing of ladar seeker technologies for future precision weapons.				
<u>ADDITIONAL:</u> This is phase I of a two part single undertaking which, when combined, will				

1. COMPONENT AIR FORCE	FY 2003 PROJECT DATA (computer generated)		2. DATE
3. INSTALLATION AND LOCATION EGLIN AIR FORCE BASE, FLORIDA		4. PROJECT TITLE MINOR CONSTRUCTION < \$1,000,000	
5. PROGRAM ELEMENT 62602	6. CATEGORY CODE 317-311	7. PROJECT NUMBER FTFA031026	8. PROJECT COST (\$000) EEIC 529 459.3
<p>bring the total project requirement close to the \$1.0M approval threshold for LRDP projects. Phase I clears the range and brings in trailers, Phase II adds a building for increased capabilities. Each phase provides a complete and useable product. Air Force Under Secretary of Defense letter dated 28 Jul 99; subject "Modification of the DoD Laboratory Revitalization Demonstration Program" allows commanders of selected defense laboratories greater flexibility in undertaking facility modernization initiatives by increasing the maximum dollar threshold applicable to minor construction projects. The legislation raises the threshold for minor military construction for the laboratories included in the program. Facilities and structures constructed under this authority should be in direct support of research, development, test, and evaluation at the designated laboratories. AFRL has been designated as eligible for this program.</p>			

1. COMPONENT AIR FORCE	FY 2004 PROJECT DATA (computer generated)			2. DATE	
3. INSTALLATION AND LOCATION EGLIN AIR FORCE BASE, FLORIDA			4. PROJECT TITLE MINOR CONSTRUCTION < \$750,000		
5. PROGRAM ELEMENT 62602	6. CATEGORY CODE 316-333	7. PROJECT NUMBER FTFA031023	8. PROJECT COST (\$000) EEIC 529 744.6		
9. COST ESTIMATES					
ITEM		U/M	QUANTITY	UNIT	COST
PRIMARY FACILITIES					644.6
NANO-ENERGETICS LABORATORY		SM	550	1,172	(644.6)
SUPPORTING FACILITIES					100.0
SITE WORK		LS			(60.0)
PAVEMENTS		LS			(40.0)
SUBTOTAL					744.6
PROFIT AND OVERHEAD (0 %)					0.0
TOTAL FUNDED COST					744.6
UNFUNDED COST (0 %)					0.0
TOTAL REQUEST					744.6
10. Description of Proposed Work: A single story laboratory type building constructed to explosive siting standards with 10 foot ceilings. All rooms will have grounding (conductive flooring), high strength walls and doors, lightning protection, service bay for pumps and tanks, delivery service area and independant lab air handling and air filtration systems.					
11. Requirement: 550 SM Adequate: 0 SM Substandard: 50 SM					
<u>PROJECT:</u> Construct a nano-energetics laboratory. (Minor construction using FY04 RDT&E funds).					
<u>REQUIREMENT:</u> This laboratory will house cutting edge, state-of-the-art equipment, and provide the work environment for research and development efforts in nano sized energetic materials for the USAF. Advanced research in the nano energetic formulations, physical and material properties will be explored for possible inclusion in future USAF weapon systems. Equipment requirements include an Atomic Force microscope, Field Emission Scanning Electron Microscope, Field Emission Transmission Electron Microscope, spectrometers, particle size analyzers and other standard lab equipment.					
<u>CURRENT SITUATION:</u> Capacity for research is currently limited to two 15x18 foot laboratories. The HERD is the only USAF technical expertise facility for conceptual and developmental high explosives used in current and future weapon systems by the USAF.					
<u>IMPACT IF NOT PROVIDED:</u> Current facilities are not capable of sustaining operational requirements in a safe environment. Nano materials pose special health and safety conditions and therefore require special handling and processing equipment for safe operations.					

1. COMPONENT AIR FORCE	FY 2004 MILITARY CONSTRUCTION PROJECT DATA (computer generated)			2. DATE	
3. INSTALLATION AND LOCATION EGLIN AIR FORCE BASE, FLORIDA		4. PROJECT TITLE MINOR CONSTRUCTION < \$750,000			
5. PROGRAM ELEMENT 62602	6. CATEGORY CODE 315-237	7. PROJECT NUMBER FTFA011101	8. PROJECT COST (\$000) EEIC 529 26		
9. COST ESTIMATES					
ITEM		U/M	QUANTITY	UNIT	COST
ADD TO PARKING AREA, BLDG 432		LS			26.0
SUPPORTING FACILITIES					0.0
SUBTOTAL					26.0
PROFIT AND OVERHEAD (0 %)					0.0
TOTAL FUNDED COST					26.0
UNFUNDED COST (0 %)					0.0
TOTAL REQUEST					26.0
10. Description of Proposed Construction: Asphalt parking lot for 15 POV parking spots adjacent to building 432.					
11. Requirement: As required. <u>PROJECT:</u> Constructs POV parking adjacent to building 432. (Minor Construction using FY04 RDT&E funds). <u>REQUIREMENT:</u> Work is required to provide adequate parking at the required distance from the facility. Building 432 serves as the fuze testing and research facility, which drives the need for a safe set-back distance. <u>CURRENT SITUATION:</u> Half of building 432 is set up for explosive operations for fuze research. Personnel working in this building currently park right next to two sides of the building. Recent attention from safety personnel determined this parking arrangement violates AF manual 91-201 which governs explosive safety standards. AFM 91-201, paragraph 3.17.2, specifies a 100 foot minimum distance between privately owned vehicles parking and a potential explosion site (Bldg 432). Base regulations don't allow parking on the grass outside of the facility, and erosion has become a problem at one end of the existing pavement. <u>IMPACT IF NOT PROVIDED:</u> Personnel will have to park in an overcrowded parking lot used by other personnel at a different building which is located about 1/2 mile away.					

1. COMPONENT AIR FORCE	FY 2003 MILITARY CONSTRUCTION PROJECT DATA (computer generated)			2. DATE	
3. INSTALLATION AND LOCATION EDWARDS AIR FORCE BASE, CALIFORNIA			4. PROJECT TITLE MINOR CONSTRUCTION < \$750,000		
5. PROGRAM ELEMENT 63319	6. CATEGORY CODE 852-261	7. PROJECT NUMBER FSPM032517	8. PROJECT COST (\$000) EEIC 529 25		
9. COST ESTIMATES					
ITEM		U/M	QUANTITY	UNIT	COST
VEHICLE PARKING		SM	600	40	24.0
SUPPORTING FACILITIES					1.0
SITE PREP		LS			(1.0)
SUBTOTAL					25.0
PROFIT AND OVERHEAD (0 %)					0.0
TOTAL FUNDED COST					25.0
UNFUNDED COST (0 %)					0.0
TOTAL REQUEST					25.0
10. Description of Proposed Construction: Provide ACC parking area and driveway for 10 vehicles.					
11. Requirement: As required. <u>PROJECT:</u> Provide vehicle parking. (Minor Construction using FY03 RDT&E funds) <u>REQUIREMENT:</u> A paved parking area at B163 is required to mitigate a potential FOD hazard when vehicles are driven across aircraft taxiways. <u>CURRENT SITUATION:</u> Vehicles currently park in an unpaved area. Vehicles are used for transportation of equipment and personnel to various locations within the South Base complex. The vehicles must be driven across active taxiways. Dirt and debris dropped from vehicles can cause FOD problems for test aircraft. <u>IMPACT IF NOT PROVIDED:</u> The potential FOD hazard will continue with possible damage to aircraft, resulting in mission delays and increased costs.					

1. COMPONENT AIR FORCE	FY 2003 MILITARY CONSTRUCTION PROJECT DATA (computer generated)			2. DATE	
3. INSTALLATION AND LOCATION EDWARDS AIR FORCE BASE, CALIFORNIA			4. PROJECT TITLE MINOR CONSTRUCTION < \$750,000		
5. PROGRAM ELEMENT 63319	6. CATEGORY CODE 214-428	7. PROJECT NUMBER FSPM032516	8. PROJECT COST (\$000) EEIC 529 40		
9. COST ESTIMATES					
ITEM		U/M	QUANTITY	UNIT	COST
COVERED ELECTRIC VEHICLE PARKING SUPPORTING FACILITIES		SM	70	500	35.0 5.0
UTILITIES		LS			(5.0)
SUBTOTAL					40.0
PROFIT AND OVERHEAD (0 %)					0.0
TOTAL FUNDED COST					40.0
UNFUNDED COST (0 %)					0.0
TOTAL REQUEST					40.0
10. Description of Proposed Construction: Construct a metal frame parking shelter with metal roof and battery charging stations for 6 electric vehicles.					
11. Requirement: As required. <u>PROJECT:</u> Construct an electric vehicle parking shelter. (Minor Construction using FY03 RDT&E funds) <u>REQUIREMENT:</u> A parking shelter for electric vehicles is required to provide uninterrupted transportation between various ABL locations. The parking shelter must include recharging ports for 6 electric vehicles, and cover 6 existing asphalt parking spaces. <u>CURRENT SITUATION:</u> Electric vehicles are parked in an open area without electrical recharging capability. The vehicles are moved to a remote charging area for recharging vehicle batteries on a regular cycle. <u>IMPACT IF NOT PROVIDED:</u> The electric vehicles will continue to require frequent maintenance due to constant exposure to the sun and shortened battery life. This results in increased costs and manpower to maintain the electric vehicles to meet program transportation requirements.					

1. COMPONENT AIR FORCE	FY 2003 MILITARY CONSTRUCTION PROJECT DATA (computer generated)			2. DATE	
3. INSTALLATION AND LOCATION EDWARDS AIR FORCE BASE, CALIFORNIA			4. PROJECT TITLE MINOR CONSTRUCTION < \$750,000		
5. PROGRAM ELEMENT 65876	6. CATEGORY CODE 812-226	7. PROJECT NUMBER FSPM032511	8. PROJECT COST (\$000) EEIC 529 24.5		
9. COST ESTIMATES					
ITEM		U/M	QUANTITY	UNIT	COST
COUNTERPOISE GRID		LS			20.0
SUPPORTING FACILITIES					4.5
UTILITIES		LS			(4.5)
SUBTOTAL					<u>24.5</u>
PROFIT AND OVERHEAD (0 %)					0.0
TOTAL FUNDED COST					<u>24.5</u>
UNFUNDED COST (0 %)					0.0
TOTAL REQUEST					<u>24.5</u>
10. Description of Proposed Construction: Install new counterpoise grid in the I-14 area near B8626, and connect to grounding system in B8626.					
11. Requirement: As required. <u>PROJECT:</u> Construct new counterpoise grid. (Minor Construction using FY03 RDT&E funds) <u>REQUIREMENT:</u> A new counterpoise grid is required in the I-14 area near B8626, to mitigate electrical noise from the existing counterpoise to support test projects. <u>CURRENT SITUATION:</u> The existing grounding system is inadequate for the existing test apparatus. The existing electrical noise level exceeds program requirements. <u>IMPACT IF NOT PROVIDED:</u> The existing electrical noise from the existing counterpoise will reduce measurement accuracy of test equipment resulting in inadequate test data.					

1. COMPONENT AIR FORCE	FY 2003 MILITARY CONSTRUCTION PROJECT DATA (computer generated)			2. DATE	
3. INSTALLATION AND LOCATION EDWARDS AIR FORCE BASE, CALIFORNIA			4. PROJECT TITLE MINOR CONSTRUCTION < \$750,000		
5. PROGRAM ELEMENT 65876	6. CATEGORY CODE 890-161	7. PROJECT NUMBER FSPM032506	8. PROJECT COST (\$000) EEIC 529 25		
9. COST ESTIMATES					
ITEM		U/M	QUANTITY	UNIT	COST
HAZARDOUS STORAGE AREA		SM	30	450	13.5
SUPPORTING FACILITIES					11.5
UTILITIES		LS			(8.0)
FENCING		LS			(3.5)
SUBTOTAL					25.0
PROFIT AND OVERHEAD (0 %)					0.0
TOTAL FUNDED COST					25.0
UNFUNDED COST (0 %)					0.0
TOTAL REQUEST					25.0
10. Description of Proposed Construction: Construct three new concrete pads on the east side of building 8419. Install electrical power from existing circuits to new slabs and to the inside southeast quadrant of building. Install fencing for hazardous materials storage area.					
11. Requirement: As required.					
<u>PROJECT:</u> Construct hazardous storage area. (Minor Construction using FY03 RDT&E funds)					
<u>REQUIREMENT:</u> A new hazardous storage area is required to support upcoming test requirements. The hazardous storage area will be used to meet short-term storage requirements.					
<u>CURRENT SITUATION:</u> The existing facility has very limited storage capacity for hazardous materials, and cannot support upcoming test requirements. This is the only hazardous material storage area near this facility.					
<u>IMPACT IF NOT PROVIDED:</u> Hazardous materials will have to be transported by truck to and from the central storage facility on a more frequent basis, requiring increased manpower, potentially delaying test activities.					

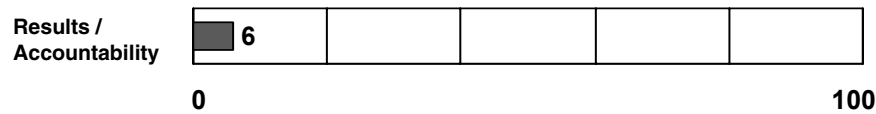
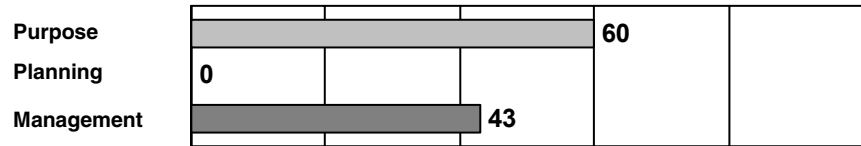
1. COMPONENT AIR FORCE	FY 2004 MILITARY CONSTRUCTION PROJECT DATA (computer generated)			2. DATE	
3. INSTALLATION AND LOCATION EDWARDS AIR FORCE BASE, CALIFORNIA			4. PROJECT TITLE MINOR CONSTRUCTION < \$750,000		
5. PROGRAM ELEMENT 65876	6. CATEGORY CODE 442-258	7. PROJECT NUMBER FSPM012544	8. PROJECT COST (\$000) EEIC 529 449.82		
9. COST ESTIMATES					
ITEM		U/M	QUANTITY	UNIT	COST
CONSTRUCT LOX CART MAINTENANCE FACILITY		SM	186	1,313	244.2
SUPPORTING FACILITIES					205.6
UTILITIES		LS			(100.0)
RELOCATE CLEAN ROOM		LS			(40.0)
CONCRETE STORAGE AREA		SM	47	592	(27.8)
PARKING		SM	670	34	(22.8)
SITE PREP		LS			(15.0)
SUBTOTAL					449.8
PROFIT AND OVERHEAD (0 %)					0.0
TOTAL FUNDED COST					449.8
UNFUNDED COST (0 %)					0.0
TOTAL REQUEST					449.8
10. Description of Proposed Construction: Relocate the LOX cart maintenance function from building 1931, by constructing a new facility on pad 15, and relocating the existing clean room. The new facility will be the same size as the existing facility. Paint hold short lines on pad 15 to prevent aircraft traffic in the area.					
11. Requirement: As required. <u>PROJECT:</u> Construct LOX Cart Maintenance Facility. (Minor Construction using FY04 RDT&E funds) <u>REQUIREMENT:</u> The LOX cart maintenance function with a clean room is required to be located outside the fragmentation zone around the old X-15 test stand to allow simultaneous use of both facilities. <u>CURRENT SITUATION:</u> The existing LOX cart maintenance facility is currently located within the fragmentation zone around the old X-15 test stand. The facility must be vacated during any test stand activities. Additionally, the facility itself would be at risk of serious damage if an accident occurred during testing. <u>IMPACT IF NOT PROVIDED:</u> The LOX cart maintenance facility will remain within the test stand fragmentation zone and will have to be vacated during test stand activities. An accident at the test stand will pose an unacceptable risk to the LOX cart maintenance operations.					

1. COMPONENT AIR FORCE	FY 2004 MILITARY CONSTRUCTION PROJECT DATA (computer generated)			2. DATE	
3. INSTALLATION AND LOCATION WRIGHT PATTERSON AIR FORCE BASE, OHIO			4. PROJECT TITLE MINOR CONSTRUCTION < \$750,000		
5. PROGRAM ELEMENT 62203	6. CATEGORY CODE 318-632	7. PROJECT NUMBER ZHTV032808	8. PROJECT COST (\$000) EEIC 529 300		
9. COST ESTIMATES					
ITEM		U/M	QUANTITY	UNIT	COST
CONSTRUCT FUELS STORAGE PAD		LS			240.0
SUPPORTING FACILITIES					0.0
SUBTOTAL					240.0
PROFIT AND OVERHEAD (25 %)					60.0
TOTAL FUNDED COST					300.0
UNFUNDED COST (0 %)					0.0
TOTAL REQUEST					300.0
10. Description of Proposed Construction: Excavate, provide compacted aggregate, structural concrete, and curbing. All labor and materials to construct a concrete storage pad adjacent to 20092					
11. Requirement: As required. <u>PROJECT:</u> Construct Fuels Storage Pad. (Minor Construction using FY04 RDT&E funds) <u>REQUIREMENT:</u> A paved storage area is required for the safe and efficient storage of fuels and lubricants used in research and development of turbine engines, advanced propulsion systems, and improved fuels and lubricants. The existing paved/covered storage area has exceeded its capacity due to increased fuels/lubricants use, and must be expanded by paving a gravel storage area. <u>CURRENT SITUATION:</u> 20092, comprising a shed and open storage, is the storage facility for fuels and lubricants used in propulsion lab research and experimentation. Fuels and lubricants are stored in this facility in drums and racks, with fuel drums being transported several times a week to and from the propulsion laboratory complex. The ambient drum storage requirement is increasing, cramping the available storage space, and forcing drums to be stored on adjacent gravel surfaces. Drums can no longer be safely stored, loaded and unloaded due to cramped conditions. Forklifts and other vehicles have become stuck in the gravel overflow storage area on several occasions during drum loading and unloading operations. <u>IMPACT IF NOT PROVIDED:</u> The current situation is causing delays in research as drum movement will be curtailed due to congested storage area and as transport vehicles get stuck in the overflow drum storage area. Lack of an adequate storage area to support an increase in fuel and lubricants usage will inhibit the propulsion laboratories ability to accomplish planned research, experimentation, and development. The lack of storage capacity will result in laboratory activities being delayed and rescheduled due to lack of fuel and lubricants.					

Program: *DoD Small Business Innovation Research / Technology Transfer*

Agency: *Department of Defense--Military*

Bureau: *Research & Development*



Key Performance Measures

Year Target Actual

Long-term Measure: Revise the Commercialization Achievement Index (CAI) to eliminate counting of investments as commercialization no later than three years after receiving the first Phase II support. After that, count competitive sales receipts only.	2004	All	
Long-term Measure: Stop funding companies with more than 5 current or past Phase II awards in the last 5 years if the company is in the bottom quartile in the CAI.	2005	All	
Long-term Efficiency Measure: Emphasize commercialization so overall competitively awarded sales to the government (direct or indirect) from resulting products is at least equal to new R&D investment (Phases I-III), as a portfolio of prior 3-8 year investments (rolling average).	2004	0.15	
	2005	0.2	
	2006	0.3	
	2007	0.5	

Rating: *Results Not Demonstrated*

Program Type: *Research and Development*

Program Summary:

The Department of Defense's (DoD's) Small Business Innovation Research and Small Business Technology Transfer programs supply funds to small businesses (in the latter case, in conjunction with non-profit research institutions) to develop products that help DoD defend the country.

The assessment found that the program:

- Provides funds to small businesses but has poor controls on unproductive spending
- Continues to provide funding to companies with track records of poor performance;
- Overestimates commercial successes resulting from Federal support by treating additional investment in the same way as product sales.

In response to these findings, the Administration will:

1. Tighten eligibility requirements for accepting proposals from companies and individuals that repeatedly fail to sell resulting products in the marketplace.
2. Change the way companies' past performance is assessed to ensure that it more closely matches the intent of the law.
3. Look for ways to budget explicitly for the program's administrative costs.
4. Seek to get highly successful awardees to enter the mainstream of Defense contracting.

Program Funding Level (in millions of dollars)

2003 Actual	2004 Estimate	2005 Estimate
963	1,100	1,133