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DEPARTMENT OF THE AIR FORCE

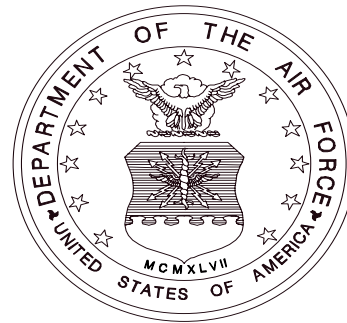
FISCAL YEAR (FY) 2006/2007 BUDGET ESTIMATES

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

DESCRIPTIVE SUMMARIES, VOLUME III

BUDGET ACTIVITY 7

FEBRUARY 2005



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**Fiscal Year 2006 Budget Estimates
RDT&E Descriptive Summaries, Volume III
Budget Activity 7
February 2005**

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 2006 President's Budget.
 - 5) 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.
 - 6) 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 2006 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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Tactical Data Link Integration	0604754F	1081
Test and Evaluation Support	0605807F	1279
Theater Battle Management (TBM) C4I	0207438F	1555
Threat Simulator Development	0604256F	1239
Transformational SATCOM (TSAT)	0603845F	695
Joint Unmanned Combat Air System (J-UCAS)	0207256F	1161
University Research Initiatives	0601103F	59
Unmanned Air Vehicle Dev/Demo	0603333F	451
Joint Unmanned Combat Air System (J-UCAS)	0604731F	821
USAF Modeling and Simulation	0207601F	1637
Warfighter Rapid Acquisition Program	0203761F	1373
Wargaming and Simulation Centers	0207605F	1663
Wargaming Operations (Distributed Training)	0207697F	1669
WEATHER SERVICE	0305111F	1829
Wideband MILSATCOM (Space)	0603854F	737
WWMCCS/GLOBAL COMMAND & CONTROL SYSTEM	0303150F	1769

PROGRAM ELEMENT COMPARISON SUMMARY

PROGRAM ELEMENT (By BUDGET ACTIVITY)

BUDGET ACTIVITY #1: BASIC RESEARCH (Volume 1)

None

REMARKS

BUDGET ACTIVITY #2: APPLIED RESEARCH (Volume 1)

0602201F	Aerospace Vehicle Technologies	In FY 2006 and out, Project 2403, increased funding is due to increased emphasis being placed on incorporating data from air vehicle monitoring components into flight control.
0602202F	Human Effectiveness Applied Research	In FY 2006, Deployment and Sustainment efforts will move from Project 1710 to Project 7184.
0602204F	Aerospace Sensors	In FY 2006, efforts in Project 5016 will transfer to Project 2002 within this PE. Also in FY 2006, efforts in Project 5017 will transfer to Project 7622 within this PE.
0602500F	Multi-Disciplinary Space Technology	In FY 2006, Project 5082, efforts in Project 5081 move to this project and the Air Force increased emphasis on developing optical networks for space-based applications.
0602601F	Space Technology	In FY 2006, Project 4846, decrease in funding is due to higher Air Force priorities.
0602602F	Conventional Munitions	In FY 2006, funding increased to support added emphasis on Battlefield Air Operations efforts.
0602702F	Command Control and Communications	In FY 2006 and out, increased funding reflects increased emphasis on developing high payoff applications of information technologies to meet C3 needs. In FY 2006, efforts in Project 4917 move into Project 4594, Project 4519, and Project 5581 in this PE.
0602805F	Dual Use Science and Technology Program	In FY 2006, this PE will be cancelled as a result of higher Air Force priorities.

BUDGET ACTIVITY #3: ADVANCED TECHNOLOGY DEVELOPMENT (Volume 1)

0603203F	Advanced Aerospace Sensors	In FY 2006, efforts in Project 5019 will transfer to Project 665A within this PE.
0603211F	Aerospace Technology Dev/Demo	In FY 2006, efforts from Project 486U transfer into Project 4920 within this PE.
0603216F	Aerospace Propulsion and Power Technology	In FY 2006-2007, Project 4921, a portion of the funding in this project was shifted to Project 5098 in this PE.
0603216F	Aerospace Propulsion and Power Technology	In FY 2006-2007, Project 5098, funds were shifted to accelerate the Air Force scramjet flight demonstration efforts. In 2007, funding increases to support ground demonstrations and fabricate test vehicles for out-year flight demonstrations.

0603231F	Crew Systems and Personnel Protection Technology	In FY 2006, Helmet-Mounted Sensory Technologies and Logistics Readiness and Sustainment efforts will move from Projects 3257 and 4923, respectively, to Project 2830.
0603400F	Joint Unmanned Combat Air Systems (J-UCAS)	In FY 2006, the Joint Unmanned Combat Air Systems (J-UCAS) program was transferred from the Defense Advanced Research Projects Agency (DARPA) to be a joint program led by the Air Force with Navy representation. The program is undergoing a restructure and will realign the adjusted resources in the next budget cycle to advance the J-UCAS program. Funding is being realigned from PE 0603400D8Z to PE 0603400F.
0603789F	C3I Advanced Development	In FY 2006, Project 4872, increased funding in FY 2006 and out reflects increased emphasis on developing high payoff information distribution and effects-based planning technologies. In FY 2006, efforts from Project 4925 moves to this Project.
0804757F	Joint National Training Center	In FY 2006 and beyond, this PE transfers to BA07. All FY06 and beyond funding is identified in the same PE84757F but in BA07.

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

0603851F	Intercontinental Ballistic Missile	<p>In FY 2006 and beyond, Project 1024 ICBM Command & Control (C2) Applications is discontinued.</p> <p>In FY 2006 and FY2007, Project 4209 Long Range Planning includes concept refinement and pre-Milestone A activities for follow on Land-Based Strategic Deterrent capability.</p> <p>In FY 2006 and FY 2007 project includes concept refinement and pre-Milestone A activities for follow on Land-Based Strategic Deterrent (LBSD) capability."</p>
0604400F	Joint Unmanned Combat Air Systems (J-UCAS)	In FY 2006 the Joint Unmanned Combat Air Systems (J-UCAS) program was transferred from the Defense Advanced Research Projects Agency (DARPA) to be a joint program led by the Air Force with Navy representation. The program is undergoing a restructure and will realign the adjusted resources in the next budget cycle to advance the J-UCAS program. Funding is being realigned from PE 0604400D8Z to PE 0604400F.

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

0207256F	Unmanned Combat Air Vehicle Joint Program Office	In FY 2006, the Joint Unmanned Combat Air Systems (J-UCAS) program was transferred from the Defense Advanced Research Projects Agency (DARPA) to be a joint program led by the Air Force with Navy representation. The program is undergoing a restructure and will realign the adjusted resources in the next budget cycle to advance the J-UCAS program. Funding is being realigned from PEs 0603400D8Z and 0604400D8Z to PEs 0603400F and 0604400F, respectively.
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0207434F	Link-16 Support and Sustainment	In FY 2006, Project #655049 funding will merge with Project #655050 since Project #655049 efforts include the development and deployment of Tactical Data Links, which is accomplished in Project #655050. This will result in the elimination of Project #655049
0207443F	Family of Interoperable Operational Pictures (FIOP)	In FY06, Family of Interoperable Operational Pictures (FIOP) has been terminated. The Air Force will leverage the Single Integrated Air Picture (SIAP) systems engineering process and the Joint Capabilities Integration and Development System (JCIDS) process to determine and implement the Common Operational Picture (COP) standard to inform the next development milestone for the Joint Command and Control program of record. In FY07, Project #655187, Single Integrated Air Picture (SIAP) funding will transfer to a new PE and Project number.
0207450F	E-10 Squadrons	<p>In FY 2006, this PE was renamed E-10 Squadrons (formerly Multi-sensor Command and Control Aircraft [MC2A]). The name was changed to directly associate the PE title with the E-10A, the approved Mission Design Series (MDS) designation for the MC2A.</p> <p>In FY 2006, Project Number 5131, MC2A Airframe, was changed to Airframe since the term MC2A was no longer being used to identify the aircraft and the new PE title already referenced the aircraft type.</p> <p>In FY 2006, Project Number 5132, MC2A Sensors, was changed to Sensors since the term MC2A was no longer being used to identify the aircraft and the new PE title already referenced the aircraft type.</p>
0604240F	B-2 Advanced Technology Bomber	<p>In FY 2006: B-2 Advanced Technology Bomber adds the Proximity Sensor Logic Unit (PSLU) and Oxygen Generation and Distribution System (OGADS) new start programs.</p> <p>In FY 2006: The FY03 National Defense Authorization Act (NDAA) language directed T&E centers to charge only direct costs beginning in FY06; this resulted in a zero-balance transfer (ZBT) of funding over the FYDP from the customer accounts (for indirect test costs) to T&E support, PE 65807F.</p>
0604270F	Electronic Warfare Development	In FY 2006, Project 8462, Airborne Electronic Attack transfers from Project 658462 (formerly called Airborne Electronic Attack) to PE 0604429F, Airborne Electronic Attack, Project 655192, Network and System-of-Systems Development and Project 655193, B-52 Stand-off Jammer. Project 658462 continues to develop the Miniature Air Launched Decoy (MALD).
0604429F	Airborne Electronic Attack	In FY 2006, this is a new PE. In FY 2006, Project 655192, Network and System-of-Systems Development and Project 655193, B-52 Stand-Off Jammer, efforts were transferred from PE 0604270F, Electronic Warfare Development, Project 658462, Airborne Electronic Attack, in order to continue development of critical electronic attack capabilities.

0604604F	Submunitions	In FY 2006, the FY03 National Defense Authorization Act language directed Test & Evaluation (T&E) centers to charge only direct costs beginning in FY06. This resulted in a zero balance transfer (ZBT) of funding over the FYDP from the customer accounts (for indirect test costs) to T&E support, PE 65807F. For this PE, the T&E funding alignment begins in FY08.
0604617F	Agile Combat Support	In FY 2006, Project 2895, Civil Engineering Readiness (CE), includes new start efforts.
0604731F	Unmanned Combat Air Vehicle (UCAV)	In FY 2006 the Joint Unmanned Combat Air Systems (J-UCAS) program was transferred from the Defense Advanced Research Projects Agency (DARPA) to be a joint program led by the Air Force with Navy representation. The program is undergoing a restructure and will realign the adjusted resources in the next budget cycle to advance the J-UCAS program. Funding is being realigned from PEs 0603400D8Z and 0604400D8Z to PEs 0603400F and 0604400F, respectively.

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

0604759F	Major T&E Investment	In FY 2006, Project 4597, Air Force Test Investments, includes new start efforts
0605807F	Test and Evaluation Support	In FY 2006, Project 6606TS, Test and Evaluation Support, includes a new start effort

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

0207601F	USAF Modeling and Simulation	In FY 2006, PE 0207601F, United States Air Force (USAF) Modeling & Simulation (M&S) was aligned to better support customer needs into four thrusts. This resulted in project 4567, being renamed from the Joint Synthetic Battlespace (JSB) Environment to M&S Foundations (MSF); project 4991, being renamed from the Joint Distributed Engineering Plant to Accelerated Acquisitions (AA); project 5004, being renamed from Joint Model Transition to New and Emerging Warfighting Capabilities (NEWC), and project 5135, being renamed from Distributed Mission Operations to Warfighter Readiness (WR). The four thrusts enable the communities of interest to focus and prioritize the PE's capabilities.
0304260F	Airborne SIGINT Enterprise (JMIP)	In FY 2006, this is a new PE, but this effort is not a new start. This PE combines SIGINT development efforts previously being accomplished in multiple USAF PEs. The funds in this PE came from USAF SIGINT RDT&E efforts previously resident in three other PEs: Global Hawk (0305220F); U-2 (0305202F); and Airborne Reconnaissance Systems (0305206F) Project 4882 Compass Bright. The funds were then redistributed (with inflation adjustment) among all seven ASE BPACs based on new development priorities established by the USAF SIGINT Capabilities Working Group in order to build a total capability. Global Hawk SIGINT RDT&E funds were the Joint SIGINT Avionics Family (JSAF) funds that were placed in that PE when JSAF was terminated in 2001. These funds made up all of the dedicated SIGINT RDT&E funds in the USAF. This program element will participate in the development, testing, and implementation of international standards (to include NATO standardization agreements) to ensure joint, allied, and coalition interoperability.

0305206F	Airborne Reconnaissance Systems (JMIP)	<p>In FY 2006-2009, Project Number 674882, Compass Bright, efforts will be transferred from PE0305206F, Airborne Reconnaissance Systems, to PE 0304260F, Airborne SIGINT Enterprise, Project 675185, in order to consolidate this SIGINT development effort with other AF SIGINT development efforts.</p> <p>In FY 2006, Project Number 675038, Network Centric Collaborative Targeting ACTD completes.</p>
0305220F	Global Hawk UAV (JMIP)	<p>In FY 2006, Signals Intelligence (SIGINT) development and integration funding for all platforms, including Global Hawk, transfers to the Airborne SIGINT Enterprise PE 0304260F.</p>
0305221F	Network-Centric Collaborative Target (TIARA)	<p>In FY 2006, Proj 675197, Network Centric Collaborative Targeting (NCCT) (TIARA), efforts were transferred from PE 0305206F, Airborne Reconnaissance Systems, Proj 675038, NCCT in order to transition NCCT capabilities from an Advanced Concept & Technology Demonstration to operational system fielding.</p>
0708610F	Logistics Information Technology (LOGIT)	<p>In FY 2006, Project 5208, Expeditionary Combat Support System (ECSS), efforts were transferred from PE0708611F, Support Systems Development, Project 4654, Integrated Maintenance Data System and Project 5044, Log Application Integrated Logistics System - Supply, in order to support the Enterprise Resource Planning (ERP) technical solution (named ECSS) and provide enhanced visibility and management oversight.</p>
0708611F	Support Systems Development	<p>In FY 2006, Project 4654, Integrated Maintenance Data System and Project 5044, Log Application Integrated Logistics System - Supply efforts were transferred to PE 0708610F, Logistics Information Technology, Project 5208, Expeditionary Combat Support System (ECSS), in order to support the Enterprise Resource Planning (ERP) technical solution (named ECSS) and provide enhanced visibility and management oversight. The small amount of funds remaining for projects 4654 (FY 2006, 2010, and 2011) and 5044 (FY 2007, 2008, 2009 and 2011) is due to a database error and will be corrected during the FY 2007 budget cycle.</p>
0804757F	Joint National Training Center	<p>FY 2006 includes new start efforts. This PE is also in BA03 for FY04 and FY05 efforts and will move to BA07 for FY06 and out efforts.</p>
0901202F	Joint Personnel Recovery Agency	<p>In FY 2006, this is a new PE.</p>
0901220F	Personnel Administration	<p>In FY 2006, PE 0901220F, Personnel Administration, includes new start RDT&E efforts.</p>

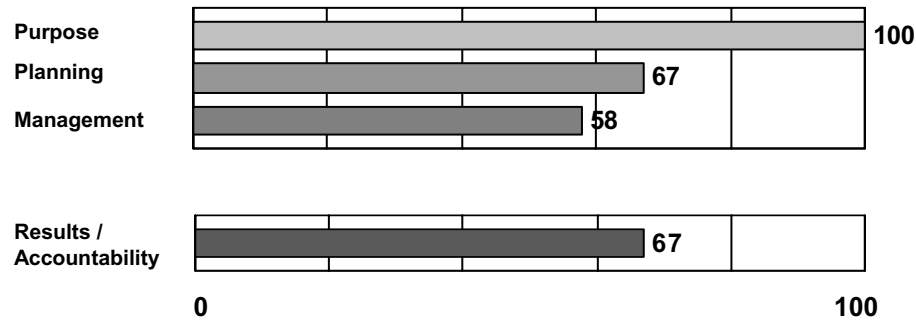
The following are Program Elements not providing RDT&E exhibits due to classification:

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
0101314F	Night Fist

Program: DoD Applied Research Program

Agency: Department of Defense--Military

Bureau:



Rating: Moderately Effective

Program Type: Research and Development

Program Summary:

The Department of Defense's Applied Research program supports systematic, scientific study to gain understanding necessary to determine how the Department's military mission can be accomplished more effectively or more efficiently. Applied research often takes the results of basic research investments and carries them forward to determine the operational parameters of potential technologies and evaluate the practicality of applying those technologies to military needs.

The assessment of the Applied Research program found that:

- The program purpose and design are clear. The Department has built methodical processes for setting program goals and for reviewing progress. The program is designed to ensure that warfighters have superior and affordable technology to support their missions and to provide revolutionary war-winning capabilities.
- Reviews of the program by external review panels are not independent of program officials.
- A large part of the program is executed either without the benefit of military or scientific expertise in choosing the funded work or without allowing the applications process to be open to all capable researchers. Earmarking of projects in the program has increased in the recent past and has led to these problems.

In response to these findings, the Administration will:

1. Continue to ensure that adequate funding exists to carry promising basic research results into the realm of applied research.
2. Change the expert evaluation process to use fully independent review panels in assessing the performance of the program.
3. Work with the research community and Congress to explain the need to limit claims on research grant funds to proposals that independently can meet the standards of a strict merit-review process.

Key Performance Measures from Latest PART

	Year	Target	Actual
Long-term Efficiency Measure: Reduce by half within three years, grant and contract award funding not (1) resulting from needs identified by military or technical experts within the Services or Agencies and (2) awarded through the merit-review process. Currently about \$1.0 B/yr.	2006	<\$800 M	
	2007	<\$500 M	
	2008	<\$500 M	
Annual Measure: Percentage of ambitiously chosen Defense Technology Objectives (DTO) targets achieved.	2005	70%	
	2006	70%	
	2007	70%	
	2008	70%	
Annual Measure: Portion of external technology area review panels that are fully independent (all external reviewers).	2006	100%	
	2007	100%	
	2008	100%	

Program Funding Level (in millions of dollars)

<u>2004 Actual</u>	<u>2005 Estimate</u>	<u>2006 Estimate</u>
4,350	4,850	4,139

Program: *Basic
Research*

Agency: *Department of Defense--Military*

Bureau: *Research, Development, Test, and Evaluation*

Rating: *Effective*

Program Type: *Research and Development*

Last Assessed: *2 years ago*

Key Performance Measures from Latest PART **Year** **Target** **Actual**

Annual Measure: Certification in biennial reviews by technically competent independent reviewers that the supported work, as a portfolio, is of high quality, serves to advance the national security and is efficiently managed and carried out.	2003&later	100%	100%
Annual Measure: Long-term Measure: Portion of funded research that is chosen on the basis of merit review Reduce non-merit-reviewed and -determined projects by one half in two years (from 6.0% to 3.0%)	2005	-50%	

Recommended Follow-up Actions

Continue to emphasize the use of independent review panels in assessing the performance of the program.

Work with the research community and Congress to explain the need to limit claims on research grant funds to proposals that independently can meet the standards of a strict merit-review process.

Status

Completed

Action taken, but not completed

Update on Follow-up Actions:

Program Funding Level (in millions of dollars)

2004 Actual	2005 Estimate	2006 Estimate
1,358	1,513	1,319

Program: *DoD Small Business Innovation
Research/Technology*

Agency: *Department of Defense--Military*

Bureau: *Research & Development*

Rating: *Results Not Demonstrated*

Program Type: *Research and Development*

Last Assessed: *1 year ago*

Key Performance Measures from Latest PART	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).	2005	TBD	
	2006	TBD	
	2007	TBD	
	2008	TBD	

Recommended Follow-up Actions	Status
Change the way companies' past performance is assessed to ensure that it more closely matches the intent of the law.	No action taken
Look for ways to budget explicitly for the program's administrative costs.	No action taken
Seek to get highly successful awardees to enter the mainstream of Defense contracting.	No action taken
Tighten eligibility requirements for accepting proposals from companies and individuals that repeatedly fail to sell resulting products in the marketplace.	No action taken

Update on Follow-up Actions:

The Department of Defense's program management is working with the Military Services and Defense Agencies to determine how to make the changes noted above. The Department is expected to reach agreement on how to implement the changes by the end of 2005.

Program Funding Level (in millions of dollars)

2004 Actual	2005 Estimate	2006 Estimate
1,100	1,133	1,500

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PE NUMBER: 0605024F
 PE TITLE: Anti-Tamper Technology Executive Agent

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2005
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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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	8.478	7.789	7.827	7.923	7.894	7.891	8.075	8.212	Continuing	TBD
5066 Anti-Tamper Technology Executive Agent	8.478	7.789	7.827	7.923	7.894	7.891	8.075	8.212	Continuing	TBD

(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 2005

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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	7.855	7.789	7.827	7.923
(U) Current PBR/President's Budget	8.478	7.789	7.827	7.923
(U) Total Adjustments	0.623	0.000		
(U) Congressional Program Reductions				
Congressional Rescissions	-0.075			
Congressional Increases	1.000			
Reprogrammings	-0.150			
SBIR/STTR Transfer	-0.152			
(U) <u>Significant Program Changes:</u>				
None				

Exhibit R-2a, RDT&E Project Justification

DATE

February 2005

BUDGET ACTIVITY		PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE		
07 Operational System Development		0605024F Anti-Tamper Technology Executive Agent						5066 Anti-Tamper Technology Executive Agent		
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
5066 Anti-Tamper Technology Executive Agent	8.478	7.789	7.827	7.923	7.894	7.891	8.075	8.212	Continuing	TBD
Quantity of RDT&E Articles	0	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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Accomplishments/Planned Program	0.000	0.000	0.000	0.000
(U) Anti-Tamper Technology Development	5.336	3.112	2.878	2.745
(U) Anti-Tamper Verification & Validation	1.791	2.955	3.150	3.295
(U) Database & Website	0.393	0.409	0.423	0.437
(U) Program Management Activity	0.958	1.313	1.376	1.446
(U) Total Cost	8.478	7.789	7.827	7.923

Exhibit R-2a, RDT&E Project Justification

DATE

February 2005

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>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	

(U) N/A

(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.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2005

BUDGET ACTIVITY				PE NUMBER AND TITLE							PROJECT NUMBER AND TITLE			
07 Operational System Development				0605024F Anti-Tamper Technology Executive Agent							5066 Anti-Tamper Technology Executive Agent			
(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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Anti-Tamper Technology Development</u>														
AFRL/XPJ	PRDA											0.000	0.000	
AFRL/AT-SPI	PRDA			4.836		2.862	Oct-04	2.598		2.245		Continuing	TBD	
Sandia National Lab	MIPR			0.500		0.250		0.280		0.500		Continuing	TBD	
Subtotal Anti-Tamper Technology Development			0.000	5.336		3.112		2.878		2.745		Continuing	TBD	0.000
Remarks:														
(U) <u>Anti-Tamper Verification & Validation</u>														
Air Force AT Field Agent (413 FLTS/OLHN)	MIPR			0.330		0.520		0.580		0.635		Continuing	TBD	
Navy AT Field Agent (PMR-51)	MIPR			0.400		0.650		0.700		0.700		Continuing	TBD	
Army AT Field Agent (Aviation & Missile Cmd/Redstone)	MIPR			0.400		0.700		0.700		0.700		Continuing	TBD	
DoD Executive Agent Field Agent (AFRL/AT-SPI)	Allot			0.511		0.685		0.720		0.760		Continuing	TBD	
Sandia National Lab	MIPR			0.150		0.400		0.450		0.500		Continuing	TBD	
Subtotal Anti-Tamper Verification & Validation			0.000	1.791		2.955		3.150		3.295		Continuing	TBD	0.000
Remarks:														
(U) <u>Database and Website</u>														
AFRL/AT-SPI	Allot			0.393		0.409		0.423		0.437		Continuing	TBD	
Subtotal Database and Website			0.000	0.393		0.409		0.423		0.437		Continuing	TBD	0.000
Remarks:														
(U) <u>Management</u>														
AFRL/XPJ	MIPR											0.000	0.000	
AFRL/AT-SPI	Allot			0.958		1.313		1.376		1.446		Continuing	TBD	
Subtotal Management			0.000	0.958		1.313		1.376		1.446		Continuing	TBD	0.000
Remarks:														
(U) Total Cost			0.000	8.478		7.789		7.827		7.923		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
0605024F Anti-Tamper Technology
Executive Agent

PROJECT NUMBER AND TITLE
5066 Anti-Tamper Technology
Executive Agent

PE 060524F - Anti-Tamper

KEY EVENTS	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
<ul style="list-style-type: none"> •Tech. Development •PRDA Contracts •PRDA Reviews 	◆				▲				▲				▲				▲				▲				◆			
<ul style="list-style-type: none"> •Anti-Tamper V&V •Program V&V Evaluations 	◆																								◆			
<ul style="list-style-type: none"> •Database and Webpage •Webpage 	◆																								◆			
<ul style="list-style-type: none"> •Database Stand-up •Database population+maintain 					▲				◆																◆			

Exhibit R-4, RDT&E Schedule Profile

DATE

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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

PE 060524F - Anti-Tamper

KEY EVENTS	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
<ul style="list-style-type: none"> •Tech. Development •PRDA Contracts •PRDA Reviews 	◆				▲				▲				▲				▲				▲				◆			
<ul style="list-style-type: none"> •Anti-Tamper V&V •Program V&V Evaluations 	◆																								◆			
<ul style="list-style-type: none"> •Database and Webpage •Webpage 	◆																								◆			
<ul style="list-style-type: none"> •Database Stand-up •Database population+maintain 	▲				◆																				◆			

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Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2005

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
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(U) <u>Schedule Profile</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Anti-Tamper Technology Development	1-4Q	1-4Q	1-4Q	1-4Q
(U) -- PRDA Reviews	1-3Q	1-3Q	1-3Q	1-3Q
(U) -- PRDA Deliverables	4Q	4Q	4Q	4Q
(U) Anti-Tamper Verification & Validation	1-4Q	1-4Q	1-4Q	1-4Q
(U) Database and Website	1-4Q	1-4Q	1-4Q	1-4Q

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

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2005
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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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	34.037	31.090	22.784	71.085	44.470	29.765	5.047	0.000	Continuing	TBD
4810 Avionics Midlife Improvement (AMI)	26.455	9.095	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
4875 Situational Awareness Defensive Improvement	7.582	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	67.712
5039 B-52 Modernization	0.000	21.995	22.784	71.085	44.470	29.765	5.047	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), the Air Launched Cruise Missile (ALCM), and the Conventional Air Launched Cruise Missile (CALCM). The current service life is forecast to be 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 was originally planned to improve situational awareness and electronic countermeasure system control. In Fiscal Year 2003, the SADI program was rebaselined and moved the development and acquisition activities under the Airborne Electronic Attack Stand Off Jamming (AEA/SOJ) program (PE 64270F). The Global Air Traffic Management (GATM) upgrade will allow the B-52 to meet Federal Aviation Agency (FAA) and International Civil Aviation Organization (ICAO) avionics requirements to reduce airspace congestion and increase safety; however, program start is now outside of the Future Years Defense Plan (FYDP). The B-52 Modernization upgrade provides communications improvements for enhanced command and control and in-flight CALCM and J-series/GPS aided weapons retargeting. In addition, the B-52 Modernization program will start a modification in the out-years which will fully integrate the targeting pods. Fully integrating the targeting pods will also allow the B-52 to employ other advanced targeting pods. 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

DATE

February 2005

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0101113F B-52 SQUADRONS

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	28.406	25.766	34.259	71.215
(U) Current PBR/President's Budget	34.037	31.090	22.784	71.085
(U) Total Adjustments	5.631	5.324		
(U) Congressional Program Reductions		-0.276		
Congressional Rescissions				
Congressional Increases		5.600		
Reprogrammings	5.631			
SBIR/STTR Transfer				

(U) **Significant Program Changes:**

B-52 Modernization Program is a FY05 start. FY06 funding requirement decreased due to transfer of LINK 16 portion of the B-52 Modernization program to the Tactical Data Link program. FY07 funding requirement for B-52 Modernization BPAC 675039 increased due to a program realignment required to execute the CALCM Inflight Beyond Line of Sight Rapid Retasking (CIBR2) and Airborne Wideband Terminal (AWT) modifications.

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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4810 Avionics Midlife Improvement (AMI)	26.455	9.095	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	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 unsupported 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, 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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Prototype Hardware	0.000			
(U) Design, development of replacement software	15.841	1.300		
(U) Ground and Flight Test	9.976	7.669		
(U) System Program Office Support	0.638	0.126		
(U) Program Support/Modeling and Simulation/Studies and Analysis				
(U) Total Cost	26.455	9.095	0.000	0.000

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E	26.455	9.176							Continuing	TBD
(U) Other APPN										
(U) Aircraft Procurement (BP1100)	11.410	37.178	51.622	31.793	20.018	2.000			Continuing	TBD

(U) D. Acquisition Strategy

The AMI program contracted with Boeing Wichita for aircraft hardware integration and Flight Management System and the Stores Management Overlay software development. Boeing works with selected vendors which will provide EMD hardware. The Government will subsequently contract with these specific vendors for procurement of production hardware to support aircraft installations.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2005

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT NUMBER AND TITLE				
07 Operational System Development			0101113F B-52 SQUADRONS							4810 Avionics Midlife Improvement (AMI)				
(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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> Boeing, Wichita	CONTRA CT			9.776								Continuing	TBD	
Subtotal Product Development			0.000	9.776		0.000		0.000		0.000		Continuing	TBD	0.000
Remarks:														
(U) <u>Support</u> OC-ALC/LH	PMA			0.203								Continuing	TBD	
OC-ALC/LAS	206			0.500								Continuing	TBD	
OO-ALC/LIR	616			5.700								Continuing	TBD	
SER/CASU	MIPR			0.300								Continuing	TBD	
Miscellaneous	BTR/SIB R												0.000	
Subtotal Support			0.000	6.703		0.000		0.000		0.000		Continuing	TBD	0.000
Remarks:														
(U) <u>Test & Evaluation</u> 419 FLTS	Project Order			9.976		9.095						Continuing	TBD	
Subtotal Test & Evaluation			0.000	9.976		9.095		0.000		0.000		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	0.000
Remarks:														
(U) Total Cost			0.000	26.455		9.095		0.000		0.000		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

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February 2005

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0101113F B-52 SQUADRONS

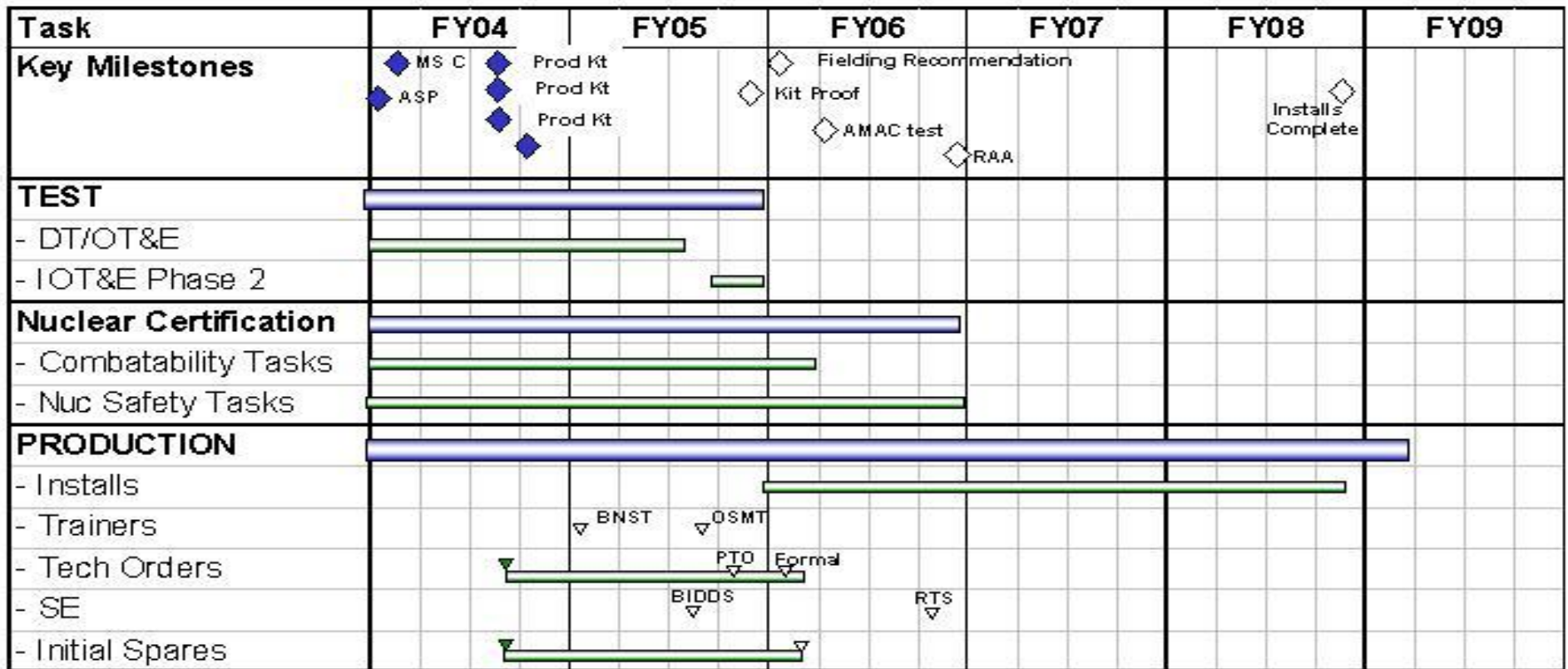
PROJECT NUMBER AND TITLE
4810 Avionics Midlife Improvement (AMI)



U.S. AIR FORCE

Program Status Schedule

Rapidly delivering war-winning capability



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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 4810 Avionics Midlife Improvement (AMI)
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(U) <u>Schedule Profile</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Ground & Flight Test	1-4Q	1-3Q		
(U) Milestone C	1Q			
(U) Production Acquisition Strategy Plan	1Q			
(U) Production Contract Award	2-3Q			
(U) Kit Proof		4Q		
(U) Production		1-4Q	1-4Q	1-4Q
(U) RAA			4Q	
(U) Trainers		2-4Q	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 0101113F B-52 SQUADRONS				PROJECT NUMBER AND TITLE 4875 Situational Awareness Defensive Improvement		
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4875 Situational Awareness Defensive Improvement	7.582	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	67.712
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

The Situational Awareness Defensive Improvement (SADI) modifications 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 Attack (AEA) by replacing the AN/ALR-20 Panoramic Receiver System. SADI has been rebaselined under the AEA/SOJ program (PE64270F). Fiscal Year 2004 will be the last year of funding under the SADI modification program. SADI is currently going through contract closeout actions.

(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 Attack (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). Fiscal Year 2004 will be the last year of funding under the SADI modification program.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) System Concept Studies (Includes CTD planning, System Engineering, System Capability Trades, Modeling and Simulation, Studies and Analysis and contract Closeout Actions	7.530			
(U) Program Management	0.052			
(U) Not Applicable	0.000			
(U) Total Cost	7.582	0.000	0.000	0.000

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>		
(U) AF RDT&E									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). The SADI program is undergoing contract closeout actions. All FY04 activities retroactive to 1 Jul 04 and ongoing contract closeout activities are being priced as Firm Fixed Price. The AEA/SOJ program will manage funding and development efforts, starting in FY05.

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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				0101113F B-52 SQUADRONS							4875 Situational Awareness Defensive Improvement				
(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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>	
(U) <u>Product Development</u>															
Boeing Military Programs, Wichita Division	CPAF			4.999									4.999		
Subtotal Product Development			0.000	4.999		0.000		0.000		0.000		0.000	4.999	0.000	
Remarks:															
(U) <u>Support</u>															
OC-ALC/LH	PMA			2.583									2.583		
WR/ALC	616												0.000		
OO-ALC/YWT													0.000		
HQ ACC/XRA52	MORD												0.000		
Subtotal Support			0.000	2.583		0.000		0.000		0.000		0.000	2.583	0.000	
Remarks:															
(U) <u>Test & Evaluation</u>															
36 EWS/EWF	616												0.000		
419 FLTS	616												0.000		
2LG & 49 TES	616												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>															
Subtotal Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000	
Remarks:															
(U) Total Cost			0.000	7.582		0.000		0.000		0.000		0.000	7.582	0.000	

Exhibit R-4, RDT&E Schedule Profile		DATE February 2005
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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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Situational Awareness Defensive Improvement Contract Closeout Actions

TASK	FY04	FY05
<u>SADI</u>		
Contract Closeout		

Exhibit R-4a, RDT&E Schedule Detail	DATE February 2005
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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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Studies and Analysis/Pre Milestone A /risk reduction activities for AEA/SOJ	3-4Q			
(U) Contract Closeout		2-3Q		

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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
5039 B-52 Modernization	0.000	21.995	22.784	71.085	44.470	29.765	5.047	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	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), a three spiral modification program. Spiral one is the Conventional Air Launched Cruise Missile In-flight Beyond Line-Of-Sight Rapid Retasking (CIBR2) modification, which will establish a communications backbone by providing a new client/server architecture using commercial-off-the-shelf (COTS) computers interconnected through a Local Area Network (LAN) system and adding new color displays at each crew station. CIBR2 will improve information processing and presentation. Spiral two is the Airborne Wideband Terminal (AWT) modification, which will integrate an Extremely High Frequency (EHF) radio, which will replace the AFSATCOM radio used for nuclear Command and Control and beyond-line-of sight connectivity. AWT terminal and antenna, which will be developed through the Family of Airborne Terminals (FAB T) program, 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 connectivity. Spiral three will integrate Link 16 Tactical Data Link (TDL) system protocol. Funding for Spiral three is in the Tactical Data Link PE. Starting in Fiscal Year 2008, the B-52 Modernization program includes funding for a modification program which will fully integrate the 12 targeting pods purchased this past year through the Warfighter Rapid Acquisition Process and provide the capability to employ other advanced targeting pods. Additionally, B-52 Modernization funding pays for 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 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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Group A and B Kit Development		8.700	5.578	33.194
(U) Ground and Flight Test Planning		0.831	0.150	0.150
(U) Data Development		0.277	0.854	3.100
(U) Installation/Integration Planning		0.211	1.100	5.599
(U) Support Equipment Development		1.066	2.491	4.599
(U) Software Development		3.284	3.481	8.499
(U) Simulation/Trainer Development		1.203	3.167	8.251
(U) Program Support/Modeling and Simulation/Studies and Analysis		6.423	1.723	3.762
(U) Management support			4.240	3.931
(U) Total Cost	0.000	21.995	22.784	71.085

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E									Continuing	TBD
(U) Other APPN									Continuing	TBD
(U) Aircraft Procurement (BP1100)		4.993	26.468	25.407	145.980	185.122	45.141	51.100	Continuing	TBD

(U) D. Acquisition Strategy

B-52 modernization is an development program that will be sole sourced to Boeing, which will be designing group A wiring and fairing for an Electronic System Center developed antenna and associated AWT 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

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BUDGET ACTIVITY				PE NUMBER AND TITLE							PROJECT NUMBER AND TITLE				
07 Operational System Development				0101113F B-52 SQUADRONS							5039 B-52 Modernization				
(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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>	
(U) <u>Product Development</u>															
Boeing, Wichita	Contract					11.790	Dec-04	15.230	Dec-05	58.750	Dec-06	Continuing	TBD		
Subtotal Product Development			0.000	0.000		11.790		15.230		58.750		Continuing	TBD	0.000	
Remarks:															
(U) <u>Support</u>															
OO-ALC/LIR	616					2.740		3.170		8.251		Continuing	TBD		
OC-ALC/LH	PMA					6.635		1.030		0.920		Continuing	TBD		
ASC								2.410		2.140		Continuing	TBD		
Subtotal Support			0.000	0.000		9.375		6.610		11.311		Continuing	TBD	0.000	
Remarks:															
(U) <u>Test & Evaluation</u>															
419 FLTS	Project Order					0.830		0.150		0.150		Continuing	TBD		
Subtotal Test & Evaluation			0.000	0.000		0.830		0.150		0.150		Continuing	TBD	0.000	
Remarks:															
(U) <u>Management</u>															
Subtotal Management			0.000	0.000		0.000		0.794		0.874		Continuing	TBD	0.000	
Remarks:								0.794		0.874		Continuing	TBD	0.000	
(U) Total Cost			0.000	0.000		21.995		22.784		71.085		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
0101113F B-52 SQUADRONS

PROJECT NUMBER AND TITLE
5039 B-52 Modernization

Exhibit R-4: B-52 Modernization																											
		FY05				FY06				FY07				FY08				FY09				FY10				TOTAL	
Quarter		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4		
CONECT SDD Contract		▲																								▲	
SDD CIBRR		▲								▲																	
Color Displays, Client Server Archetecture, SA, CALCM Retasking, ENTR Card, Group A for I- 1 I2 and I3, Group B for I1																											
Ground/FlightTest									▲			▲															
SDD AWT Group A		▲																								▲	
AEHF Antenna Modem Processor Operator Interface																											
Ground/FlightTest														▲												▲	
SDD Link 16 Group A		▲																								▲	
Ground/FlightTest														▲												▲	
Data				▲																						▲	
Trainer Upgrades		▲																								▲	

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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
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(U) <u>Schedule Profile</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) CIBR2 SDD		1-4Q	1-3Q	
(U) AWT SDD		1-4Q	1-4Q	1-4Q
(U) CIBR2 Ground and Flight Testing		4Q	1-4Q	1Q
(U) AWT Ground and Flight Testing				3Q
(U) Production Award			1Q	
(U) Trainer Upgrade			1-4Q	1-4Q
(U) Data		3-4Q	1-4Q	1-4Q

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PE NUMBER: 0101120F
 PE TITLE: ADVANCED CRUISE MISSILE

Exhibit R-2, RDT&E Budget Item Justification									DATE February 2005	
BUDGET ACTIVITY 07 Operational System Development					PE NUMBER AND TITLE 0101120F ADVANCED CRUISE MISSILE					
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	12.188	7.672	1.989	7.034	3.060	0.395	0.412	0.428	Continuing	TBD
4798 Life Extension Program	12.188	7.672	1.989	7.034	3.060	0.395	0.412	0.428	Continuing	TBD

(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 are currently 401 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 Joint Test Instrumentation Kit (JTIC) door design. The program developed 2 prototype JTIC doors for qualification and system-level testing. JTIC development satisfied test range safety requirements by incorporating Global Positioning System (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 JTIC development effort was a low risk program, but an essential effort because DOE-compliant JTIC 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

Exhibit R-2, RDT&E Budget Item Justification

DATE

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0101120F ADVANCED CRUISE MISSILE

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 2009.

The ACM Guidance Suite SLEP is required to ensure the current Guidance Suite consisting of the Navigation Control Set (NCS) and laser Dopplar Velocimeter (LDV) are supportable and reliable past the current service life. The SLEP will include a study to determine if these systems' service life can be extended to 2030 in the current configuration or if modification will be required. The NCS and LDV have known deficiencies that have been identified. There hae also been flight test failures attributed to the NCS. Highly Accelerated Life Test (HALT) testing will be required to determine existing and pending failure modes. There are diminishing sources of supply for many system components and new sources will have to be identified. Component and system level testing will be required to qualify new vendors.

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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	13.212	7.740	5.779	6.903
(U) Current PBR/President's Budget	12.188	7.672	1.989	7.034
(U) Total Adjustments	-1.024	-0.068		
(U) Congressional Program Reductions		-0.068		
Congressional Rescissions				
Congressional Increases				
Reprogrammings	-0.707			
SBIR/STTR Transfer	-0.317			

(U) Significant Program Changes:

FY06 funds were redirected to higher DOD priorities.

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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4798 Life Extension Program	12.188	7.672	1.989	7.034	3.060	0.395	0.412	0.428	Continuing	TBD
Quantity of RDT&E Articles	0	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 are currently 401 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 Joint Test Instrumentation Kit (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 Global Positioning System (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 equipment, utilizing Commercial Off-the-Shelf (COTS) to the maximum extent possible, and software necessary to lay in a test program for the NWSS

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

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.

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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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(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	1.511			
(U) ACM/W-80 Integration Data development	0.125			

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Exhibit R-2a, RDT&E Project Justification							DATE February 2005				
BUDGET ACTIVITY 07 Operational System Development			PE NUMBER AND TITLE 0101120F ADVANCED CRUISE MISSILE			PROJECT NUMBER AND TITLE 4798 Life Extension Program					
(U)	ACM/W-80 Integration Ground Test and Flight Test support				0.488						
(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					2.532					
(U)	ACM/W-80 Service System Test And Repair (Service STAR) re-design/modification					1.000					
(U)	ACM/W-80 Warhead Life Extension Program (LEP) Support Accomplishments/Planned Program										
(U)	Continue ACM/W-80 Integration and data development support							0.185			
(U)	Conduct of ACM/W-80 Development Flight Testing							1.225			
(U)	ACM/W-80 interface compatability testing							0.579			
(U)	Conduct ACM/W-80 Qualification Flight Testing								2.000		
(U)	Conduct Electromagnetic Interference and Compatability (EMIC) Testing								1.000		
(U)	Continue missile interface compatability testing								1.017		
(U)	ACM Guidance Suite Service Life Extension Program (SLEP) Accomplishments/Planned Program										
(U)	Initiate Study/Plan for Determining Obsolescence in ACM Navigation Control Set (NCS) and Laser Dopplar Velocimeter (LDV)								0.865		
(U)	Develop Supportability Plan								0.902		
(U)	Identify New Sources for system components and Qualify sources/vendors for system components								1.250		
(U)	Total Cost					12.188	7.672	1.989	7.034		
(U)	C. Other Program Funding Summary (\$ in Millions)										
		<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
(U)	MPAF, Missile Modifications (BA03, PE 0101120F, P-11)	3.441	4.078	3.251	1.298	0.098	0.000			0.000	16.380
(U)	MPAF, Replenishment Spares (BA04, PE 0101120F, P-16)	9.379	7.683	6.322	1.946	0.350	0.362	1.688	1.712	Continuing	TBD
(U)	MPAF, Missile Modification	0.311	0.307	0.312	0.249	0.257	0.265			Continuing	TBD

Project 4798

R-1 Shopping List - Item No. 121-6 of 121-11

Exhibit R-2a (PE 0101120F)

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

Initial Spares (BA04, PE
0101120F, P-16)

(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 by a FFP contract with E-Spectrum Technologies. The Cruise Missile FGT development will be performed by the prime contractor, utilizing a FFP and Time & Materials (T&M) contract. Contract support for W-80 LEP will be acquired using T&M on existing sustainment contract. Guidance Suite SLEP is planned for T&M on existing sustainment contract.

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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 0101120F ADVANCED CRUISE MISSILE	PROJECT NUMBER AND TITLE 4798 Life Extension 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 Prior to FY 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 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											0.000	
Subsystem Simulator (SS)/Advanced Missile Simulator (AMS) Development	FFP	Raytheon, Tucson AZ	1.970	2.971	Oct-03	2.961	Nov-04						7.902	7.902
Nuclear Weapons Sub-System (NWSS) Aging & Surveillance (A&S)	FFP	E-Spectrums, San Antonio TX		2.025	Apr-04								2.025	2.025
Functional Ground Test (FGT) Development	FFP	Raytheon, Tucson AZ		5.000	Jun-04								5.000	5.000
W80 LEP Support	T&M	Raytheon, Tucson AZ		1.780		1.110	Feb-05	0.764	Jan-06	1.017	Jan-07	1.457	6.128	6.107
W80 LEP support, Service STAR	FFP	E-Spectrums, San Antonio TX				1.000	Feb-05						1.000	1.000
Guidance Suite Service Life Extension Program (SLEP)	T&M	Raytheon, Tucson AZ								3.017	Oct-06	3.000	6.017	6.012
Subtotal Product Development			1.970	11.776		5.071		0.764		4.034		4.457	28.072	28.046
Remarks:														
<u>(U) Support</u>														
W80 Support	T&M	OC-ALC/PS M, Tinker AFB OK											0.000	
SS/AMS Support	T&M	OC-ALC/M AS, Tinker AFB OK				0.069	Mar-05						0.069	
Subtotal Support			0.000	0.000		0.069		0.000		0.000		0.000	0.069	0.000
Remarks:														
<u>(U) Test & Evaluation</u>														
W80 Support	Fund cite/MIPR	49 TES, Barksdale AFB LA				2.532	Jan-05						2.532	
W80 Support	T&M	OC-ALC/LH MR, Tinker AFB OK/Boeing, Wichita KS								1.000	Jul-07		1.000	
W80 Support	Fund cite/MIPR	419 FTS, Edwards AFB CA						1.225	Aug-06	2.000	Aug-07	1.935	5.160	

Project 4798

R-1 Shopping List - Item No. 121-8 of 121-11

Exhibit R-3 (PE 0101120F)

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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	2.532	1.225	3.000	1.935	8.692	0.000
Remarks:	None									
(U) <u>Management</u>										
W-80 Support	T&M	OC-ALC/PS M, Tinker AFB OK		0.344					0.344	
SS/AMS Support	T&M	OC-ALC/PS M, Tinker AFB OK		0.039					0.039	
Nuclear Weapons Sub-System (NWSS) Aging & Surveillance (A&S)				0.029					0.029	
Subtotal Management			0.000	0.412	0.000	0.000	0.000	0.000	0.412	0.000
Remarks:										
(U) Total Cost			1.970	12.188	7.672	1.989	7.034	6.392	37.245	28.046

Exhibit R-4, RDT&E Schedule Profile

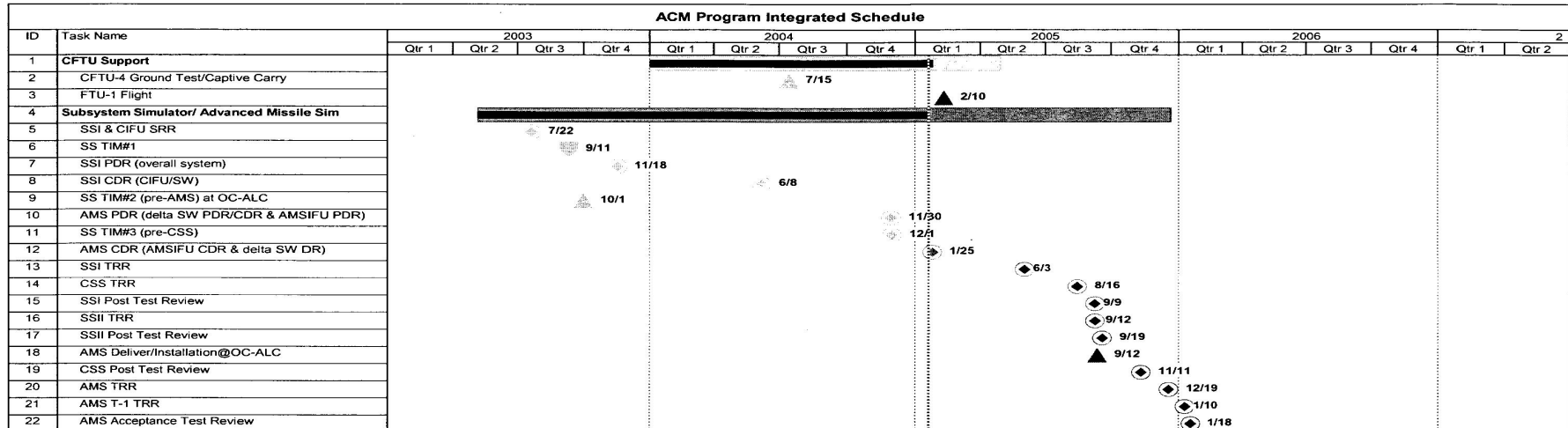
DATE

February 2005

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 2005
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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) <u>Schedule Profile</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) JTIK Dev Integration Testing	2Q			
(U) JTIK Test & Evaluation	4Q			
(U) SS PDR (overall system)	1Q			
(U) SS CDR (CIFU/SW)	3Q			
(U) AMS PDR (delta SW design/AMS IFU)		1Q		
(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) ACM NWSS A&S Preliminary Design Review	3Q			
(U) ACM NWSS A&S Critical Design Review	4Q			
(U) ACM NWSS A&S Demo Arm/Disarm Device Tests		1Q		
(U) ACM NWSS A&S Demo Separation Switch Tests		1Q		
(U) ACM NWSS A&S Demo Impact Sensor Dynamic Test		2Q		
(U) ACM NWSS A&S Demo Warhead Mount Tests		3Q		
(U) Functional Ground Test (FGT) Development Contract Award	3Q			
(U) FGT PDR		1Q		
(U) FGT CDR		2Q		
(U) ACM/W-80 Life Extension Program (LEP) Integration Support Contract Award	1Q			
(U) ACM/W-80 Interface Control Changes/Documentation (Support)	1-4Q	1Q		
(U) ACM/W-80 Ground Test (Support)	2-3Q	1Q		
(U) ACM/W-80 Flight Test (Support)	4Q	2Q		
(U) ACM/W-80 Development Flight Test			4Q	
(U) ACM/W-80 Qualification Flight Test				4Q
(U) ACM/W-80 Electromagnetic Interference and Compatability (EMI/C)				4Q

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

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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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	23.007	11.732	2.250	3.763	5.822	0.395	0.412	0.428	Continuing	TBD
4797 Flight Testing & Navigation Enhancement	23.007	11.732	2.250	3.763	5.822	0.395	0.412	0.428	Continuing	TBD

(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 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

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07 Operational System Development

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0101122F AIR LAUNCHED CRUISE MISSILE

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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	29.466	11.837	2.238	3.693
(U) Current PBR/President's Budget	23.007	11.732	2.250	3.763
(U) Total Adjustments	-6.459	-0.105		
(U) Congressional Program Reductions		-0.105		
Congressional Rescissions				
Congressional Increases				
Reprogrammings	-5.751			
SBIR/STTR Transfer	-0.708			
(U) <u>Significant Program Changes:</u>				

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BUDGET ACTIVITY		PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE		
07 Operational System Development		0101122F AIR LAUNCHED CRUISE MISSILE						4797 Flight Testing & Navigation Enhancement		
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4797 Flight Testing & Navigation Enhancement	23.007	11.732	2.250	3.763	5.822	0.395	0.412	0.428	Continuing	TBD
Quantity of RDT&E Articles	0	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.

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MISSILE

PROJECT NUMBER AND TITLE

4797 Flight Testing & Navigation
Enhancement

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.

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

(U) B. Accomplishments/Planned Program (\$ in Millions)	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) - Conducted flight test planning for integration testing	0.180			
(U) - Continued update of CATIK Interface Control Documents and assembled hardware	0.320			
(U) CATIK Test and Evaluation/Government costs	4.500			
(U) Continue CATIK Test & Evaluation/Government costs		3.837		
(U) Continue INE Software Subterminal Map Development, Testing and Integration		0.500		
(U) Began Cruise Missile Functional Ground Test (FGT) software design & development	6.113			
(U) Began Cruise Missile FGT hardware design/development	6.114			
(U) Began FGT System/Missile Integration & Test	1.244			
(U) Continue FGT System/Missile Integration & 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		1.255		

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Exhibit R-2a, RDT&E Project Justification	DATE February 2005
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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) 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) Continue ALCM interface change evaluations/changes and contractor ICD support for W-80 LEP			1.029	
(U) Continue ALCM W-80 integration data development			0.097	
(U) Continue ALCM W-80 integration ground test and flight test support			1.124	
(U) Conduct ALCM/W-80 Environmental Flight Test				1.180
(U) Conduct ALCM/W-80 Development Flight Test				1.750
(U) Continue contractor and organic missile interface compatibility testing				0.833
(U) Begin Big Crow Alternative hardware and software development	2.816			
(U) Total Cost	23.007	11.732	2.250	3.763

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

		<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
(U) MPAF, Missile Modifications (BA 03, PE 0101122F, P-15)		1.967	21.072	24.764	9.708	9.956	10.141	0.000	0.000	Continuing	TBD
(U) MPAF, Missile Modifications Initial Spares (BA 04 PE 0101122F, P-16)		1.661	0.374	0.180	0.186	0.189	0.194	0.000	0.000	Continuing	TBD
(U) MPAF, Replenishment Spares (BA 04, PE 0101122F, P-16)		3.785	4.218	4.305	0.288	0.292	0.300	11.010	11.295	Continuing	TBD
(U) OPAF, Electronics and Telecommunications Equipment (BP83) (BA 03, PE 0101122F, P-18)		1.305	1.343	1.383	1.423	1.452	1.487	1.554	1.611	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 2nd quarter FY05 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).

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

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MISSILE**

PROJECT NUMBER AND TITLE

**4797 Flight Testing & Navigation
Enhancement**

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

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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) 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>2004</u> <u>Cost</u>	<u>FY 2004</u> <u>Cost</u>	<u>FY 2004</u> <u>Award</u> <u>Date</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</u>	<u>FY 2006</u> <u>Cost</u>	<u>FY 2006</u> <u>Award</u> <u>Date</u>	<u>FY 2007</u> <u>Cost</u>	<u>FY 2007</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
(U) <u>Product Development</u> Development:														
CATIK	Eng Asgn/ CPAF	Boeing, Seattle, WA.		0.500	Nov-04	1.000	Jan-05					0.050	1.550	
TRW- INE	Eng Asgn/T& M											0.000	0.000	
Boeing-INE	Eng Asgn/ CPAF TBD											0.000	0.000	
Functional Ground Test (FGT)	FFP	Raytheon, Tuscon AZ		13.471	Jun-04	4.300	Jan-05					0.000	17.771	
W80 LEP Support	Eng Asgn/T& M	Boeing, Seattle, WA.		2.035	Jun-04	1.255	Feb-05	1.041	Feb-06	0.833	Jan-07	1.420	6.584	
W80 LEP Support, Service STAR	FFP	E-Spectrums, San Antonio TX.				1.000	Feb-05						1.000	
INE Software Subterminal Map Development	Eng Asgn/T& M	Boeing, Seattle, WA.		0.500	Jan-05	0.500	May-05						1.000	
Big Crow Alternative Hardware and Software Development	CPFF	SAIC, San Diego		1.590	Jan-05								1.590	
Subtotal Product Development			0.000	18.096		8.055		1.041		0.833		9.138	37.163	0.000
Remarks:														
(U) <u>Support</u> OC-ALC/PSM								0.085	Jan-06			0.652	0.737	
W80 Support/PSM												1.436	1.436	
Subtotal Support			0.000	0.000		0.000		0.085		0.000		2.088	2.173	0.000
Remarks:														
(U) <u>Test & Evaluation</u> Utah Test Range	MIPR			1.802	Nov-04	1.400	Jan-05					0.475	3.677	
49th Test Wing	MIPR			1.402	Nov-04	1.000	Jan-05					0.450	2.852	
Responsible Test Org	TBD			0.612	Nov-04	0.437	Jan-05					0.025	1.074	
Eglin AFB	MIPR			0.500	Jun-04							0.000	0.500	
49th Test Wing (W-80 LEP)	MIPR			0.595	Jun-04	0.840	May-05	1.124	Jul-06	2.930	Jan-07	4.685	10.174	
None													0.000	
Subtotal Test & Evaluation			0.000	4.911		3.677		1.124		2.930		5.635	18.277	0.000
Remarks:														

Project 4797

R-1 Shopping List - Item No. 122-7 of 122-10

Exhibit R-3 (PE 0101122F)

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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	0101122F AIR LAUNCHED CRUISE MISSILE				4797 Flight Testing & Navigation Enhancement			
(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	0.000	23.007	11.732	2.250	3.763	16.861	57.613	0.000

Exhibit R-4, RDT&E Schedule Profile

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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

	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11
ALCM SLEP								
CATIK								
Integ/Qual Testing	▲							
Prototype Delivery		▲						
FCA		▲						
Flight Testing		▲		▲				
Production Award			▲					
CATIK Deliveries				▲				▲
CATIK Test Set		▲						
FGT Dew/Del	▲			▲				
W80 Integration						▲		
W80 Flight Tests	▲				▲			

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Exhibit R-4a, RDT&E Schedule Detail		DATE February 2005		
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE		
07 Operational System Development	0101122F AIR LAUNCHED CRUISE MISSILE	4797 Flight Testing & Navigation Enhancement		
(U) <u>Schedule Profile</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) CATIK Development Milestones		4Q		
(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		2Q	3Q
(U) ALCM/W-80 Ground Test Support	3Q		2Q	3Q
(U) ALCM/W-80 Flight Test Support	3Q		2Q	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

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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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	8.763	17.993	29.134	27.173	13.125	9.990	10.221	10.397	Continuing	TBD
5059 Strategic War Planning System (SWPS)	8.763	17.993	29.134	27.173	13.125	9.990	10.221	10.397	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. This mission has been defined by the 2002 Unified Command Plan (UCP) changes 1 and 2. To enable these missions, the Integrated Strategic Planning and Analysis Network (ISPAN) (formerly known as 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 modernization is defined by three blocks which will provide capability throughout the blocks. Block 1 will include reaching Full Operational Capability (FOC) for Theater Deliberate planning support. Block 1 will also include initiation of optimization, workflow and decision support development and conventional mission planning integration. Block 2 will see the continuation of optimization, workflow and decision support development, and conventional mission planning integration. Block 2 will also include the initiation of mobile and unit improvements. Block 3 is beyond the timeframe of this budget report and will be captured in subsequent budget reports. ISPAN includes automatic data processing equipment (ADPE), software, facilities support, manpower, and training to support the mission objectives of ISPAN, associated deployable and distributed data processing nodes, and subsidiary systems.

In FY05 the ISPAN Modernization effort establishes a redesigned software architecture through requirements definition and early design and developmental test activities. FY06 expands on the early development efforts to meet USSTRATCOM requirements for existing and expanded UCP missions. This includes software coding, integration of multiple internal and external planning applications, significant developmental test activities and early operational test activities.

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.

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0101313F STRAT WAR PLANNING SYS - USSTRATCOM

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	1.724	23.391	29.077	26.761
(U) Current PBR/President's Budget	8.763	17.993	29.134	27.173
(U) Total Adjustments	7.039	-5.398		
(U) Congressional Program Reductions		-5.000		
Congressional Rescissions		-0.398		
Congressional Increases				
Reprogrammings	7.091			
SBIR/STTR Transfer	-0.052			
(U) <u>Significant Program Changes:</u>				

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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)		
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
5059 Strategic War Planning System (SWPS)	8.763	17.993	29.134	27.173	13.125	9.990	10.221	10.397	Continuing	TBD
Quantity of RDT&E Articles	0	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. This mission has been defined by the 2002 Unified Command Plan (UCP) changes 1 and 2. To enable these missions, the Integrated Strategic Planning and Analysis Network (ISPAN) (formerly known as 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 modernization is defined by three blocks which will provide capability throughout the blocks. Block 1 will include reaching Full Operational Capability (FOC) for Theater Deliberate planning support. Block 1 will also include initiation of optimization, workflow and decision support development and conventional mission planning integration. Block 2 will see the continuation of optimization, workflow and decision support development, and conventional mission planning integration. Block 2 will also include the initiation of mobile and unit improvements. Block 3 is beyond the timeframe of this budget report and will be captured in subsequent budget reports. ISPAN includes automatic data processing equipment (ADPE), software, facilities support, manpower, and training to support the mission objectives of ISPAN, associated deployable and distributed data processing nodes, and subsidiary systems.

In FY05 the ISPAN Modernization effort establishes a redesigned software architecture through requirements definition and early design and developmental test activities. FY06 expands on the early development efforts to meet USSTRATCOM requirements for existing and expanded UCP missions. This includes software coding, integration of multiple internal and external planning applications, significant developmental test activities and early operational test activities.

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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Accomplishments/Planned Program				
(U) Block 1 Capabilities to modernize, integrate and test ISPAN planning tools, to include but not be limited to, System Engineering and to modify existing software tools to interface with ISPAN Modernization.	8.763	17.993	29.134	19.573
(U) Block 2 continues to modernize, integrate and test ISPAN planning tools, to include but not be limited to, System Engineering and to modify existing software tools to interface with ISPAN Modernization.				7.600
(U) Total Cost	8.763	17.993	29.134	27.173

Exhibit R-2a, RDT&E Project Justification

DATE

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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)

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
Other Procurement, AF WSC										
(U) 833140 Strategic Command and Control	11.070	15.301	6.730	10.023	9.797	13.035	13.358	13.571	Continuing	TBD
(U) Operations and Maintenance AF	67.151	60.329	59.790	61.007	68.084	71.766	72.590	74.017	Continuing	TBD

(U) **D. Acquisition Strategy**

ISPAN encompasses an evolutionary acquisition strategy with spiral development contracts that are negotiated and awarded in a competitive environment.

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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 0101313F STRAT WAR PLANNING SYS - USSTRATCOM	PROJECT NUMBER AND TITLE 5059 Strategic War Planning System (SWPS)
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(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &</u> <u>Type</u>	<u>Performing</u> <u>Activity &</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2004</u> <u>Cost</u>	<u>FY 2004</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2007</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
				<u>Cost</u>	<u>Award</u> <u>Date</u>	<u>Cost</u>	<u>Award</u> <u>Date</u>	<u>Cost</u>	<u>Award</u> <u>Date</u>	<u>Cost</u>	<u>Award</u> <u>Date</u>			
(U) <u>Product Development</u>														
BAE (Air Vehicle Planning System (APS))	TMAF	San Diego, CA	1.193	1.833	Oct-03	1.764	Oct-04	2.412	Oct-05	1.593	Oct-06	Continuing	TBD	TBD
Northrop Grumman (Missile Graphics Planning System (MGPS))	TMAF	Bellevue, NE	0.432	0.674	Oct-03							0.000	1.106	1.106
MGPS Follow on Contractor (Mar 05)	CPAF	TBD				0.471	Mar-05	0.943	Oct-05	1.493	Oct-06	Continuing	TBD	TBD
SAIC (Targeting)	TMAF	San Diego, Ca	0.000	0.800	Oct-03							0.000	0.800	0.800
Targeting Follow on Contractor (Mar 05)	CPAF	TBD				1.389	Mar-05	1.544	Oct-05	0.613	Oct-06	Continuing	TBD	TBD
Lockheed Martin Integrated Systems ISPAN Modernization Contractor	CPAF	Bellevue, NE	0.000	4.376	Aug-04	12.581	Oct-04	21.892	Oct-05	21.932	Oct-06	Continuing	TBD	TBD
Miscellaneous Contracts	CPAF	Pending	0.000	1.080	Aug-04	1.788	Mar-05	2.343	Jan-06	1.542	Jan-07	Continuing	TBD	TBD
Subtotal Product Development			1.625	8.763		17.993		29.134		27.173		Continuing	TBD	TBD
Remarks:														
(U) Total Cost			1.625	8.763		17.993		29.134		27.173		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

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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)



U.S. AIR FORCE

ISPAN Schedule

	FY04				FY05				FY06				FY07							
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4				
Theater Deliberate Planning (APS, MGPS, Targeting)													FOC							
ISPAN Modernization					MS B				Block 1				MS C							
													MS B				Block 2			

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2005
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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) <u>Schedule Profile</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Theater Deliberate Planning FOC				4Q
(U) ISPAN Modernization Block 1 MS B	3Q			
(U) ISPAN Modernization Block 1 Start	4Q			
(U) ISPAN Modernization Block 1 MS C				4Q
(U) ISPAN Modernization Block 1 Completion				4Q
(U) ISPAN Modernization Block 2 MS B			4Q	
(U) ISPAN Modernization Block 2 Start				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 2005
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0102326F REGION/ SECTOR OPERATIONS CONTROL CENTER
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Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	27.104	18.785	18.237	14.540	23.660	24.578	25.059	20.288	Continuing	TBD
4592 Region/Sector Operations Modernization Center (R/SAOC)	27.104	18.785	18.237	14.540	23.660	24.578	25.059	20.288	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 [Region/Sector Air Operation Control Center, PE 0102326F (called the Battle Control System-Fixed {BCS-F})] and mobile Theater Battle Management (TBM) Command and Control (C2) nodes [Modular Control System, PE 0207412F (called the Battle Control System-Mobile {BCS-M})]. Battle Control System-Fixed (BCS-F) is the replacement 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 battle management command and control system with enhanced capability to integrate data from existing and future civil and military defense surveillance systems into a comprehensive recognized air picture. This multi-input integrated air control picture will enhance the 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. BCS-F systems serve as the Air Force's Homeland Defense battle management, command, and control hubs and integrators for data from radar sensors, data links and supporting communications architecture. They provide the tactical communications and data link capabilities with other military and civil systems responsible for conducting the planning, directing, coordinating, and controlling of forces for air surveillance, air defense and control of sovereign US air space (including the National Capital Region). The BCS-F system is a bi-national cooperative program with Canada, ensuring air defense and surveillance capability for the entire North American continent.

The R/SAOC legacy system 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. The BCS-F system is the replacement for this antiquated system.

This program is in Budget Activity 7 - Operational System Development because it provides funding for the replacement 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

0102326F REGION/ SECTOR OPERATIONS CONTROL CENTER

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	32.185	19.047	24.328	19.442
(U) Current PBR/President's Budget	27.104	18.785	18.237	14.540
(U) Total Adjustments	-5.081	-0.262		
(U) Congressional Program Reductions				
Congressional Rescissions		-0.262		
Congressional Increases				
Reprogrammings	-4.415			
SBIR/STTR Transfer	-0.666			
(U) <u>Significant Program Changes:</u>				
FY04 reprogramming and FY06/07 reductions support higher Air Force priorities				

Exhibit R-2a, RDT&E Project Justification

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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)		
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4592 Region/Sector Operations Modernization Center (R/SAOC)	27.104	18.785	18.237	14.540	23.660	24.578	25.059	20.288	Continuing	TBD
Quantity of RDT&E Articles	0	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 [Region/Sector Air Operation Control Center, PE 0102326F (called the Battle Control System-Fixed {BCS-F})] and mobile Theater Battle Management (TBM) Command and Control (C2) nodes [Modular Control System, PE 0207412F (called the Battle Control System-Mobile {BCS-M})]. Battle Control System-Fixed (BCS-F) is the replacement 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 battle management command and control system with enhanced capability to integrate data from existing and future civil and military defense surveillance systems into a comprehensive recognized air picture. This multi-input integrated air control picture will enhance the 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. BCS-F systems serve as the Air Force's Homeland Defense battle management, command, and control hubs and integrators for data from radar sensors, data links and supporting communications architecture. They provide the tactical communications and data link capabilities with other military and civil systems responsible for conducting the planning, directing, coordinating, and controlling of forces for air surveillance, air defense and control of sovereign US air space (including the National Capital Region). The BCS-F system is a bi-national cooperative program with Canada, ensuring air defense and surveillance capability for the entire North American continent.

The R/SAOC legacy system 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. The BCS-F system is the replacement for this antiquated system.

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

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Accomplishments/Planned Program				
(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 and Certification Support.	22.807	13.709	13.215	10.987
(U) Continue Program Management/Systems Engineering	2.935	3.528	3.222	2.576
(U) Continue Program Support (i.e. travel, supplies, equipment, misc)	1.362	1.548	1.800	0.977
(U) Total Cost	27.104	18.785	18.237	14.540

Exhibit R-2a, RDT&E Project Justification

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
(U) Other APPN OPAF PE 0102326F (Other Procurement Air Force, WSC 833040, Theater Air Control System Improvement)	4.303	7.986	12.007	18.250	11.861	18.007	14.063	20.557	Continuing	TBD

(U) D. Acquisition Strategy

The BCS-Fixed program is utilizing a spiral development acquisition strategy that leverages hardware and software commonality with BCS-Mobile to further advance tactical BMC2 capabilities while promoting increased interoperability between systems.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2005

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) 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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</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 MIDS LVT-1 Terminals	FFP/C MIPR	Fullerton, CA SPAWAR, San Diego, CA	22.272	10.154	Jan-04	12.016	May-05	11.839	Oct-05	9.405	Oct-06	Continuing	TBD	TBD	
FAA	MIPR	Washington, DC	1.083										1.083	1.083	
Naval Systems Mgmt Activity	MIPR	Arlington, VA	0.000	8.965	Aug-04								8.965		
Various	Various		0.500	0.500	Feb-04								0.500		
Subtotal Product Development			1.423	0.749	Nov-03	0.356	Dec-04						2.528	TBD	
Remarks:			75.643	20.368		12.372		11.839		9.405		Continuing	TBD	TBD	
(U) <u>Support</u>															
MITRE	SS/T&M	Bedford, MA	7.899	0.945	Oct-03	1.420	Oct-04	1.491	Oct-05	1.216	Oct-06	Continuing	TBD	TBD	
Program Management/Technical Support	C/T&M	Bedford, MA	9.591	1.990	Feb-04	2.108	Nov-04	1.731	Feb-06	1.360	Feb-07	Continuing	TBD	TBD	
Program Office Support	Various	Various	3.715	1.362		1.548		1.800		0.977		Continuing	TBD	TBD	
Subtotal Support			21.205	4.297		5.076		5.022		3.553		Continuing	TBD	TBD	
Remarks:															
(U) <u>Test & Evaluation</u>															
46th Test Wing/Other Test Act	Various	Various	2.942	2.439	Nov-03	1.337	Nov-04	1.376	Nov-05	1.582	Nov-06	Continuing	TBD	TBD	
Subtotal Test & Evaluation			2.942	2.439		1.337		1.376		1.582		Continuing	TBD	TBD	
Remarks:															
(U) Total Cost			99.790	27.104		18.785		18.237		14.540		Continuing	TBD	TBD	

Exhibit R-4, RDT&E Schedule Profile

DATE


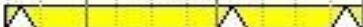

February 2005


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	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11
BCS-F Spiral 1 / 2			▲ <i>Fielding Decision</i>	▲ <i>IOC</i>				
BCS-F Spiral 3		▲ <i>Contract Award</i>			▲ <i>Fielding Decision</i>	▲ <i>IOC</i>		
BCS-F Spiral 4				▲ <i>Contract Award</i>			▲ <i>Fielding Decision</i>	▲ <i>IOC</i>

 Ongoing Activity that is on-going

▲ Completed Event

△ Planned Task(s)

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2005
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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) <u>Schedule Profile</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) BCS-F Spiral 1/2 Fielding Decision			1Q	
(U) BCS-F Spiral 1/2 IOC				1Q
(U) BCS-F Spiral 3 Contract Award		3Q		
(U) BCS-F Spiral 3 Field Decision				1Q
(U) BCS-F Spiral 3 IOC				4Q
(U) BCS-F Spiral 4 Contract Award				1Q

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PE NUMBER: 0203761F
 PE TITLE: Warfighter Rapid Acquisition Program

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2005
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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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	9.790	24.716	30.093	30.517	30.534	30.678	31.287	31.718	Continuing	TBD
4936 Warfighter Rapid Acquisition Program	9.790	24.716	30.093	30.517	30.534	30.678	31.287	31.718	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 WRAP will nominate projects to the VCSAF, CSAF, or SECAF for final approval. Potential sources of projects include, but are not limited to, JEFX, Battelabs, Joint Experimentation, Advanced Technology Demonstrations (ATDs), Advanced Concept Technology Demonstrations (ACTDs), Science & Technology, and Independent R&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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	24.992	24.716		
(U) Current PBR/President's Budget	9.790	24.716	30.093	30.517
(U) Total Adjustments	-15.202	0.000		
(U) Congressional Program Reductions				
Congressional Rescissions				
Congressional Increases				
Reprogrammings	-15.202			
SBIR/STTR Transfer				

(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 0203761F Warfighter Rapid Acquisition Program			PROJECT NUMBER AND TITLE 4936 Warfighter Rapid Acquisition Program		
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4936 Warfighter Rapid Acquisition Program	9.790	24.716	30.093	30.517	30.534	30.678	31.287	31.718	Continuing	TBD
Quantity of RDT&E Articles	0	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 WRAP will nominate projects to the VCSAF, CSAF, or SECAF for final approval. Potential sources of projects include, but are not limited to, JEFX, Battelabs, Joint Experimentation, Advanced Technology Demonstrations (ATDs), Advanced Concept Technology Demonstrations (ACTDs), Science & Technology, and Independent R&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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) FY 04 BTR Accomplishments/Planned Programs. (9) Nine initiatives funded.	9.790			
(U) Planned WRAP project selection and project initiation		24.716	30.093	30.517
(U) Total Cost	9.790	24.716	30.093	30.517

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

	<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>FY 2010</u>	<u>FY 2011</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>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 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. In order to rapidly acquire warfighting capabilities the WRAP process nominates projects directly 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) 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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>	
(U) <u>Product Development</u>													0.000	TBD	
Subtotal Product Development			0.000	0.000		0.000		0.000		0.000		0.000	0.000	TBD	
Remarks:															
(U) <u>Support</u>													0.000	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>	Various	Multiple		9.790	Aug-04	24.716	Feb-05	30.093	Jan-06	30.517	Jan-07	Continuing	TBD	TBD	
Subtotal Test & Evaluation			0.000	9.790		24.716		30.093		30.517		Continuing	TBD	TBD	
Remarks:	WRAP funds are distributed to initiatives capable of utilizing 3600 monies.														
(U) <u>Management</u>													0.000	0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000	
Remarks:															
(U) <u>Various</u>															
(U) Total Cost			0.000	9.790		24.716		30.093		30.517		Continuing	TBD	TBD	
Remarks:															

Exhibit R-4, RDT&E Schedule Profile

DATE



















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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				FY03				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	1	2	3	4																
Acquisition Milestones																																																				
Prototype Phase																																																				
T&E Milestones																																																				
Production Milestones																																																				
Delivery Schedules																																																				







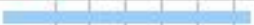
-  Award of project funding for selected programs
-  End of 1st WRAP selection process, FY 02 projects
-  Ongoing WRAP cycle
-  Annual Data call for subsequent year WRAP Projects
-  Timeline 1st complete WRAP FY 02
-  End of 1st complete WRAP decision, funding, acquisition cycle FY 02
-  Ongoing delivery cycles

Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2005

BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0203761F Warfighter Rapid Acquisition Program	PROJECT NUMBER AND TITLE 4936 Warfighter Rapid Acquisition Program
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(U) <u>Schedule Profile</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) FY 04 WRAP Project Initiation	2Q			
(U) FY 04 WRAP Project Approval/funding	3Q			
(U) FY 05 WRAP Project Initiation		1Q		
(U) FY 05 WRAP Project Approval/funding		2Q		
(U) FY 06 WRAP Project Initiation (Anticipated)			1Q	
(U) FY 06 WRAP Project Approval/funding (Anticipated)			2Q	
(U) FY 07 WRAP Project Initiation (Anticipated)				1Q
(U) FY 07 WRAP Project Approval/funding (Anticipated)				2Q

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PE NUMBER: 0207028F
 PE TITLE: Joint Expeditionary Force Experiment

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2005
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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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	54.108	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
4373 JEFX	43.950	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	108.800
4991 Joint Distributed Engineering Plant (JDEP)	10.158	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

FY05, project 674373, Joint Expeditionary Force Experiments (JEFX) work transfers to Program Element (PE) 0207449F, Command and Control (C2) Constellation, project 675140 (JEFX). In addition, project 674991, Joint Distributed Engineering Plant (JDEP) work transfers to PE 0207601F, USAF Modeling and Simulation, 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.

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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	50.931	0.000	0.000	0.000
(U) Current PBR/President's Budget	54.108	0.000	0.000	0.000
(U) Total Adjustments	3.177	0.000		
(U) Congressional Program Reductions				
Congressional Rescissions				
Congressional Increases				
Reprogrammings	4.693			
SBIR/STTR Transfer	-1.516			

(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 0207028F Joint Expeditionary Force Experiment			PROJECT NUMBER AND TITLE 4373 JEFX		
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4373 JEFX	43.950	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	108.800
Quantity of RDT&E Articles	0	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**

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.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Select and begin developing initiatives to introduce new technologies and operational capabilities into the AEF CONOPS.	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.	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.	0.000	0.000		
(U) Implement architectural configuration, conduct M&S, install and test the communications infrastructure and execute the APTX 03 experiment.	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.)	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.	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.	8.400	0.000		

Exhibit R-2a, RDT&E Project Justification	DATE February 2005
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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) Implement architectural configuration, conduct M&S, install and test the communications infrastructure and execute the JEFX 04 experiment.	14.729	0.000		
(U) Total Cost	43.950	0.000	0.000	0.000

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	

(U) Not Applicable

(U) **D. Acquisition Strategy**
 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

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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 Prior to FY 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> MITRE	FFRDC	AFC2ISRC, Langely AFB, VA		3.500	Dec-03	0.000						Continuing	TBD	TBD
GSA ACS Defense	Multiple C/IDIQ	Various AFC2ISRC, Langely AFB, VA		2.975	Dec-03	0.000						Continuing	TBD	TBD
MIT/LL	Various	ESC Hanscom AFB, MA		2.907	Mar-04	0.000						Continuing	TBD	TBD
Northrup	Time & Material	ESC Hanscom AFB, MA		3.923	Dec-03	0.000						Continuing	TBD	TBD
Lockheed Martin	C/CPAF	ESC Hanscom AFB, MA		0.275	Mar-04	0.000						Continuing	TBD	TBD
ASC/RAB CITPAD	MIPR C/Time & Material	Various AFC2ISRC, Langely AFB, VA		3.500	Mar-04	0.000						Continuing	TBD	TBD
Logicon	C/Time & Material	AFC2ISRC, Langely AFB, VA		0.870	Mar-04	0.000						Continuing	TBD	TBD
General Dynamics	C/Time & Material	AFC2ISRC, Langely AFB, VA		0.290	Dec-03	0.000						Continuing	TBD	TBD
SPO/Other	MIPR	ESC Hanscom AFB, MA		0.290	Oct-03	0.000						Continuing	TBD	TBD
L3 Comm TRW TRW AFC2TIG	C/GSA C/GSA C/GSA MIPR	Various Various Various AFC2ISRC, Langely AFB, VA		6.984	Oct-03	0.000						Continuing	TBD	TBD
Alion ACS Defense SAIC L3 Comm	C/GSA C/GSA C/GSA C/GSA	Various Various Various Various		1.000	Mar-04	0.000						Continuing	TBD	TBD
				0.300	Mar-04	0.000						Continuing	TBD	TBD
				0.270	Dec-03	0.000						Continuing	TBD	TBD
				7.287	Oct-03	0.000						Continuing	TBD	TBD
				1.811	Dec-03	0.000						Continuing	TBD	TBD
				0.475	Oct-03	0.000						Continuing	TBD	TBD
				0.970	Dec-03	0.000						Continuing	TBD	TBD
				1.037	Mar-04	0.000						Continuing	TBD	TBD

Project 4373

R-1 Shopping List - Item No. 128-5 of 128-13

Exhibit R-3 (PE 0207028F)

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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				0207028F Joint Expeditionary Force Experiment				4373 JEFX			
TRW	C/GSA	Various	0.300	Oct-03	0.000			Continuing	TBD	TBD	
Various	Various	Various	3.931	Oct-03	0.000			Continuing	TBD	TBD	
Zel Tech	C/GSA	Various	0.220	Dec-03	0.000			Continuing	TBD	TBD	
Subtotal Product Development			0.000	43.550	0.000	0.000	0.000	Continuing	TBD	TBD	
Remarks:											
(U) <u>Support</u>											
Subtotal Support			0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
Remarks:											
(U) <u>Test & Evaluation</u>											
46th Test Squadron	Project Order	Various	0.400	Dec-03				Continuing	TBD	TBD	
Subtotal Test & Evaluation			0.000	0.400	0.000	0.000	0.000	Continuing	TBD	TBD	
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											
			0.000	43.950	0.000	0.000	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

0207028F Joint Expeditionary Force
Experiment

PROJECT NUMBER AND TITLE

4373 JEFX

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Exhibit R-4a, RDT&E Schedule Detail		DATE February 2005
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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>Schedule Profile</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Conduct Spiral I	2Q			
(U) Conduct Spiral II	3Q			
(U) Conduct Spiral III	3Q			
(U) Conduct JEFX 04	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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4991 Joint Distributed Engineering Plant (JDEP)	10.158	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	0		

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. It's 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.

The Air Force Center for Domain Integration (CDI) will coordinate JDEP activities involving Air Force engineering and test sites. CDI will ensure that accurately represented C4I networks are established for system development and testing activities and will evaluate those systems for interoperability and integration into a joint environment.

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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Continue site activation support. This includes hardware, software and activation cost for each site.	1.820			
(U) Continue communication architectures, links and engineering and support for site activities.	1.068			
(U) Continue existing JDEP support activities to include operations & maintenance support along with contracted personnel to assist in event activities.	1.275			
(U) Continue development of systems architecture and integration, including engineering, for the JDEP repeatable environment.	0.490			
(U) Continue experiment implementation and analysis to participant in various events during pre, during and post exercise events.	1.240			
(U) Continue development of a simulation/stimulation environment for JDEP events.	4.265			
(U) Total Cost	10.158	0.000	0.000	0.000

Exhibit R-2a, RDT&E Project Justification	DATE February 2005
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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)
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(U) **C. Other Program Funding Summary (\$ in Millions)**

<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	

(U) Not applicable

(U) **D. Acquisition Strategy**

Electronic Systems Center (ESC), Hanscom AFB, MA manages 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

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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)			
(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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>														
ESC	MIPR	ESC Hanscom AFB, MA		0.350	Oct-03	0.000						Continuing	TBD	TBD
Boeing	MIPR	ESC Hanscom AFB, MA		0.350	Oct-03	0.000						Continuing	TBD	TBD
ESC	Various	Various		0.200	Dec-03	0.000						Continuing	TBD	TBD
DISA	MIPR	Various		1.218	Dec-03	0.000						Continuing	TBD	TBD
ASC	ITSP	ESC Hanscom AFB, MA		0.790	Oct-03	0.000						Continuing	TBD	TBD
MITRE	FFRDC	ESC Hanscom AFB, MA		0.675	Oct-03	0.000						Continuing	TBD	TBD
DARPA/DISA	MIPR	Various		2.090	Oct-03	0.000						Continuing	TBD	TBD
ESC	Various	ESC Hanscom AFB, MA		4.485	Dec-03	0.000						Continuing	TBD	TBD
Subtotal Product Development			0.000	10.158		0.000		0.000		0.000		Continuing	TBD	TBD
Remarks:														
(U) <u>Support</u>													0.000	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	MIPR		0.000	0.000		0.000		0.000		0.000		Continuing	TBD	TBD
Remarks:														
(U) <u>Management</u>													0.000	0.000
Subtotal Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
(U) Total Cost			0.000	10.158		0.000		0.000		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

**0207028F Joint Expeditionary Force
Experiment**

PROJECT NUMBER AND TITLE

**4991 Joint Distributed Engineering
Plant (JDEP)**

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2005
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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)
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(U) <u>Schedule Profile</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Event Planning	1-4Q			
(U) Conduct Homeland Defense Testbed event	3Q			
(U) Implement JDEP/CDI and node connectivity events at Air Force site	2-4Q			
(U) Support other events using JDEP/CDI infrastructure	1-4Q			

UNCLASSIFIED

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

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2005
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207131F A-10 SQUADRONS
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Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	30.931	30.816	51.835	75.223	59.055	0.000	0.000	0.000	Continuing	TBD
4809 A-10 Squadrons	30.931	30.816	51.835	75.223	59.055	0.000	0.000	0.000	Continuing	TBD

The FY03 National Defense Authorization Act (NDAA) language directed T&E centers to charge only direct costs beginning in FY06; this resulted in a zero-balance transfer (ZBT) of funding over the FYDP from the customer accounts (for indirect test costs) to T&E support, PE 65807F.

(U) A. Mission Description and Budget Item Justification

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 interdiction. Currently, RDT&E funding supports: the Precision Engagement (PE) Program (MN-9805); an A-10 Propulsion Upgrade Study; and a Systems Design and Demonstration (SDD) program for upgraded A-10 engines.

PRECISION ENGAGEMENT

The PE program is a spiral development program providing increased tactical effectiveness (more targets destroyed), greater survivability, and decreased risk of fratricide. These modifications are mandatory for the A/OA-10 to adhere to the regional CINC's requirement for a CAS and FAC platform.

Spiral #1 of the PE modification integrates: MIL-STD 1760 Bus, Joint Direct Attack Munition (JDAM), Wind Corrected Munitions Dispenser (WCMD), LITENING and SNIPER targeting pods, Digital Stores Management System (DSMS), and DC power upgrade. The DSMS replaces the current Armament Control Panel (ACP) (television monitor) and the Interstation Control Unit (ICU) with Multi-Function Color Displays (MFCDD) 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. After Spiral 1, the A/OA-10A will be designated as an A/OA-10C.

Spiral #2 of the PE modification integrates, tests, and fields an integrated battlefield air picture, an integrated ground picture, and legacy waveforms. The modification includes the Multi-Functional Information Distribution System Joint Tactical Radio System (MIDS JTRS) radio set with the Link-16 Waveform, the Enhanced Position Location Reporting System (EPLRS) waveform, and 2 other waveforms to be determined under the Digital Data Link (DDL) MN-37120 as directed by OSD. Funding Control for DDL was transferred from the A-10 Program Office to the Tactical Datalinks, Gateways, and Network Management (TGN) program office at Hanscom AFB MA, but it is still part of the PE modification. The Link-16, EPLRS, and other waveforms provide connectivity to the digital battlefield to ensure joint forces communication, reduce fratricide, and interoperability via forward command and control platform centers. Installation of Group A and B kits for Digital Datalink (MN-37120) will be paid for as part of this modification. The PE program may pursue other alternative data link technologies to avoid schedule delays if the currently projected MIDS JTRS terminals prove to be unavailable.

Spiral #3 and subsequent spirals of the A-10 modernization program may include: a moving map, BRU-57 Smart Pack, 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.

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07 Operational System Development

PE NUMBER AND TITLE

0207131F A-10 SQUADRONS

* Note 1: 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 remaining aircraft will come out of the modification line with JTRS.

*Note 2: \$7M FY06 RDT&E was added for Precision Engagement to fund increased scope of flight test activities in order to reduce the test program schedule risk as well as incorporate changes in design due to additional requirements identified by the user, making the modification more operationally suitable and effective.

PROPULSION UPGRADE STUDY

In FY04 Congress provided \$3.0M add to conduct a study to determine the best way to upgrade the engines on the A-10. A draft operational assessment and Capabilities Development Document (23 Dec 2004) was delivered to the Air Force and is expected to be approved by May 2005. In FY05, Congress provided an addition \$5.0M which will be applied to existing pre-SDD studies. In addition, pre-SDD studies are being conducted by the engine Original Equipment Manufacturer to define requirements, perform trade studies, refine cost data and conduct risk reduction analysis. This effort will provide an updated prime item development specification, interface control document, and qualification plan. A third effort is being conducted by the A-10 prime contractor to identify structural changes required for additional thrust and weight changes.

PROPULSION UPGRADE SYSTEMS DESIGN AND DEMONSTRATION (SDD)

In February 2004, the SECAF and CSAF validated the need for the A-10 Propulsion Upgrade. The Congressional add of \$5.0M in FY05, mentioned above, will be used to provide a ramp to the FY06 SDD effort. In FY06, SDD will continue with development of the integration requirements and design work including development of the evaluation and test requirements as well test hardware. The Air Force will provide TF34-100A engines for the prototype effort..

THREE-DIMENSIONAL (3-D) MODELING, DESIGN, AND ENGINEERING ASSESSMENT

In FY05, this effort received a \$3.5M Congressional add for an effort to investigate a new wing and fuselage/empennage improvement to increase the service life to 16,000 flight hours.

A digital model capturing the most current configuration of the A-10 wing assembly is necessary to support future sustainment activities of the aircraft. This model will be used as the basis for simulating the effects of differing usage, to include additional weapon or countermeasures installations, on the structure. This will be done by using the digital definition to develop finite element models for stress and thermal analyses as needed. These same digital models can be used as input to aerodynamic analyses to develop airloads for the baseline and a multitude of weapons load configurations. These models will also be used to simulate various production and maintenance related activities to include development of appropriate shop aids, tools, procurement of spares, assist in validating first articles, etc. Finally, these models can be used to simulate impacts to systems and avionics hardware due to modifications associated with updates, capability enhancements, or engineering evaluations.

The use of digital modeling and simulation as described would provide a benefit to the A-10 program by reducing overall costs of sustainment activities by providing a common baseline that can be maintained and shared amongst A-10 government and contractor organizations.

Exhibit R-2, RDT&E Budget Item Justification

DATE

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207131F A-10 SQUADRONS

MODE S/MODE 5 EQUIPMENT

The A-10 requires Mode S equipment to comply with new European air traffic control requirements. It requires Mode 5 as a replacement for the current Mode 4 Identification, Friend or Foe System.

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.

This modification provides transponders with Mode 5 capability to the A-10. Mode 5 is required to replace the combat capability of Identification, Friend or Foe previously provided by Mode 4. Lack of Mode 5 capability would put A-10s at increased risk during combat operations. In addition, effective 31 Mar 05, many European countries will require carriage of Mode S transponders by both civilian and military aircraft. The modification includes this Mode S capability through transponders that support both Interrogator Identifier (II) (for Mode 5) and Surveillance Identifier (SI) (for Mode S) codes. In addition to the money currently in the POM, there was a FY04 add of \$3.1M to equip European-based A-10s with Mode S.

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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	29.357	22.590	9.054	9.222
(U) Current PBR/President's Budget	30.931	30.816	51.835	75.223
(U) Total Adjustments	1.574	8.226		
(U) Congressional Program Reductions		-0.274		
Congressional Rescissions				
Congressional Increases	3.000	8.500		
Reprogrammings	-0.535			
SBIR/STTR Transfer	-0.891			

(U) **Significant Program Changes:**

FY05:

- Congress added additional funds to continue Propulsion Upgrade pre-SDD studies to ensure a smooth transition into Engine Upgrade SDD in FY06.
- Congress added funds to investigate a new wing & fuselage/empennage improvements in order to improve service life to 16,000 flight hours.

FY06:

- Internal AF reprogramming added funding to the Precision Engagement program in order to reduce schedule risk for its high risk, aggressive test program.
- \$0.176M decrease in FY06-08 (FY06, \$0.019M; FY07, \$0.043M; FY08, \$0.114M) for Test & Evaluation (T&E) infrastructure realignment into PE 65807F

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				0207131F A-10 SQUADRONS				4809 A-10 Squadrons			
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total	
4809 A-10 Squadrons	30.931	30.816	51.835	75.223	59.055	0.000	0.000	0.000	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0			

(U) A. Mission Description and Budget Item Justification

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 interdiction. Currently, RDT&E funding supports: the Precision Engagement (PE) Program (MN-9805); an A-10 Propulsion Upgrade Study; and a Systems Design and Demonstration (SDD) program for upgraded A-10 engines.

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Spiral #1 of the PE modification integrates: MIL-STD 1760 Bus, Joint Direct Attack Munition (JDAM), Wind Corrected Munitions Dispenser (WCMD), LITENING and SNIPER targeting pods, Digital Stores Management System (DSMS), and DC power upgrade. The DSMS replaces the current Armament Control Panel (ACP) (television monitor) and the Interstation Control Unit (ICU) with Multi-Function Color Displays (MFCD) 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. After Spiral 1, the A/OA-10A will be designated as an A/OA-10C.

Spiral #2 of the PE modification integrates, tests, and fields an integrated battlefield air picture, an integrated ground picture, and legacy waveforms. The modification includes the Multi-Functional Information Distribution System Joint Tactical Radio System (MIDS JTRS) radio set with the Link-16 Waveform, the Enhanced Position Location Reporting System (EPLRS) waveform, and 2 other waveforms to be determined under the Digital Data Link (DDL) MN-37120 as directed by OSD. Funding Control for DDL was transferred from the A-10 Program Office to the Tactical Datalinks, Gateways, and Network Management (TGN) program office at Hanscom AFB MA, but it is still part of the PE modification. The Link-16, EPLRS, and other waveforms provide connectivity to the digital battlefield to ensure joint forces communication, reduce fratricide, and interoperability via forward command and control platform centers. Installation of Group A and B kits for Digital Datalink (MN-37120) will be paid for as part of this modification. The PE program may pursue other alternative data link technologies to avoid schedule delays if the currently projected MIDS JTRS terminals prove to be unavailable.

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* Note 1: 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 remaining aircraft will come out of the modification line with JTRS.

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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

*Note 2: \$7M FY06 RDT&E was added for Precision Engagement to fund increased scope of flight test activities in order to reduce the test program schedule risk as well as incorporate changes in design due to additional requirements identified by the user, making the modification more operationally suitable and effective.

PROPULSION UPGRADE STUDY

In FY04 Congress provided \$3.0M add to conduct a study to determine the best way to upgrade the engines on the A-10. A draft operational assessment and Capabilities Development Document (23 Dec 2004) was delivered to the Air Force and is expected to be approved by May 2005. In FY05, Congress provided an addition \$5.0M which will be applied to existing pre-SDD studies. In addition, pre-SDD studies are being conducted by the engine Original Equipment Manufacturer to define requirements, perform trade studies, refine cost data and conduct risk reduction analysis. This effort will provide an updated prime item development specification, interface control document, and qualification plan. A third effort is being conducted by the A-10 prime contractor to identify structural changes required for additional thrust and weight changes.

PROPULSION UPGRADE SYSTEMS DESIGN AND DEMONSTRATION (SDD)

In February 2004, the SECAF and CSAF validated the need for the A-10 Propulsion Upgrade. The Congressional add of \$5.0M in FY05, mentioned above, will be used to provide a ramp to the FY06 SDD effort. In FY06, SDD will continue with development of the integration requirements and design work including development of the evaluation and test requirements as well test hardware. The Air Force will provide TF34-100A engines for the prototype effort..

THREE-DIMENSIONAL (3-D) MODELING, DESIGN, AND ENGINEERING ASSESSMENT

In FY05, this effort received a \$3.5M Congressional add for an effort to investigate a new wing and fuselage/empennage improvement to increase the service life to 16,000 flight hours.

A digital model capturing the most current configuration of the A-10 wing assembly is necessary to support future sustainment activities of the aircraft. This model will be used as the basis for simulating the effects of differing usage, to include additional weapon or countermeasures installations, on the structure. This will be done by using the digital definition to develop finite element models for stress and thermal analyses as needed. These same digital models can be used as input to aerodynamic analyses to develop airloads for the baseline and a multitude of weapons load configurations. These models will also be used to simulate various production and maintenance related activities to include development of appropriate shop aids, tools, procurement of spares, assist in validating first articles, etc. Finally, these models can be used to simulate impacts to systems and avionics hardware due to modifications associated with updates, capability enhancements, or engineering evaluations.

The use of digital modeling and simulation as described would provide a benefit to the A-10 program by reducing overall costs of sustainment activities by providing a common baseline that can be maintained and shared amongst A-10 government and contractor organizations.

MODE S/MODE 5 EQUIPMENT

The A-10 requires Mode S equipment to comply with new European air traffic control requirements. It requires Mode 5 as a replacement for the current Mode 4 Identification, Friend or Foe System.

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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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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.

This modification provides transponders with Mode 5 capability to the A-10. Mode 5 is required to replace the combat capability of Identification, Friend or Foe previously provided by Mode 4. Lack of Mode 5 capability would put A-10s at increased risk during combat operations. In addition, effective 31 Mar 05, many European countries will require carriage of Mode S transponders by both civilian and military aircraft. The modification includes this Mode S capability through transponders that support both Interrogator Identifier (II) (for Mode 5) and Surveillance Identifier (SI) (for Mode S) codes. In addition to the money currently in the POM, there was a FY04 add of \$3.1M to equip European-based A-10s with Mode S.

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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Further development/integration requirements efforts for Precision Engagement (PE). PE combines six modifications into one comprehensive modification: definition and initial integration design of JDAM/WCMD, Targeting Pod, DSMS, DC Power and 1760 Bus. PE Spiral #1 efforts include Preliminary Design Review, further refinement of PVI design, maintenance concept, installation design, ILS tasks and design tasks leading to Critical Design Review.	27.931	22.590	16.333	10.623
(U) In FY04 Congress provided \$3.0M add to conduct a study to determine the best way to upgrade the engines on the A-10. A draft operational assessment and Capabilities Development Document (23 Dec 2004) was delivered to the Air Force and is expected to be approved by May 2005. In addition, pre-SDD studies are being conducted by the engine OEM to define requirements, perform trade studies, refine cost data and conduct risk reduction analysis. This effort will provide an updated Prime Item Development Specification, Interface Control Document, and Qualification Plan. A third effort is being conducted by the A-10 prime contractor to identify structural changes required for additional thrust and weight changes.	3.000			
(U) In FY05, Congress provided addition funds which will be applied to existing Propulsion Upgrade pre-SDD studies.			4.839	
(U) Propulsion Upgrade SDD begins in FY06 with design work on engine and airframe changes. Some hardware for the prototype kits will be procured or manufactured. In FY07, the factory test engine will be produced and tested and the airframe kits will be produced. In FY08, test aircraft will be modified with upgraded engines and flight testing will be conducted.			33.900	64.600

Exhibit R-2a, RDT&E Project Justification	DATE February 2005
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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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(U) Three Dimensional (3-D) Modeling, Design, and Engineering Assessment is an effort to investigate a new wing and fuselage/empennage improvement to increase the service life to 16,000 flight hours. In FY05, this effort received a \$3.5M Congressional add. 3.387

A digital model capturing the most current configuration of the A-10 wing assembly is necessary to support future sustainment activities of the aircraft. This model will be used as the basis for simulating the effects of differing usage, to include additional weapon or countermeasures installations, on the structure. This will be done by using the digital definition to develop finite element models for stress and thermal analyses as needed. These same digital models can be used as input to aerodynamic analyses to develop airloads for the baseline and a multitude of weapons load configurations. These models can also be used to simulate various production and maintenance related activities to include development of appropriate shop aids, tools, procurement of spares, assist in validating first articles, etc. Finally, these models can be used to simulate impacts to systems and avionics hardware due to modifications associated with updates, capability enhancements, or engineering evaluations.

The use of digital modeling and simulation as described would provide a benefit to the A-10 program by reducing overall costs of sustainment activities by providing a common baseline that can be maintained and shared amongst A-10 government and contractor organizations.

(U) Mode S/5 modification provides transponders with Mode S and Mode 5 capability to the A-10. Mode 5 is required to replace the combat capability of Identification, Friend or Foe previously provided by Mode 4. Lack of Mode 5 capability would put A-10s at increased risk during combat operations. In addition, effective 31 Mar 05, many European countries will require carriage of Mode S transponders by both civilian and military aircraft. The European based A-10s were equipped with Mode S in FY04. In FY05, will flight qualify a Mode 5 received on the A-10. 1.602

(U) Total Cost 30.931 30.816 51.835 75.223

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
(U) TDL (PE 27445F)-RDT&E	3.400		25.080	17.674	28.029				Continuing	TBD
(U) TDL (PE 27445F)-APAF		5.139								
(U) MIDS JTRS (PE 27423F)-APAF					15.135	12.826	27.341	15.055		

(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

0207131F A-10 SQUADRONS

PROJECT NUMBER AND TITLE

4809 A-10 Squadrons

- 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.
- The Propulsion Upgrade Program will have two major contracts. The AF plans to procure the Engine Upgrade kits via sole source; while the integration portion will be competed on a full-and -open basis.

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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										0207131F A-10 SQUADRONS		4809 A-10 Squadrons			
(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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>	
(U) <u>Product Development</u>															
Precision Engagement Development	SS/CPFF	Lockheed Martin Systems Integration-- Owego NY		21.400	Jan-04	18.920	Mar-05	7.758	Jan-06			Continuing	TBD		
Precision Engagement Spiral 3	CPFF	Lockheed Martin Systems Integration-- Owego NY								10.083	Jan-07	Continuing	TBD		
Propulsion Upgrade Study	FP	Whitney Bradley & Brown Inc--Vienna VA		1.116	Jul-04							Continuing	TBD		
Propulsion Upgrade	SS/CPFF	General Electric, Lynn MA				3.800	Mar-05	25.200	Dec-05	53.890	Dec-06	Continuing	TBD		
Airframe Integration	CPFF	Lockheed Martin Systems Integration-- Owego NY				0.650	Mar-05	6.880	Nov-05	8.200	Nov-06	Continuing	TBD		
Mode S/5													0.000		
Subtotal Product Development			0.000	22.516		23.370		39.838		72.173		Continuing	TBD	0.000	
Remarks:															
(U) <u>Support</u>															
USAF (Multiple) PE				4.411	Apr-04	4.059	Apr-05	3.675	Jan-06	0.540	Jan-07	1.101	13.786		
USAF (Multiple) Propulsion				1.884	Sep-04	0.700	Jul-05	1.820	Nov-05	1.151	Nov-06	Continuing	TBD		
Navy				0.120	Jan-04								0.120		
Subtotal Support			0.000	6.415		4.759		5.495		1.691		Continuing	TBD	0.000	
Remarks:															
(U) <u>Test & Evaluation</u>															
USAF (40th FTS) PE				2.000	Dec-03	2.687	Feb-05	4.900	Jan-06				9.587		
USAF (40th FTS) Propulsion SDD										1.359	Nov-06	0.461	1.820	3.601	
USAF (40th FTS) Mode S/5								1.602					1.602		
Subtotal Test & Evaluation			0.000	2.000		2.687		6.502		1.359		0.461	13.009	3.601	
Remarks:															
(U) <u>Management</u>													0.000		
Project 4809															

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Exhibit R-3, RDT&E Project Cost Analysis

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February 2005

BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT NUMBER AND TITLE		
07 Operational System Development				0207131F A-10 SQUADRONS			4809 A-10 Squadrons		
Subtotal Management	0.000	0.000		0.000	0.000	0.000	0.000	0.000	0.000
Remarks:									
(U) Total Cost	0.000	30.931		30.816	51.835	75.223	Continuing	TBD	3.601

Exhibit R-4, RDT&E Schedule Profile

DATE

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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

Precision Engagement Spiral 1

Activity	Prior	To Completion	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007
SRR	08/01		▲					
CRTS	05/02		▲					
PDR	11/02	03/03		▲ ▲				
CDR	06/03	10/03		▲ ▲				
DT/OT&E	11/04	09/06				▲		
IOT&E	02/06	03/06					△	
FOT&E	10/06	11/06						△ △
IOC	01/07							△
Production	02/05	12/09				▲		

Today

Exhibit R-4, RDT&E Schedule Profile

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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

A-10 Propulsion Upgrade Schedule

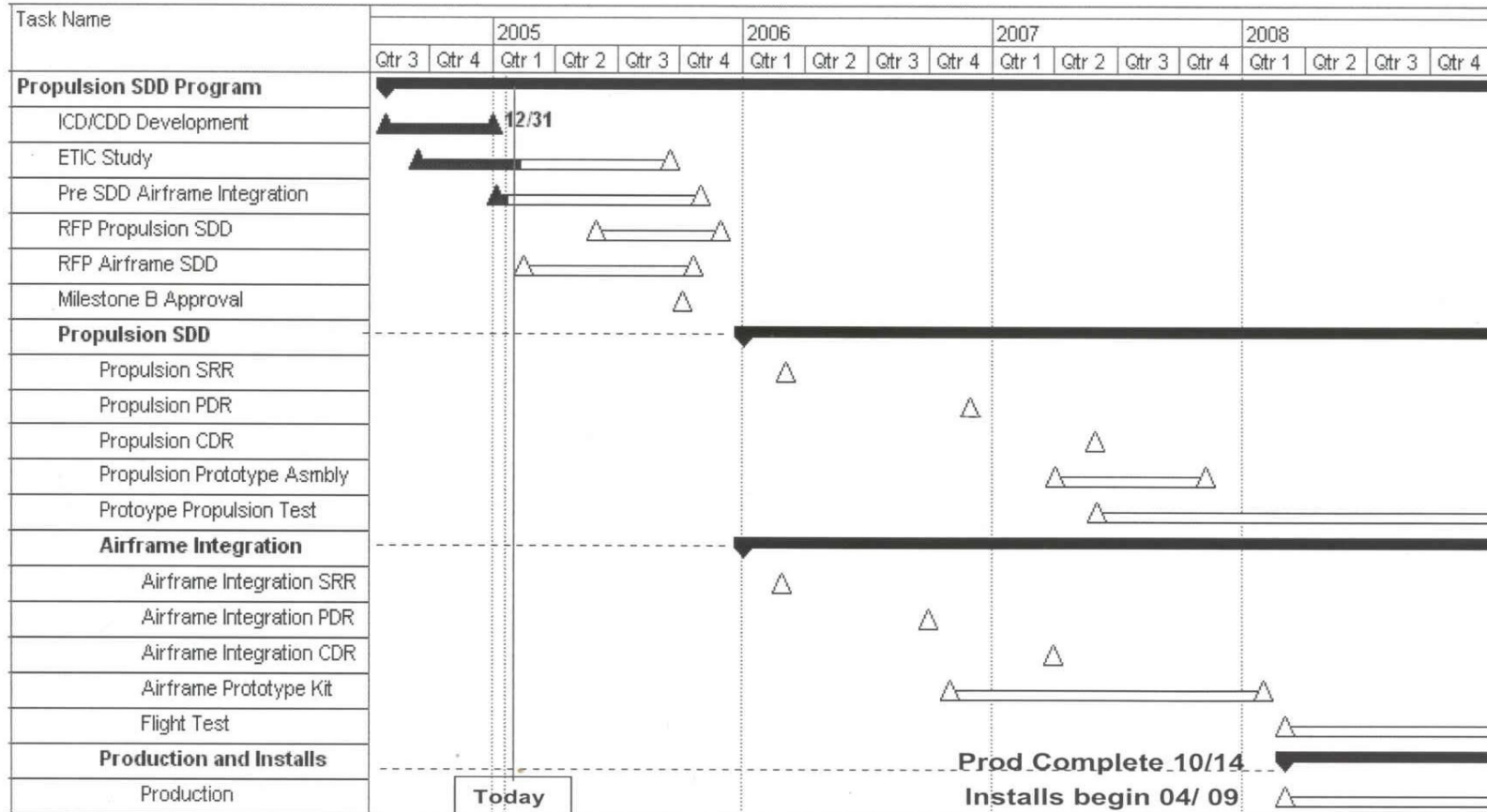


Exhibit R-4a, RDT&E Schedule Detail

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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
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(U) <u>Schedule Profile</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Precision Engagement Critical Design Review (CDR)	1Q			
(U) Precision Engagement Developmental Test		1-4Q		
(U) Precision Engagement Initial Operational Testing		3-4Q		
(U) Precision Engagement Initial Operating Capability (IOC)		3Q		
(U) Precision Engagement Production/Installation		3-4Q	1-4Q	1-4Q
(U) Engine Upgrade Systems Design and Demonstration (SDD)			3-4Q	1Q
(U) -- Engine Upgrade SDD SRR			3Q	
(U) -- Engine Upgrade SDD PDR				1Q
(U) -- Engine Upgrade SDD CDR				3Q
(U) -- Engine Upgrade Kit Assembly and Test				3-4Q

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PE NUMBER: 0207133F
 PE TITLE: F-16 SQUADRONS

Exhibit R-2, RDT&E Budget Item Justification									DATE February 2005	
BUDGET ACTIVITY 07 Operational System Development					PE NUMBER AND TITLE 0207133F F-16 SQUADRONS					
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	88.104	105.658	155.666	165.288	126.939	113.856	108.336	106.732	Continuing	TBD
2671 F-16 Squadrons	88.104	105.658	155.666	165.288	126.939	113.856	108.336	106.732	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 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.

Enhancements which are being or will be developed during the FYDP include:

- a. Advanced Weapons Integration will include Joint Air-to-Surface Stand-off Missile (JASSM), Joint Direct Attack Munition (JDAM), Joint Stand-off Weapon (JSOW), Wind Corrected Munition Dispenser (WCMD), Small Diameter Bomb (SDB) and updates to existing weapons into the F-16. This task also includes performing risk reduction activities on advanced weapon integration and add development/integration of advanced racks, pylons and adapters. Also includes Nuclear surety, safety and compatibility tasks.
- b. The USAF AN/APG-68(V)10 radar and will give the F-16 an all weather autonomous detection and targeting capability to take full advantage of GPS-aided precision weapons to conduct evolving missions of time critical targeting and Destruction of Enemy Air Defenses (DEAD). The AN/APG-68(V10) will be integrated into Blocks 40 and 50 and capability will be incorporated into other blocks as required.
- c. 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. Modes 1, 2, 3/A, C, S, 4 and 5 are available. Mode S transponders will be required for operation within the European Union. The AAI has been integrated in the Block 50 and will be integrated onto other blocks as required.
- d. 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.
- e. Integrate the Sniper and LITENING targeting pods and transition the HARM Targeting System (HTS) pod to the left inlet hard point. This will allow the F-16 to perform the Destruction of Enemy Air Defenses (DEAD) mission.
- f. The F-16 development effort are complimented by the comprehensive operational flight program (OFP) upgrades. Hardware and Group A development associated with OFP software candidates are included in the OFP line. Integration efforts include the Joint Helmet Mounted Cueing System (JHMCS) which allows the pilot to designate and shoot targets at high angles without maneuvering the aircraft. When integrated to the high angle off-bore sight AIM-9X missile, this provides the F-16 with enhanced first-look/first-shoot/first-kill advantage in the "dogfight" arena. Also, the Link 16 provides the F-16s with a secure, jam resistant, high-capacity data

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07 Operational System Development

PE NUMBER AND TITLE

0207133F F-16 SQUADRONS

communications link with other fighters, airborne control aircraft, and ground control centers. Embedded GPS/INS (EGI) systems will provide targeting capability to take full advantage of GPS-aided precision weapons to conduct evolving missions.

g. F-16 EMD hardware development provides funding to test, qualify, and field aircraft subsystem Pre-Planned Product Improvements (P3I) and Diminishing Manufacturing Source (DMS) replacements with more modern, supportable and affordable F-16 subsystems solutions. It will include programs such as the digital video recorder and other hardware development activities. 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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	96.135	99.606	98.486	102.968
(U) Current PBR/President's Budget	88.104	105.658	155.666	165.288
(U) Total Adjustments	-8.031	6.052		
(U) Congressional Program Reductions		-0.948		
Congressional Rescissions	-3.500			
Congressional Increases		8.000		
Reprogrammings	-1.626	-1.000		
SBIR/STTR Transfer	-2.905			

(U) Significant Program Changes:

FY04: \$3.5M Common Configurable Remote Interface Unit Congressional Plus Up currently being rescinded

FY04: \$6.0M Blk 50 AN/APG-68(V)10 Congressional Plus Up.

FY05: \$ 8.0M Plus-up for USAF AN/APG-68(V)10

FY06: \$47.6M FY06 PB add for USAF AN/APG-68(V)10, \$27.3M FY06 PB add for Mode S/5 IFF for CAF Aircraft

FY06: Flight test costs for FY06 and out reflect transfer of indirect costs from F-16 account into Major Range & Test Facility account to comply with FY03 Congressional language.

FY07: \$33.2M FY06 PB add for USAF AN/APG-68(V)10, \$34.0M FY06 PB add for Mode S/5 IFF for CAF Aircraft

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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			
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total	
2671 F-16 Squadrons	88.104	105.658	155.666	165.288	126.939	113.856	108.336	106.732	Continuing	TBD	
Quantity of RDT&E Articles	0	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 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.

Enhancements which are being or will be developed during the FYDP include:

- a. Advanced Weapons Integration will include Joint Air-to-Surface Stand-off Missile (JASSM), Joint Direct Attack Munition (JDAM), Joint Stand-off Weapon (JSOW), Wind Corrected Munition Dispenser (WCMD), Small Diameter Bomb (SDB) and updates to existing weapons into the F-16. This task also includes performing risk reduction activities on advanced weapon integration and add development/integration of advanced racks, pylons and adapters. Also includes Nuclear surety, safety and compatibility tasks.
- b. The USAF AN/APG-68(V)10 radar and will give the F-16 an all weather autonomous detection and targeting capability to take full advantage of GPS-aided precision weapons to conduct evolving missions of time critical targeting and Destruction of Enemy Air Defenses (DEAD). The AN/APG-68(V10) will be integrated into Blocks 40 and 50 and capability will be incorporated into other blocks as required.
- c. 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. Modes 1, 2, 3/A, C, S, 4 and 5 are available. Mode S transponders will be required for operation within the European Union. The AAI has been integrated in the Block 50 and will be integrated onto other blocks as required.
- d. 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.
- e. Integrate the Sniper and LITENING targeting pods and transition the HARM Targeting System (HTS) pod to the left inlet hard point. This will allow the F-16 to perform the Destruction of Enemy Air Defenses (DEAD) mission.
- f. The F-16 development effort are complimented by the comprehensive operational flight program (OFP) upgrades. Hardware and Group A development associated with OFP software candidates are included in the OFP line. Integration efforts include the Joint Helmet Mounted Cueing System (JHMCS) which allows the pilot to designate and shoot targets at high angles without maneuvering the aircraft. When integrated to the high angle off-bore sight AIM-9X missile, this provides the F-16 with enhanced first-look/first-shoot/first-kill advantage in the "dogfight" arena. Also, the Link 16 provides the F-16s with a secure, jam resistant, high-capacity data communications link with other fighters, airborne control aircraft, and ground control centers. Embedded GPS/INS (EGI) systems will provide targeting capability to

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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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take full advantage of GPS-aided precision weapons to conduct evolving missions.

g. F-16 EMD hardware development provides funding to test, qualify, and field aircraft subsystem Pre-Planned Product Improvements (P3I) and Diminishing Manufacturing Source (DMS) replacements with more modern, supportable and affordable F-16 subsystems solutions. It will include programs such as the digital video recorder and other hardware development activities. 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) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U)				
(U)				
(U) Common Config Remote Interface Unit (being rescinded by Congress)				
(U) AN/APG-68(V)10	6.127	12.628	47.600	33.200
(U) Continue OFP Updates	45.497	52.606	57.925	69.759
(U) ALR-56M	0.497	0.496	0.495	0.494
(U) Continue Flight Tests DT&E	28.519	38.740	21.351	26.841
(U) Weapons Integration	3.857	1.188	0.495	0.494
(U) Mode S/5 IFF for CAF Aircraft			27.300	34.000
(U) EMD Hardware Development			0.500	0.500
(U) Complete Falcon STAR (Structural analysis and design)	3.607			
(U)				
(U) Total Cost	88.104	105.658	155.666	165.288

(U) <u>C. Other Program Funding Summary (\$ in Millions)</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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
(U) Aircraft Procurement (3010), Line Item 27, F-16 Mods	278.208	314.093	347.268	341.176	353.230	302.537	186.603	166.330		TBD
(U) Aircraft Procurement (3010), Line Item 71, Post Production Support	15.749	11.355	17.833	12.044	22.589	25.371	21.415	22.686		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. EMD Hardware Development provide funding to test, qualify, and field aircraft subsystem Pre-Planned Product Improvements (P3I), and Diminishing Manufacturing Source (DMS) replacements, with more modern, supportable and affordable F-16 subsystem solutions. 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

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PROJECT NUMBER AND TITLE

2671 F-16 Squadrons

(General Electric), and the 229 Engines (Pratt & Whitney). Northrop Grumman and LM Aero will work collectively on AN/APG-68(V)10 efforts. Contract types are T&M, CPIF, CPFF and 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) 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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>														
OFP Updates	CPIF/T&M	LM Aero		45.497	Jan-04	52.606	Jan-05	57.925	Jan-06	69.759	Jan-07	Continuing	TBD	
Falcon STAR	FFP	LM Aero		3.607	Jun-04								3.607	
ALR-56M	PO	WRALC/LN		0.497	Dec-03	0.496	Dec-04	0.495	Dec-05	0.494	Dec-06		1.982	
Weapons Integration	T&M/FFP	LM Aero		3.857	Jul-04	1.188	Jul-05	0.495	Jul-06	0.494	Jul-07		6.034	
AN/APG-68(V)10	T&M/CPF	Northrup												
	F	Grumman / LM Aero		6.127	Jul-04	12.628		47.600	Mar-06	33.200	Mar-07	33.000	132.555	
Mode S/5 IFF for CAF Aircraft								27.300	Mar-06	34.000	Mar-07		61.300	
EMD Hardware Development	FFP/CPIF	LM Aero						0.500		0.500		Continuing	TBD	
													0.000	
Subtotal Product Development			0.000	59.585		66.918		134.315		138.447		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	0.000
Remarks:														
(U) <u>Test & Evaluation</u>														
Flight Tests	T&M/CPF	LM Aero/ Edwards AFB		28.519	Jan-04	38.740	Jan-05	21.351	Jan-06	26.841	Jan-07	Continuing	TBD	
Subtotal Test & Evaluation			0.000	28.519		38.740		21.351		26.841		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	0.000
Remarks:														
(U) <u>Rescission</u>														
(U) Total Cost			0.000	88.104		105.658		155.666		165.288		Continuing	TBD	0.000
Remarks:														

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY
07 Operational System Development

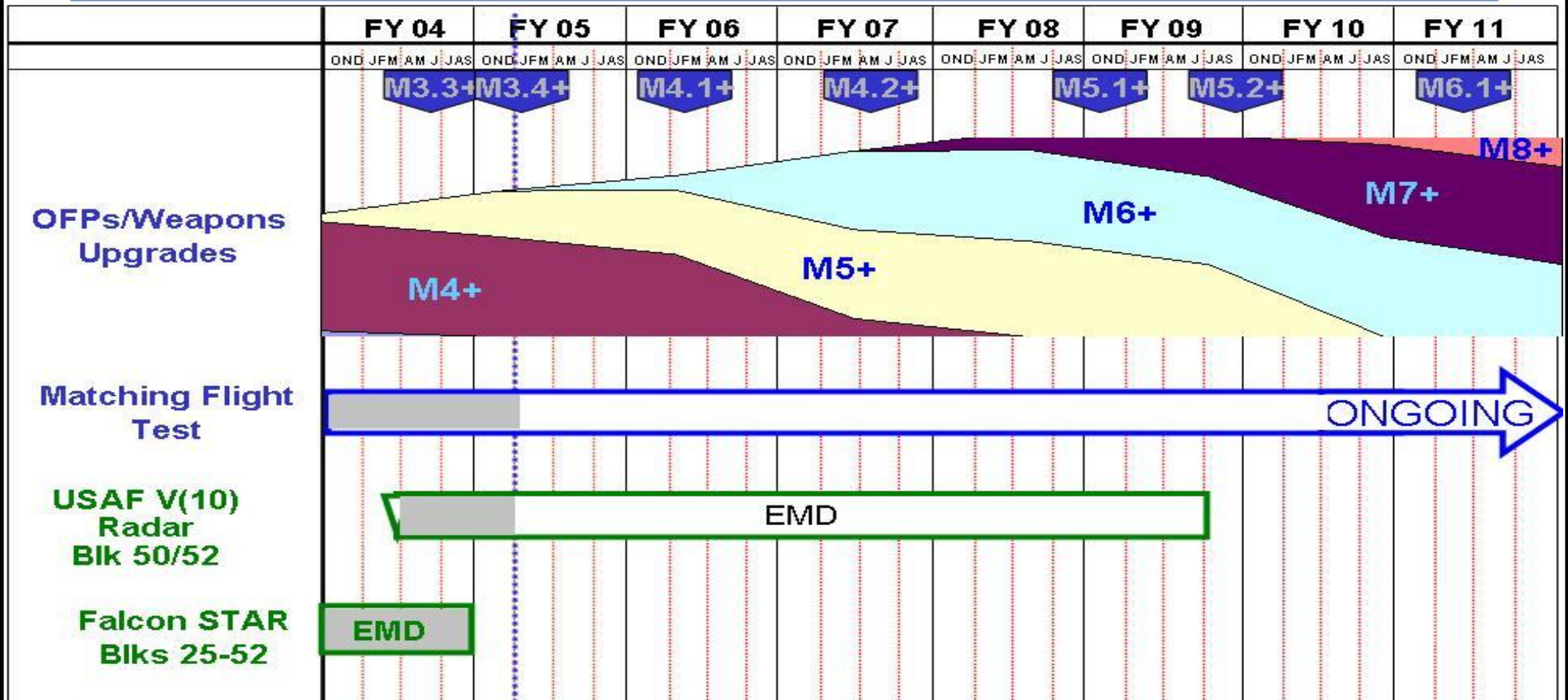
PE NUMBER AND TITLE
0207133F F-16 SQUADRONS

PROJECT NUMBER AND TITLE
2671 F-16 Squadrons



F-16 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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Flight Test Continuous, no end date	1-4Q	1-4Q	1-4Q	1-4Q
(U) Falcon Star	4Q			
(U) OFP	1-4Q	1-4Q	1-4Q	1-4Q
(U) ALR-56M	1Q	1Q	1Q	1Q
(U) Weapons Integration	3Q	3Q	3Q	3Q
(U) AN/APG-68(V)10	2Q		2Q	2Q
(U) Mode S/5 IFF for CAF Aircraft			2Q	2Q
(U) EMD Hardware Development			1-4Q	1-4Q

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

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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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	120.483	131.279	124.647	124.694	104.674	231.009	157.941	115.793	Continuing	TBD
0131 Initial Operational Test and Evaluation	120.483	131.279	88.553	108.391	104.674	95.807	98.377	94.821	Continuing	TBD
4703 F-15E	0.000	0.000	36.094	16.303	0.000	135.202	59.564	20.972	0.000	0.000

The FY03 National Defense Authorization Act (NDAA) language directed T&E centers to charge only direct costs beginning in FY06; this resulted in a zero-balance transfer (ZBT) of funding over the FYDP from the customer accounts (for indirect test costs) to T&E support, PE 65807F.

(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.

The F-15E program, PE 27134F, is assigned budget activity (BA) code 07 because this developmental work upgrades an existing weapons system.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	122.436	115.246	96.590	100.129
(U) Current PBR/President's Budget	120.483	131.279	124.647	124.694
(U) Total Adjustments	-1.953	16.033		
(U) Congressional Program Reductions		-1.167		
Congressional Rescissions				
Congressional Increases		17.200		
Reprogrammings	-0.849			
SBIR/STTR Transfer	-1.104			

(U) Significant Program Changes:

Funding (FY05):

FY05 congressional increases from FY05PBR to FY06PBR in support of the F-15 C/D Radar Block Upgrade (\$14.6M) and Radar Warning Receiver (\$2.6M)

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0207134F F-15E SQUADRONS

Funding (FY06):

FY06 Air Force increases from FY05PBR to FY06PBR in support of F-15 C/D Radar Block Upgrade (\$13.400M) and Mode S/5 IFF for CAF Aircraft (\$22.500M). FY06 Air Force program reduction of \$4.839M for Test & Evaluation funding realignment.

Funding (FY07):

FY07 Air Force increases from FY05PBR to FY06PBR in support of F-15C Avionics Replacement (\$4.900M) and Mode S/5 IFF for CAF Aircraft (\$16.000M).

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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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
0131 Initial Operational Test and Evaluation	120.483	131.279	88.553	108.391	104.674	95.807	98.377	94.821	Continuing	TBD
Quantity of RDT&E Articles	0	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.

The F-15E program, PE 27134F, is assigned budget activity (BA) code 07 because this developmental work upgrades an existing weapons system.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Operational Flight Program (OFP) development efforts.	59.394	77.822	60.619	76.731
(U) Flight testing of improvements initiated in prior years.	17.548	17.863	18.134	20.760
(U) Development of ADCP (formerly OFP effort).	13.500	10.056		
(U) Development of Tactical Electronic Warfare System (TEWS) Intermediate Support System (TISS) Technology Insertion Program (TTIP)	3.597	6.426	7.200	2.800
(U) Development of Radar Warning Receiver Upgrade	2.294	2.496		
(U) F-15C/D Active Electronically Scanned Array (AESA) Radar Block Upgrade	21.605	14.016		
(U) F-15E AESA Radar Block Upgrade	0.500	0.500	0.500	0.500
(U) F-15 Avonics Replacement development efforts				4.900
(U) Mission Support, Other Government Cost	2.045	2.100	2.100	2.700
(U) Total Cost	120.483	131.279	88.553	108.391

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E										
(U) Other APPN										
(U) Aircraft Procurement										

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Exhibit R-2a, RDT&E Project Justification	DATE February 2005
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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)

(U) (3010F), Line Item 5, F-15E (PE27134F) [BP 10] Aircraft Procurement											
(U) (3010F), Line Item 27, F-15A-E (PEs 27130F and 27134F) [BP 11] Aircraft Procurement (3010F)	180.250	138.667	81.644	57.567	78.632	51.586	126.487	140.027	Continuing	TBD	
(U) F-15E (PE84731F) General Skills Training [BP11] Aircraft Procurement (3010F)											1.263
(U) F-15 (PE27434F) Link 16 Support and Sustainment [BP11] Aircraft Procurement (3010F)	0.040										0.040
(U) F-15E (PE89731F) Training Support to Units [BP11] Aircraft Procurement			2.100	1.285					Continuing	TBD	
(U) (3010F), Line Item 66, F-15A-E [BP 13] Aircraft Procurement (3010F)	7.041	13.202	13.170	10.565	1.024	2.489	2.551	2.581	Continuing	TBD	
(U) F-15E (PE27445F) Fighter Tactical Data Link [BP11]	7.755	69.122	67.774	41.155							185.806

(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

DATE

February 2005

BUDGET ACTIVITY				PE NUMBER AND TITLE							PROJECT NUMBER AND TITLE			
07 Operational System Development				0207134F F-15E SQUADRONS							0131 Initial Operational Test and Evaluation			
(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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>														
OPF Suite 4/5/6/7 Development	CPAF	Boeing, St Louis	217.052	59.394		77.822		60.619		76.731		Continuing	TBD	
Boeing (JHMCS A-D)	CPAF	Boeing, St Louis	9.756	0.000								0.000	9.756	
Smart Weapons Integration	CPAF		14.929	0.000								0.000	14.929	
ADP(E)	CPAF		2.846	0.000								0.000	2.846	
ADCP(E)	CPAF	Boeing, St Louis	36.421	13.500	Jun-04	10.056	Dec-04					0.000	59.977	
NGA (ALQ-135 Band 1.5)	FFP		35.440	0.000								0.000	35.440	
Link-16 Data Link	CPAF		19.400	0.000								0.000	19.400	
TISS TTIP	CPFF		0.000	3.597	Feb-04	6.426	Dec-04	7.200	Dec-05	2.800	Dec-06	0.000	20.023	
Boeing/Raytheon ECCM	CPAF		1.194	0.000								0.000	1.194	
F-15 C/D AESA Radar Block Upgrade	CPFF	Boeing, St Louis	13.100	21.605	Feb-04	14.016	Jun-05					0.000	48.721	
F-15 E AESA Radar Block Upgrade	CPFF	Boeing, St Louis	4.331	0.500	Jun-04	0.500	Jun-05	0.500	Jun-06	0.500	Jun-07	211.560	217.891	
Radar Warning Receiver Upgrade	TNM	Boeing, St Louis	0.000	2.294	Sep-04	2.496	Apr-05					0.000	4.790	
Mode S/5 IFF												0.000	0.000	
F-15 Avionics Replacement										4.900	Dec-06	10.086	14.986	
Subtotal Product Development			354.469	100.890		111.316		68.319		84.931		Continuing	TBD	0.000
Remarks:														
(U) <u>Support</u>														
(Msn Spt) Misc.		WPAFB, OH	18.643	2.045		2.100		2.100		2.700		Continuing	TBD	
Subtotal Support			18.643	2.045		2.100		2.100		2.700		Continuing	TBD	0.000
Remarks:														
(U) <u>Test & Evaluation</u>														
Boeing (Flt Test)	FFP	Boeing, St Louis	76.137	12.500		13.200	Mar-05	13.200	Mar-06	13.200		Continuing	TBD	
Edwards	PO	Edwards AFB, CA	45.457	0.200		0.200	Mar-05					Continuing	TBD	
Eglin (Flt Test)	PO	Eglin AFB, FL	16.416	4.848		4.463	Feb-05	4.934	Feb-06	7.560		Continuing	TBD	
Subtotal Test & Evaluation			138.010	17.548		17.863		18.134		20.760		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	0.000
Remarks:														
Project 0131														

R-1 Shopping List - Item No. 131-5 of 131-15

Exhibit R-3 (PE 0207134F)

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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

(U) Total Cost	511.122	120.483	131.279	88.553	108.391	Continuing	TBD	0.000
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Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

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

(FY06 PBR)

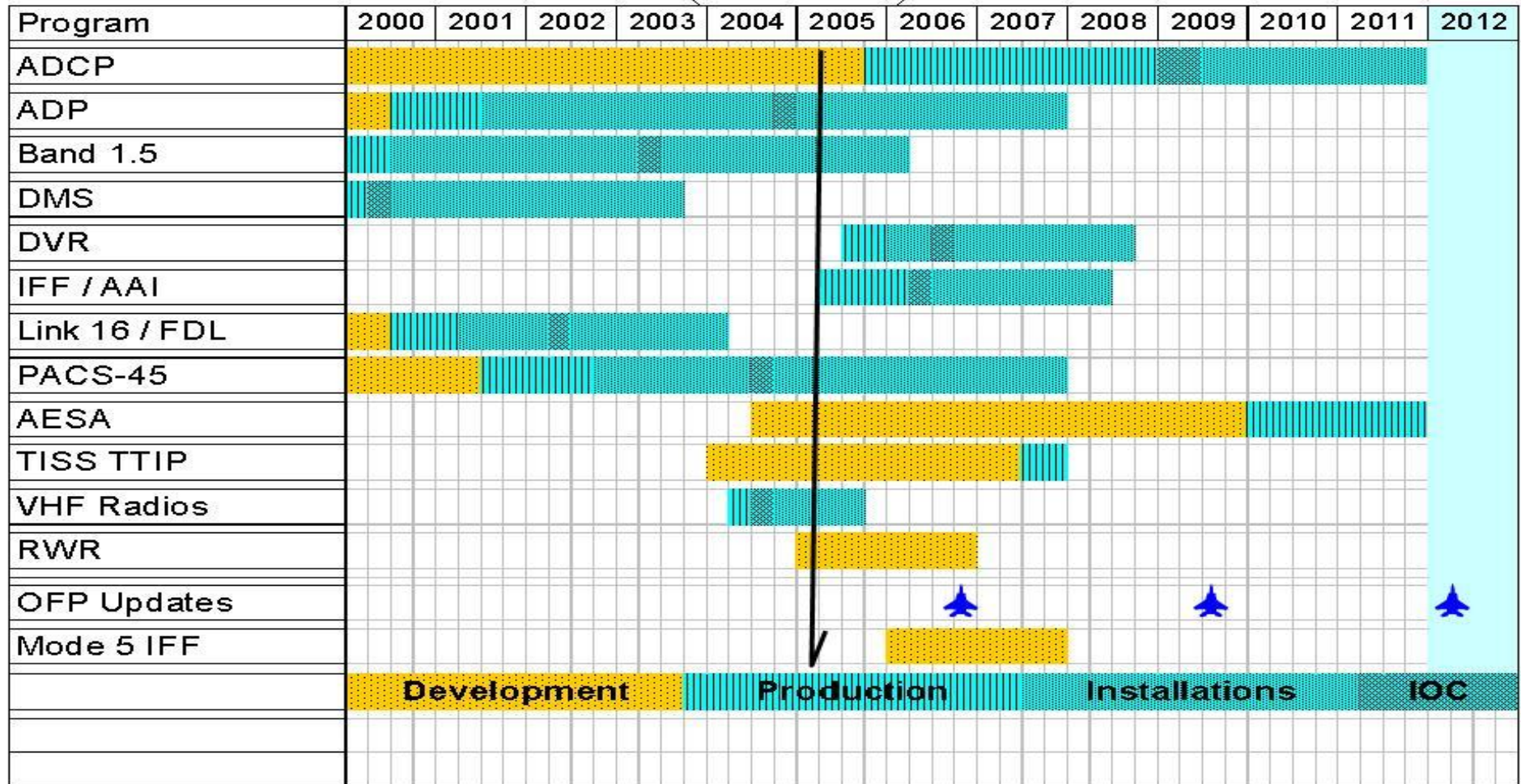


Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

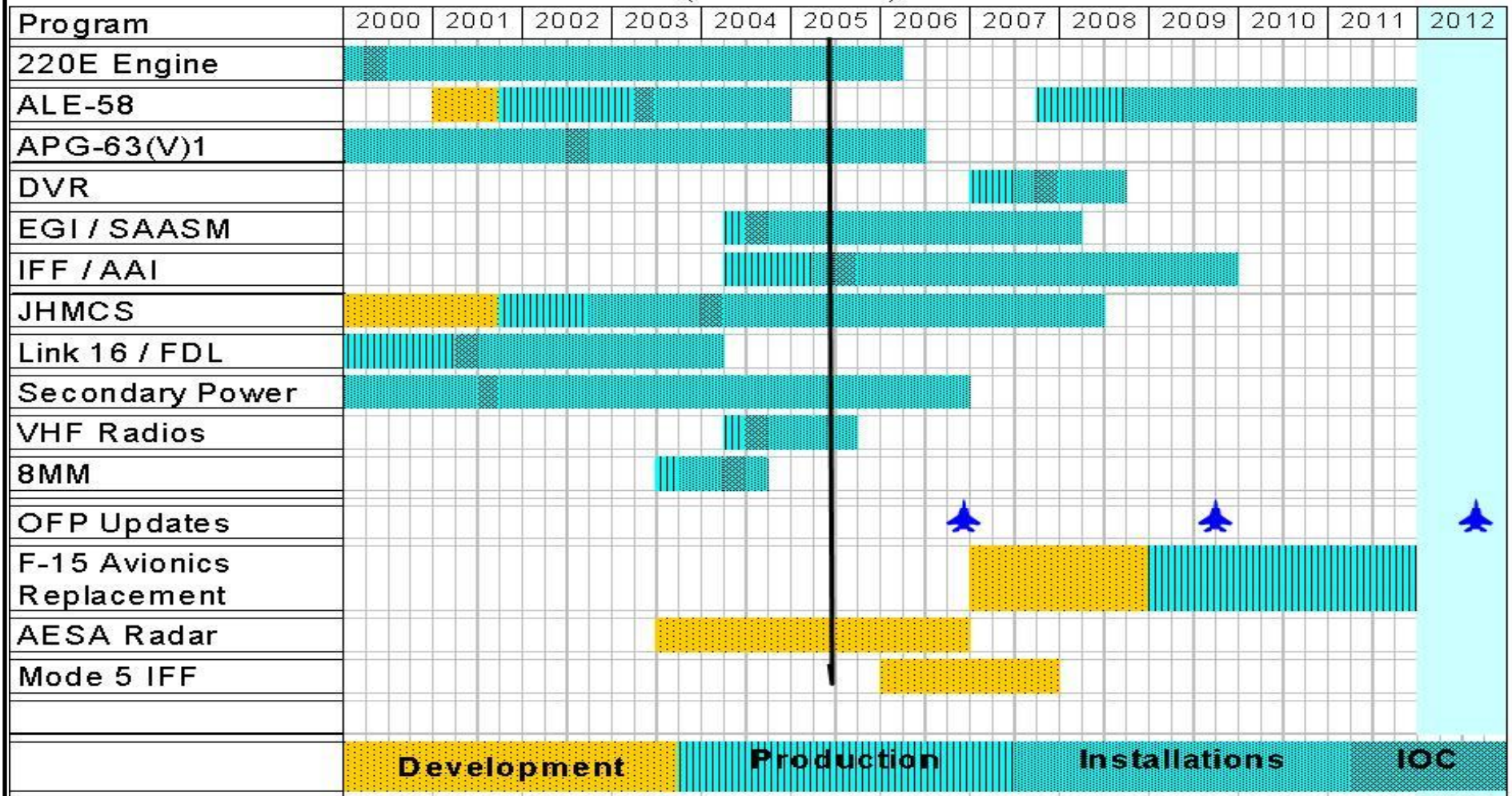
BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0207134F F-15E SQUADRONS

PROJECT NUMBER AND TITLE
0131 Initial Operational Test and Evaluation

F-15A-D Modernization

(FY06 PBR)



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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2005
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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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) OFP Suite 5E Flight Test Start	3Q			
(U) OFP Suite 5MSIP Flight Test Start	4Q			
(U) OFP Suite 5E & MSIP Flight Test Complete		4Q		
(U) OFP Suite 5E & MSIP Fielding			1Q	
(U) OFP Suite 6 Phase 1 Start	4Q			
(U) OFP Suite 6 Phase 1 Complete			2Q	
(U) OFP Suite 6 Phase II Start			1Q	
(U) OFP Suite 6 Phase II Flight Test Start				4Q
(U) ADCP EMD Flight Test Complete	1Q			
(U) ADCP Tech Roll Flight Test Start		1Q		
(U) ADCP Tech Roll Flight Test Complete		1Q		
(U) ADCP F3I complete		2Q		
(U) ADCP Tech Roll - Complete		4Q		
(U) Flight Test Radar Instrumentation Upgrade Complete		3Q		
(U) TISS EMD Replacement - Start	2Q			
(U) TISS Hardware/Software Integration - Complete			2Q	
(U) TISS System Compatibility Test - Complete				1Q
(U) F-15 Avionics Replacement Start				1Q
(U) RWR - Lab Test Start		3Q		
(U) RWR - Lab Test Complete		4Q		

Exhibit R-2a, RDT&E Project Justification

DATE
February 2005

BUDGET ACTIVITY 07 Operational System Development							PE NUMBER AND TITLE 0207134F F-15E SQUADRONS		PROJECT NUMBER AND TITLE 4703 F-15E	
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4703 F-15E	0.000	0.000	36.094	16.303	0.000	135.202	59.564	20.972	0.000	0.000
Quantity of RDT&E Articles	0	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. The program titled "F-15C/D Active Electronically Scanned Array (AESA) Radar Block Upgrade" is not a new start; it has been a funded program in BPAC 670131 since FY 2002, and the FY 2006 funding in this BPAC will complete the effort.

The F-15E program, PE 27134F, is assigned budget activity (BA) code 07 because this developmental work upgrades an existing weapons system.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) F-15 C/D Active Electronically Scanned Array (AESA) Radar Block Upgrade			13.497	
(U) Mode S/5 IFF development efforts			22.597	16.303
(U) Total Cost	0.000	0.000	36.094	16.303

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

	<u>FY 2004</u> <u>Actual</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>FY 2010</u> <u>Estimate</u>	<u>FY 2011</u> <u>Estimate</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) Aircraft Procurement (3010F), Line Item 27, F-15A-E (PEs 27130F and 27134F) [BP 11]	180.250	138.667	81.644	57.567	78.632	51.586	126.487	140.027	Continuing	TBD
(U) Aircraft Procurement (3010F) F-15 (PE27434F) Link 16 Support and Sustainment [BP11]	0.040									
(U) Aircraft Procurement (3010F) F-15E (PE89731F) Training			2.100	1.285						

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 4703 F-15E
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(U) C. Other Program Funding Summary (\$ in Millions)

Support to Units [BP11]											
Aircraft Procurement											
(U) (3010F), Line Item 66, F-15A-E [BP 13]	7.041	13.202	13.170	10.565	1.024	2.489	2.551	2.581	Continuing	TBD	
Aircraft Procurement (3010F)											
(U) F-15E (PE27445F) Fighter Tactical Data Link [BP11]	7.755	69.122	67.774	41.155						185.806	

(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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February 2005

BUDGET ACTIVITY				PE NUMBER AND TITLE							PROJECT NUMBER AND TITLE			
07 Operational System Development				0207134F F-15E SQUADRONS							4703 F-15E			
(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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>														
F-15 C/D AESA Radar Block Upgrade	CPFF	Boeing, St Louis						13.497	Jun-06				13.497	
Mode S/5 IFF		Boeing, St Louis						22.597	Dec-05	16.303	Dec-06		38.900	
Subtotal Product Development Remarks:			0.000	0.000		0.000		36.094		16.303		0.000	52.397	0.000
(U) <u>Support</u>													0.000	
Subtotal Support Remarks:			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
(U) <u>Test & Evaluation</u>													0.000	
Subtotal Test & Evaluation Remarks:			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
(U) <u>Management</u>													0.000	
Subtotal Management Remarks:			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
(U) Total Cost			0.000	0.000		0.000		36.094		16.303		0.000	52.397	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
4703 F-15E

F-15E Modernization

(FY06 PBR)

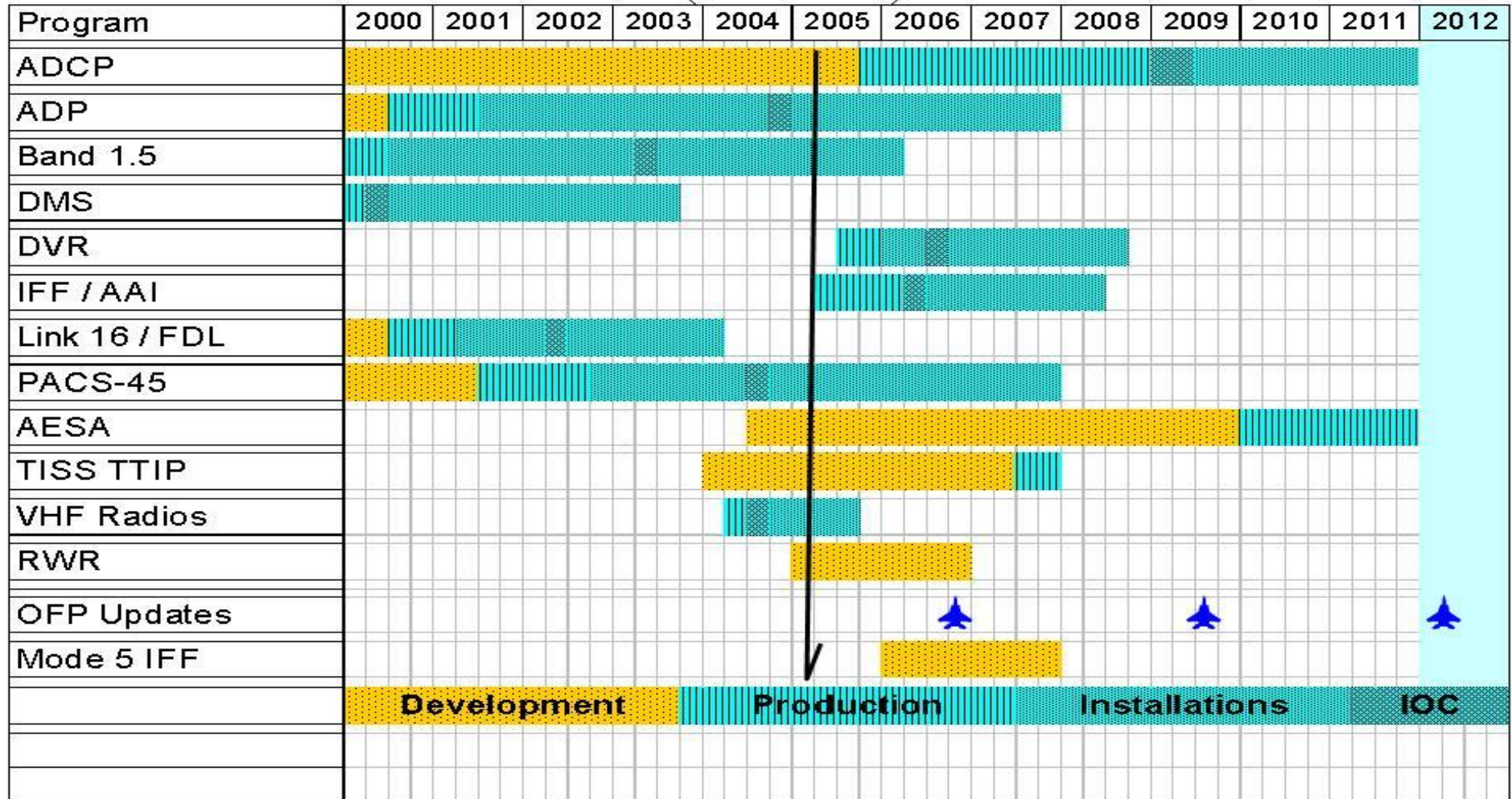


Exhibit R-4, RDT&E Schedule Profile

DATE
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BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0207134F F-15E SQUADRONS

PROJECT NUMBER AND TITLE
4703 F-15E

F-15A-D Modernization (FY06 PBR)

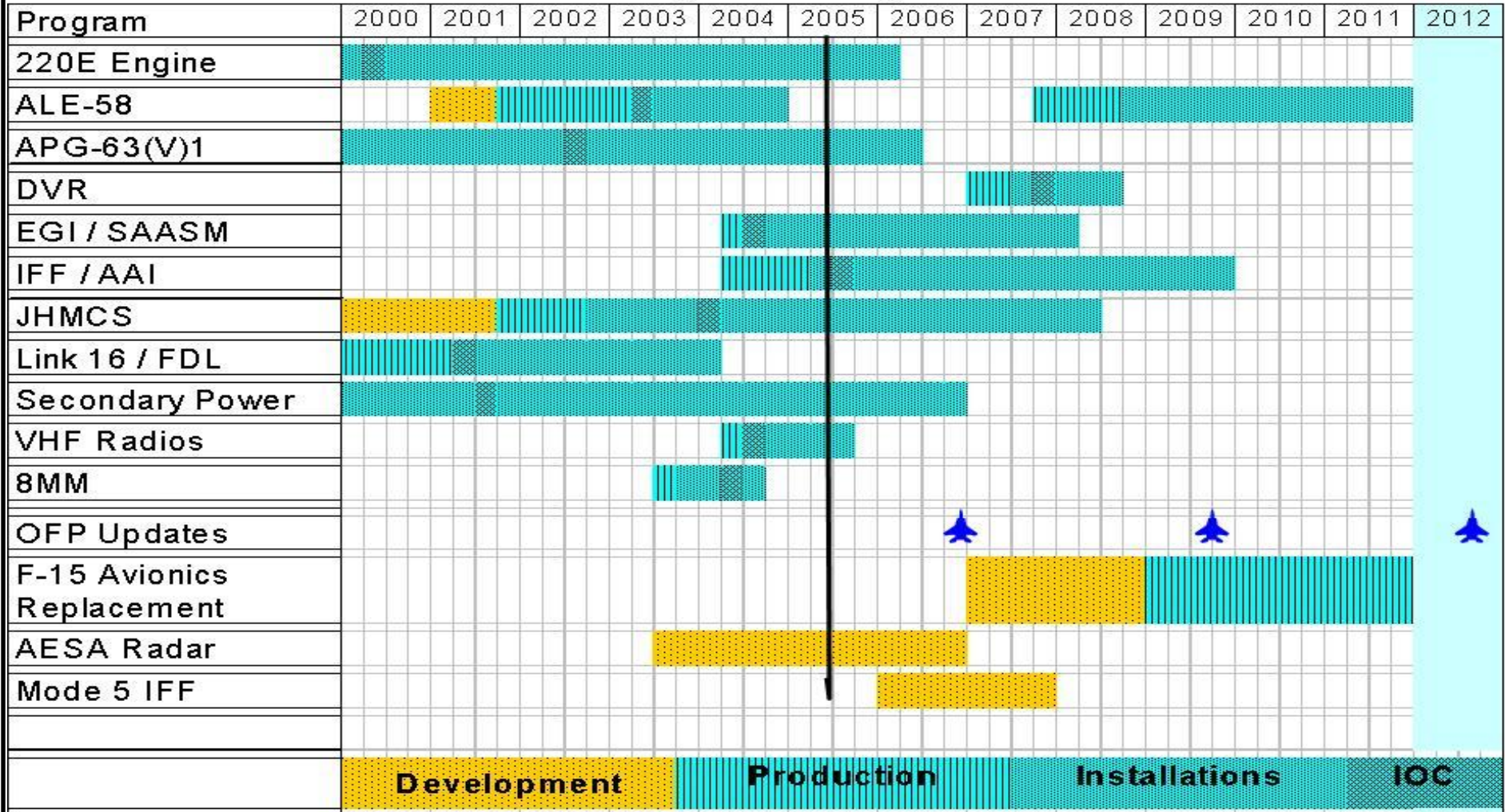


Exhibit R-4a, RDT&E Schedule Detail

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207134F F-15E SQUADRONS

PROJECT NUMBER AND TITLE

4703 F-15E

(U) **Schedule Profile**

FY 2004

FY 2005

FY 2006

FY 2007

(U) Mode S/5 IFF - Start

1Q

(U) F-15 C/D AESA Radar Block Upgrade Flight Test - Start

3Q

(U) F-15 C/D AESA Radar Block Upgrade Flight Test - Complete

4Q

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PE NUMBER: 0207136F
 PE TITLE: Manned Destructive Suppression

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2005
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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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	19.747	16.827	9.394	0.509	0.000	0.000	0.000	0.000	0.000	159.642
4595 F-16 Smart Targeting and Identification via Networked Geolocation (STING)	19.747	16.827	9.394	0.509	0.000	0.000	0.000	0.000	0.000	159.642

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.

The FY03 National Defense Authorization Act (NDAA) language directed T&E centers to charge only direct costs beginning in FY06; this resulted in a zero-balance transfer (ZBT) of funding over the FYDP from the customer accounts (for indirect test costs) to T&E support, PE 65807F.

(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 (HTS 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). STING (HTS 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 (HTS 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 (HTS R7) will target other PGMs to destroy fixed and mobile enemy air defense elements. STING (HTS R7) precision coordinates will be available to all Joint Forces via Link-16. FY05 continues flight test activities and final qualification for retrofit of HTS pods to STING (R7) pods. The STING (HTS R7) development effort is scheduled to be complete in FY07.

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 (HTS R7) configuration.

Exhibit R-2, RDT&E Budget Item Justification

DATE

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207136F Manned Destructive Suppression

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	20.458	16.976	12.268	0.499
(U) Current PBR/President's Budget	19.747	16.827	9.394	0.509
(U) Total Adjustments	-0.711	-0.149		
(U) Congressional Program Reductions		-0.149		
Congressional Rescissions				
Congressional Increases				
Reprogrammings	-0.093			
SBIR/STTR Transfer	-0.618			
(U) <u>Significant Program Changes:</u>				
Program reductions in FY06 are due to test & evaluation (T&E) funding realignment.				

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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4595 F-16 Smart Targeting and Identification via Networked Geolocation (STING)	19.747	16.827	9.394	0.509	0.000	0.000	0.000	0.000	0.000	159.642
Quantity of RDT&E Articles	0	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 (HTS 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). STING (HTS 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 (HTS 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 (HTS R7) will target other PGMs to destroy fixed and mobile enemy air defense elements. STING (HTS R7) precision coordinates will be available to all Joint Forces via Link-16. FY05 continues flight test activities and final qualification for retrofit of HTS pods to STING (R7) pods. The STING (HTS R7) development effort is scheduled to be complete in FY07.

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 (HTS R7) configuration.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Continue STING (R7) Geolocation Upgrade Development	15.278	10.360	7.400	0.509
(U) Continue STING (R7) Upgrade Test and Evaluation Support	3.919	5.918	1.421	
(U) Continue Mission Support	0.550	0.549	0.573	
(U) Total Cost	19.747	16.827	9.394	0.509

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E										
(U) Other APPN										
(U) HTS Aircraft Procurement (BP11)AF PE 0207136F	0.000	13.425	20.992	7.170	0.000	0.000				41.587
(U) HTS Aircraft Procurement (BP19)AF PE 0207136F	4.783	2.860	17.145	9.220	9.848	9.962				53.818

(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 2005

BUDGET ACTIVITY				PE NUMBER AND TITLE							PROJECT NUMBER AND TITLE			
07 Operational System Development				0207136F Manned Destructive Suppression							4595 F-16 Smart Targeting and Identification via Networked Geolocation (STING)			
(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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>														
Raytheon Systems Co.	SS/Variou s		60.275	15.035		10.360		7.400		0.509			93.579	
Raytheon Systems Co.	SS/CPAF		31.331										31.331	
AFMSS	SS/CPIF		2.431	0.243									2.674	
Lockheed/Ft Worth	SS/FFP		2.400										2.400	
Subtotal Product Development			96.437	15.278		10.360		7.400		0.509		0.000	129.984	0.000
Remarks:	STING SDD Contract awarded FY01 (on-going through FY07)													
(U) <u>Support</u>														
Mission Support	Various		7.330	0.550		0.549		0.573					9.002	
Subtotal Support			7.330	0.550		0.549		0.573		0.000		0.000	9.002	0.000
Remarks:														
(U) <u>Test & Evaluation</u>														
Eglin	PO		2.175										2.175	
Edwards	PO		6.301	3.919		5.918		1.421					17.559	
Light Defender			0.922										0.922	
Subtotal Test & Evaluation			9.398	3.919		5.918		1.421		0.000		0.000	20.656	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			113.165	19.747		16.827		9.394		0.509		0.000	159.642	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

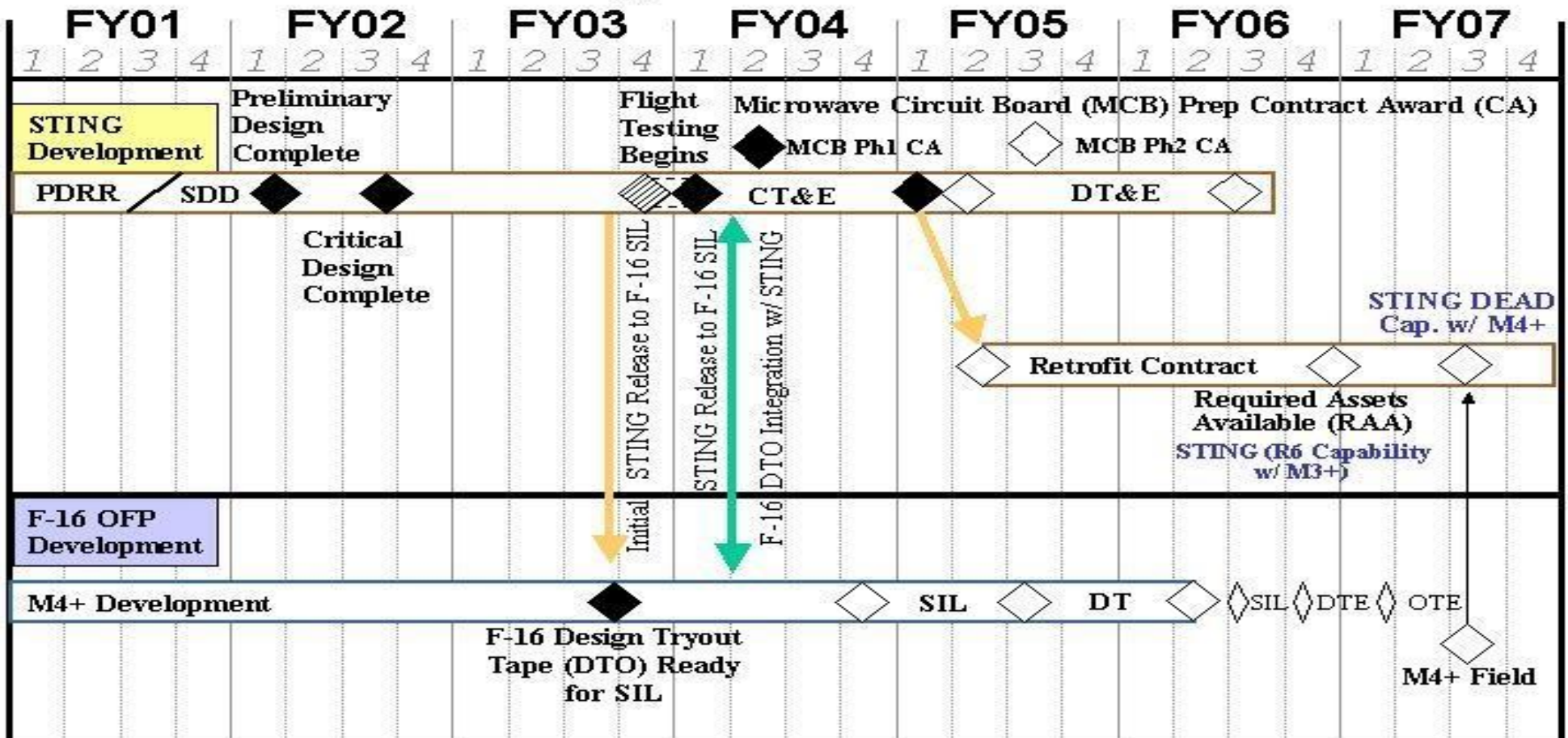
February 2005

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)

HTS R7 Development Program Schedule



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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2005
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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) <u>Schedule Profile</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Microwave Circuit Board (MCB) Producibility, Reliability Enhancement Program (PREP) Contract Award -- Ph 1	2Q			
(U) MCB PREP Contract Award -- Ph 2		3Q		
(U) STING Retrofit Decision		2Q		
(U) Retrofit Kits -- Contract Award		2Q		
(U) Retrofit Kit Installation -- Contract Award			2Q	
(U) STING (R7) RAA (R6 Capability w/ F-16 OFP M3+)			4Q	
(U) STING (R7) Precision Targeting Capability (w/ F-16 OFP M4+)				3Q

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

Exhibit R-2, RDT&E Budget Item Justification									DATE February 2005	
BUDGET ACTIVITY 07 Operational System Development					PE NUMBER AND TITLE 0207138F F-22 SQUADRONS					
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	303.201	362.394	403.517	582.512	612.061	322.864	201.667	202.299	Continuing	TBD
4785 F-22	303.201	362.394	403.517	582.512	612.061	322.864	201.667	202.299	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

The F/A-22 Raptor represents the USAF's top priority for providing the Joint Force with air dominance, operational access, homeland and cruise missile defense for the next 20+ years. The F/A-22 is a first-of-a-kind multi-mission fighter aircraft that combines stealth, supercruise, advanced maneuverability and integrated avionics to make it the world's most capable combat aircraft. The F/A-22 is currently closing out the Engineering and Manufacturing Development (EMD) phase of acquisition and continuing the spiral-modernization phase. This exhibit includes the spiral modernization enhancements required to enable a more robust air-to-air and air-to-ground target engagement capability in the most demanding threat environments-day or night.

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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	313.101	354.528	431.396	639.376
(U) Current PBR/President's Budget	303.201	362.394	403.517	582.512
(U) Total Adjustments	-9.900	7.866		
(U) Congressional Program Reductions		-13.034		
Congressional Rescissions				
Congressional Increases				
Reprogrammings	-9.900	20.900		
SBIR/STTR Transfer				

(U) Significant Program Changes:

FY06 & FY07 had a multitude of changes from the previous president's budget to include reliability and maintainability maturation program (RAMMP), and realigning funding for test and evaluation and common configuration.

In FY05, moved \$20.9M from production to cover long lead activity for replacement test aircraft from Lot 6, reprogramming action pending Congressional approval.

Funding for one FY06 aircraft has been realigned to the RDT&E appropriation since the FY05 PB because this aircraft will be used as a dedicated test asset. Funding has been reprogrammed from 3010 production funds (PE27219F) to 3600 RDT&E Modernization (PE 27138F) to incrementally fund FY05 through FY08.

Exhibit R-2a, RDT&E Project Justification

DATE
February 2005

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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4785 F-22	303.201	362.394	403.517	582.512	612.061	322.864	201.667	202.299	Continuing	TBD
Quantity of RDT&E Articles	0	0	1	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The F/A-22 Raptor represents the USAF's top priority for providing the Joint Force with air dominance, operational access, homeland and cruise missile defense for the next 20+ years. The F/A-22 is a first-of-a-kind multi-mission fighter aircraft that combines stealth, supercruise, advanced maneuverability and integrated avionics to make it the world's most capable combat aircraft. The F/A-22 is currently closing out the Engineering and Manufacturing Development (EMD) phase of acquisition and continuing the spiral-modernization phase. This exhibit includes the spiral modernization enhancements required to enable a more robust air-to-air and air-to-ground target engagement capability in the most demanding threat environments-day or night.

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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Continue requirements definition and spiral development activities for planned hardware and software capability upgrades. (NSP)	244.496	227.479	198.235	423.543
--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).	9.354	10.746	12.000	12.000
(U) Continue Post-EMD System Engineering/Program Management Contract Support	43.030	36.560	36.786	21.503
(U) Continue Air Vehicle Instrumentation support (Training and Test Instrumentation)		3.100	11.000	8.000
(U) Continue Flight test and flight test support at Edwards AFB.		55.700	55.429	51.415
(U) Continue Mission support of the SPO; travel, computer costs, misc contracts, etc.	6.321	7.909	10.567	10.751
(U) Initiate F/A-22 Reliability and Maintainability Maturation Program (RAMMP)			14.000	29.000
(U) Replacement Test Aircraft (RTA)		20.900	65.500	26.300
(U) Total Cost	303.201	362.394	403.517	582.512

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E (PE 64239F)	615.467	208.143	76.203							24,084.05
(U) PRTV II (6)										1,580.580
(U) F/A-22 Squadrons Procurement (3010) (PE	39.532	95.654	79.547	258.601	295.928	281.894	168.202	392.018	Continuing	TBD

Exhibit R-2a, RDT&E Project Justification	DATE February 2005
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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)

0207138F) F/A-22 Squadrons											
(U)	Procurement (3080) (PE 027138F)	0.481	0.443	1.491	2.740	1.734	0.000	0.721	1.478	Continuing	TBD
(U)	Military Construction (PE 0604239F)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	65.000
(U)	Military Construction (PE 0207219F)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	96.018
(U)	Military Construction (PE 0207138F)	31.164	28.698	47.040	85.450	98.391	0.000	0.000	0.000	0.000	290.749
(U)	Aircraft Procurement (PE 0207219F) Advanced Tactical Fighter, P-1 Line Item #003**	4139.533	4041.493	3814.549	4401.456	4170.177	52.668	26.896	0.000	0.000	31,847.940
(U)	Munitions Procurement (PE 0207219F)	9.410	9.044	10.984	10.993	12.314	12.614	15.909	12.702	0.000	106.426
(U)	F/A-22 Link 16 Transmit RDT&E (PE 27445F)	36.418	49.951	96.939	66.504	22.321	0.000	0.000	0.000	0.000	300.007
(U)	F/A-22 Link 16 Transmit Procurement (PE 27423F)				16.658	31.130	32.811	34.139	16.901	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. Each spiral is broken into phases. Phase A is to initiate requirements analysis, Phase B is the design phase and Phases C,D,E are the development, integration and verification phase of a specific spiral development effort. Separate delivery orders will be issued for each phase of a spiral. These 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 2005

BUDGET ACTIVITY										PE NUMBER AND TITLE			PROJECT NUMBER AND TITLE		
07 Operational System Development										0207138F F-22 SQUADRONS			4785 F-22		
(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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>	
(U) <u>Product Development</u>															
Spiral development activities	Cost Plus		39.318	244.496	Dec-03	227.479	Dec-04	198.235	Dec-05	423.543	Dec-06	Continuing	TBD		
Air Vehicle Instrumentation support (SEEK EAGLE Instr)	Cost Plus		3.870	9.354	Jul-04	10.746	Nov-04	12.000	Nov-05	12.000	Nov-06	Continuing	TBD		
Air Vehicle Instrumentation support (Training and Test Instrumentation)	Cost Plus					3.100	May-05	11.000	Nov-05	8.000	Nov-06	Continuing	TBD		
System Engineering / Program Management	Cost Plus		22.234	43.030	Dec-03	36.560	Dec-04	36.786	Dec-05	21.503	Dec-06	Continuing	TBD		
F/A-22 Reliability and Maintainability Maturation Program (RAMMP)	Cost Plus							14.000	Nov-05	29.000	Nov-06		43.000		
Not Applicable													0.000		
Subtotal Product Development			65.422	296.880		277.885		272.021		494.046		Continuing	TBD	0.000	
Remarks:															
(U) <u>Support</u>															
Support Contracts	Various			6.321		7.909		10.567		10.751		Continuing	TBD		
In House Support												Continuing	TBD		
Not Applicable													0.000		
Subtotal Support			0.000	6.321		7.909		10.567		10.751		Continuing	TBD	0.000	
Remarks:															
(U) <u>Test & Evaluation</u>															
AFFTC and Contractor	Various	Edwards AFB, CA				55.700	Apr-05	55.429	Nov-05	51.415	Nov-06	Continuing	TBD		
Replacement Test Aircraft (RTA)	Fixed Price					20.900		65.500	Jan-06	26.300	Jan-07	Continuing	TBD		
Not Applicable													0.000		
Subtotal Test & Evaluation			0.000	0.000		76.600		120.929		77.715		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	0.000	
Remarks:															
(U) Total Cost			65.422	303.201		362.394		403.517		582.512		Continuing	TBD	0.000	

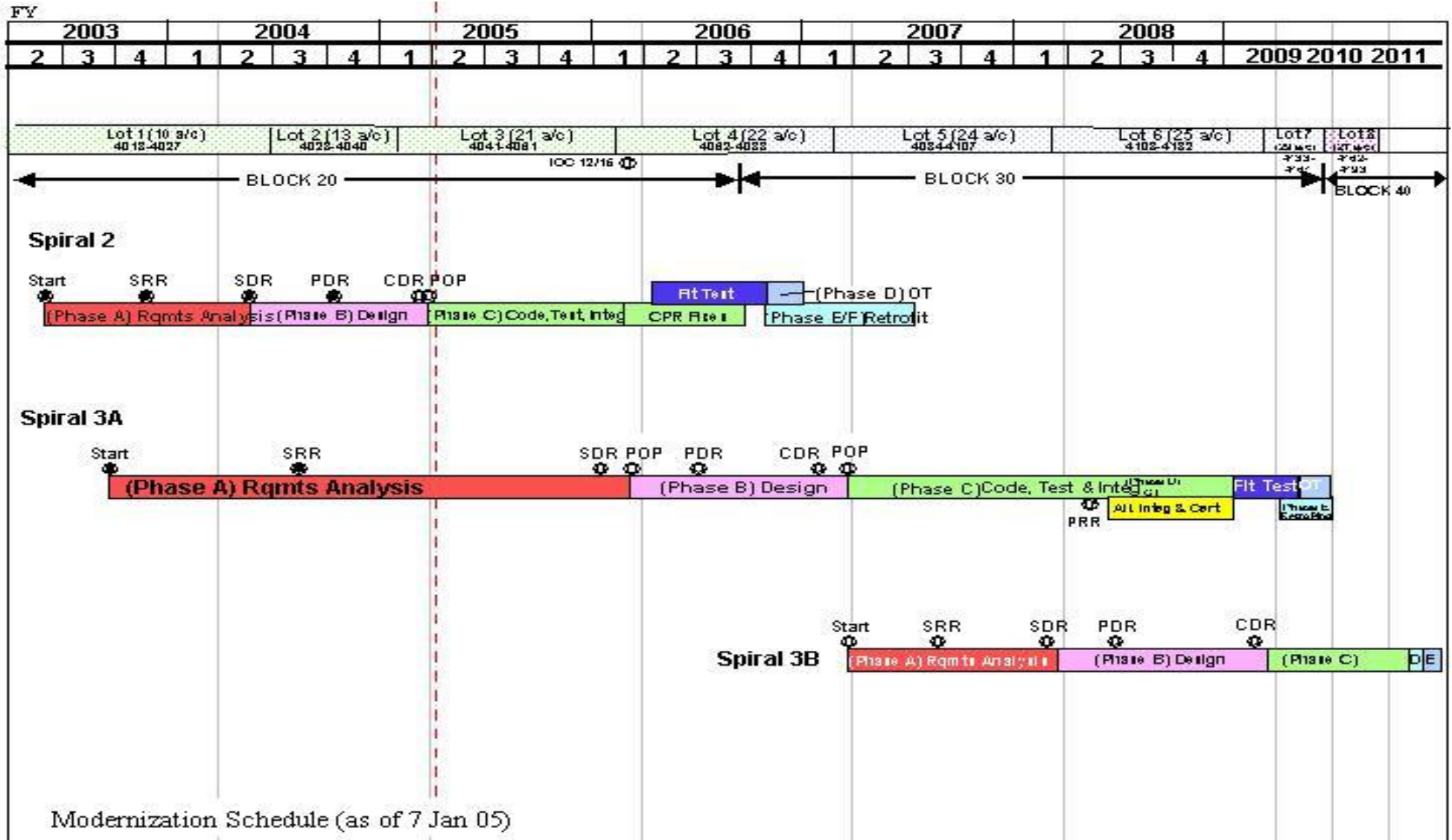
Exhibit R-4, RDT&E Schedule Profile

DATE
February 2005

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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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2005
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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>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Schedule Profile				
(U) Completed Spiral 2 Phase A (Requirements Analysis)	2Q			
(U) Initiate Spiral 2 Phase B (Design)	2Q			
(U) -- Spiral 2 PDR	4Q			
(U) -- Spiral 2 CDR		1Q		
(U) Initiate Spiral 2 Phase C, D & E (Development, Integration & Test)		2Q		
(U) Complete Spiral 3a Phase A (Requirements Analysis)			1Q	
(U) -- Spiral 3a SRR	3Q			
(U) -- Spiral 3a SDR			1Q	
(U) Initiate Spiral 3a Phase B (Design)			1Q	
(U) -- Spiral 3a PDR			3Q	
(U) --Spiral 3a CDR				1Q
(U) Initiate Spiral 3b Phase A (Requirements Analysis)				2Q
(U) --Spiral 3b SRR				3Q

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Exhibit P-5, Weapon System Cost Analysis								Date: February 2005					
Appropriation (Treasury) Code/CC/BA/BSA/Item Control Number								P-1 Line Item Nomenclature					
Aircraft Procurement, Air Force, Budget Activity 01, Combat Aircraft, Item No. 02								F-22 (Raptor)					
Manufacturer's Name/Plant City/State Location				Subline Item									
Weapon System Cost Elements	Ident Code	Total Cost in Millions of Dollars											
		FY 2004			FY 2005			FY 2006			FY 2007		
		Qty	Unit Cost	Total Cost	Qty	Unit Cost	Total Cost	Qty	Unit Cost	Total Cost	Qty	Unit Cost	Total Cost
Airframes/CFE	A	22	91.393	2010.640	24	80.684	1936.422	24	77.935	1870.431	29	80.192	2325.564
Engine Accessories (shipset)	A	22	20.816	457.941	24	19.958	478.999	24	19.597	470.339	29	20.361	590.483
Avionics	A	22	29.037	638.815	24	26.449	634.777	24	25.171	604.098	29	24.354	706.267
Nonrecurring Costs	A			333.712			211.848			236.674			236.842
Modernization Support (PE27138F)										1.104			0.000
FLYAWAY COST SUBTOTAL				3441.108			3262.046			3182.646			3859.156
Less: Prior Year Adv Procurement	A			-459.199			-504.587			-494.280			-576.877
Plus: Current Year Adv Procurement	A			504.587			494.281			576.877			540.000
Other	A			25.433			26.327			26.837			27.078
Production Support - Other (PSO)	A			98.338			130.942			117.920			148.990
Performance-based Agile Logistics Support (PALS)	A			337.901			393.598			128.492			184.733
Modernization Support (PE27138F)	A			33.145			28.604			0.000			0.000
Engine Support	A			163.303			211.684			225.007			133.560
Publications/Technical Data	A												
ECOs	A												
Production Line Shutdown	A												35.000
SUPPORT COST SUBTOTAL				703.508			780.849			580.853			492.484
TOTAL PROGRAM				4144.616			4042.895			3763.499			4351.640
Comments													
FY06 reflects the loss of 1 production aircraft since the FY05 President's Budget because of the determination to fund a replacement test aircraft in the RDT&E appropriation to support Modernization Flight Test. Funding has been realigned from the Aircraft Procurement appropriation (PE 27219F) to the RDT&E appropriation (PE 27138F) in FY06 through FY08. The Air Force has also submitted a reprogramming action for Congressional approval to realign \$20.9M in FY05 from Aircraft Procurement to the RDT&E appropriation to finance this test aircraft.													
Unit cost for the engine differs from the P-5A because the P-5 uses the aircraft 'shipset' quantity (2 engines) to determine unit cost and the P-5A uses the engine quantity (1 engine).													
1442A													
P-1 Shopping List Item No. 02								Weapon System Cost Analysis Exhibit P-5, page 3 of 15					

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Exhibit P-5, Weapon System Cost Analysis	Date: February 2005
Appropriation (Treasury) Code/CC/BA/BSA/Item Control Number Aircraft Procurement, Air Force, Budget Activity 01, Combat Aircraft, Item No. 02	P-1 Line Item Nomenclature F-22 (Raptor)
<p>Modernization Support (PE27138F) includes activities such as laboratory infrastructure (FY04 and FY05) necessary to support the F/A-22 weapon system. This project is required as a bridge between the end of the EMD funding for this effort and the beginning of PALS contractor support in FY06. This effort under PALS only provides the baseline laboratory infrastructure and minimum essential laboratory staff manning of 40 hours per week to keep it operating. Individual projects will be required to provide funding for specific test and integration operations in the laboratories.</p>	
<p style="text-align: center;">1442B</p> <p style="text-align: center;">P-1 Shopping List Item No. 02</p> <p style="text-align: right;">Weapon System Cost Analysis Exhibit P-5, page 4 of 15</p>	

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Exhibit P-5A, Procurement History and Planning	Date: February 2005
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Appropriation (Treasury) Code/CC/BA/BSA/Item Control Number Aircraft Procurement, Air Force, Budget Activity 01, Combat Aircraft, Item No. 02	P-1 Line Item Nomenclature F-22 (Raptor)
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<u>Weapon System</u>				Subline Item							
F-22											
WBS Cost Elements	Qty	Unit Cost	Location of PCO	RFP Issue Date	Contract Method	Contract Type	Contractor and Location	Award Date	Date of First Delivery	Specs Available Now?	Date Revision Available?
Lockheed Martin Corp	2	256.668	ASC/YF	Jan-98	SS	FFP	Lockheed Martin	Dec-98	Oct-02	Yes	
Lockheed Martin Corp	10	166.196	ASC/YF	May-99	SS	FFP	Lockheed Martin	Sep-01	Sep-03	Yes	
Lockheed Martin Corp	13	149.294	ASC/YF	Apr-00	SS	FFP	Lockheed Martin	Jan-02	Aug-04	Yes	
Lockheed Martin Corp	21	130.576	ASC/YF	Oct-01	SS	FFP	Lockheed Martin	Apr-03	May-05	Yes	
Lockheed Martin Corp	22	120.430	ASC/YF	Jul-02	SS	FFP	Lockheed Martin	Jun-04	Jan-06	Yes	
Lockheed Martin Corp	24	106.152	ASC/YF	Jul-03	SS	FFP	Lockheed Martin	May-05	Nov-06	Yes	
Lockheed Martin Corp	24	101.360	ASC/YF	Oct-05	SS	FFP	Lockheed Martin	Nov-06	Nov-07	Yes	
Lockheed Martin Corp	29	103.028	ASC/YF	Oct-06	SS	FFP	Lockheed Martin	Nov-07	Nov-08	Yes	
Pratt & Whitney	4	14.125	ASC/YF	Dec-97	SS	FFP	Pratt & Whitney	Dec-98	Feb-01	Yes	
Pratt & Whitney	20	10.853	ASC/YF	Jan-99	SS	FFP	Pratt & Whitney	Sep-01	Mar-02	Yes	
Pratt & Whitney	26	10.547	ASC/YF	May-00	SS	FFP	Pratt & Whitney	Jan-02	Mar-03	Yes	
Pratt & Whitney	42	10.630	ASC/YF	Nov-01	SS	FFP	Pratt & Whitney	Apr-03	Mar-04	Yes	
Pratt & Whitney	44	10.408	ASC/YF	Aug-02	SS	FFP	Pratt & Whitney	Jun-04	Jan-06	Yes	
Pratt & Whitney	48	10.470	ASC/YF	Aug-03	SS	FFP	Pratt & Whitney	Apr-05	Nov-07	Yes	
Pratt & Whitney	48	10.391	ASC/YF	Oct-05	SS	FFP	Pratt & Whitney	Apr-06	Mar-07	Yes	
Pratt & Whitney	58	10.910	ASC/YF	Oct-06	SS	FFP	Pratt & Whitney	Apr-07	Mar-08	Yes	

Remarks

Unit cost for the engine differs from the P-5 because the P-5 uses the aircraft 'shipset' quantity (2 engines) to determine unit cost and the P-5A uses the engine quantity (1 engine).

Unit cost is for flyaway costs, but does not include non-recurring cost.

Specs are available, however, the technical data package is a 'deferred delivery' option and is currently maintained by the contractor.

1442C

P-1 Shopping List Item No. 02

**Procurement History and Planning
Exhibit P-5A, page 5 of 15**

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Exhibit R-2, RDT&E Budget Item Justification	DATE February 2005
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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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	13.920	29.399	13.600	47.798	32.126	5.740	4.098	0.000	Continuing	TBD
3956 F-117A Stealth Fighter	13.920	29.399	13.600	47.798	32.126	5.740	4.098	0.000	Continuing	TBD

The FY03 National Defense Authorization Act (NDAA) language directed T&E centers to charge only direct costs beginning FY06; this resulted in a zero-balance transfer (ZBT) of funding over the FYDP from the customer accounts (for indirect test costs) to T&E support, PE 65807F.

(U) A. Mission Description and Budget Item Justification

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 (Aircraft number 843). 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:

- Development efforts continue for smart weapons integration, primarily in revisions to the Operational Flight Program (OFP). The current program scope implements three weapons capabilities: 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, SDD started 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 modifies the F-117 outboard elevon actuator support structure to significantly reduce cost and maintenance hours required to replace the actuator.

- The F-117 Weapon System Trainer (WST) requires a replacement for the imagery computer/image generation system. The vendor of the current system, SGI, no longer manufactures replacement boards for the imagery computer. Furthermore, the vendor no longer supports the current maintenance contract. Recently, the computer was responsible for 80% of the total WST downtime and will likely increase in severity in the future.

- 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.

- Common Data Recorder - The current Structures Tracking and Engine Management System (STEMS) and Low Observable Instrumentation System (LOIS) have limited memory capacity and obsolescence issues. The STEMS recorder is required to determine inspection intervals of the engines and structures of the aircraft to

Exhibit R-2, RDT&E Budget Item Justification

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07 Operational System Development

PE NUMBER AND TITLE

0207141F F-117A SQUADRON

predict economic life of the aircraft. Additional memory is required to record additional parameters and increase the fidelity of the inspection intervals circumventing catastrophic failures. The LOIS functionality can be combined into STEMS to reduce the cost of supporting two unique subsystems. Additionally, this approach allows for future add-ins such as recording of flight, video, and crash data.

- Dual Radio - In the last several years, employment and tactics have changed and the F-117 is now required to integrate with conventional strike packages, support aircraft, and special operations forces both in the air and on the ground. This requires the ability to communicate on and monitor multiple frequencies at the same time. This project will enable the pilot to receive and transmit target, threat, and other critical mission data on two UHF channels at the same time. The dual radio capability will meet this requirement as well as allow the development of advanced tactics to support time sensitive targeting. Additionally, international communications requirements have changed and VHF 8.33KHz channel spacing has been mandated in many parts of the world. The current radio is UHF only. This project will provide growth capability to meet the required international communications capability on VHF once a VHF capable antenna is available to the aircraft

- SATCOM Antenna - The requirement to function in a network centric combat environment and to have beyond line of sight, reach-back capability to obtain Time Sensitive Targeting (TST) information has increased in importance as F-117 employment and tactics continue to evolve. This SATCOM antenna project will extend the F-117s ability to receive and transmit dynamic targeting data from beyond line of sight locations to a point much closer to the target area.

- IRADS - The F-117 Stealth Fighter IRADS system was originally designed using technology and components available in the late 1970s. Component obsolescence, vanishing vendors, and hardware deterioration have started to impact aircraft supportability. This modification refurbishes the existing IRADS to eliminate known obsolescence and supportability issues and to allow continued IRADS capability through the service life of the F-117.

- CMDI - The F-117 aircraft is experiencing supportability problems with the current cockpit sensor displays and processing elements. Since the development of the CMDI in 1986, Cathode Ray Tube (CRT) technology for military aircraft and specifically the CMDI CRT has become obsolete and unsupportable. The CRT based displays are high failure rate items and their special purpose features (size, technology type, and proprietary interfaces) make them extremely expensive to maintain or replace. This modification replaces the existing CMDI with a supportable, new technology CMDI.

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

NOTES:

- The user has requested an acceleration of the Dual Radio and the SATCOM Antenna programs into FY05. The Air Force plans to submit New Start Letters of Notification.

- In the FY06 BES, Dual Radio & SATCOM Antenna were addressed as a part of "Second Radio". Each project has been split out in the FY06 PB as a stand-alone project.

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07 Operational System Development

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	14.627	29.661	56.914	46.925
(U) Current PBR/President's Budget	13.920	29.399	13.600	47.798
(U) Total Adjustments	-0.707	-0.262		
(U) Congressional Program Reductions				
Congressional Rescissions		-0.262		
Congressional Increases				
Reprogrammings	-0.265			
SBIR/STTR Transfer	-0.442			

(U) **Significant Program Changes:**

- \$1.469M decrease in FY06 for Test & Evaluation (T&E) infrastructure realignment into PE 65807F
- Deferred FY06 investment in obsolescence mitigation one year (FY06 to FY07) for the Infrared Acquisition and Designation System (IRADS), due AF priorities.

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				0207141F F-117A SQUADRON				3956 F-117A Stealth Fighter			
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total	
3956 F-117A Stealth Fighter	13.920	29.399	13.600	47.798	32.126	5.740	4.098	0.000	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0			

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

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 (Aircraft number 843). 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:

- Development efforts continue for smart weapons integration, primarily in revisions to the Operational Flight Program (OFP). The current program scope implements three weapons capabilities: 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, SDD started 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 modifies the F-117 outboard elevon actuator support structure to significantly reduce cost and maintenance hours required to replace the actuator.
- The F-117 Weapon System Trainer (WST) requires a replacement for the imagery computer/image generation system. The vendor of the current system, SGI, no longer manufactures replacement boards for the imagery computer. Furthermore, the vendor no longer supports the current maintenance contract. Recently, the computer was responsible for 80% of the total WST downtime and will likely increase in severity in the future.
- 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.
- Common Data Recorder - The current Structures Tracking and Engine Management System (STEMS) and Low Observable Instrumentation System (LOIS) have limited memory capacity and obsolescence issues. The STEMS recorder is required to determine inspection intervals of the engines and structures of the aircraft to predict economic life of the aircraft. Additional memory is required to record additional parameters and increase the fidelity of the inspection intervals circumventing catastrophic failures. The LOIS functionality can be combined into STEMS to reduce the cost of supporting two unique subsystems. Additionally, this approach allows for future add-ins such as recording of flight, video, and crash data.

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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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- Dual Radio - In the last several years, employment and tactics have changed and the F-117 is now required to integrate with conventional strike packages, support aircraft, and special operations forces both in the air and on the ground. This requires the ability to communicate on and monitor multiple frequencies at the same time. This project will enable the pilot to receive and transmit target, threat, and other critical mission data on two UHF channels at the same time. The dual radio capability will meet this requirement as well as allow the development of advanced tactics to support time sensitive targeting. Additionally, international communications requirements have changed and VHF 8.33KHz channel spacing has been mandated in many parts of the world. The current radio is UHF only. This project will provide growth capability to meet the required international communications capability on VHF once a VHF capable antenna is available to the aircraft

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- IRADS - The F-117 Stealth Fighter IRADS system was originally designed using technology and components available in the late 1970s. Component obsolescence, vanishing vendors, and hardware deterioration have started to impact aircraft supportability. This modification refurbishes the existing IRADS to eliminate known obsolescence and supportability issues and to allow continued IRADS capability through the service life of the F-117.

- CMDI - The F-117 aircraft is experiencing supportability problems with the current cockpit sensor displays and processing elements. Since the development of the CMDI in 1986, Cathode Ray Tube (CRT) technology for military aircraft and specifically the CMDI CRT has become obsolete and unsupported. The CRT based displays are high failure rate items and their special purpose features (size, technology type, and proprietary interfaces) make them extremely expensive to maintain or replace. This modification replaces the existing CMDI with a supportable, new technology CMDI.

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

NOTES:

- The user has requested an acceleration of the Dual Radio and the SATCOM Antenna programs into FY05. The Air Force plans to submit New Start Letters of Notification.

- In the FY06 BES, Dual Radio & SATCOM Antenna were addressed as a part of "Second Radio". Each project has been split out in the FY06 PB as a stand-alone project.

(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Continue SDD for Smart Weapons Integration	10.307	13.066	0.900	0.817
(U) SDD for CCSP Expanded Data Transfer System (EDTS)	3.392	6.519		
(U) SDD for Brooklyn Bridge	0.221			
(U) Continue Concept Technology and Development (CTD) for CCSP		2.745		
(U) SDD for Weapon System Trainer (WST) Image Generation System		2.917	0.820	8.553
(U) Mission Planning System (MPS) Upgrade		3.414	0.820	4.665
(U) Modify flight test assets to conform with current modifications of operational jets		0.738	0.050	0.319
(U) Initiate Common Data Recorder SDD			0.400	4.906

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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 0207141F F-117A SQUADRON	PROJECT NUMBER AND TITLE 3956 F-117A Stealth Fighter
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(U) Initiate Dual Radio SDD				5.560	
(U) Initiate SATCOM Antenna SDD				5.050	
(U) Initiate SDD for CCSP IRADS					19.726
(U) Initiate SDD for CCSP CMDI					8.812
(U) Total Cost		13.920	29.399	13.600	47.798

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
(U) Other APPN										
Aircraft Procurement (BA-5),										
(U) Appn 3010/BP1100, AF	22.612	22.673	17.221	21.763	85.855	80.879	80.983	25.986	Continuing	TBD
F117A Squadrons, PE 27141F										
Aircraft Procurement										
(U) (BA-5), Appn	3.821								Continuing	TBD
3010/BP1200, AF F117A										
Squadrons, PE 27141F										
Aircraft Procurement (BA-5),										
(U) Appn 3010/BP1600, AF	0.000	1.029	0.000	0.000	2.753	2.838	2.854	2.887	Continuing	TBD
F117A Squadrons, PE 27141F										

(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

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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</u> <u>Method &</u> <u>Type</u>	<u>Performing</u> <u>Activity &</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2004</u> <u>Cost</u>	<u>FY 2004</u> <u>Cost</u>	<u>FY 2004</u> <u>Award</u> <u>Date</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</u>	<u>FY 2006</u> <u>Cost</u>	<u>FY 2006</u> <u>Award</u> <u>Date</u>	<u>FY 2007</u> <u>Cost</u>	<u>FY 2007</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
(U) <u>Product Development</u> Smart Weapon Integration SDD	CPAF	Lockheed Martin, Palmdale CA	5.800	10.307		13.066		0.900		0.817		0.105	30.995	
CCSP CTD	CPFF	Lockheed Martin, Palmdale CA		0.000		2.745	Feb-05	0.000		0.000		0.000	2.745	
CCSP EDTS SDD	CPFF	Lockheed Martin, Palmdale CA		3.392	Jan-04	6.519		0.000		0.000		0.000	9.911	
Brooklyn Bridge SDD	CPFF	Lockheed Martin, Palmdale CA		0.221	Dec-03	0.000		0.000		0.000		0.000	0.221	
Weapon System Trainer Image Generation Sys Upgrd SDD	CPFF	Lockheed Martin, Palmdale CA		0.000		2.917	Feb-05	0.820		8.553		0.000	12.290	
Mission Planning System, Operating System Upgrade SDD	CPFF	Lockheed Martin, Palmdale CA		0.000		3.414	Feb-05	0.820		4.665		0.000	8.899	
Modify flight test assets to conform with current modifications of operational jets	CPFF	Lockheed Martin, Palmdale CA		0.000		0.738	Nov-05	0.050		0.319		Continuing	TBD	
Common Data Recorder SDD	CPFF	Lockheed Martin, Palmdale CA		0.000		0.000		0.400	Jan-06	4.906		0.000	5.306	
Dual Radio SDD	CPFF	Lockheed Martin, Palmdale CA		0.000		0.000		5.560	Oct-05	0.000		0.000	5.560	
SATCOM Antenna SDD	CPFF	Lockheed Martin, Palmdale CA				0.000		5.050	Oct-05	0.000		0.000	5.050	
CCSP IRADS SDD	CPFF	Lockheed Martin, Palmdale CA		0.000		0.000		0.000		19.726	Jan-07	Continuing	TBD	
CCSP CMDI SDD	CPFF	Lockheed Martin, Palmdale CA		0.000		0.000		0.000		8.812	Jan-07	Continuing	TBD	
Subtotal Product Development Remarks:			5.800	13.920		29.399		13.600		47.798		Continuing	TBD	0.000
(U) <u>Support</u>													0.000	

Project 3956

R-1 Shopping List - Item No. 134-7 of 134-10

Exhibit R-3 (PE 0207141F)

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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	0207141F F-117A SQUADRON				3956 F-117A Stealth Fighter			
Subtotal Support	0.000	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	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	5.800	13.920	29.399	13.600	47.798	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

0207141F F-117A SQUADRON

PROJECT NUMBER AND TITLE

3956 F-117A Stealth Fighter

F-117 Program Appn 3600, P.E. 27141F

Description	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11
Smart Weapons Integration	Cnt	Cnt	Cnt	Cnt	Cnt			
CCSP EDTS SDD	2Q	Cnt						
Brooklyn Bridge SDD	1Q							
CCSP CTD		2Q	Cnt					
WST Image Generation SDD		2Q	Cnt	Cnt				
MPS OS (AFMSS) SDD		2Q	Cnt	Cnt		2Q	Cnt	
Modify Flight Test Jets		2Q	Cnt	Cnt	Cnt	Cnt		
Dual Radio SDD			1Q					
SATCOM Antenna SDD			1Q					
Common Data Recorder SDD			3Q	Cnt				
CCSP IRADS/SD SDD				2Q	Cnt	Cnt		
CCSP CMDI SDD				2Q				

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2005
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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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	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Schedule Profile				
(U) CCSP EDTS SDD (Jan 04 - Sep 05)	2Q			
(U) Brooklyn Bridge SDD (Dec 03 - Sep 04)	1Q			
(U) Continue CCSP CTD		2Q		
(U) Initiate WST SDD		2Q		
(U) Initiate for MPS SDD		2Q		
(U) Modify flight test assets to conform with current modifications of operational jets		2Q		
(U) Dual Radio SDD			1Q	
(U) SATCOM Antenna SDD			1Q	
(U) Common Data Recorder SDD			3Q	
(U) CCSP IRADS SDD				2Q
(U) CCSP CMDI SDD				2Q

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PE NUMBER: 0207161F
 PE TITLE: Tactical AIM Missiles

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2005
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207161F Tactical AIM Missiles
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Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.354	5.509	15.639	8.899	7.867	5.832	6.086	6.310	Continuing	TBD
4132 AIM-9 Product Improvement	0.354	5.509	15.639	8.899	7.867	5.832	6.086	6.310	Continuing	TBD

The FY03 National Defense Authorization Act (NDAA) language directed T&E centers to charge only direct costs beginning in FY06; this resulted in a zero-balance transfer (ZBT) of funding over the FYDP from the customer accounts (for indirect test costs) to T&E support, PE 65807F.

(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 incorporated to protect improvements inherent in the AIM-9X design. AIM-9X is an Acquisition Category 1C (ACAT 1C) 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.

Milestone III was approved May 2004 and the first full-rate production (FRP) contract was awarded Nov 04.

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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	0.372	5.558	15.004	5.543
(U) Current PBR/President's Budget	0.354	5.509	15.639	8.899
(U) Total Adjustments	-0.018	-0.049		
(U) Congressional Program Reductions		-0.049		
Congressional Rescissions				
Congressional Increases				
Reprogrammings	-0.007			
SBIR/STTR Transfer	-0.011			

(U) Significant Program Changes:

Additional funds added in FY06/07 to fund a processor upgrade and finish the Fin Retention Clip mod.

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								0207161F Tactical AIM Missiles		4132 AIM-9 Product Improvement	
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total	
4132 AIM-9 Product Improvement	0.354	5.509	15.639	8.899	7.867	5.832	6.086	6.310	Continuing	TBD	
Quantity of RDT&E Articles	0	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 incorporated to protect improvements inherent in the AIM-9X design. AIM-9X is an Acquisition Category 1C (ACAT 1C) 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.

Milestone III was approved May 2004 and the first full-rate production (FRP) contract was awarded Nov 04.

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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) RMS P3I Contract	0.000	4.759	11.539	5.479
(U) SW/OFP Upgrade	0.294	0.000	2.300	1.030
(U) T&E	0.000	0.370	1.350	1.940
(U) In-house/CSS Support	0.060	0.380	0.450	0.450
(U) Total Cost	0.354	5.509	15.639	8.899

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E	0.336	5.509	15.639	8.899	7.867	5.832	6.086	6.310	Continuing	TBD
(U) DOD PE (0603715D)										25.000
(U) Tactical AIM Missile Modification (BP21)										30.817
(U) Tactical AIM Missile Procurement (BP20)	52.730	52.392	44.963	42.853	44.369	72.316	78.600	61.487	641.713	1,206.519
(U) SEEK EAGLE (PE_0207590F)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	10.028

Congressional language directed the program to report as a missile procurement, starting in FY02, and not as a missile modification.

Exhibit R-2a, RDT&E Project Justification

DATE

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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

(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 awarded in Apr 2004. Milestone III decision with advice from the Air Force Acquisition Executive, was approved in May 04. FRP 1, Lot 5, was awarded in Nov 04; FRP 2-3, Lots 6-7, 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. 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.

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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										0207161F Tactical AIM Missiles		4132 AIM-9 Product Improvement			
(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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</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		85.535									Continuing	TBD		
Raytheon Software/OFP Upgrades								2.300	Dec-05	1.030	Dec-06	Continuing	TBD		
Raytheon P3I Contract						4.759	Dec-04	11.539	Dec-05	5.479	Dec-06	Continuing	TBD		
Boeing	C/CPIF		16.107										16.107		
Engineering Services	Various		14.162									Continuing	TBD		
Program Management*	PO		8.300									Continuing	TBD		
Subtotal Product Development			135.493	0.000		4.759		13.839		6.509		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			0.077	Nov-03								Continuing	TBD	
In House Support	N/A					0.380	Dec-04	0.450	Nov-05	0.450	Nov-06	Continuing	TBD		
Subtotal Support			0.000	0.077		0.380		0.450		0.450		Continuing	TBD	0.000	
Remarks:															
(U) <u>Test & Evaluation</u>															
Field Activities	PO			0.084	Nov-03	0.370	Dec-04	1.350	Nov-05	1.940	Nov-06	Continuing	TBD		
Subtotal Test & Evaluation			0.000	0.084		0.370		1.350		1.940		Continuing	TBD	0.000	
Remarks:															
(U) <u>Management</u>															
Subtotal Management			0.000	0.193	Nov-03	0.000		0.000		0.000		0.000	0.193	0.000	
Remarks:															
(U) Total Cost			135.493	0.354		5.509		15.639		8.899		Continuing	TBD	0.000	

Exhibit R-4, RDT&E Schedule Profile

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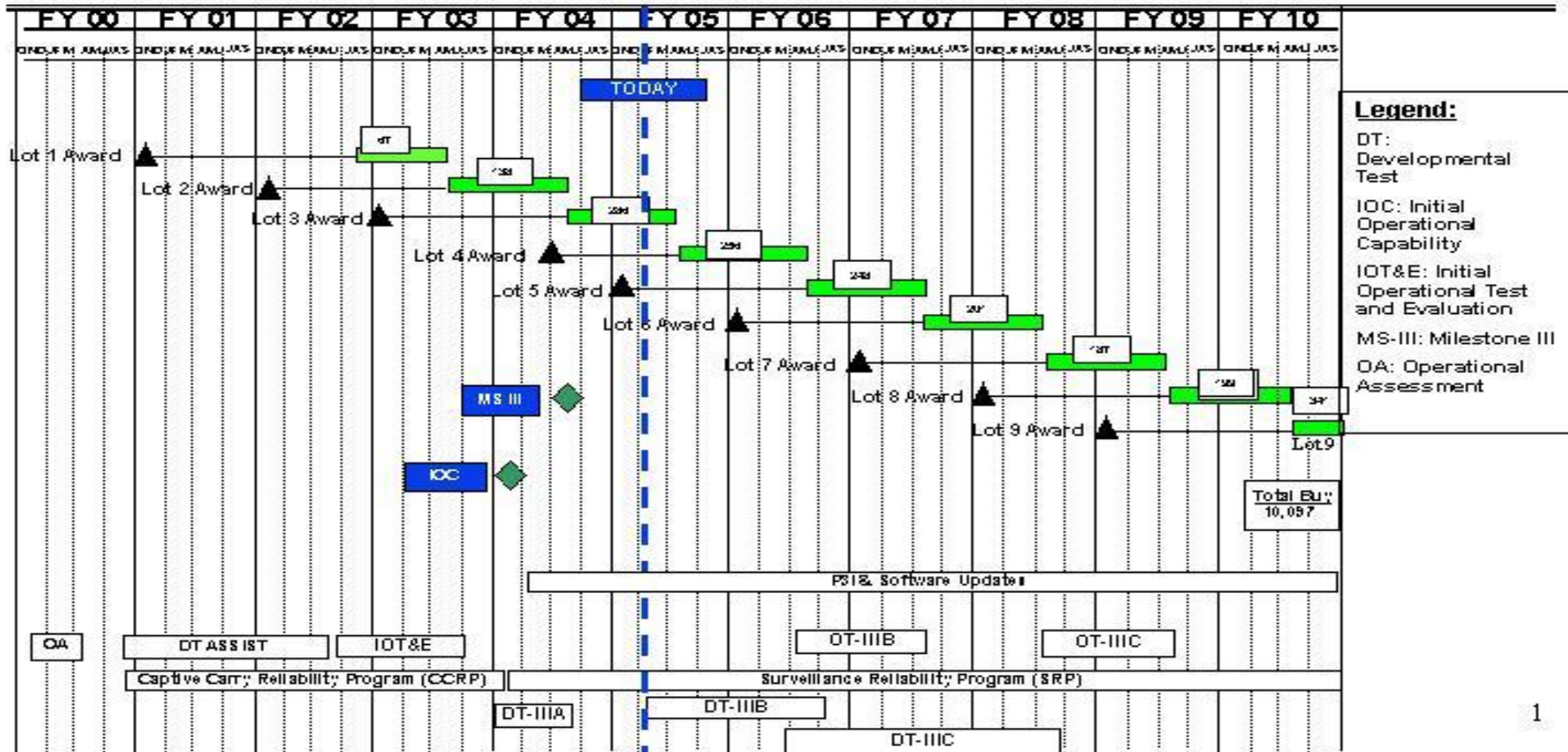
BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0207161F Tactical AIM Missiles

PROJECT NUMBER AND TITLE
4132 AIM-9 Product Improvement



AIM-9X Program and Delivery Schedule AF Only



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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2005
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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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) <u>Schedule Profile</u>				
(U) LRIP 4 Award	3Q			
(U) RAA/IOC	2Q			
(U) Milestone 3	3Q			
(U) FRP Award (Lots 5-7)		1Q	1Q	1Q
(U) DT-III B			3Q	
(U) OT-III B				3Q

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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 2005
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207163F Advanced Medium Range Air-to-Air Missile
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Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	31.036	32.973	33.262	43.193	36.959	37.977	39.388	64.812	Continuing	TBD
3777 AMRAAM	31.036	32.973	33.262	43.193	36.959	37.977	39.388	64.812	Continuing	TBD

The FY03 National Defense Authorization Act (NDAA) language directed T&E centers to charge only direct costs beginning in FY06; this resulted in a zero-balance transfer (ZBT) of funding over the FYDP from the customer accounts (for indirect test costs) to T&E support, PE 65807F

(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 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. Improvements under the P3I program include enhanced electronic protection (EP) capabilities; improved weapon effectiveness through improved fuzing, guidance, and increased kinematics. A follow-on program to the three-phase P3I program referred to as AMRAAM Phase 4 is currently underway. The Phase 4 effort will lead to introduction of the AIM-120D, delivering improved AMRAAM performance via GPS-aided navigation, a two-way datalink capability for enhanced aircrew survivability and improved network compatibility, and incorporating new guidance software which will improve AMRAAM's kinematic and weapon effectiveness performance. 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.

Joint Dual Role Air Dominance Missile (JDRADM) program begins development in FY11.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	32.154	33.266	35.155	36.131
(U) Current PBR/President's Budget	31.036	32.973	33.262	43.193
(U) Total Adjustments	-1.118	-0.293		
(U) Congressional Program Reductions		-0.293		
Congressional Rescissions				
Congressional Increases				
Reprogrammings	-0.146			
SBIR/STTR Transfer	-0.972			

(U) Significant Program Changes:

Program reductions in FY06 are due to test & evaluation (T&E) funding realignment
 Program increase in FY07 is for development of AMRAAM field reprogrammer.

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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
3777 AMRAAM	31.036	32.973	33.262	43.193	36.959	37.977	39.388	64.812	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

The FY03 National Defense Authorization Act (NDAA) language directed T&E centers to charge only direct costs beginning in FY06; this resulted in a zero-balance transfer (ZBT) of funding over the FYDP from the customer accounts (for indirect test costs) to T&E support, PE 65807F.

(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 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. Improvements under the P3I program include enhanced electronic protection (EP) capabilities; improved weapon effectiveness through improved fuzing, guidance, and increased kinematics. A follow-on program to the three-phase P3I program referred to as AMRAAM Phase 4 is currently underway. The Phase 4 effort will lead to introduction of the AIM-120D, delivering improved AMRAAM performance via GPS-aided navigation, a two-way datalink capability for enhanced aircrew survivability and improved network compatibility, and incorporating new guidance software which will improve AMRAAM's kinematic and weapon effectiveness performance. 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.

Joint Dual Role Air Dominance Missile (JDRADM) program begins development in FY11.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Complete P3I Phase 3 improved seeker and advanced EP updates: Perform tasks required to complete EMD testing and verification.	4.577	0.000	0.000	0.000
(U) Continue to provide software upgrades	4.500	5.000	0.000	2.000
(U) Continue mission support: Provide program management to execute Phase 3/Phase 4 program	1.463	1.460	1.495	1.544
(U) Continue test and evaluation: Provide Test Wing support to DOT&E testing	0.985	1.851	2.979	6.213
(U) Phase 4: Continue effort to complete qualification of the Phase 4 missile design. Contract was awarded Dec 03.	19.235	21.749	17.011	9.275
(U) Aircraft Integration - Integrate Phase 4 on multiple aircraft platforms	0.276	2.913	4.777	17.161
(U) Develop AMRAAM field reprogrammer			7.000	7.000
(U) Total Cost	31.036	32.973	33.262	43.193

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

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
Missile Procurement, Budget										
(U) Activity #2, PE 0207163F, P-1 Line Item, AMRAAM Replenishment Spares, BP25	98.361	106.939	120.668	131.450	218.040	268.344	277.110	292.980	0.000	7,814.786
(U) and Missile Replacement Equipment	0.188	0.268	0.196	0.197	0.199	0.206	0.211	0.214	0.000	61.876
(U) Initial Spares, BP26	0.072	0.072	0.073	0.073	0.073	0.076	0.077	0.079	0.000	63.483
(U) Seek Eagle	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	14.525
(U) AMRAAM Field Reprogrammer, BP 22	0.000	0.000	0.000	0.000	5.614	5.633	5.240	0.000	0.000	16.487

(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 3 Cost Plus Award Fee EMD contract was completed 30 Mar 04. This missile is currently in OT testing with projected fielding date of Oct 05. Phase 4, awarded in Dec 03, is intended to meet the requirement to evolve the AMRAAM for improved performance. Production cut-in of the Phase 4 (AIM 120-D) missile begins in FY06. The Missile Performance Specification (MPS) and Interface Control Document (ICD) will define the requirement to integrate the Phase 4 AMRAAM onto the F-15, F-16, and F/A-22. Total Seek Eagle (PE 27590F) includes cost for 36 missiles and services.

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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> <u>Prior to FY</u> <u>2004</u> <u>Cost</u>	<u>FY 2004</u> <u>Cost</u>	<u>FY 2004</u> <u>Award</u> <u>Date</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</u>	<u>FY 2006</u> <u>Cost</u>	<u>FY 2006</u> <u>Award</u> <u>Date</u>	<u>FY 2007</u> <u>Cost</u>	<u>FY 2007</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
<u>(U) Product Development</u>														
Misc. Contracts	SS/FFP		13.792	2.195	Mar-04							0.000	15.987	15.987
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, Tucson, AZ	24.484									0.000	24.484	24.484
Phase 3 Improved Fuzing Capability	SS/CPAF	Raytheon, Tucson, AZ	3.937									0.000	3.937	3.937
Phase 3 Improved Seeker and Advanced EP. Raytheon F08626-98-C-0027	SS/CPAF	Raytheon, Tucson, AZ	205.373	2.382	Dec-03							0.000	207.755	207.755
Phase 3 Software Upgrade	SS/CPFF	Raytheon, Tucson, AZ	2.500	4.500	May-04	5.000						0.000	12.000	12.000
Phase 4 Contract FA8675-04-C-0001	SS/CPFF	Raytheon, Tucson, AZ	0.000	18.956	Dec-03	21.749	Dec-04	17.011	Dec-05	9.275	Dec-06	12.996	79.987	79.987
Phase 4 Follow-On Contract	SS/CPFF	Raytheon, Tucson, AZ	0.000	0.000		0.000		0.000		2.000		74.761	76.761	76.761
Aircraft Integration	MIPR	Wright-Patter son AFB, OH	0.000	0.276		2.913	Dec-04	4.777	Dec-05	17.161	Dec-06	55.173	80.300	80.300
AMRAAM Field Reprogrammer		Raytheon, Tucson, AZ	0.000	0.000				7.000	Jan-06	7.000	Jan-07	0.000	14.000	14.000
Joint Dual Role Air Dominance Missile (JDRADM)			0.000	0.000		0.000		0.000		0.000		25.000	25.000	25.000
Subtotal Product Development			466.350	28.309		29.662		28.788		35.436		167.930	756.475	756.475
Remarks:														
<u>(U) Support</u>														
COEA	PO/MIPR		3.358									0.000	3.358	3.358
Contractor Support	REO/PR		18.780	1.020	Oct-03	0.778	Oct-04	0.817		0.858		3.883	26.136	26.136
JSPO Operations	PR/IMPA C		20.135	0.722		0.682		0.678		0.686		2.937	25.840	25.840
Subtotal Support			42.273	1.742		1.460		1.495		1.544		6.820	55.334	55.334
Remarks:														
<u>(U) Test & Evaluation</u>														
Government Test	REO/MIP R		34.946	0.985		1.851		2.979		6.213		0.255	47.229	47.229
TM/ECM Pods	REO/MIP R		2.818									0.000	2.818	2.818
Subtotal Test & Evaluation			37.764	0.985		1.851		2.979		6.213		0.255	50.047	50.047
Remarks:														
<u>(U) Management</u>														
Project 3777														

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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

**0207163F Advanced Medium Range
Air-to-Air Missile**

PROJECT NUMBER AND TITLE

3777 AMRAAM

Subtotal Management	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Remarks:									
(U) Total Cost	546.387	31.036	32.973	33.262	43.193	175.005	861.856	861.856	

Exhibit R-4, RDT&E Schedule Profile

DATE
February 2005

BUDGET ACTIVITY
07 Operational System Development

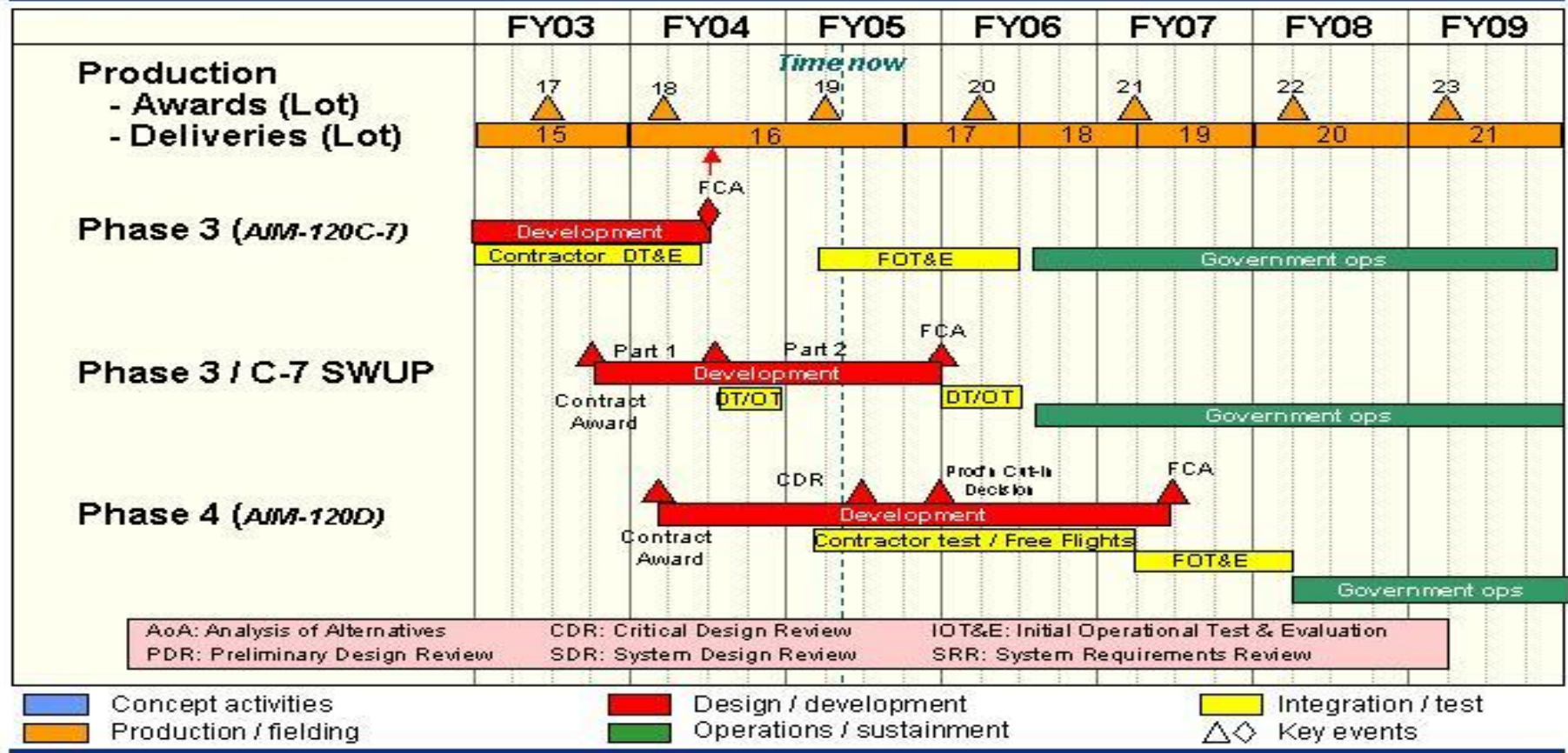
PE NUMBER AND TITLE
0207163F Advanced Medium Range
Air-to-Air Missile

PROJECT NUMBER AND TITLE
3777 AMRAAM



AMRAAM Schedule

U.S. AIR FORCE



FY06 Staffer Brief

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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

**0207163F Advanced Medium Range
Air-to-Air Missile**

PROJECT NUMBER AND TITLE

3777 AMRAAM

(U) Schedule Profile

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) P3I Phase 3 ACE Flights Complete	1Q			
(U) P3I Phase 3 Functional Configuration Audit (FCA)	2Q			
(U) P3I Phase 3 RDT&E Program Complete	2Q			
(U) Phase 4 Contract Award	1Q			
(U) Phase 4 POD 1st Delivery		1Q		
(U) Start Phase 4 Development Test		2Q		
(U) Phase 4 Production Cut-in Decision		4Q		
(U) Phase 4 FCA				2Q

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

Exhibit R-2, RDT&E Budget Item Justification									DATE February 2005	
BUDGET ACTIVITY 07 Operational System Development					PE NUMBER AND TITLE 0207224F COMBAT RESCUE AND RECOVERY					
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	2.000	12.234	113.825	236.683	239.616	73.322	34.640	112.561	Continuing	TBD
5125 Personnel Recovery Vehicle	2.000	12.234	113.825	236.683	239.616	73.322	34.640	112.561	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

The Personnel Recovery Vehicle (PRV) is the follow-on Combat Search and 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.

As part of the Common Vertical Lift approach, there will also be a procurement of 66 Common Vertical Lift Support Platform (CVLSP). The CVLSP is a less complex variant than the PRV Block 0 aircraft that will provide a medium-lift vertical take-off and landing aircraft to support Air Mobility Command (AMC) and Air Force Space Command (AFSPC) requirements. The CVLSP replaces the current UH-1Ns. The first variant of up to 20 aircraft for AMC will provide a safe and reliable passenger airlift for the National Capitol Region. The second variant of up to 46 aircraft will support AFSPC, AETC, AFMC, and PACAF. This mission includes protection of CONUS strategic nuclear and space launch assets through its primary missions of responding to critical incidents, securing of base movement of strategic assets, performing general security operations, and providing general mission support.

This RDT&E funding is required for the development of five Test Vehicles (TV) and the design, integration, testing and certification of PRV mission components required by the Operational Requirements Document (ORD). PRV acquisition strategy has been revised to pursue a two-phase spiral development approach. Phase 1 will develop and field two increments, a Block 0 and a Block 10 platform. The Block 0 PRV will begin production deliveries in FY11, and have an Initial Operational Capability (IOC) in FY13. Block 10 PRVs will have an IOC of FY18. Phase 2 of the PRV acquisition program will develop an improved combat rescue vehicle with increased speed, range, and survivability with planned fielding starting in FY22.

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2005

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207224F COMBAT RESCUE AND RECOVERY

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	0.000	12.342	139.900	288.900
(U) Current PBR/President's Budget	2.000	12.234	113.825	236.683
(U) Total Adjustments	2.000	-0.108		
(U) Congressional Program Reductions				
Congressional Rescissions		-0.108		
Congressional Increases				
Reprogrammings	2.000			
SBIR/STTR Transfer				

(U) **Significant Program Changes:**

FY04 reprogramming action of \$2M for PRV new start to stand up systems program office (SPO) to accelerate program was accomplished Aug 04. FY06 / 07 funds realigned to support higher USAF priorities.

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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
5125 Personnel Recovery Vehicle	2.000	12.234	113.825	236.683	239.616	73.322	34.640	112.561	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The Personnel Recovery Vehicle (PRV) is the follow-on Combat Search and 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.

As part of the Common Vertical Lift approach, there will also be a procurement of 66 Common Vertical Lift Support Platform (CVLSP). The CVLSP is a less complex variant than the PRV Block 0 aircraft that will provide a medium-lift vertical take-off and landing aircraft to support Air Mobility Command (AMC) and Air Force Space Command (AFSPC) requirements. The CVLSP replaces the current UH-1Ns. The first variant of up to 20 aircraft for AMC will provide a safe and reliable passenger airlift for the National Capitol Region. The second variant of up to 46 aircraft will support AFSPC, AETC, AFMC, and PACAF. This mission includes protection of CONUS strategic nuclear and space launch assets through its primary missions of responding to critical incidents, securing of base movement of strategic assets, performing general security operations, and providing general mission support.

This RDT&E funding is required for the development of five Test Vehicles (TV) and the design, integration, testing and certification of PRV mission components required by the Operational Requirements Document (ORD). PRV acquisition strategy has been revised to pursue a two-phase spiral development approach. Phase 1 will develop and field two increments, a Block 0 and a Block 10 platform. The Block 0 PRV will begin production deliveries in FY11, and have an Initial Operational Capability (IOC) in FY13. Block 10 PRVs will have an IOC of FY18. Phase 2 of the PRV acquisition program will develop an improved combat rescue vehicle with increased speed, range, and survivability with planned fielding starting in FY22.

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

	FY 2004	FY 2005	FY 2006	FY 2007
(U) SPO support in development of test and evaluation master plan, acquisition strategy, preparation of Milestone B (MS B) documentation, development of request for proposals, and support of source selection activities and contract award.	0.456	3.842	4.866	5.227
(U) Studies and Analysis	1.544	8.342		
(U) Test and evaluation planning		0.050	0.745	1.201

Exhibit R-2a, RDT&E Project Justification	DATE February 2005
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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
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(U) Development of test vehicles		108.214	230.255	
(U)				
(U)				
(U)				
(U) Total Cost	2.000	12.234	113.825	236.683

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
(U) 3010 BP10 AP, PE 27224					31.900	293.801	327.749	655.768		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. Test articles will be delivered starting in FY09. Milestone C is planned for FY11.

The acquisition strategy has been revised to pursue a two-phase spiral development approach. Increment 1 will develop a Block 0 platform and a Block 10 platform. The Block 0 PRV will meet KPP requirements, begin production deliveries in FY11, and have an Initial Operational Capability (IOC) in FY13. Block 10 PRVs will be fully ORD-compliant aircraft (PRV Increment 1) and have an IOC of FY18. Increment 2 of the PRV acquisition program will develop an improved combat rescue vehicle with increased speed, range, and survivability with a planned fielding starting in FY22

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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			0207224F COMBAT RESCUE AND RECOVERY							5125 Personnel Recovery Vehicle				
(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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>	TBD			1.544		8.342		108.214		230.255		Continuing	TBD	
Subtotal Product Development			0.000	1.544		8.342		108.214		230.255		Continuing	TBD	0.000
Remarks:														
(U) <u>Support</u>	TBD			0.000		0.000		0.000		0.000		Continuing	TBD	
Subtotal Support			0.000	0.000		0.000		0.000		0.000		Continuing	TBD	0.000
Remarks:														
(U) <u>Test & Evaluation</u>	TBD			0.000		0.050		0.745		1.201		Continuing	TBD	
Subtotal Test & Evaluation			0.000	0.000		0.050		0.745		1.201		Continuing	TBD	0.000
Remarks:														
(U) <u>Management</u>	TBD			0.456		3.842		4.866		5.227		Continuing	TBD	
Subtotal Management			0.000	0.456		3.842		4.866		5.227		Continuing	TBD	0.000
Remarks:														
(U) Total Cost			0.000	2.000		12.234		113.825		236.683		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

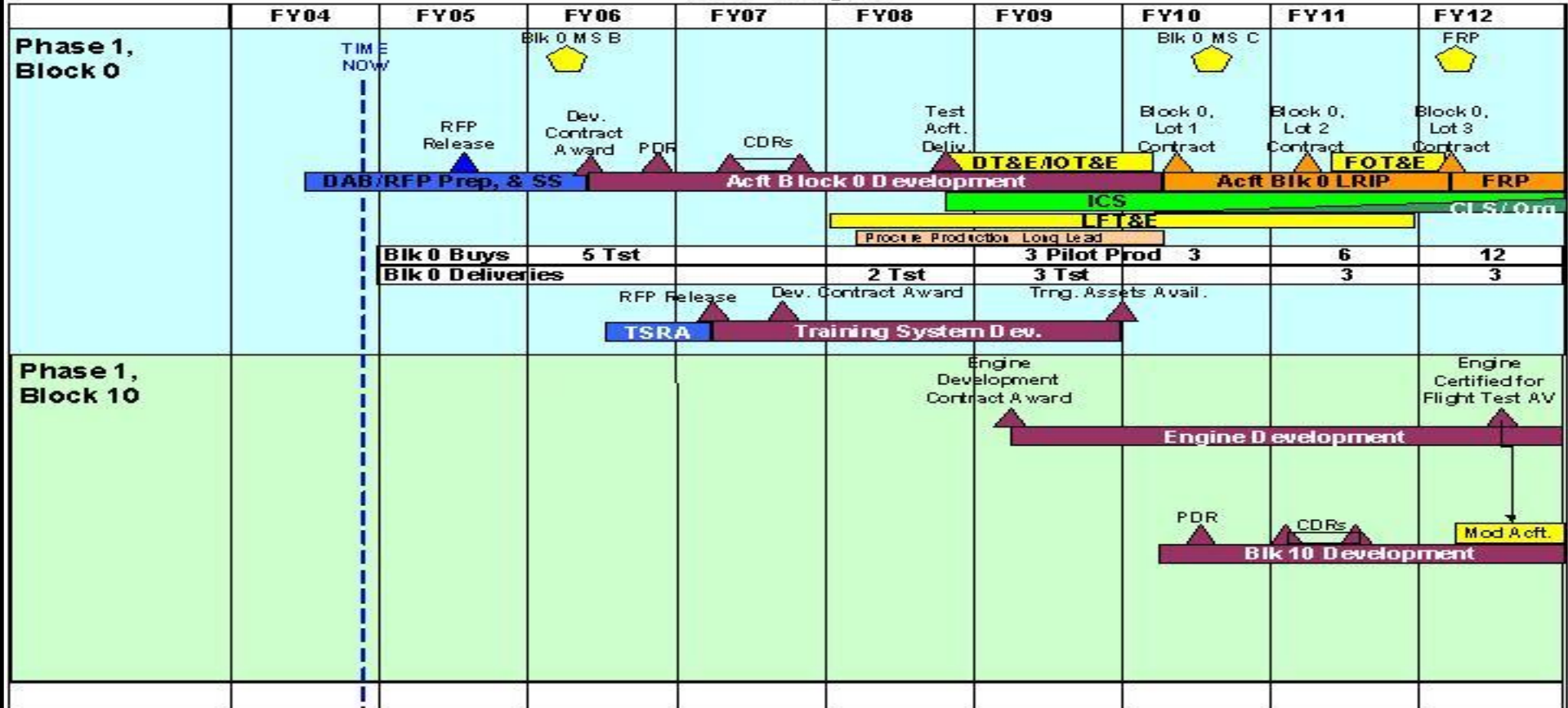
BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0207224F COMBAT RESCUE AND RECOVERY

PROJECT NUMBER AND TITLE
5125 Personnel Recovery Vehicle

PRV Acquisition Schedule

As of 1 Aug 03



AoA: Analysis of Alternatives PDR: Preliminary Design Review DT&E: Developmental Test & Evaluation
 SRR: System Requirements Review CDR: Critical Design Review IOT&E: Initial Operational Test & Evaluation
 FOT&E: Follow-on Operational Test & Evaluation

Concept/Technology Dev.	Test and Evaluation	Interim Contr. Supt.
Design & Development	Production	CLS / Organic Spt

Key Events

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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

0207224F COMBAT RESCUE AND RECOVERY

PROJECT NUMBER AND TITLE

5125 Personnel Recovery Vehicle

(U) Schedule Profile

- (U) Develop Acquisition Strategy
- (U) Develop RFP
- (U) Conduct PRV Source Selection
- (U) Milestone B
- (U) Contract Award

FY 2004

FY 2005

FY 2006

FY 2007

2Q

3Q

4Q

1Q

2Q

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PE NUMBER: 0207247F
 PE TITLE: Air Force TENCAP

Exhibit R-2, RDT&E Budget Item Justification									DATE February 2005	
BUDGET ACTIVITY 07 Operational System Development					PE NUMBER AND TITLE 0207247F Air Force TENCAP					
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	17.651	18.112	10.829	11.067	11.314	11.508	11.764	11.952	Continuing	TBD
0001 Air Force TENCAP	17.651	18.112	10.829	11.067	11.314	11.508	11.764	11.952	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

AF TENCAP serves as an Air Force-level program executed through the Space Warfare Center (SWC) with the warfighting MAJCOMs as its customers. As an integrated directorate within the SWC, AF TENCAP supports the overall SWC mission to advance Air Force, joint and combined space warfare through innovation, testing, tactics development and training. AF TENCAP is the Air Force lead for NTM exploitation for the tactical warrior and innovation to increase the efficiency and effectiveness of space-related activities to further integrate black and white space and connect the “last tactical mile” for the warfighter.

In August 1977, the Joint Appropriations Conference Report from Congress directed the Air Force and the Navy to establish a Tactical Exploitation of National Capabilities (TENCAP) program similar to what the Army instituted in 1973. AF TENCAP objectives comply with the original congressional intent to exploit space systems, National Technical Means (NTM) and related technologies for the warfighter.

The AF TENCAP mission increases warfighter awareness and tactical use of National Technical Means (NTMs) and other space systems through:

- 1) Exploiting current space systems, NTMs and related technologies to rapidly prototype and assist in the identification and definition of possible warfighter application. AF TENCAP is a non-traditional acquisition program that rapidly prototypes projects, validates proofs of concepts and demonstrates capabilities and transitions them to the warfighter.
- 2) Influencing the development of future space systems for tactical users by providing inputs into the capabilities and development cycle of national, military, commercial and civil space systems.
- 3) Educating and training operational forces about the concepts developed by AF TENCAP.

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

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2005

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207247F Air Force TENCAP

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	10.479	10.673	10.771	10.962
(U) Current PBR/President's Budget	17.651	18.112	10.829	11.067
(U) Total Adjustments	7.172	7.439		
(U) Congressional Program Reductions				
Congressional Rescissions	-0.161	-0.161		
Congressional Increases	8.500	7.600		
Reprogrammings				
SBIR/STTR Transfer	-1.167			

(U) **Significant Program Changes:**

Significant Program Changes (funding, schedule, and/or technical parameter): In FY04 Congress added funds (\$8.5M) 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.

In FY05, \$7.6M in Congressional funding was 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

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		
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
0001 Air Force TENCAP	17.651	18.112	10.829	11.067	11.314	11.508	11.764	11.952	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

AF TENCAP serves as an Air Force-level program executed through the Space Warfare Center (SWC) with the warfighting MAJCOMs as its customers. As an integrated directorate within the SWC, AF TENCAP supports the overall SWC mission to advance Air Force, joint and combined space warfare through innovation, testing, tactics development and training. AF TENCAP is the Air Force lead for NTM exploitation for the tactical warrior and innovation to increase the efficiency and effectiveness of space-related activities to further integrate black and white space and connect the “last tactical mile” for the warfighter.

In August 1977, the Joint Appropriations Conference Report from Congress directed the Air Force and the Navy to establish a Tactical Exploitation of National Capabilities (TENCAP) program similar to what the Army instituted in 1973. AF TENCAP objectives comply with the original congressional intent to exploit space systems, National Technical Means (NTM) and related technologies for the warfighter.

The AF TENCAP mission increases warfighter awareness and tactical use of National Technical Means (NTMs) and other space systems through:

- 1) Exploiting current space systems, NTMs and related technologies to rapidly prototype and assist in the identification and definition of possible warfighter application. AF TENCAP is a non-traditional acquisition program that rapidly prototypes projects, validates proofs of concepts and demonstrates capabilities and transitions them to the warfighter.
- 2) Influencing the development of future space systems for tactical users by providing inputs into the capabilities and development cycle of national, military, commercial and civil space systems.
- 3) Educating and training operational forces about the concepts developed by AF TENCAP.

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

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Exploit existing space systems, National Technical Means and related technologies for tactical applications through 12-18 month 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.	9.079	10.121	10.431	10.661
(U) Complete GPS Jammer detection and location system (GPS-JLOC)	2.891	3.300	0.000	0.000
(U) Complete adverse weather imaging system (FOGLITE)	5.298	4.300	0.000	0.000
(U) Provide program support and other government support	0.383	0.391	0.398	0.406
(U) Total Cost	17.651	18.112	10.829	11.067

Exhibit R-2a, RDT&E Project Justification

DATE

February 2005

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
Other APPN										
Other Procurement, Air Force										
(U) funding in 'Intelligence	1.442	0.195	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.637
Communications Equipment,'										
WSC 832070, P-39										

Note: Beginning with FY06, equipment funds transferred to 3400 funds.

(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. Theater MAJCOM mission area plan (MAP) deficiencies provide the requirements for AF TENCAP development projects which are then approved by the Space Warfare Center (SWC) Strategic Planning Process. Theater MAJCOMs 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

DATE

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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) 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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>	
(U) <u>Product Development</u> Exploiting existing space systems, National Technical Means and related technologies; influencing future systems; supporting education and training	*Various	Various	51.861	9.079	Jan-04	10.121	Jan-05	10.431	Dec-05	10.661	Dec-06	0.000	92.153		
FOGLITE	CPFF	General Atomics, CA	3.337	5.298	May-04	4.300	Apr-05					0.000	12.935		
GPS JLOC	CPFF	Navigation Systems Corporation (NAVSYS), CO	4.674	2.891	Aug-04	3.300	Jun-05					0.000	10.865		
												Continuing	TBD		
Subtotal Product Development			59.872	17.268		17.721		10.431		10.661		Continuing	TBD	0.000	
Remarks:	*Multiple contracts determined on annual basis in accordance with acquisition strategy and new Broad Area Announcement processes.														
(U) <u>Support</u> Program Oversight	Various		6.139	0.383	Dec-03	0.391	Dec-04	0.398	Dec-05	0.406	Dec-06	Continuing	TBD		
Subtotal Support			6.139	0.383		0.391		0.398		0.406		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	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	0.000	
Remarks:															
(U) Total Cost			66.011	17.651		18.112		10.829		11.067		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
0207247F Air Force TENCAP

PROJECT NUMBER AND TITLE
0001 Air Force TENCAP

PROJECT NAME "TALON ..."	FY 2004		FY 2005				FY 2006				FY 2007			
	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Aura	Yellow	Blue												
Beowolf	Yellow	Blue												
Buffalo Scout			Red	Yellow	Yellow	Yellow								
CB		Red	Yellow	Blue										
Chameleon	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Blue						
Chip Shot		Red	Yellow	Yellow	Yellow	Yellow	Blue							
Charlemagne	Red	Yellow	Yellow	Yellow	Yellow	Yellow								
Charm	Yellow	Yellow	Blue	Blue	Blue	Blue								
Cross Pulse		Red	Yellow	Yellow	Yellow	Yellow								
Elwood	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Blue							



Exhibit R-4, RDT&E Schedule Profile

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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

PROJECT NAME "TALON ..."	FY 2004		FY 2005				FY 2006				FY 2007			
	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Flash	[Yellow]		[Yellow]	[Blue]										
*FOGLITE	[Yellow]		[Yellow]											
Jake	[Yellow]		[Yellow]				[Blue]							
**JLOC	[Yellow]		[Yellow]											
IMOEN	[Yellow]	[Blue]												
Lite	[Red]	[Yellow]	[Yellow]	[Blue]										
Livewire			[Red]	[Yellow]	[Blue]									
Noble Hunter		[Red]	[Yellow]											
Party Line			[Red]	[Yellow]	[Yellow]									
Pole Vault	[Yellow]		[Yellow]	[Blue]	[Yellow]									

Pole Vault: Phase I transition begins Q2 05



*FOGLITE: Congressionally directed development of laser imaging capability.

**JLOC: Congressionally directed project to examine the feasibility of a GPS Jammer Locator.

Exhibit R-4, RDT&E Schedule Profile

DATE

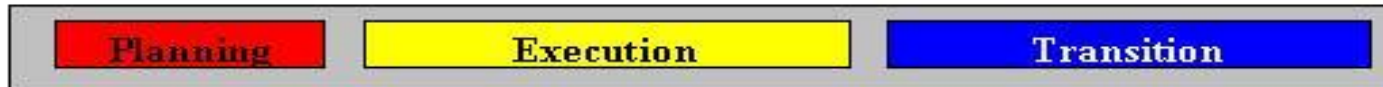
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BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0207247F Air Force TENCAP

PROJECT NUMBER AND TITLE
0001 Air Force TENCAP

PROJECT NAME "TALON..."	FY 2004		FY 2005				FY 2006				FY 2007			
	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
PARROT		Red	Yellow				Blue							
REACH	Blue													
Seeker	Yellow	Blue												
SUTER III	Yellow	Blue												
Threads	Yellow	Blue												
Traveler	Yellow		Yellow				Blue							
Touchback			Yellow	Blue										
BAA 04 Process	Yellow		Yellow				Blue							
BAA 05 Process	Red		Yellow				Yellow				Blue			
BAA 06 Process				Red			Yellow				Yellow			



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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2005
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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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(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		
(U) FY 2006 Projects Authorized to Proceed			1-2Q	
(U) FY 2007 Projects Identified			2Q	
(U) FY 2007 Contractor Proposals			3Q	
(U) FY 2007 Projects Evaluated and Approved			4Q	
(U) FY 2007 Projects Authorized to Proceed				1-2Q
(U) FY 2008 Projects Identified				2-3Q
(U) FY 2008 Contractor Proposals				3Q
(U) FY 2008 Projects Evaluated and Approved				4Q

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PE NUMBER: 0207253F
 PE TITLE: Compass Call

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2005
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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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	8.386	3.955	4.650	4.451	0.000	0.000	4.867	4.918	Continuing	TBD
4804 Compass Call	8.386	3.955	4.650	4.451	0.000	0.000	4.867	4.918	Continuing	TBD

(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 enemy 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 constantly changing enemy tactical communications. Most recently, this is reflected in a shift from traditional military communication systems to an increasing reliance on commercial and civil technologies.

This program incorporates advanced capabilities into the operational system to include Block 30, Block 35, and related integration, testing, training, simulation and deploying systems. The evolution of the enemy threat requires developmental investments in a wide range of activities and associated subsystems. These activities include significant effort in the development and operational fielding of the Human Machine Interface (HMI), Special Purpose Emitter Array (SPEAR), and other classified capabilities for Compass Call. Activities are also required in the related areas of software, testing and integration, signals analysis, systems engineering integration, countermeasure development for the evolving threat, mission planning development, Concept of Operations (CONOPS) development, and program planning. RDT&E articles include engineering and manufacturing development units necessary for these systems to evolve to counter emerging threats as well as other subsystems to counter the evolving threats.

This program will participate in the development, testing, and implementation of international standards (to include NATO standardization agreements) to ensure joint, allied, and coalition interoperability.

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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	3.790	3.990	4.845	4.983
(U) Current PBR/President's Budget	8.386	3.955	4.650	4.451
(U) Total Adjustments	4.596	-0.035		
(U) Congressional Program Reductions	-0.010			
Congressional Rescissions	-0.074	-0.035		
Congressional Increases	5.000			
Reprogrammings	-0.064			
SBIR/STTR Transfer	-0.256			

(U) Significant Program Changes:

Exhibit R-2a, RDT&E Project Justification

DATE
February 2005

BUDGET ACTIVITY 07 Operational System Development					PE NUMBER AND TITLE 0207253F Compass Call			PROJECT NUMBER AND TITLE 4804 Compass Call		
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4804 Compass Call	8.386	3.955	4.650	4.451	0.000	0.000	4.867	4.918	Continuing	TBD
Quantity of RDT&E Articles	0	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 enemy 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 constantly changing enemy tactical communications. Most recently, this is reflected in a shift from traditional military communication systems to an increasing reliance on commercial and civil technologies.

This program incorporates advanced capabilities into the operational system to include Block 30, Block 35, and related integration, testing, training, simulation and deploying systems. The evolution of the enemy threat requires developmental investments in a wide range of activities and associated subsystems. These activities include significant effort in the development and operational fielding of the Human Machine Interface (HMI), Special Purpose Emitter Array (SPEAR), and other classified capabilities for Compass Call. Activities are also required in the related areas of software, testing and integration, signals analysis, systems engineering integration, countermeasure development for the evolving threat, mission planning development, Concept of Operations (CONOPS) development, and program planning. RDT&E articles include engineering and manufacturing development units necessary for these systems to evolve to counter emerging threats as well as other subsystems to counter the evolving threats.

This program will participate in the development, testing, and implementation of international standards (to include NATO standardization agreements) to ensure joint, allied, and coalition interoperability.

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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(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)	8.386	3.955	4.650	4.451
(U) Total Cost	8.386	3.955	4.650	4.451

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
(U) PE 0207253F, Aircraft Modification (3010)	16.402	28.932	27.421	46.051	44.036	24.245	19.552	19.782	Continuing	TBD
(U) PE 0207253F, Aircraft Initial Spares (3010)	10.519	11.985	14.225	14.197	14.943	15.533	15.962	16.142	Continuing	TBD
(U) PE 0207253F, Other Charges	31.057									TBD

Exhibit R-2a, RDT&E Project Justification	DATE February 2005
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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) **C. Other Program Funding Summary (\$ in Millions)**

(3010)

(U)	PE 0207253F, Support Equipment, (3010)	0.254		TBD
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(U) **D. Acquisition Strategy**

COMPASS CALL evolutionary upgrades are acquired sole-source through the BIG SAFARI Program Office with L-3 Communications as the prime integrator.

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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				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 Prior to FY 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> Compass Call RDT&E	SS/FFP& CPFF	BAE Systems, Nashua NH		8.386	Feb-04	3.955	Dec-04	4.650	Dec-05	4.451		Continuing	TBD	TBD
Subtotal Product Development			0.000	8.386		3.955		4.650		4.451		Continuing	TBD	TBD
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) Total Cost			0.000	8.386		3.955		4.650		4.451		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

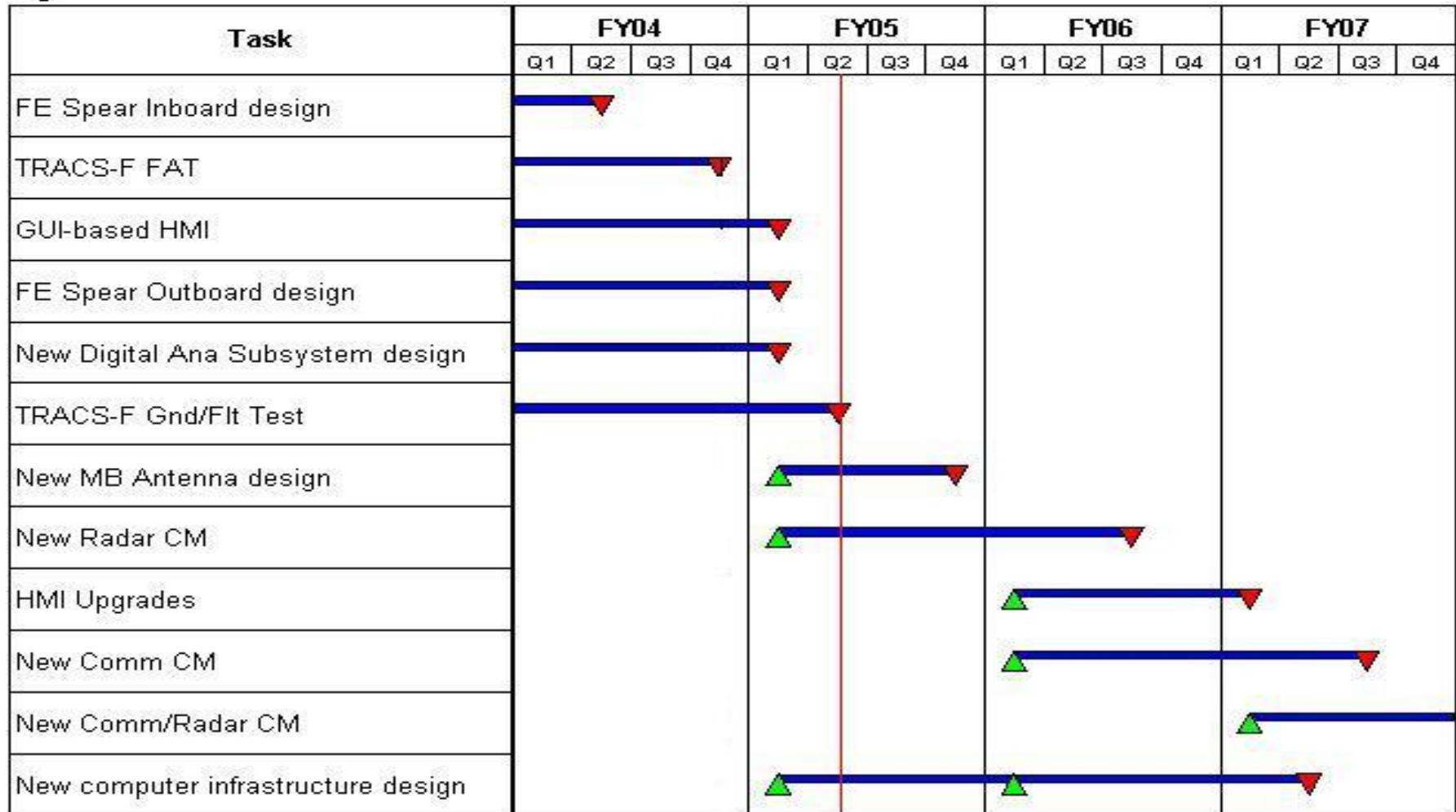
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BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0207253F Compass Call

PROJECT NUMBER AND TITLE
4804 Compass Call

Compass Call R&D Efforts



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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2005
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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>(U) Schedule Profile</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Frequency extended SPEAR inboard design complete	2Q			
(U) TRACS-F factory acceptance test complete	4Q			
(U) Graphical user interface-based human machine interface (HMI) design complete		1Q		
(U) Frequency extended SPEAR outboard design complete		1Q		
(U) New digital Analysis subsystem design complete		1Q		
(U) TRACS-F ground/flight test complete		2Q		
(U) New mid-band antenna design starts		1Q		
(U) New mid-band antenna design complete		4Q		
(U) New radar counter-measures design starts		1Q		
(U) New radar counter-measures design complete			3Q	
(U) HMI upgrade design starts			1Q	
(U) HMI upgrade design complete				1Q
(U) New communications counter-measures design starts			1Q	
(U) New communications counter-measures design complete				3Q
(U) New radar/communications counter-measures design starts				1Q
(U) New computer infrastructure design starts		1Q		
(U) New computer infrastructure design complete				2Q

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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 2005
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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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	169.947	164.150	153.265	151.722	155.692	158.632	162.996	167.425	Continuing	TBD
1012 Aircraft Engine Component Improvement Program	169.947	164.150	153.265	151.722	155.692	158.632	162.996	167.425	Continuing	TBD

The FY03 National Defense Authorization Act (NDAA) language directed T&E centers to charge only direct costs beginning in FY06; this resulted in a zero-balance (ZBT) of funding over the FYDP from the customer accounts (for indirect test costs) to T&E support, PE 65807F.

(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/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 significantly reduce outyear Operations and Maintenance (O&M) and spares costs. 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.

Exhibit R-2, RDT&E Budget Item Justification

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February 2005

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207268F Aircraft Engine Component Improvement Program (CIP)

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	178.582	165.609	186.996	166.113
(U) Current PBR/President's Budget	169.947	164.150	153.265	151.722
(U) Total Adjustments	-8.635	-1.459		
(U) Congressional Program Reductions		-1.459		
Congressional Rescissions				
Congressional Increases				
Reprogrammings	-3.239			
SBIR/STTR Transfer	-5.396			

(U) **Significant Program Changes:**

FY2006 and FY2007 decreased to support higher Air Force priorities and the Test & Eval (T&E) Funding Realignment Policy.

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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
1012 Aircraft Engine Component Improvement Program	169.947	164.150	153.265	151.722	155.692	158.632	162.996	167.425	Continuing	TBD
Quantity of RDT&E Articles	0	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/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 significantly reduce outyear Operations and Maintenance (O&M) and spares costs. 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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Continuing CIP tasks (such as, but not limited to, improvement, support equipment, and repair tasks)	148.676	130.970	141.150	132.809
(U) Continuing engine testing (such as, but not limited to, altitude, sea level, and flight tests) NOTE: FY06/07 test dollars decreased due to Test & Eval (T&E) Funding Realignment Policy (e.g. reduced FY06 \$13.183M and FY07 \$9.395M).	15.106	26.275	7.517	14.361
(U) Continuing mission support	6.165	6.905	4.598	4.552
(U) Total Cost	169.947	164.150	153.265	151.722

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>		
(U) AF RDT&E										
(U) Other APPN										

Exhibit R-2a, RDT&E Project Justification

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February 2005

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

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 2005

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 (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>	
(U) <u>Product Development</u>															
GE-Evandale, OH	CPAF			56.308	Jan-04	49.136	Jan-05	52.640	Jan-06	46.506	Jan-07	Continuing	TBD		
Pratt & Whitney	CPAF			80.298	Jan-04	72.685	Jan-05	77.858	Jan-06	75.064	Jan-07	Continuing	TBD		
GE-Lynn, MA	CPFF			5.798	Jan-04	4.736	Jan-05	4.789	Jan-06	4.227	Jan-07	Continuing	TBD		
Rolls Royce/Allison	CPFF			1.672	Jan-04	1.191	Jan-05	1.749	Jan-06	1.295	Jan-07	Continuing	TBD		
Teledyne	CPFF			1.569	Jan-04	0.769	Jan-05	0.657	Jan-06	0.754	Jan-07	Continuing	TBD		
Honeywell	CPFF			1.523	Jan-04	1.403	Jan-05	2.181	Jan-06	3.161	Jan-07	Continuing	TBD		
Williams International	CPFF			1.472	Jan-04	1.050	Jan-05	0.904	Jan-06	0.972	Jan-07	Continuing	TBD		
Hamilton/Sundstrand	CPFF			0.036	Jan-04	0.000	Jan-05	0.372	Jan-06	0.830	Jan-07	Continuing	TBD		
Subtotal Product Development			0.000	148.676		130.970		141.150		132.809		Continuing	TBD	0.000	
Remarks:															
(U) <u>Support</u>															
In House Support/ Misc				6.165		6.905		4.598		4.552		Continuing	TBD		
Subtotal Support			0.000	6.165		6.905		4.598		4.552		Continuing	TBD	0.000	
Remarks:															
(U) <u>Test & Evaluation</u>															
AFFTC-Edwards AFB, CA				3.656		5.950		0.000		1.964		Continuing	TBD		
AEDC-Arnold AFB, TN				11.450		20.325		7.517		12.397		Continuing	TBD		
Subtotal Test & Evaluation			0.000	15.106		26.275		7.517		14.361		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	0.000	
Remarks:															
(U) Total Cost			0.000	169.947		164.150		153.265		151.722		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. Engine CIP is a continuing engineering support program that funds 300-400 separate engineering tasks per year.

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2005
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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) Schedule Profile	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Not applicable. CIP is a continuing engineering support program that funds 300-400 separate engineering tasks per year.	1-4Q	1-4Q	1-4Q	1-4Q

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

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2005
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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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	2.856	1.822	1.737	1.352	1.570	1.489	1.426	1.347	Continuing	TBD
4931 Eagle Vision	2.856	1.822	1.737	1.352	1.570	1.489	1.426	1.347	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 operational system at Nevada ANG, Reno, NV, one at South Carolina ANG, McEntire ANG, SC, one at Hawaii ANG, Hickam AFB, HI, and one is being procured 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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	1.880	1.879	1.737	1.352
(U) Current PBR/President's Budget	2.856	1.822	1.737	1.352
(U) Total Adjustments	0.976	-0.057		
(U) Congressional Program Reductions	-0.024	-0.017		
Congressional Rescissions				
Congressional Increases	1.000			
Reprogrammings				
SBIR/STTR Transfer		-0.040		

(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

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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		
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4931 Eagle Vision	2.856	1.822	1.737	1.352	1.570	1.489	1.426	1.347	Continuing	TBD
Quantity of RDT&E Articles	0	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 operational system at Nevada ANG, Reno, NV, one at South Carolina ANG, McEntire ANG, SC, one at Hawaii ANG, Hickam AFB, HI, and one is being procured 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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Continue to update baselines and reduce footprints on Eagle Vision units	1.164	0.183	0.189	0.179
(U) Continue to provide sustaining system engineering and technical support	1.692	1.639	1.548	1.173
(U) Total Cost	2.856	1.822	1.737	1.352

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E										
(U) Other APPN	9.171	5.823	6.095	5.247	5.687	5.801	5.917		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

February 2005

BUDGET ACTIVITY				PE NUMBER AND TITLE							PROJECT NUMBER AND TITLE			
07 Operational System Development				0207277F Chief's Innovation Program							4931 Eagle Vision			
(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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>														
TBD	SS/FFP			1.821		0.792		0.660		0.197		Continuing	TBD	
Subtotal Product Development			0.000	1.821		0.792		0.660		0.197		Continuing	TBD	0.000
Remarks:														
(U) <u>Support</u>														
MITRE	SS/FFP			0.622		0.600		0.627		0.655		Continuing	TBD	
ITSP	C/FFP			0.413		0.430		0.450		0.500		Continuing	TBD	
Subtotal Support			0.000	1.035		1.030		1.077		1.155		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	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			0.000	2.856		1.822		1.737		1.352		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

0207277F Chief's Innovation Program

PROJECT NUMBER AND TITLE

4931 Eagle Vision

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Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2005

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

(U) Continue baseline upgrades and footprint reduction

(U) Systems engineering

FY 2004

3Q

2-3Q

FY 2005

3Q

2Q

FY 2006

2Q

2Q

FY 2007

2Q

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 2005
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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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	25.498	45.374	66.997	30.696	9.788	0.000	0.000	0.000	0.000	1,056.505
4515 Joint Air-to-Surface Standoff Missile (JASSM)	25.498	45.374	66.997	30.696	9.788	0.000	0.000	0.000	0.000	1,056.505

The FY03 National Defense Authorization Act language directed Test & Evaluation (T&E) centers to charge only direct costs beginning in FY06. This resulted in a zero balance transfer (ZBT) of funding over the FYDP from the customer accounts (for indirect test costs) to T&E support, PE 65807F.

(U) A. Mission Description and Budget Item Justification

JASSM is an Air Force program 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. Follow-on development/Component Upgrades include two-way communications and Time Sensitive Targeting (e.g. Data Link) Capabilities. 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. In late Summer/Fall 2004, OSD/Air Force convened an independent Reliability Enhancement Team (RET) to review JASSM processes, system engineering procedures, and investigate reliability/quality initiatives. The Air Force is implementing RET recommendations through a combination of detailed design analysis, production quality reviews, and comprehensive ground and flight testing. This activity is reflected in Budget Activity 7, Operational Systems Development, because production (Low Rate Initial Production) started in FY02.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	25.498	45.777	61.473	13.609
(U) Current PBR/President's Budget	25.498	45.374	66.997	30.696
(U) Total Adjustments	0.000	-0.403		
(U) Congressional Program Reductions		-0.403		
Congressional Rescissions				
Congressional Increases				
Reprogrammings				
SBIR/STTR Transfer				

(U) Significant Program Changes:

Funding: FY06 funding increased by net \$5.5M (\$13M add Data Link; \$7.5M decrease for T&E funding realignment), and FY07 increased by net \$17.1M (\$20M add Data

Exhibit R-2, RDT&E Budget Item Justification

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

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

Link; \$2.9M decrease for T&E funding realignment) for JASSM Data Link (component upgrade) development and flight testing.

Schedule: None.

Technical: None.

Exhibit R-2a, RDT&E Project Justification

DATE

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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)		
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4515 Joint Air-to-Surface Standoff Missile (JASSM)	25.498	45.374	66.997	30.696	9.788	0.000	0.000	0.000	0.000	1,056.505
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

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

JASSM is an Air Force program 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. Follow-on development/Component Upgrades include two-way communications and Time Sensitive Targeting (e.g. Data Link) Capabilities. 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. In late Summer/Fall 2004, OSD/Air Force convened an independent Reliability Enhancement Team (RET) to review JASSM processes, system engineering procedures, and investigate reliability/quality initiatives. The Air Force is implementing RET recommendations through a combination of detailed design analysis, production quality reviews, and comprehensive ground and flight testing. This activity is reflected in Budget Activity 7, Operational Systems Development, because production (Low Rate Initial Production) started in FY02.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) JASSM EMD conclusion and follow-on development activities, including component upgrades studies/development.	4.084	2.211	0.000	0.000
(U) JASSM-ER Phase II development.	15.751	31.414	31.603	4.987
(U) JASSM Data Link (component upgrade)	0.000	0.000	11.703	16.432
(U) Begin JASSM-ER flight testing. Continue ground and live fire test support, and Reliability Program.	2.441	3.767	14.813	4.771
(U) JASSM-ER wind tunnel test support.	1.632	3.702	0.000	0.000
(U) Continue JASSM-ER aircraft integration on B-1.	0.100	2.497	7.551	3.335
(U) Continue mission planning and intelligence systems integration.	0.580	0.551	0.000	0.000
(U) Continue program office/mission support.	0.910	1.232	1.327	1.171
(U) Total Cost	25.498	45.374	66.997	30.696

Exhibit R-2a, RDT&E Project Justification

DATE

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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)**

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
(U) Missile Procurement (AF) JASSM	100.869	136.495	150.238	200.707	309.688	317.107	248.724	199.950	1,774.202	3,532.861
(U) SEEK EAGLE	0.000	2.826	0.000	2.899	0.000	0.000			0.000	5.725
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 and Phase II Development. The Phase I Risk Reduction contract is a Firm Fixed Price (FFP) contract awarded June 2003. This phase was completed March 2004. The Phase II Development contract is a CPAF contract awarded Feb 2004.

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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										0207325F Joint Air-to-Surface Standoff Missile (JASSM)		4515 Joint Air-to-Surface Standoff Missile (JASSM)			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2004 Cost	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost to Complete	Total Cost	Target Value of Contract	
(U) <u>Product Development</u>															
MDA - PDRR I	C/CPFF	McDonnell Douglas Aircraft, MO	120.571	0.000	N/A	0.000	N/A	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	N/A	0.000	N/A	0.000	N/A	0.000	N/A	0.000	151.109	151.109	
LM - EMD & Follow on Development	C/CPAF	Lockheed Martin, FL	404.944	4.084	Nov-98	2.211	Nov-98	0.000	N/A	0.000	N/A	0.000	411.239	411.239	
LM - JASSM ER Risk Reduction Phase I	SS/FFP	Lockheed Martin, FL	9.628	0.000	N/A	0.000	N/A	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	4.000	15.751	Feb-04	31.414	Feb-04	31.603	Feb-04	4.987	Feb-04	0.000	87.755	87.755	
Data Link (Component Upgrade)	SS/CPFF	Lockheed Martin, FL	0.000	0.000	N/A	0.000	N/A	11.703	Jan-06	16.432	Jan-06	7.423	35.558	35.558	
Subtotal Product Development			690.252	19.835		33.625		43.306		21.419		7.423	815.860	815.860	
Remarks:															
(U) <u>Support</u>															
F-16 SPO	PO (in-house)	WPAFB, OH	26.588	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	0.000	26.588	26.588	
B-52 SPO	PO (in-house)	Tinker AFB, OK	31.229	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	0.000	31.229	31.229	
B-1 SPO	PO (in-house)	WPAFB, OH	0.000	0.100	N/A	2.497	N/A	7.551	N/A	3.335	N/A	0.000	13.483	13.483	
Other Acft Integ	PO (in-house)	various	3.463	0.000	N/A	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	15.952	0.000	N/A	0.000	N/A	0.216	Feb-05	0.216	Feb-05	0.216	16.600	16.600	
Other Support	Misc	various	33.687	1.490	N/A	1.783	N/A	1.111	N/A	0.955	N/A	0.756	39.782	39.782	
Subtotal Support			110.919	1.590		4.280		8.878		4.506		0.972	131.145	131.145	
Remarks:															
(U) <u>Test & Evaluation</u>															
46TW	PO (in-house)	Eglin AFB, FL	76.981	2.441	N/A	3.767	N/A	14.813	N/A	4.771	N/A	1.393	104.166	104.166	
Arnold Eng Dev Center	PO (in-house)	Arnold AFB, TN	0.000	1.632	N/A	3.702	N/A	0.000	N/A	0.000	N/A	0.000	5.334	5.334	
Subtotal Test & Evaluation			76.981	4.073		7.469		14.813		4.771		1.393	109.500	109.500	
Remarks:															
(U) Total Cost			878.152	25.498		45.374		66.997		30.696		9.788	1,056.505	1,056.505	

Exhibit R-4, RDT&E Schedule Profile

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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)

As of 13 Jan 05

Top Level JASSM Schedule

For Official Use Only

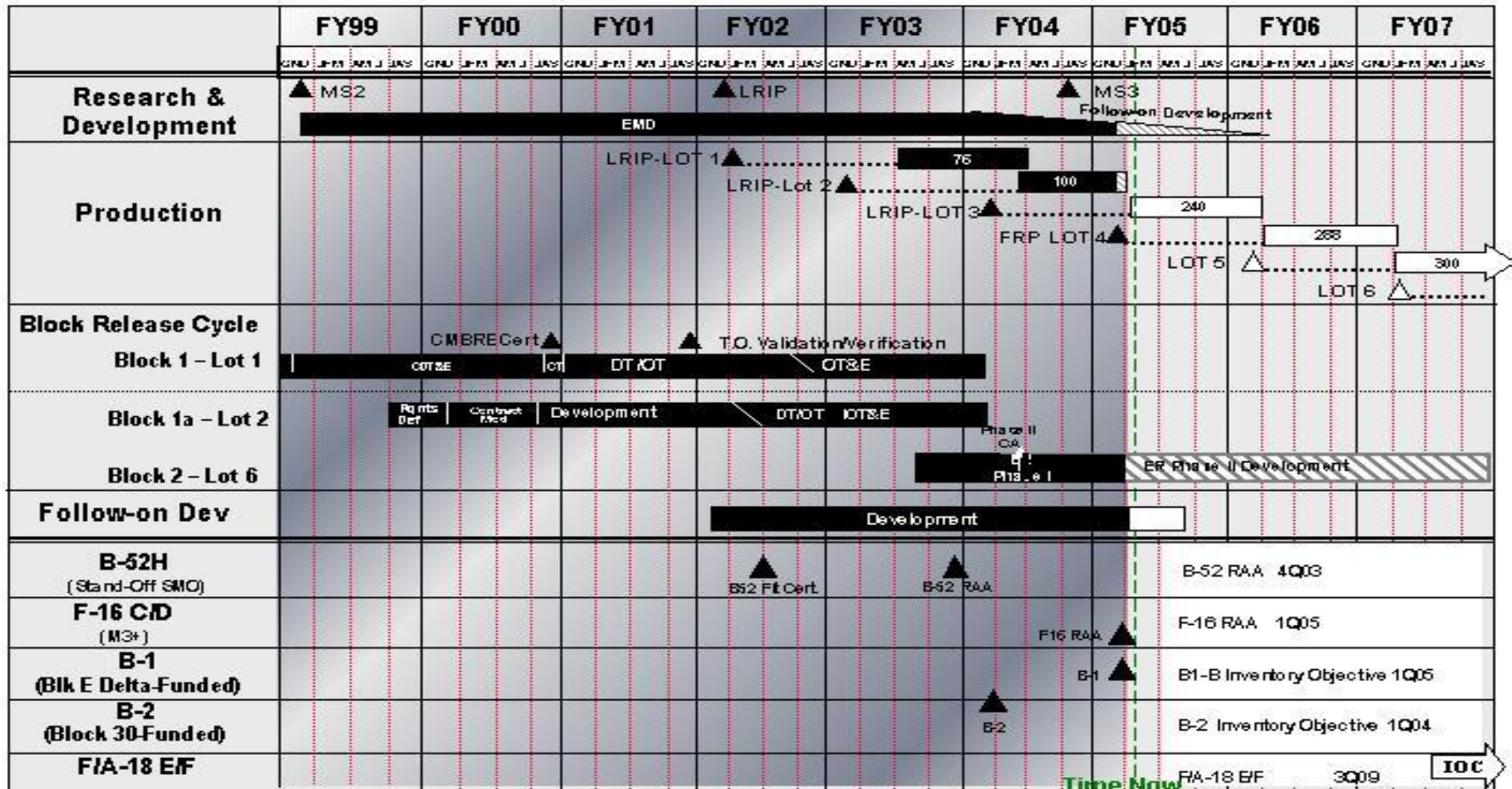


Exhibit R-4a, RDT&E Schedule Detail

DATE

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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)
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(U) Schedule Profile	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Inventory Objective B-2	1Q			
(U) JASSM-ER Development Phase II Contract Award	2Q			
(U) JASSM-ER Risk Reduction Phase I Complete	3Q			
(U) Milestone III	4Q			
(U) F-16 RAA		1Q		
(U) Inventory Objective B-1		1Q		
(U) Complete JASSM-ER wind tunnel testing		3Q		
(U) Begin JASSM-ER Flight Testing			1Q	
(U) Data Link (component upgrade) Contract Award			2Q	
(U) JASSM-ER OT Flight Testing				3Q

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PE NUMBER: 0207410F

PE TITLE: Air and Space Operations Center - Weapon System (AOC-WS)

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2005
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207410F Air and Space Operations Center - Weapon System (AOC-WS)
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Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	26.982	27.130	68.099	89.430	91.330	96.047	104.652	90.173	Continuing	TBD
4372 Time Critical Targeting	2.306	2.286	0.000	0.000	0.000	0.000	0.000	0.000	0.000	26.752
5117 Integration Development	24.676	24.844	68.099	89.430	91.330	96.047	104.652	90.173	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 senior element of the Theater Air Control System (TACS). The Joint Forces Air Component Commander (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 JFACC uses the weapon system 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 AOC-WS also provides Time Critical Targeting Functionality (TCTF), which improves 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 develops system hardware, software, technical documents and technology refresh. The program consists of Falconer AOCs, Tailored Falconer AOCs, Functional AOCs, and AOC Support (e.g. Formal Training Unit, Help Desk, Combined Air and Space Operations Center-eXperimental [CAOC-X]). This development program will also provide a single integrated technical manual package to the user. To keep the future AOC-WS evolving and match warfighter needs, the AOC-WS program plans to build on its current capability and develop a series of new capability increments.

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

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	27.887	27.695	32.763	58.499
(U) Current PBR/President's Budget	26.982	27.130	68.099	89.430
(U) Total Adjustments	-0.905	-0.565		
(U) Congressional Program Reductions	-0.374			
Congressional Rescissions		-0.565		
Congressional Increases				
Reprogrammings	0.292			
SBIR/STTR Transfer	-0.823			

(U) Significant Program Changes:

In FY06 & FY07 there was a realignment of Project 834530 Other Procurement to increase RDT&E AF PE 0207410F, Project 675117 (in the amount of \$35M in FY06 and \$31M in FY07) to fund Chief of Staff, Air Force, directed Modernization and Integration efforts. Time Critical Targeting Functionality (TCTF) Project 674372 will not be

Exhibit R-2, RDT&E Budget Item Justification

DATE

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207410F Air and Space Operations Center - Weapon System (AOC-WS)

supported after FY05.

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 - Weapon System (AOC-WS)			PROJECT NUMBER AND TITLE 4372 Time Critical Targeting		
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4372 Time Critical Targeting	2.306	2.286	0.000	0.000	0.000	0.000	0.000	0.000	0.000	26.752
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(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 Command and Control (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.

The Air Force has made the decision to complete Spiral 9 of TCTF and then transition requirements and functionality of TCTF into the AOC Increment 10.2 integration development project (PE 0207410F, Project 675117).

This program is in 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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Complete development of Spiral 9 (including but not limited to: software patches and fixes and test and evaluation activities)	2.306	2.286	0.000	0.000
(U) Total Cost	2.306	2.286	0.000	0.000

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
Other Procurement, AF										
(U) (3080) PEC: 27410F BPAC: 83453B	1.627	1.801	0.625	1.472	0.000	0.000	0.000	0.000	0.000	5.525

(U) D. Acquisition Strategy

The acquisition strategy horizontally integrates legacy C2ISR; emerging technologies, and introduces a revolutionary C2ISR warfighting capability; the strategy also includes a 8(a) set aside contract award to design, develop, test, integrate, install, train and support TCT Functionality software; separate contractors are being used to procure communication and computer hardware.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2005

BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207410F Air and Space Operations Center - Weapon System (AOC-WS)	PROJECT NUMBER AND TITLE 4372 Time Critical Targeting
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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>2004</u> <u>Cost</u>	<u>FY 2004</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2007</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
				<u>Cost</u>	<u>Award Date</u>	<u>Cost</u>	<u>Award Date</u>	<u>Cost</u>	<u>Award Date</u>	<u>Cost</u>	<u>Award Date</u>			
(U) <u>Product Development</u> Software Development	CPAF	Zel Technologies, Hampton, VA	12.327	1.558	Oct-03	1.505	Oct-04					0.000	15.390	TBD
Engineering/Requirements	CPFF	MITRE, Bedford, MA	3.280	0.000								0.000	3.280	TBD
Subtotal Product Development			15.607	1.558		1.505		0.000		0.000		0.000	18.670	TBD
Remarks:														
(U) <u>Support</u> Systems Engineering	FFP	MITRE, Bedford, MA	2.380	0.000								0.000	2.380	TBD
Program Support	FFP	A&AS, AFMC/ESC	3.248	0.000								0.000	3.248	TBD
Subtotal Support			5.628	0.000		0.000		0.000		0.000		0.000	5.628	TBD
Remarks:														
(U) <u>Test & Evaluation</u> Test Engineering	CPFF	A&AS, AFMC/ESC	0.000	0.248	Sep-04	0.281	Sep-05					0.000	0.529	TBD
Test Support	MIPR	46 TS, Eglin AFB, FL	0.500	0.100	May-04	0.100	May-05					0.000	0.700	TBD
Test Support	CPAF	Zel Technologies, Hampton, VA	0.425	0.400	Jun-04	0.400	Jun-05						1.225	TBD
Subtotal Test & Evaluation			0.925	0.748		0.781		0.000		0.000		0.000	2.454	TBD
Remarks:														
(U) Total Cost			22.160	2.306		2.286		0.000		0.000		0.000	26.752	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0207410F Air and Space Operations
Center - Weapon System (AOC-WS)

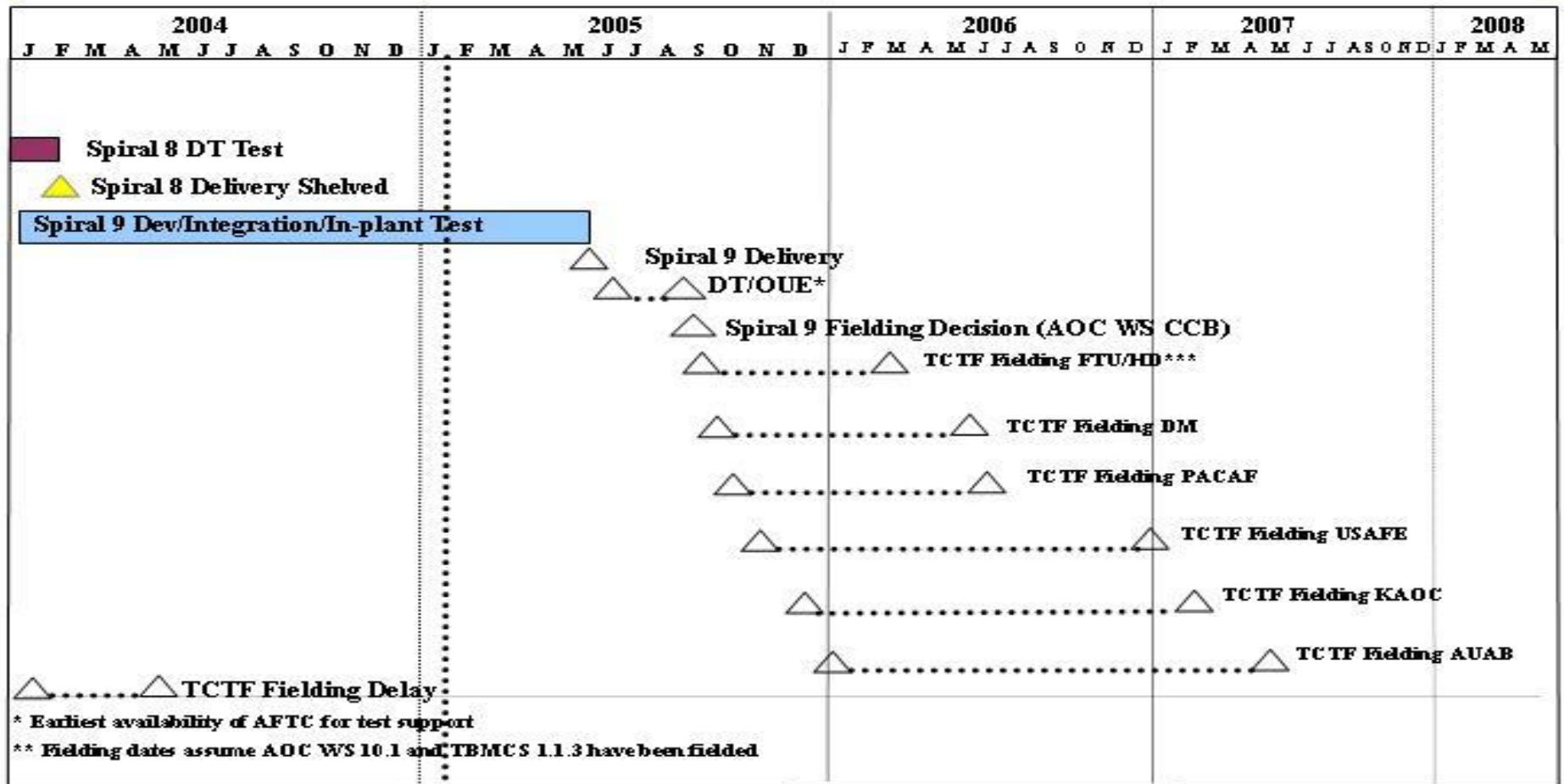
PROJECT NUMBER AND TITLE
4372 Time Critical Targeting

As of 12 Jan



U.S. AIR FORCE

TCTF Program Integrated Master Schedule



UNCLASSIFIED

Exhibit R-4a, RDT&E Schedule Detail	DATE February 2005
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207410F Air and Space Operations Center - Weapon System (AOC-WS)	PROJECT NUMBER AND TITLE 4372 Time Critical Targeting
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(U) <u>Schedule Profile</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) TCT Spiral 8 DT/OT	1-3Q			
(U) TCT Spiral 9 DT/OT		3-4Q		
(U) TCT Spiral 9 Fielding Decision	4Q			
(U) TCT Spiral 9 Fielding (FTU/Help Desk/ DM/ PACAF/ USAFE/ KAOC/AUAB)	4Q	3-4Q	1-4Q	1-2Q
(U) TCT Complete development/pre-programmed product improvement for Spiral 9			1-4Q	

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 - Weapon System (AOC-WS)			PROJECT NUMBER AND TITLE 5117 Integration Development		
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
5117 Integration Development	24.676	24.844	68.099	89.430	91.330	96.047	104.652	90.173	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

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

Air and Space Operations Center - Weapon System (AOC-WS) Program: The AOC-WS Integration Development project provides system hardware, software and documentation, to make the AOC-WS a viable weapons system. The program consists of Falconer AOCs, Tailored Falconer AOCs, Functional AOCs, and Support AOCs; that are configured according to mission need. The project will develop and integrate C2ISR capabilities to upgrade all sites to a software baseline. To keep the future AOC weapon system evolving to meet warfighter needs, the AOC-WS Program plans to spirally develop the AOC with capability increments. The December 2003 Acquisition Decision Memorandum directed the Air and Space Operations Center Weapon System to use a Lead System Integrator to ensure system of system perspective and systems engineering rigor; move AOC Modernization to Network Centric Operations (NCO) through spirally developed increments; to make recommendations on transitions to the "to be" architecture; and to conduct other weapon system standardization activities as defined in AOC WS requirements documents. This direction is driving significantly increased program funding. The AOC-WS Integration Development program provides a structure to transition and act as the focal point for systems integration, technical transition, and process refinement for rapidly evolving C2 programs, process and concepts.

The program is in 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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Continue AOC development and integration of items to include, but not limited to, legacy systems, multi-level security, visualization, coalition interoperability, airspace management and deconfliction, strategy and assessment, information management, and predictive battlespace awareness for air and space operations.	15.176	15.344		
(U) Integration to include, but not limited to, legacy systems, multi-level security, visualization, coalition interoperability, airspace management and deconfliction, strategy and assessment, information management, and predictive battlespace awareness for air and space operations.			22.430	39.700
(U) Modernization & Integration Systems Engineering Program Management and Data			14.800	18.100
(U) Integration Training (Type 1, Part Task Trainer, Distributed Mission Training)			5.200	9.200
(U) Modernization Integration Test and Evaluation			9.400	6.410
(U) Government Support to include but not limited to, Government Systems Engineering, Government Test	5.000	5.000	11.469	11.420
(U) Program Management Support	4.500	4.500	4.800	4.600
(U) Total Cost	24.676	24.844	68.099	89.430

Exhibit R-2a, RDT&E Project Justification	DATE February 2005
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207410F Air and Space Operations Center - Weapon System (AOC-WS)	PROJECT NUMBER AND TITLE 5117 Integration Development
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(U) C. Other Program Funding Summary (\$ in Millions)

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>		
Other Procurement, AF										
(U) (3080) PEC: 27410F; BPAC: 83453A	39.294	39.534	19.677	23.417	38.318	34.923	46.303	29.569	Continuing	TBD

(U) D. Acquisition Strategy

The December 2003 Acquisition Decision Memorandum directed the Air and Space Operations Center Weapon System (AOC WS) to hire a Lead System Integrator through full and open competition; to ensure system of system perspective and systems engineering rigor; move AOC Modernization to Network Centric Operations (NCO) through spirally developed increments; the acquisition strategy builds on existing capabilities, using evolutionary acquisition and spiral development to standardize, modernize and sustain AOC-WSs.

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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			0207410F Air and Space Operations Center - Weapon System (AOC-WS)								5117 Integration Development				
(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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>	
(U) <u>Product Development</u> AOC Software Development	CPAF	LMMS, Colorado Spring, CO	9.400										9.400		
Modernization & Integration	CPAF	TBD				4.541	Jul-05	14.400	Jul-06	71.000	Nov-06	Continuing	TBD		
Integration & Version Upgrades 10.1.X								37.530	Nov-05	2.410	Nov-06	Continuing	TBD		
Training	MIPR	AFMC/ESC	1.500	9.000	Jan-04	3.600	Jan-05	1.000	Jan-06	0.300	Jan-07	Continuing	TBD	TBD	
Other Contracts (GSA, ETC)	MIPR	Various	17.400	3.672	Nov-03	3.796	Nov-04	2.526	Nov-05	2.956	Nov-06	Continuing	TBD	TBD	
Increment 10.1 Development	MIPR	AFMC/ESC	9.363					2.000	Jan-06	2.000	Jan-07	Continuing	TBD	TBD	
Subtotal Product Development			37.663	12.672		11.937		57.456		78.666		Continuing	TBD	TBD	
Remarks:															
(U) <u>Support</u> Systems Engineering	CPFF	MITRE, Bedford, MA	2.500	3.500	Dec-03	3.700	Oct-04	3.823	Oct-05	4.600	Oct-06	Continuing	TBD	TBD	
Program Support	FFP	A&AS AFMC/ESC	5.567	6.580	Feb-04	6.961	Dec-04	4.520	Dec-05	3.864	Dec-06	Continuing	TBD	TBD	
Program Office Support	Various	AFMC/ESC	0.500	0.900	Oct-03	0.900	Oct-04	0.700	Oct-05	0.700	Oct-06	Continuing	TBD	TBD	
Subtotal Support			8.567	10.980		11.561		9.043		9.164		Continuing	TBD	TBD	
Remarks:															
(U) <u>Test & Evaluation</u> 46TS	MIPR	Eglin AFB, FL	0.500	1.024	Dec-03	1.346	Nov-04	1.600	Nov-05	1.600	Nov-06	Continuing	TBD	TBD	
Subtotal Test & Evaluation			0.500	1.024		1.346		1.600		1.600		Continuing	TBD	TBD	
Remarks:															
(U) Total Cost			46.730	24.676		24.844		68.099		89.430		Continuing	TBD	TBD	

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0207410F Air and Space Operations
Center - Weapon System (AOC-WS)

PROJECT NUMBER AND TITLE
5117 Integration Development

AOC WS Integrated Master Schedule (IMS)

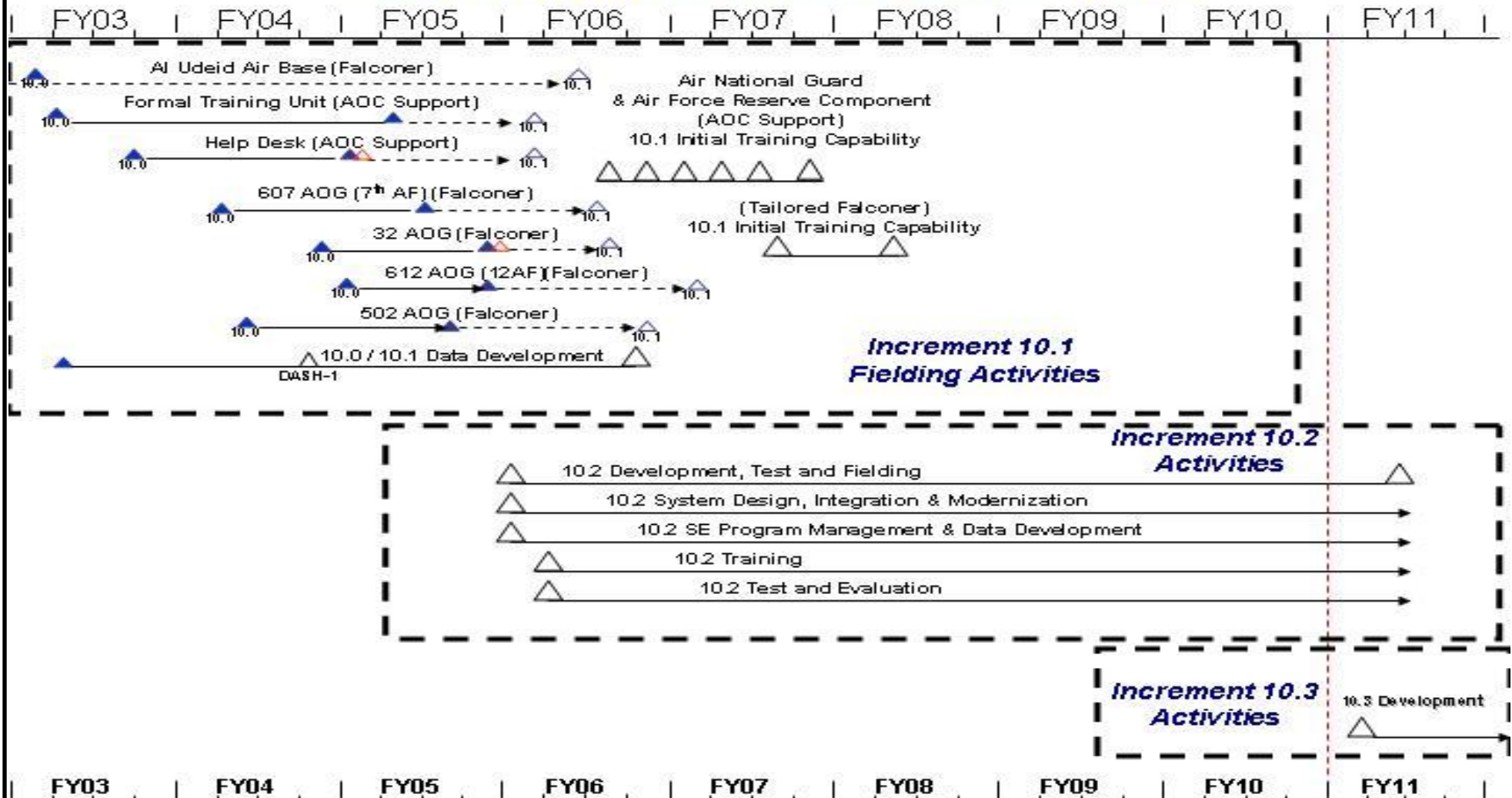


Exhibit R-4a, RDT&E Schedule Detail	DATE February 2005
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207410F Air and Space Operations Center - Weapon System (AOC-WS)	PROJECT NUMBER AND TITLE 5117 Integration Development
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(U) <u>Schedule Profile</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Continued Block 10.1 Spiral Development	1Q			
(U) FTU 10.1 Spiral Development	2-4Q	1-4Q	1Q	
(U) Help Desk 10.1 Spiral Development	3-4Q	1-4Q	1Q	
(U) Field Falconer Site 2 - (7th AF) 607th AOG	3-4Q	1-4Q	1-3Q	
(U) Field Falconer Site 3 - 32nd AOG		1-4Q	1-3Q	
(U) Field Falconer Site 4 - 12AF (612 AOG)		1-4Q	1-4Q	1-2Q
(U) Field Falconer Site 5 - 502 AOG			2-4Q	1-4Q
(U) Field Air National Guard/Air Reserve Components (ANG/ARCs)				1-4Q
(U) Field Tailored Falconers				2-4Q
(U) 10.2 Spiral 1 Development / Test			1-4Q	1-4Q

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Exhibit R-2, RDT&E Budget Item Justification	DATE February 2005
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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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	17.313	11.369	9.289	9.390	16.621	23.628	21.406	23.359	Continuing	TBD
485L Theater Air Control System Imp (TACSI)	17.313	11.369	9.289	9.390	16.621	23.628	21.406	23.359	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 [Region/Sector Operation Control Center, PE 0102326F, called the Battle Control System-Fixed {BCS-F}] and mobile Theater Battle Management (TBM) Command and Control (C2) nodes [Modular Control system, PE 0207412F [(called the Battle Control System-Mobile {BCS-M})]. The BCS-M is the replacement of the legacy Control and Reporting Center (CRC).

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), providing allied air defense coordination in Iraq and Afghanistan

BCS-M is a low density/high demand rapidly deployable ground C2 asset conducting both deployed theater operations and Homeland Defense. For Homeland Defense, it enables forward deployed C2 execution capability for activities such as NASA launches, Olympics, and security for the National Capital Region.

BCS-M 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-M acquisition activities include, but are not limited to requirements analysis, modeling and simulation, risk reduction, acquisition planning, enterprise integration, prototype development (i.e., product-izing, development suite, radio/radar/data link remoting, software development, radar development), transitioning Area Cruise Missile Defense (ACMD) technologies into BCS-M, and leveraging capabilities from BCS-F and AWACS 40/45. This program will participate in the development, testing, and implementation of international standards (to include NATO standardization agreements) to ensure joint, allied, and coalition interoperability.

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

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

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	15.868	11.634	9.412	9.360
(U) Current PBR/President's Budget	17.313	11.369	9.289	9.390
(U) Total Adjustments	1.445	-0.265		
(U) Congressional Program Reductions				
Congressional Rescissions		-0.265		
Congressional Increases				
Reprogrammings	1.920			
SBIR/STTR Transfer	-0.475			
(U) <u>Significant Program Changes:</u>				
FY2004 increase is due to internal below threshold reprogramming (BTR).				

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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
485L Theater Air Control System Imp (TACSI)	17.313	11.369	9.289	9.390	16.621	23.628	21.406	23.359	Continuing	TBD
Quantity of RDT&E Articles	0	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 [Region/Sector Operation Control Center, PE 0102326F, called the Battle Control System-Fixed {BCS-F}] and mobile Theater Battle Management (TBM) Command and Control (C2) nodes [Modular Control system, PE 0207412F [(called the Battle Control System-Mobile {BCS-M}]]. The BCS-M is the replacement of the legacy Control and Reporting Center (CRC).

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), providing allied air defense coordination in Iraq and Afghanistan

BCS-M is a low density/high demand rapidly deployable ground C2 asset conducting both deployed theater operations and Homeland Defense. For Homeland Defense, it enables forward deployed C2 execution capability for activities such as NASA launches, Olympics, and security for the National Capital Region.

BCS-M 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-M acquisition activities include, but are not limited to requirements analysis, modeling and simulation, risk reduction, acquisition planning, enterprise integration, prototype development (i.e., product-izing, development suite, radio/radar/data link remoting, software development, radar development), transitioning Area Cruise Missile Defense (ACMD) technologies into BCS-M, and leveraging capabilities from BCS-F and AWACS 40/45. This program will participate in the development, testing, and implementation of international standards (to include NATO standardization agreements) to ensure joint, allied, and coalition interoperability.

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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U)				
(U) Continue concept definition & development of evolutionary upgrades to the BCS to include, but not limited to, advanced planning, Modular Control System (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, sensor replacement/upgrade, and misc.	16.447	10.722	8.695	8.305
(U) Continue Program Support (i.e., travel, supplies, equipment, miscellaneous)	0.559	0.329	0.267	0.750
(U) Continue Systems Engineering	0.307	0.318	0.327	0.335
(U)				

Exhibit R-2a, RDT&E Project Justification	DATE February 2005
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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) Total Cost	17.313	11.369	9.289	9.390
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(U) **C. Other Program Funding Summary (\$ in Millions)**

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
(U) Other APPN OPAF PE 0207412F (Other Procurement Air Force, WSC 833040, Theater Air Control System Improvement	82.422	30.654	49.506	42.784	32.041	64.097	68.157	85.009	Continuing	TBD

(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.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2005

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) 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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>	
(U) Product Development															
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	16.028	14.438	Nov-03	2.866	Apr-05	3.486	Oct-05	3.675	Oct-06	Continuing	TBD	TBD	
TBD-BCS-M	TBD	TBD	0.000			7.856	May-05	3.828	Oct-05	2.630	Oct-06	Continuing	TBD	TBD	
Risk Reduction activity (Thales Raytheon BCS-F)	FFP	Fullerton, CA	0.000	2.009	May-04							0.000	2.009	2.009	
TBD-Sensor Replacement/Upgrade	TBD	TBD						1.381	Oct-05	2.000	Oct-06	Continuing	TBD	TBD	
Subtotal Product Development			16.028	16.447		10.722		8.695		8.305		Continuing	TBD	TBD	
Remarks:															
(U) Support															
Program Office Support	Various	Various	2.225	0.559	Nov-03	0.329	Nov-04	0.267	Nov-05	0.750	Nov-06	Continuing	TBD	TBD	
Systems Engineering	Various	Various	1.234	0.307	Feb-04	0.318	Feb-05	0.327	Jan-06	0.335	Jan-07	Continuing	TBD	TBD	
Subtotal Support			3.459	0.866		0.647		0.594		1.085		Continuing	TBD	TBD	
Remarks:															
(U) Total Cost			19.487	17.313		11.369		9.289		9.390		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	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11
BCS-M BIK 10								
- Remote Radio Spiral 2	[Ongoing Activity that is Complete] DT/DLE Field							
BCS-M BIK 20								
- Remote Radio Spiral 3	[Ongoing Activity that is Complete] Design Review		[Ongoing Activity that is on-going] DT/DLE IOC			[Major Event or Milestone] FOC		
- BCC Inc 1 (Spiral 3 S/W)	[Ongoing Activity that is Complete] Risk Reductor	[Major Event or Milestone] MS B [Planned Task(s)] CA Design Review	[Ongoing Activity that is on-going] DT/OA MS C		[Major Event or Milestone] IOT&E			
- BCC Inc 2 (Spiral 4 S/W)			[Major Event or Milestone] MS B CA		[Ongoing Activity that is on-going] DT/OA FDE IOC			
BCS-M BIK 30								
- BCS-M BIK 30 Radar Sensor Repl/Up			[Major Event or Milestone] MS A		[Major Event or Milestone] MS B	[Ongoing Activity that is on-going] DT/OA OA IOC		

- ★ Major Event or Milestone
- [Yellow Bar] Ongoing Activity that is on-going
- [Cyan Bar] Ongoing Activity that is Complete
- ▲ Completed Event
- △ Planned Task(s)

RE- Remote Radio
 BCS-M- Battle Control System-Mobile
 Sensor Repl/Up- Sensor Replacement/Upgrade
 MS- Milestone
 Inc- Increment
 OUE- Operational Utility Evaluation
 DT/OA- Development Test/Operational Assessment
 FOC- Final Operational Capability
 FDE- Force Deployment Evaluation
 CA- Contract Award
 IOC- Initial Operations Capability

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2005
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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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) BCS-M Blk 10 Radio Remote (RR) Spiral 2 DT/OUE	4Q			
(U) BCS-M Blk 10 RR Spiral 2 Field		1Q		
(U) BCS-M Blk 20 RR Spiral 3 Design Review	2Q			
(U) BCS-M Blk 20 RR Spiral 3 DT/OUE			1Q	
(U) BCS-M Blk 20 RR Spiral 3 IOC			2Q	
(U) BCC-M Blk 20 Battle Control Center (BCC) Inc 1 Risk Reduction	2-4Q			
(U) BCC-M Blk 20 BCC Inc 1 (Spiral 3 software Milestone B)		3Q		
(U) BCC-M Blk 20 BCC Inc 1 Contract Award		3Q		
(U) BCC-M Blk 20 BCC Inc 1 Design Review		4Q		
(U) BCC-M Blk 20 BCC Inc 1 (Spiral 3 software DT/OA)				1Q
(U) BCC-M Blk 20 BCC Inc 1 (Spiral 3 software Milestone C)				2Q
(U) BCC-M Blk 20 BCC Inc 1 (Spiral 3 software IOT&E)				4Q
(U) BCC-M Blk 20 BCC Inc 2 (Spiral 4 software Milestone B)				1Q
(U) BCC-M Blk 20 BCC Inc 2 (Spiral 4 software Contract Award)				2Q
(U) BCS-M Blk 30 Sensor Repl/Up Milestone A			2Q	

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PE NUMBER: 0207417F

PE TITLE: Airborne Warning and Control System (AWACS)

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2005
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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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	250.114	285.737	121.565	94.498	96.692	91.089	129.596	145.997	Continuing	TBD
411L Airborne Warning & Control System (AWACS)	250.114	285.737	121.565	94.498	96.692	91.089	129.596	145.997	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 Chairman Joint Chiefs of Staff (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 Very High Frequency (VHF) radios with 8.33 kHz channel spacing, Traffic-alert Collision Avoidance System (TCAS)/Mode-S Identification Friend or Foe (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.
- 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 insertion of new technologies with the aim of reducing 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 Air Expeditionary Force (AEF) and other Task

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0207417F Airborne Warning and Control System (AWACS)

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 & transition into the next C2ISR Platform. The AWACS program will coordinate with and participate in projects developing international standards (including NATO standards) to ensure joint, allied, and coalition interoperability. The E-3 will serve as the lead platform to support the development of the Mark XXIIA Mode 5 IFF capability carried out in PE 63742F, Combat 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 used 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) and the Avionics Integration Laboratory (AIL) are Government owned/contractor managed, maintained and operated assets. These test-ready assets support AWACS modernization, including advanced projects and sustainment projects, and allow AWACS to participate in live-fly (e.g. Joint Expeditionary Force Experiment) and ground-based interoperability testing through the Joint Distributed Engineering Plant (JDEP) configured AIL. They also support multiple international Airborne Early Warning and Control (AEW&C) projects on a fee basis, including French, RSAF, UK, Japan, and NATO.

6) NAVWAR (Navigation Warfare) is mandated by CJCSI 6140.01A (31 Mar 04) 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) and incorporates new technology into the navigation sensor.

7) AMP (Avionics Modernization Program) completes the FAA/International Civil Aviation Organization (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 command and control (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.

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8) 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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	267.846	288.787	131.308	85.578
(U) Current PBR/President's Budget	250.114	285.737	121.565	94.498
(U) Total Adjustments	-17.732	-3.050		
(U) Congressional Program Reductions				
Congressional Rescissions		-3.050		
Congressional Increases				
Reprogrammings	-9.471			
SBIR/STTR Transfer	-8.261			

(U) Significant Program Changes:

Funds were rephased from FY06 to FY07 to support the Block 40/45 System Development and Demonstration. Block 40/45 remains executable.

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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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
411L Airborne Warning & Control System (AWACS)	250.114	285.737	121.565	94.498	96.692	91.089	129.596	145.997	Continuing	TBD
Quantity of RDT&E Articles	0	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 Chairman Joint Chiefs of Staff (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 Very High Frequency (VHF) radios with 8.33 kHz channel spacing, Traffic-alert Collision Avoidance System (TCAS)/Mode-S Identification Friend or Foe (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.

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 insertion of new technologies with the aim of reducing 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 Air Expeditionary Force (AEF) 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

Exhibit R-2a, RDT&E Project Justification		DATE February 2005
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<p>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 & transition into the next C2ISR Platform. The AWACS program will coordinate with and participate in projects developing international standards (including NATO standards) to ensure joint, allied, and coalition interoperability. The E-3 will serve as the lead platform to support the development of the Mark XXIIA Mode 5 IFF capability carried out in PE 63742F, Combat ID Technology.</p> <p>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 used to establish concurrency between prime integrators and training service providers.</p> <p>5) Test System 3/Integration Labs: The E-3 AWACS testbed aircraft, Test System 3 (TS-3, tail number 73-1674) and the Avionics Integration Laboratory (AIL) are Government owned/contractor managed, maintained and operated assets. These test-ready assets support AWACS modernization, including advanced projects and sustainment projects, and allow AWACS to participate in live-fly (e.g. Joint Expeditionary Force Experiment) and ground-based interoperability testing through the Joint Distributed Engineering Plant (JDEP) configured AIL. They also support multiple international Airborne Early Warning and Control (AEW&C) projects on a fee basis, including French, RSAF, UK, Japan, and NATO.</p> <p>6) NAVWAR (Navigation Warfare) is mandated by CJCSI 6140.01A (31 Mar 04) 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) and incorporates new technology into the navigation sensor.</p> <p>7) AMP (Avionics Modernization Program) completes the FAA/International Civil Aviation Organization (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 command and control (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.</p>		
Project 411L	R-1 Shopping List - Item No. 146-5 of 146-9	Exhibit R-2a (PE 0207417F)

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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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8) 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. Accomplishments/Planned Program (\$ in Millions)	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Accomplishments/Planned Programs	0.000			
(U) Continuing Test System-3/AITS support and Program Sustaining efforts	29.506	13.292	17.520	17.612
(U) Continuing Trainers, Simulators and Infrastructure (TSI) efforts (previously included under Test System-3/AITS support and Program Sustaining efforts)		4.592	2.239	3.228
(U) Continuing Block 40/45 SD&D effort	191.856	255.683	90.876	67.855
(U) Completing Integrated DAMA/GATM (IDG) SD&D (combination of ATC Compliance & SATCOM DAMA)	25.177	0.000	0.000	0.000
(U) Continuing C2ISR System Architecture Improvements, Advanced Projects, MC Rate Improvements	3.575	5.211	6.090	5.803
(U) Continuing Navigational Warfare (NAVWAR) SD&D		6.959	4.840	0.000
(U) Total Cost	250.114	285.737	121.565	94.498

(U) C. Other Program Funding Summary (\$ in Millions)	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>		
(U) AF RDT&E										
(U) Other APPN										
(U) Aircraft Procurement, AF, E-3 Mods	54.882	35.477	49.164	135.271	211.007	209.559	413.758	411.850	Continuing	TBD
(U) E-3 Initial Spares, AF	8.324	8.726	7.096	7.305	7.583	7.871	10.812	18.458	Continuing	TBD
(U) Replacement Supt Equip	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

(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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07 Operational System Development										0207417F Airborne Warning and Control System (AWACS)		411L Airborne Warning & Control System (AWACS)			
(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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>	
(U) <u>Product Development</u>															
(U) Block 40/45 SD&D	SS/CPAF	Boeing - Seattle, WA	22.286	184.569	Oct-03	244.091	Oct-04	77.310	Oct-05	57.288	Oct-06	Continuing	TBD	TBD	
(U) PDMA*	SS/Multiple	Boeing - Seattle, WA	58.149									Continuing	TBD	TBD	
(U) C2ISR Sys Arch Imp	SS/FPIF & CPAF	Boeing - Seattle, WA	39.030	1.538	Nov-03	3.062	Nov-03	3.690	Oct-05	3.403	Oct-06	Continuing	TBD	TBD	
(U) IDG	SS/CPIF	Boeing - Seattle, WA	27.313	24.602	Oct-03							0.000	51.915	51.915	
(U) NAVWAR/AMP	SS/Multiple	Boeing - Seattle, WA	0.000			6.331	Nov-04	4.241	Oct-05			Continuing	TBD	TBD	
Subtotal Product Development			146.778	210.709		253.484		85.241		60.691		Continuing	TBD	TBD	
Remarks:	* N/A based on Program Depot Maintenance Airframe (PDMA) Acquisition Strategy which includes multiple contracts with multiple organizations with overlapping and continuing performance periods. Note: Total Program does not include NATO funds.														
(U) <u>Support</u>															
(U) Support/ITSP MITRE, travel, other	Competitive Multiple	AWACS Program Office - Hanscom AFB, MA	597.884	15.931	N/A	19.184	N/A	21.431	N/A	17.888	N/A	Continuing	TBD	TBD	
Subtotal Support			597.884	15.931		19.184		21.431		17.888		Continuing	TBD	TBD	
Remarks:															
(U) <u>Test & Evaluation</u>															
(U) Test System-3 ADAPT Contract/AITS Contract / Other test activities	SS/Multiple	Boeing - Seattle, WA	391.742	23.474	N/A	8.477	N/A	12.654	N/A	12.691	N/A	Continuing	TBD	TBD	
(U) Trainers, Simulators & Infrastructure (TSI)	SS/Multiple	Boeing - Seattle, WA	0.000			4.592	Jan-05	2.239	Jan-06	3.228	Jan-07	Continuing	TBD	TBD	
Subtotal Test & Evaluation			391.742	23.474		13.069		14.893		15.919		Continuing	TBD	TBD	
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			1,136.404	250.114		285.737		121.565		94.498		Continuing	TBD	TBD	

Exhibit R-4, RDT&E Schedule Profile

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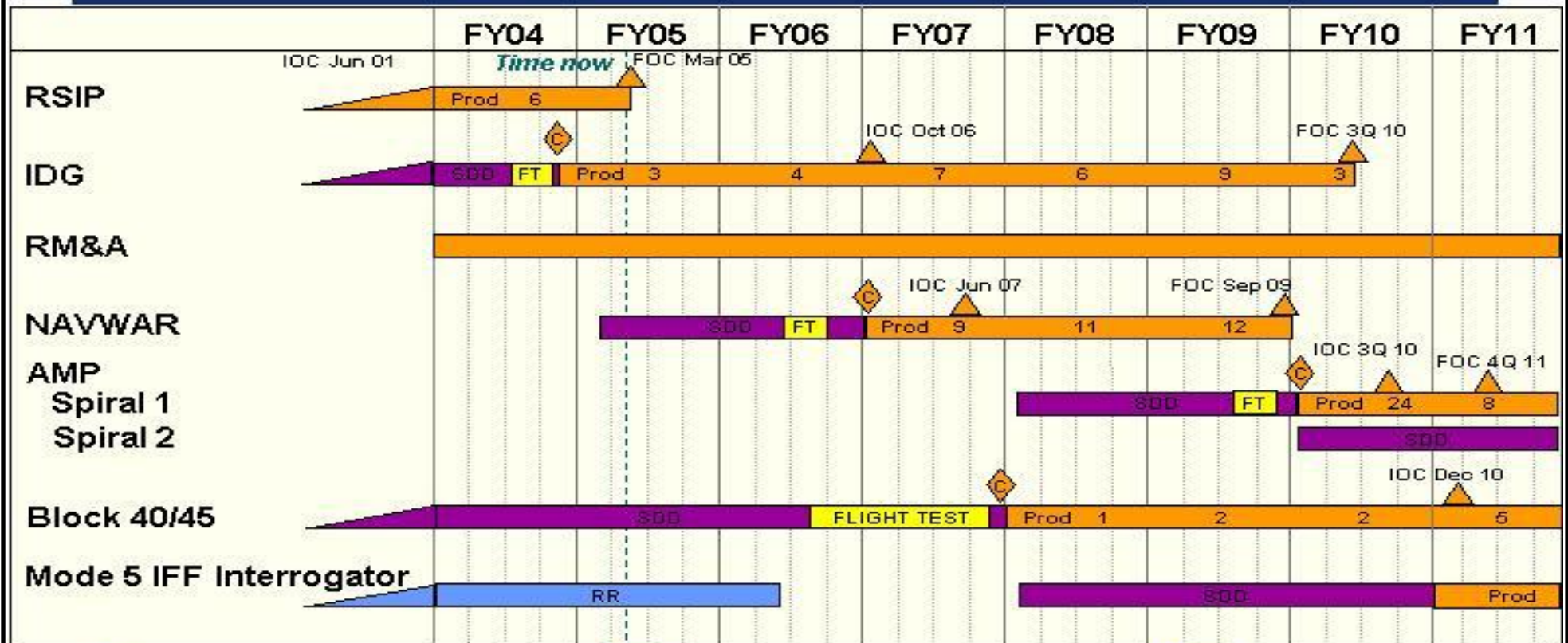
BUDGET ACTIVITY
07 Operational System Development

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

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



AWACS Schedule



■ Concept activities
 ■ Design / development
 ■ Integration / test
■ Production / fielding
 ■ Operations / sustainment
 △◇ Key events

Depicted by production flow & limiting a/c configurations to two

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Exhibit R-4a, RDT&E Schedule Detail		DATE		
BUDGET ACTIVITY 07 Operational System Development		February 2005		
PE NUMBER AND TITLE 0207417F Airborne Warning and Control System (AWACS)		PROJECT NUMBER AND TITLE 411L Airborne Warning & Control System (AWACS)		
(U) Schedule Profile	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(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 Aircraft Modifications Complete		1Q		
(U) 40/45 Test Aircraft Modification Start		2Q		
(U) NAVWAR Software Development Progress Review		3Q		
(U) IDG Production Aircraft Modification Start		3Q		
(U) IDG Delta Testing			1Q	
(U) 40/45 Airworthiness Testing			1Q	
(U) NAVWAR Flight Tests			2Q	
(U) 40/45 Install & Checkout Complete			3Q	
(U) 40/45 Ground/Flight Test Starts			3Q	
(U) IDG Follow-On Contract Award			3Q	
(U) 40/45 Long Lead Decision			4Q	
(U) IDG IOC				1Q
(U) AMP Risk Reduction & RFP				2Q
(U) NAVWAR IOC				3Q
(U) 40/45 Ground/Flight Test Complete				3Q
(U) 40/45 IOT&E Complete				4Q
(U) 40/45 Milestone C				4Q

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PE NUMBER: 0207423F
 PE TITLE: Advanced Communications Systems

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2005
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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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	11.724	18.040	28.938	52.420	61.336	60.071	56.335	60.492	Continuing	TBD
4934 Tactical Air Control Party (TACP)	11.724	18.040	11.746	8.975	9.304	6.421	6.690	6.797	Continuing	TBD
5189 C2ISR JTRS Integration	0.000	0.000	17.192	43.445	52.032	53.650	49.645	53.695	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

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 targeting and communications equipment needed to interface with ground maneuver forces, aircraft conducting air operations, aerospace C2 aircraft/agencies and Intelligence, Surveillance and Reconnaissance (ISR) aircraft/agencies. The TACP-Modernization (TACP-M) Program is intended to reduce reliance on voice transmission and replace analog equipment with the latest digital, data link and video technology available to improve the system's 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. TACP-M is divided into two segments: Dismounted and Vehicular. The dismounted TACP provides a modernized capability via a streamlined acquisition using non-developmental, Commercial off-the-shelf (COTS) Manpack Radios (MPR) and Handheld Radios (HHR), Laser Target Devices (LTD), and ruggedized mission computers combined with TACP SA software. The Vehicular Communications System (VCS) provides a vehicular-mounted capability through the Army's Cluster 1 Joint Tactical Radio System (JTRS) program which consists of the JTRS radio, computer, sunlight readable display and some ancillary equipment.

The integration of capability via JTRS sets will provide C2 and ISR platforms with required legacy communications capability and enabling growth opportunity to a net enabled capability providing dynamic connectivity throughout the battle space. The funding provides such capabilities on various C2 and ISR platforms to include and not limited to Global Hawk, Predator, AWACS, Rivet Joint, and JSTARS. The Global Hawk and Predator platforms with a multi-channel Very High Frequency (VHF)/Ultra High Frequency (UHF) capability while resolving critical Size, Weight, and Power (SWaP) issues. Additionally, opportunities to integrate additional capability to include Link 16 via the JTRS are being investigated. The AWACS and JSTARS platform are integrating an Integrated Broadcast Service (IBS) capability to replace the current stand-alone Satellite Communications (SATCOM) connectivity with an integrated implementation. IBS is intended to help achieve global connectivity, assured delivery of critical information, common track numbering and sensor-to-shooter information flow. Opportunities to upgrade current legacy capability to include Link 16 will also be considered for these platforms. The Rivet Joint program will integrate a Link 16 capability via the JTRS to enhance its airborne situational awareness.

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

Exhibit R-2, RDT&E Budget Item Justification

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207423F Advanced Communications Systems

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	12.208	18.200	5.479	0.000
(U) Current PBR/President's Budget	11.724	18.040	28.938	52.420
(U) Total Adjustments	-0.484	-0.160		
(U) Congressional Program Reductions		-0.175		
Congressional Rescissions				
Congressional Increases		0.015		
Reprogrammings	-0.126			
SBIR/STTR Transfer	-0.358			

(U) **Significant Program Changes:**

TACP FY06-08 funds were increased due to Air force lessons learned from GWOT to integrate ROVER (video capabilities) into TACP Close Air Support System (TACP-CASS) mission software to improve targeting accuracy, kill chain decision time and reduce risk of fratricide.

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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4934 Tactical Air Control Party (TACP)	11.724	18.040	11.746	8.975	9.304	6.421	6.690	6.797	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

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

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 targeting and communications equipment needed to interface with ground maneuver forces, aircraft conducting air operations, aerospace C2 aircraft/agencies and Intelligence, Surveillance and Reconnaissance (ISR) aircraft/agencies. The TACP-Modernization (TACP-M) Program is intended to reduce reliance on voice transmission and replace the current analog equipment with the latest digital, data link and video technology available to improve the system's 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. TACP is divided into two segments: Dismounted and Vehicular. The dismounted TACP provides a modernized capability via a streamlined acquisition using non-developmental, Commercial Off-the-Shelf (COTS) Manpack Radios (MPR) and Handheld Radios (HHR), Laser Target Devices (LTD), and ruggedized mission computers combined with TACP SA software. The Vehicular Communications System (VCS) provides a vehicular-mounted capability through the Army's Cluster 1 Joint Tactical Radio System (JTRS) program which consists of the JTRS radio, computer, sunlight readable display and some ancillary equipment.

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

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Continue JTRS TACP Vehicular Communication System (VCS) hardware development	5.521	12.516	5.926	4.991
(U) Software development and System integration	4.935	4.523	5.511	1.890
(U) Operational and interoperability test planning	1.268	1.001	0.309	2.094
(U) Total Cost	11.724	18.040	11.746	8.975

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

	<u>FY 2004</u> <u>Actual</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>FY 2010</u> <u>Estimate</u>	<u>FY 2011</u> <u>Estimate</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) Advanced Communications System Other Procurement, AF PE 0207423F	2.595	18.868	16.698	17.263	107.137	119.474	77.685	72.250	Continuing	TBD

(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

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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) 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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> Boeing Company	C/PAF	Army Tactical Command & Control Sys, Ft Monmouth, NJ	22.440	3.702	May-04	10.558	Nov-04	1.889	Nov-05	3.281		Continuing	TBD	TBD
ESC Sys Int Software Dev't	T&M	MultiMax, Inc. Largo, Maryland	7.997	3.607	Oct-03	4.009	Nov-04	6.332	Nov-05	2.515	Nov-06	Continuing	TBD	TBD
Subtotal Product Development Remarks:			30.437	7.309		14.567		8.221		5.796		Continuing	TBD	TBD
(U) <u>Support</u> ESC	C/FFP	Various	5.043	2.630	Oct-03	2.472	Oct-04	3.216	Oct-05	2.106	Oct-06	Continuing	TBD	TBD
Subtotal Support Remarks:			5.043	2.630		2.472		3.216		2.106		Continuing	TBD	TBD
(U) <u>Test & Evaluation</u> Test Agency Support	MIPR	Various	1.231	1.785	Oct-03	1.001	Nov-04	0.309	Nov-05	1.073	Nov-06	Continuing	TBD	TBD
Subtotal Test & Evaluation Remarks:			1.231	1.785		1.001		0.309		1.073		Continuing	TBD	TBD
(U) <u>Management</u> Subtotal Management Remarks:			0.000	0.000		0.000		0.000		0.000		0.000	0.000	TBD
(U) Total Cost			36.711	11.724		18.040		11.746		8.975		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

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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)



TACP-M Schedule

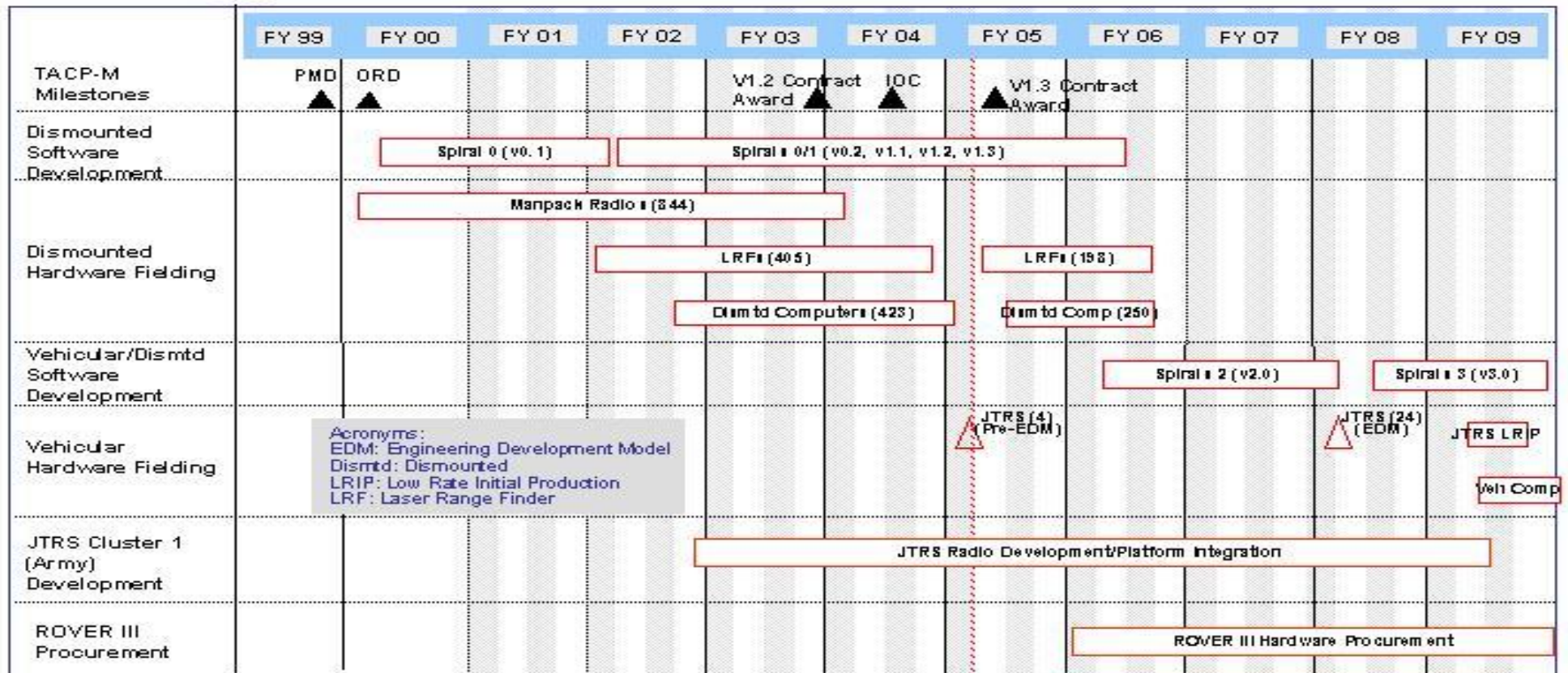


Exhibit R-4a, RDT&E Schedule Detail

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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)

(U) Schedule Profile

FY 2004

FY 2005

FY 2006

FY 2007

(U)

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 5189 C2ISR JTRS Integration		
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
5189 C2ISR JTRS Integration	0.000	0.000	17.192	43.445	52.032	53.650	49.645	53.695	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The integration of capability via Joint Tactical Radio System (JTRS) will provide C2 and ISR platforms with a common family of software programmable radios for reliable multi-channel voice, data, imagery, and video communications. JTRS radios will be modular, scalable, backwards-compatible and network capable, and will mitigate communications problems caused by unique "stovepiped" legacy systems. The funding provides such capabilities on various C2 and ISR platforms to include Global Hawk, Predator, AWACS, Rivet Joint, and JSTARS. The Global Hawk and Predator platforms will use a multi-channel VHF/UHF capability while resolving critical Size, Weight, and Power (SWAP) issues. Additionally, opportunities to integrate additional capability to include Link 16 via JTRS is being investigated. The AWACS and JSTARS platform are integrating an Integrated Broadcast Service (IBS) capability to replace the current stand-alone SATCOM connectivity with an integrated implementation. IBS is intended to replace the stovepipe intelligence systems of Tactical and Related Applications (TRAP), Tactical Data Information Exchange System-Broadcast (TADIXS-B), Tactical Information Broadcast Service (TIBS), etc., with a single broadcast service providing interoperability, commonality and standardization via a variety of distribution methods (including Ultra High Frequency (UHF), Super High Frequency (SHF), Extremely High Frequency (EHF), Satellite Communications (SATCOM) and Global Broadcast Service (GBS). IBS is also intended to help achieve global connectivity, assured delivery of critical information, common track numbering and sensor-to-shooter information flow. Opportunities to upgrade current legacy capability to include Link 16 will also be considered for these platforms. The Rivet Joint program will integrate a Link 16 capability via JTRS to enhance its airborne situational awareness.

C2ISR JTRS 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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) System Integration Engineering and Integration			7.500	18.815
(U) Software development			5.300	15.730
(U) Operational and interoperability test planning			4.392	8.900
(U) Total Cost	0.000	0.000	17.192	43.445

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
PE 0207423 Advanced										
(U) Communication						29.997	16.113	17.221		63.331
System-Aircraft Procurement										

(U) D. Acquisition Strategy

All major contracts within this Program Element and program will be awarded through a 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 0207423F Advanced Communications Systems	PROJECT NUMBER AND TITLE 5189 C2ISR JTRS Integration
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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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u> E-8 JSTARS	CPIF	Pre-SDD Northrup Grumman, Melbourne FL	0.000	0.000		0.000		5.429	Dec-05	16.034		66.372	87.835	TBD
RQ-4 Global Hawk	CPIF	Northrup Grumman, Rancho Bernardo						5.429	Mar-06	15.998		70.298	91.725	TBD
E-3 AWACS	CPIF	TBD										25.508	25.508	TBD
RC-135 Rivet Joint	CPIF	TBD						2.011	Dec-05	2.038		8.145	12.194	TBD
RQ-1 Predator	CPIF	TBD						4.323	Aug-06	9.375		38.699	52.397	TBD
Subtotal Product Development			0.000	0.000		0.000		17.192		43.445		209.022	269.659	TBD
Remarks:														
<u>(U) Total Cost</u>			0.000	0.000		0.000		17.192		43.445		209.022	269.659	TBD

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0207423F Advanced Communications Systems

PROJECT NUMBER AND TITLE
5189 C2ISR JTRS Integration

C2ISR JTRS Integration Schedule

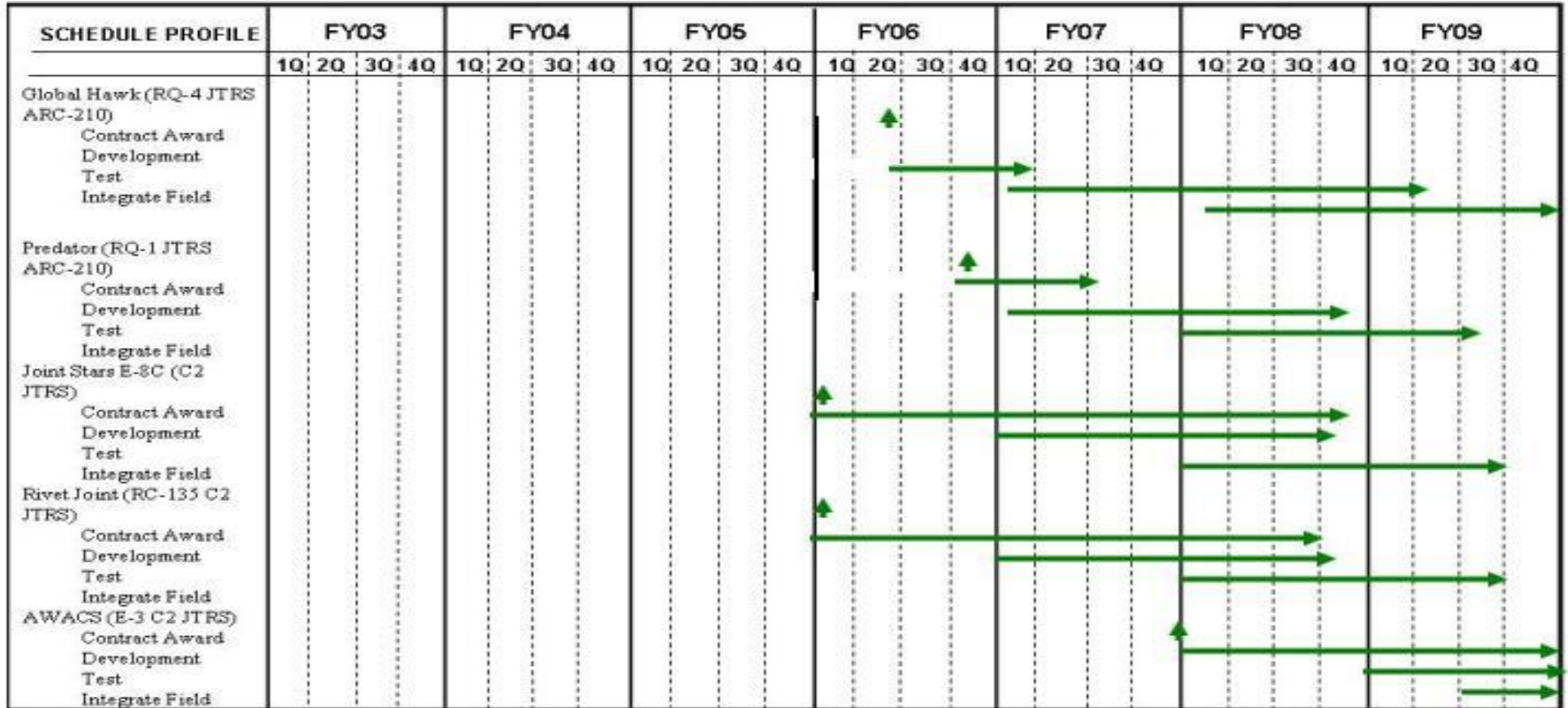


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BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0207423F Advanced Communications Systems

PROJECT NUMBER AND TITLE
5189 C2ISR JTRS Integration

C2ISR JTRS Integration Schedule

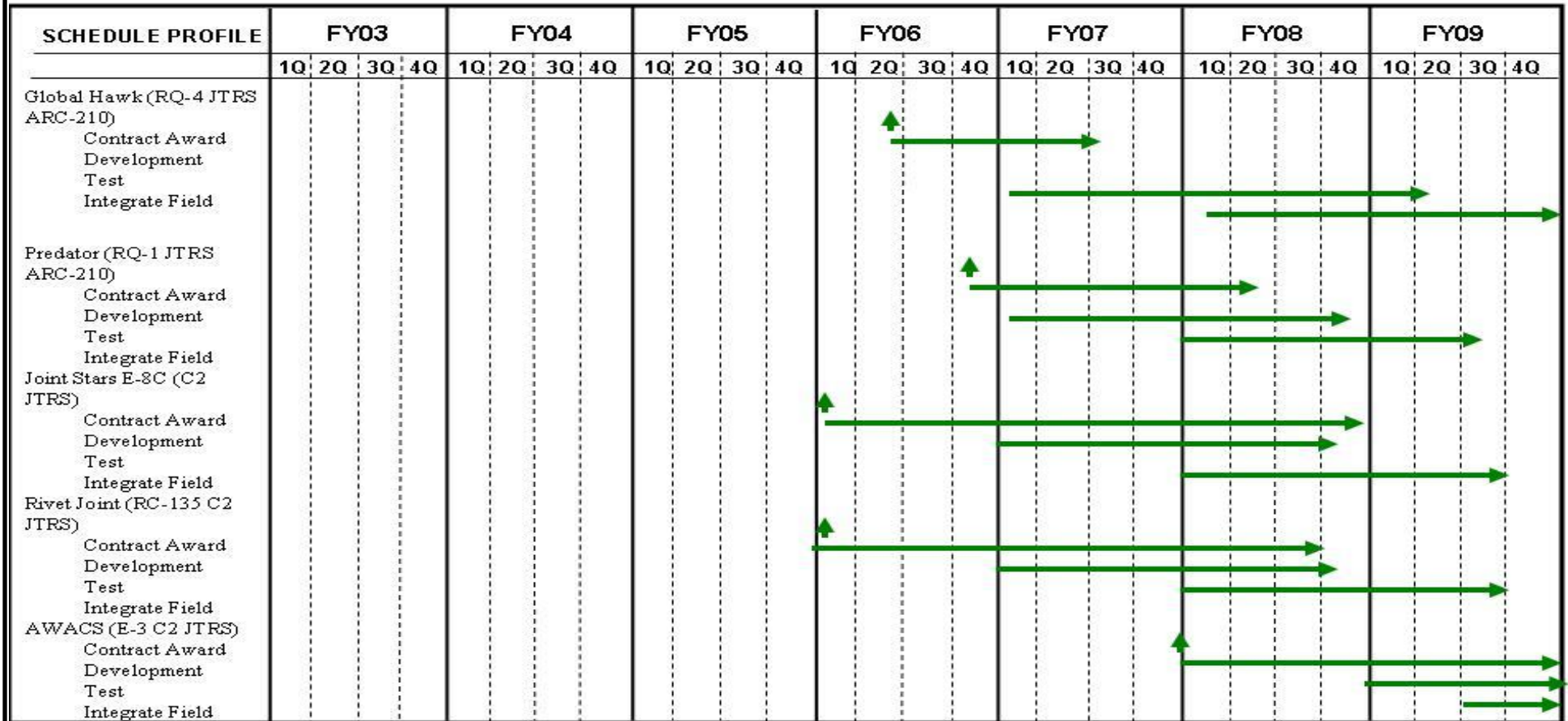


Exhibit R-4a, RDT&E Schedule Detail	DATE February 2005
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207423F Advanced Communications Systems	PROJECT NUMBER AND TITLE 5189 C2ISR JTRS Integration
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(U) <u>Schedule Profile</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Global Hawk (RQ-4JTRS ARC-210) Contract Award			2Q	
(U) Global Hawk (RQ-4JTRS ARC-210) Development			2-4Q	1-2Q
(U) Predator Contract Award			1Q	
(U) Predator Development			1-4Q	1-2Q
(U) Joint Stars Contract Award			1Q	
(U) Joint Stars Development			1-4Q	1-2Q
(U) Rivet Joint Contract Award			1Q	
(U) Rivet Joint Development			1-4Q	1-2Q

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

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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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	38.119	36.567	39.222	32.469	32.262	33.162	37.354	38.002	Continuing	TBD
3330 Joint Targeting Tool (JTT)	0.000	0.000	2.673	0.000	0.000	0.000	0.000	0.000	0.000	50.808
4790 Theater Battle Management Core System (TBMCS)	26.422	22.354	23.232	22.506	22.295	22.963	25.572	26.000	Continuing	TBD
4802 Deliberate and Crisis Action Planning and Execution Segment (DCAPES)	11.697	14.213	13.317	9.963	9.967	10.199	11.782	12.002	Continuing	TBD

(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-Weapon System (AOC-WS) 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), and Deliberate and Crisis Action Planning and Execution Segment (DCAPES). The C2IPS project as a whole has been retired by the Air Force but funding for Joint Targeting Toolbox (JTT), which enhances joint targeting functionality, was placed in the retired C2IPS project line.

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.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	32.505	37.210	37.990	34.079
(U) Current PBR/President's Budget	38.119	36.567	39.222	32.469
(U) Total Adjustments	5.614	-0.643		
(U) Congressional Program Reductions				
Congressional Rescissions	-0.442	-0.643		
Congressional Increases				
Reprogrammings	7.028			
SBIR/STTR Transfer	-0.972			

(U) Significant Program Changes:
 In FY04, FIOP funding was transferred to PE 0207438F and contained in project 4790 TBMCS. As part of the FY05 President's Budget, FIOP funds transferred out of PE

Exhibit R-2, RDT&E Budget Item Justification

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207438F Theater Battle Management (TBM) C4I

0207438F, TBMCS project and into PE 0207443 for FY05-09 placing it with other FIOP funded projects.

The C2IPS project as a whole has been retired by the Air Force but funding for Joint Targeting Toolbox (JTT), which enhances joint targeting functionality, was placed in the retired C2IPS project line 3330 for FY06.

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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 Joint Targeting Tool (JTT)		
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
3330 Joint Targeting Tool (JTT)	0.000	0.000	2.673	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	0		

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

The Command & Control Information Processing System (C2IPS) project as a whole has been retired by the Air Force but Joint Targeting Toolbox (JTT) funds were placed in the C2IPS project line for FY06. JTT is a set of automated, interoperable targeting tools which enhance joint targeting functionality at national, theater, and tactical levels. These tools are designed to support each phase of the targeting cycle to allow targeting data to be shared dynamically across the national, theater, and tactical levels.

The 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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Continue development on JTT Release 3.1 which includes, but is not limited to, software development, test and evaluation as well as program management and program support.	0.000	0.000	2.673	0.000
(U) Total Cost	0.000	0.000	2.673	0.000

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	

(U) N/A

(U) **D. Acquisition Strategy**

JTT development contractor (TBD) will be awarded a cost plus award fee contract to develop JTT version 3.1 following a full and open competition. JTT's requirements are vetted and approved by the Joint Targeting Automated Steering Group (JTASG).

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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 Joint Targeting Tool (JTT)			
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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 2004 Cost</u>	<u>FY 2004</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2007</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
				<u>Cost</u>	<u>Award Date</u>	<u>Cost</u>	<u>Award Date</u>	<u>Cost</u>	<u>Award Date</u>	<u>Cost</u>	<u>Award Date</u>			
(U) <u>Product Development</u> Software Development	CPAF/IDI Q	TBD		0.000	0	0.000		1.723	Nov-05	0.000			1.723	TBD
Subtotal Product Development			0.000	0.000		0.000		1.723		0.000		0.000	1.723	TBD
Remarks:														
(U) <u>Support</u> Systems Support	CPFF	BAE Systems, Rome, NY		0.000	0	0.000		0.250	Nov-05	0.000		0.000	0.250	TBD
Subtotal Support			0.000	0.000		0.000		0.250		0.000		0.000	0.250	TBD
Remarks:														
(U) <u>Test & Evaluation</u> Development Contractor Costs	CPAF/IDI Q	TBD		0.000	0	0.000		0.400	Nov-05				0.400	TBD
Subtotal Test & Evaluation			0.000	0.000		0.000		0.400		0.000		0.000	0.400	TBD
Remarks:														
(U) <u>Management</u> Development Contractor	CPAF/IDI Q	TBD		0.000	0	0.000		0.300	Nov-05				0.300	TBD
Subtotal Management			0.000	0.000		0.000		0.300		0.000		0.000	0.300	TBD
Remarks:														
(U) Total Cost			0.000	0.000		0.000		2.673		0.000		0.000	2.673	TBD

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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 Joint Targeting Tool (JTT)

JTT Schedule/PE 27438F 2006

ID	Task Name	2000			2001			2002			2003			2004			2005			2006			2007			2008			2009			2010
		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		
1																																
2																																
3																																
4																																
5	Development of JTT Release 3.1																															
6																																
7																																
21																																
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24																																
37																																
54																																
55																																
56																																

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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 Joint Targeting Tool (JTT)
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(U) Schedule Profile	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Continue Development of Release 3.1			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		0207438F Theater Battle Management (TBM) C4I						4790 Theater Battle Management Core System (TBMCS)		
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4790 Theater Battle Management Core System (TBMCS)	26.422	22.354	23.232	22.506	22.295	22.963	25.572	26.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(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. It also evaluates future aerospace command and control concepts identified through Global War on Terrorism (GWOT) and incorporates new capability 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-Weapon System (AOC-WS) 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).

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.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Continue TBMCS Increment 1.1 baseline Spirals (including Force Level, Unit Ops & Unit Intel Spirals, effort continues into FY07)	8.620	9.973	5.726	5.292
(U) Continue C2 Capabilities/Applications/Infrastructure Upgrade Planning/Development, Test and Field (previously named TBMCS Increment 2.0)	4.898	6.562	11.731	11.812
(U) TBMCS System engineering and interoperability with US, NATO, or other coalition systems	4.612	4.409	4.455	4.262
(U) TBMCS Test Support for Force Level and Unit Level Spirals	1.410	1.410	1.320	1.140
(U) TBMCS/AFSOC Command and Control Mission Manager	1.159			
(U) Family of Interoperable Operational Pictures (FIOP) Requirements and Engineering Management	1.294			
(U) FIOP Execution Management Capability.	3.428			
(U) FIOP COE Support for Joint Variable Message format.	1.001			
(U) Total Cost	26.422	22.354	23.232	22.506

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

Exhibit R-2a, RDT&E Project Justification

DATE
February 2005

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
(U) Other Procurement, AF, PE 0207438F, WSC 834520	44.017	41.359	41.709	29.426	34.068	34.406	40.833	38.693	Continuing	TBD

(U) D. Acquisition Strategy

Projects were awarded following full and open competition and will use an evolutionary acquisition strategy based on spiral development.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2005

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) 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 2004 Cost</u>	<u>FY 2004</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2007</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
				<u>Cost</u>	<u>Award Date</u>	<u>Cost</u>	<u>Award Date</u>	<u>Cost</u>	<u>Award Date</u>	<u>Cost</u>	<u>Award Date</u>			
(U) <u>Product Development</u> TBMCS - Increment/Spiral development	C/CPAF	LM, Colorado Springs, CO		11.573	Nov-03	15.110	Nov-04	16.697	Nov-05	16.247	Nov-06	Continuing	TBD	TBD
Joint Targeting Toolbox	C/CPFF	Northrup Grumman, Reston, VA	3.000	0.850	Feb-04	1.000	Feb-05					0.000	4.850	TBD
TBMCS GCCS-I3	MIPR	Northrop Grumman, Reston, VA		0.250	Feb-04	0.125	Mar-05					0.000	0.375	TBD
Unit Level Intel TBMCS IMOM	MIPR	Various		0.150	Aug-04	0.225	Feb-05	0.760	Jan-06	0.857	Jan-07	Continuing	TBD	TBD
TBMCS Accenture	MIPR	Depart of Energy, Idaho Falls, ID		0.075	Feb-04	0.075	Mar-05					0.000	0.150	TBD
TBMCS/AFSOC C2 Mission Manager	MIPR	453 AF/EWS, San Antonio, TX		0.620	Apr-04							0.000	0.620	TBD
FIOP Requirements & Engineering Mgmt	MIPR	SAIC, Florida and West Virginia		1.159	Apr-04							0.000	1.159	TBD
FIOP Execution Mgmt Capability Development	C/CPFF	Various LMMS, Colorado Springs, CO		1.294	Dec-03							0.000	1.294	TBD
FIOP COE Support for Joint Variable Message format	MIPR	PEO-C3T, Ft Monmouth, NJ		2.116	Mar-04							0.000	2.116	TBD
Subtotal Product Development			3.000	19.088		16.535		17.457		17.104		Continuing	TBD	TBD
Remarks:														
(U) <u>Support</u> TBMCS - System Engineering	C/CPAF	MITRE, Bedford MA		4.612	Nov-03	4.409	Nov-04	4.455	Nov-05	4.262	Nov-06	Continuing	TBD	TBD
FIOP Execution Mgmt Capability Test and Support	MIPR	Various		1.312	Feb-04							0.000	1.312	TBD
Subtotal Support			0.000	5.924		4.409		4.455		4.262		Continuing	TBD	TBD
Remarks:														

(U) Test & Evaluation

Project 4790

R-1 Shopping List - Item No. 150-10 of 150-18

Exhibit R-3 (PE 0207438F)

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2005

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)						
TBMCS Test Support	MIPR	46TS, Eglin AFB, FL	1.410	Feb-04	1.410	Feb-05	1.320	Nov-05	1.140	Nov-06	Continuing	TBD	TBD	
Subtotal Test & Evaluation			0.000		1.410		1.410		1.320		1.140	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) Total Cost			3.000	26.422			22.354		23.232		22.506	Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY
07 Operational System Development

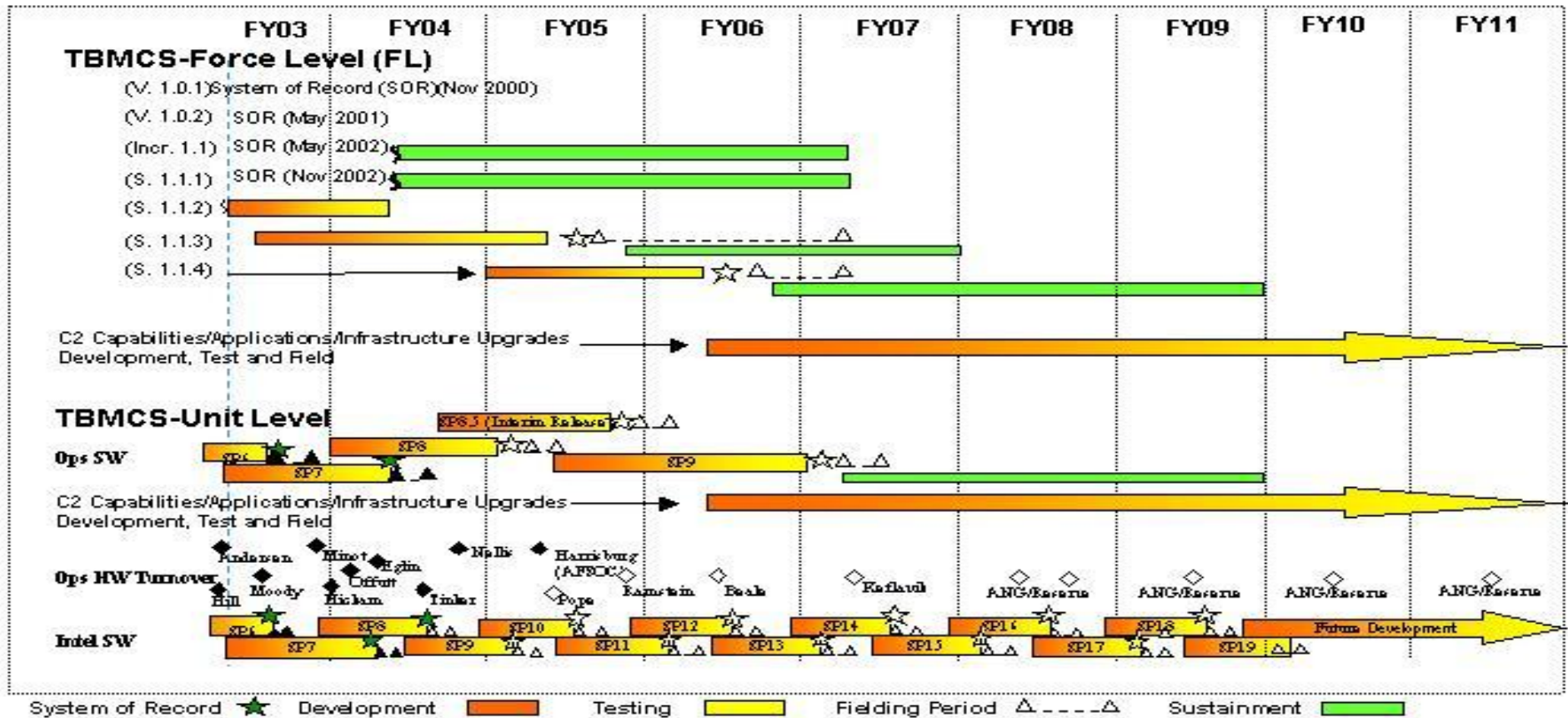
PE NUMBER AND TITLE
0207438F Theater Battle Management
(TBM) C4I

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

For Official Use Only (FOUO)

TBMCS Schedule

Rapidly delivering war-winning capability



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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2005
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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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Continuing TBMCS Force Level Software spirals	1-4Q	1-4Q	1-4Q	1-4Q
(U) Continuing C2 Capabilities/Applications/Infrastructure Upgrade Planning/Development, Test and Field (previously named TBMCS Increment 2.0)	1-4Q	1-4Q	1-4Q	1-4Q
(U) Continuing TBMCS Unit Level Ops Spirals	1-4Q	1-4Q	1-4Q	1-4Q
(U) Continuing TBMCS Unit Level Intel Spirals	1-4Q	1-4Q	1-4Q	1-4Q
(U) FIOP Rqmts/Engr Management*	2-4Q			
(U) FIOP Execution Management Capability*	2-3Q			
(U) FIOP COE Spt for Joint VMF*	3-4Q			

*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 2005

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)		
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4802 Deliberate and Crisis Action Planning and Execution Segment (DCAPES)	11.697	14.213	13.317	9.963	9.967	10.199	11.782	12.002	Continuing	TBD
Quantity of RDT&E Articles	0	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 personnel, manpower, logistics, and operational data between the Air Force and the warfighting Combatant Commanders. It matches people, cargo, and airframes/weapon systems to the Combatant Commander's warfighting requirements.

This program is in Budget Activity 7, Operational System Development, because it upgrades and develops capabilities for current operational systems.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Accomplishments/Planned Programs				
(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), AFC2ISRC's Enhanced Combat Scheduling System, Web Enablement, and JOPES Modernization Migration	8.735	10.387	9.890	6.536
(U) DCAPES Increment 2b requirements definition.	0.331			
(U) Program Management/Engineering Support	1.979	3.176	2.877	2.877
(U) Continue Government deployment operational testing and interoperability support	0.652	0.650	0.550	0.550
(U) Total Cost	11.697	14.213	13.317	9.963

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
(U) Operations and Maintenance	0.000	3.015	3.234	3.164	4.964	4.903	4.904	5.065	Continuing	TBD

Exhibit R-2a, RDT&E Project Justification

DATE

February 2005

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) D. Acquisition Strategy**

The program uses an evolutionary acquisition strategy with incremental spiral development with multiple software releases to accommodate refinement and prioritization of user requirements and improve adaptability with commercial technology.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2005

BUDGET ACTIVITY				PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE					
07 Operational System Development				0207438F Theater Battle Management (TBM) C4I						4802 Deliberate and Crisis Action Planning and Execution Segment (DCAPES)					
(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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>	
(U) <u>Product Development</u> CSC/SAIC	CPFF	Falls Church, VA		8.963	Dec-03	9.679	Feb-05						18.642		
TBD (DCAPES Recompete)	TBD	TBD						9.480	Dec-05	6.126	Dec-06	Continuing	TBD	TBD	
Subtotal Product Development			0.000	8.963		9.679		9.480		6.126		Continuing	TBD	TBD	
Remarks:															
(U) <u>Support</u> ITSP	T&M	AC Technologies, Fairfax, VA		0.103	Jan-04	0.360	Jan-05	0.360	Jan-06	0.360	Jan-07	Continuing	TBD	TBD	
Other	Various					0.348		0.050		0.050		Continuing	TBD	TBD	
Subtotal Support			0.000	0.103		0.708		0.410		0.410		Continuing	TBD	TBD	
Remarks:															
(U) <u>Test & Evaluation</u> 46 Test Sqdn/JITC	PO	Eglin AFB, FL/Ft Huachuca, AZ		0.652	Oct-03	0.650	Oct-04	0.550	Oct-05	0.550	Oct-06	Continuing	TBD	TBD	
Subtotal Test & Evaluation			0.000	0.652		0.650		0.550		0.550		Continuing	TBD	TBD	
Remarks:															
(U) <u>Management</u> PMO				1.510		2.828		2.505		2.479		Continuing	TBD	TBD	
FFRDC	CPAF	MITRE, Hanscom AFB, MA		0.469	Oct-03	0.348	Oct-04	0.372	Oct-05	0.398	Oct-06	Continuing	TBD	TBD	
Subtotal Management			0.000	1.979		3.176		2.877		2.877		Continuing	TBD	TBD	
Remarks:															
(U) Total Cost			0.000	11.697		14.213		13.317		9.963		Continuing	TBD	TBD	

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY
07 Operational System Development

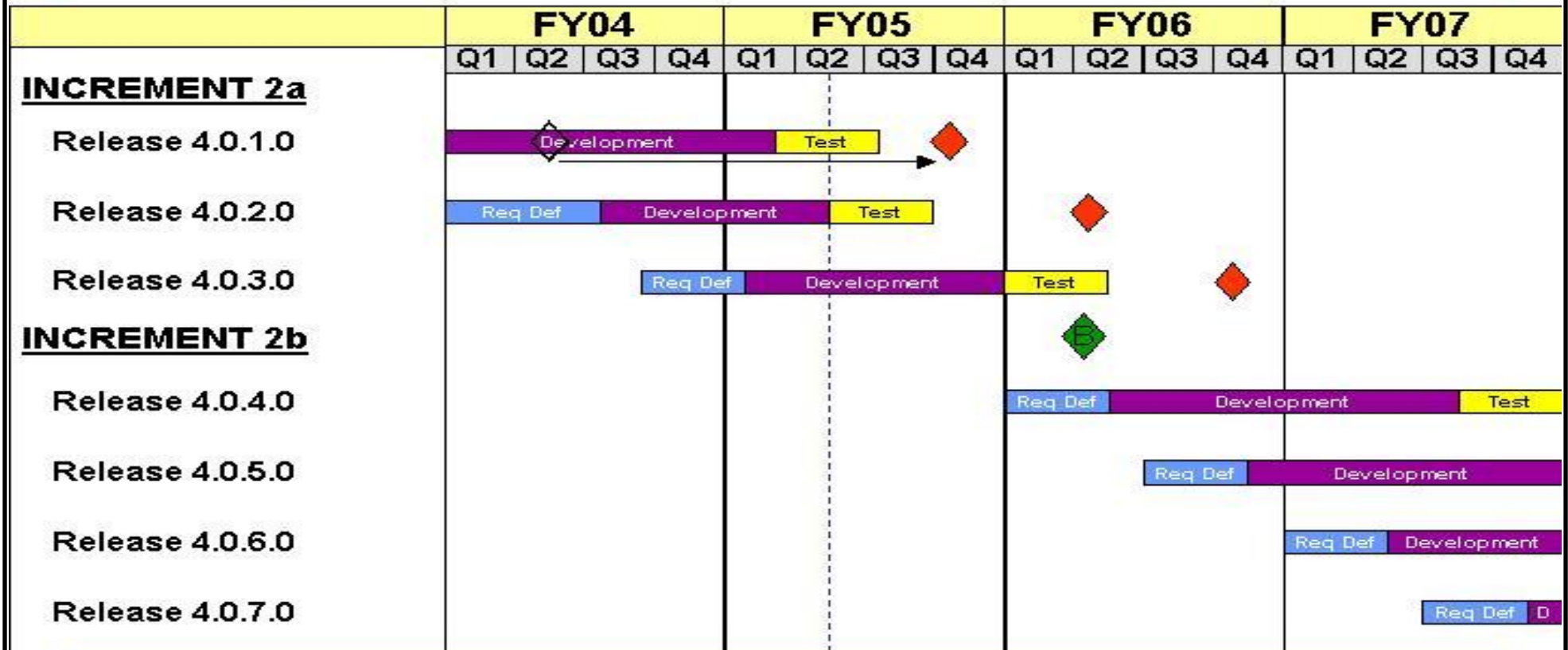
PE NUMBER AND TITLE
0207438F Theater Battle Management (TBM) C4I

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



U.S. AIR FORCE

DCAPES Schedule



Fielding 1

Exhibit R-4a, RDT&E Schedule Detail	DATE February 2005
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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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) 4.0.1.0 Release Fielding (Note 1)		4Q		
(U) 4.0.2.0 Release Fielding			2Q	
(U) 4.0.3.0 Release Initiation	3Q			
(U) 4.0.3.0 Release Fielding			4Q	
(U) Increment 2b Milestone B			2Q	
(U) 4.0.4.0 Release Initiation			1Q	
(U) 4.0.5.0 Release Initiation			3Q	
(U) 4.0.6.0 Release Initiation				1Q
(U) 4.0.7.0 Release Initiation				3Q

Note 1: DCAPES schedule significantly delayed by JOPES testing delays and integration performance issues

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

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2005
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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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	36.418	50.093	122.160	84.513	50.860	0.000	0.000	0.000	135.373	TBD
5043 Fighter Tactical Data Link	36.418	50.093	122.160	84.513	50.860	0.000	0.000	0.000	135.373	TBD

(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 provide a jam-resistant; secure digital data transfer network capability with a standardized waveform and data format allowing Line of Sight (LOS) and Beyond Line of Sight (BLOS) intra- and inter-flight communications. TDLs are used by all Service 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 aircraft, network, and weapon capability for 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, and F-35 aircraft. Keeps all fighter platforms and datalinked weapons current, interoperable in the network, and compatible with the USAF Global Strike Task Force (GSTF) concept beyond 2020. TDLs 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. TDL efforts include incorporating changes and additions to the TDL message standard (MIL-STD-6016C) and applicable Interface Change Proposals (ICPs); assisting with AF and Joint interoperability certification testing; future development, integration, and verification of Operational Flight Programs (OFP) upgrade due to TDL integration and supports data gathering processes; studying and incorporating data link technologies to ensure effectiveness and efficiency of the Global Strike CONOPS; and incorporating Interoperable Systems Management and Requirements Transformation (iSMART), a process which enables network centric interoperability assessments to be made more quickly and effectively.

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

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207445F FIGHTER TACTICAL DATA LINK

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	42.318	50.976	122.160	84.513
(U) Current PBR/President's Budget	36.418	50.093	122.160	84.513
(U) Total Adjustments	-5.900	-0.883		
(U) Congressional Program Reductions				
Congressional Rescissions		-0.883		
Congressional Increases				
Reprogrammings	-4.400			
SBIR/STTR Transfer	-1.500			

(U) **Significant Program Changes:**

In FY06, additional funds were programmed to support two additional TDL requirements: (1) Development and integration of a Link 16 radio capable of implementing in the F/A-22 advanced avionics system; (2) Development of a Link 16 and Enhanced Position Location and Reporting (EPLRS) capability for A/OA-10 aircraft to increase interoperability/coordination with ground forces.

Previously planned funding to develop a F-117 TDL capability was removed.

Exhibit R-2a, RDT&E Project Justification

DATE

February 2005

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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
5043 Fighter Tactical Data Link	36.418	50.093	122.160	84.513	50.860	0.000	0.000	0.000	135.373	TBD
Quantity of RDT&E Articles	0	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 provide a jam-resistant; secure digital data transfer network capability with a standardized waveform and data format allowing Line of Sight (LOS) and Beyond Line of Sight (BLOS) intra- and inter-flight communications. TDLs are used by all Service 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 aircraft, network, and weapon capability for 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, and F-35 aircraft. Keeps all fighter platforms and datalinked weapons current, interoperable in the network, and compatible with the USAF Global Strike Task Force (GSTF) concept beyond 2020. TDLs 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. TDL efforts include incorporating changes and additions to the TDL message standard (MIL-STD-6016C) and applicable Interface Change Proposals (ICPs); assisting with AF and Joint interoperability certification testing; future development, integration, and verification of Operational Flight Programs (OFP) upgrade due to TDL integration and supports data gathering processes; studying and incorporating data link technologies to ensure effectiveness and efficiency of the Global Strike CONOPS; and incorporating Interoperable Systems Management and Requirements Transformation (iSMART), a process which enables network centric interoperability assessments to be made more quickly and effectively.

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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Accomplishments/Planned Programs				
(U) Develop and incorporate Tactical Data Link technologies	1.510	3.000	3.000	3.000
(U) Develop and integrate Link 16 capability across fighter platforms	31.908	44.093	64.546	30.248
(U) Link 16 integration into F/A-22 avionics suite			26.483	27.541
(U) Development of A/OA-10 EPLRS capability			25.131	17.724
(U) Provide Link 16 system engineering, testing, and technical support	3.000	3.000	3.000	6.000
(U) Total Cost	36.418	50.093	122.160	84.513

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Exhibit R-2a, RDT&E Project Justification

DATE

February 2005

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>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E										
(U) 0207434F (Link 16 Sup & Sus)	61.150	134.547	157.677	184.100	151.289	155.710	159.298	162.024	Continuing	TBD
(U) 0207446F (Bomber TDL)	12.049	78.721	144.863	136.624	57.556	0.000	0.000	0.000		429.813
(U) 0207448F (C2ISR TDL)	25.003	25.150	14.838	4.479	1.952	1.948	1.953	1.939	Continuing	TBD
(U) 0401839F (Airlift TDL)	0.000	0.000	0.000	31.967	0.000	0.000	0.000	0.000		31.967
(U) Other APPN										
(U) Procurement (3010)										
(U) 0207423F (JTRS I&I)	0.000	0.000	17.192	43.445	52.032	53.650	49.645	53.695	Continuing	TBD
(U) 0207434F (Link 16 Sup & Sus)	0.040	6.455	3.036	2.737	0.000	9.464	9.703	9.806	Continuing	TBD
(U) 0207445F (Fighter TDL)	29.300	95.934	90.430	60.614	12.507	0.000	0.000	0.000		288.785
(U) 0207446F (Bomber TDL)	0.000	44.245	22.237	11.624	4.392	0.000	0.000	0.000		82.498
(U) 0401839F (Airlift TDL)	0.000	3.091	24.443	11.350	14.407	12.427	25.882	26.175	Continuing	TBD
(U) O&M (3400)										
(U) 0207434F (Link 16 Sup & Sus 3400)	12.877	13.055	21.360	18.590	16.301	16.320	16.862	15.964	Continuing	TBD
(U) 0401839F (Airlift TDL)	0.000	1.812	2.776	5.883	12.073	16.843	17.105	17.397	Continuing	TBD
(U) Other Procurement (3080)										
(U) 0207434F (Link 16 Sup & Sus)	0.000	27.810	32.446	30.656	12.758	8.376	8.413	8.460	Continuing	TBD

(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 2005

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) <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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> Link 16 EMD Terminal Purchases	MIPR to Navy	BAe Systems, Rockwell Collins DLS, Cedar Rapids, IA; Via-Sat, Carlsbad, CA managed by SPAWAR, San Diego CA		1.500	Jan-04								1.500	TBD
Link 16 Integration into F/A-22 avionics	MIPR to Navy	SPAWAR, San Diego, CA						26.483	Nov-05	27.541	Nov-06	Continuing	TBD	TBD
Fighter Link 16 Development Contractors **	MIPR to AFMC	Various contractors managed by ASC, WPAFB OH		31.908	Jan-04	47.093	Jan-05	90.677	Jan-06	47.802	Jan-07	Continuing	TBD	TBD
MITRE	SS/FFP	MITRE, Bedford MA	Dec03	1.400	Dec-03	1.700	Dec-04	2.660	Dec-05	2.000	Dec-06	Continuing	TBD	TBD
Subtotal Product Development			0.000	34.808		48.793		119.820		77.343		Continuing	TBD	TBD
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 to AFMC	46th Development Test Facility, Eglin AFB FL		0.000		0.000		0.000		5.500	Apr-07	Continuing	TBD	TBD
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		5.500		Continuing	TBD	TBD
(U) <u>Management</u> Program Office and Contractor Support	C/FFP	Various	Dec03	1.610	Dec-03	1.300	Dec-04	2.340	Dec-05	1.670	Dec-06	Continuing	TBD	TBD
Subtotal Management			0.000	1.610		1.300		2.340		1.670		Continuing	TBD	TBD
Remarks:														
(U) Total Cost			0.000	36.418		50.093		122.160		84.513		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0207445F FIGHTER TACTICAL DATA
LINK

PROJECT NUMBER AND TITLE
5043 Fighter Tactical Data Link

A/O-10 Link 16- Long Term Schedule

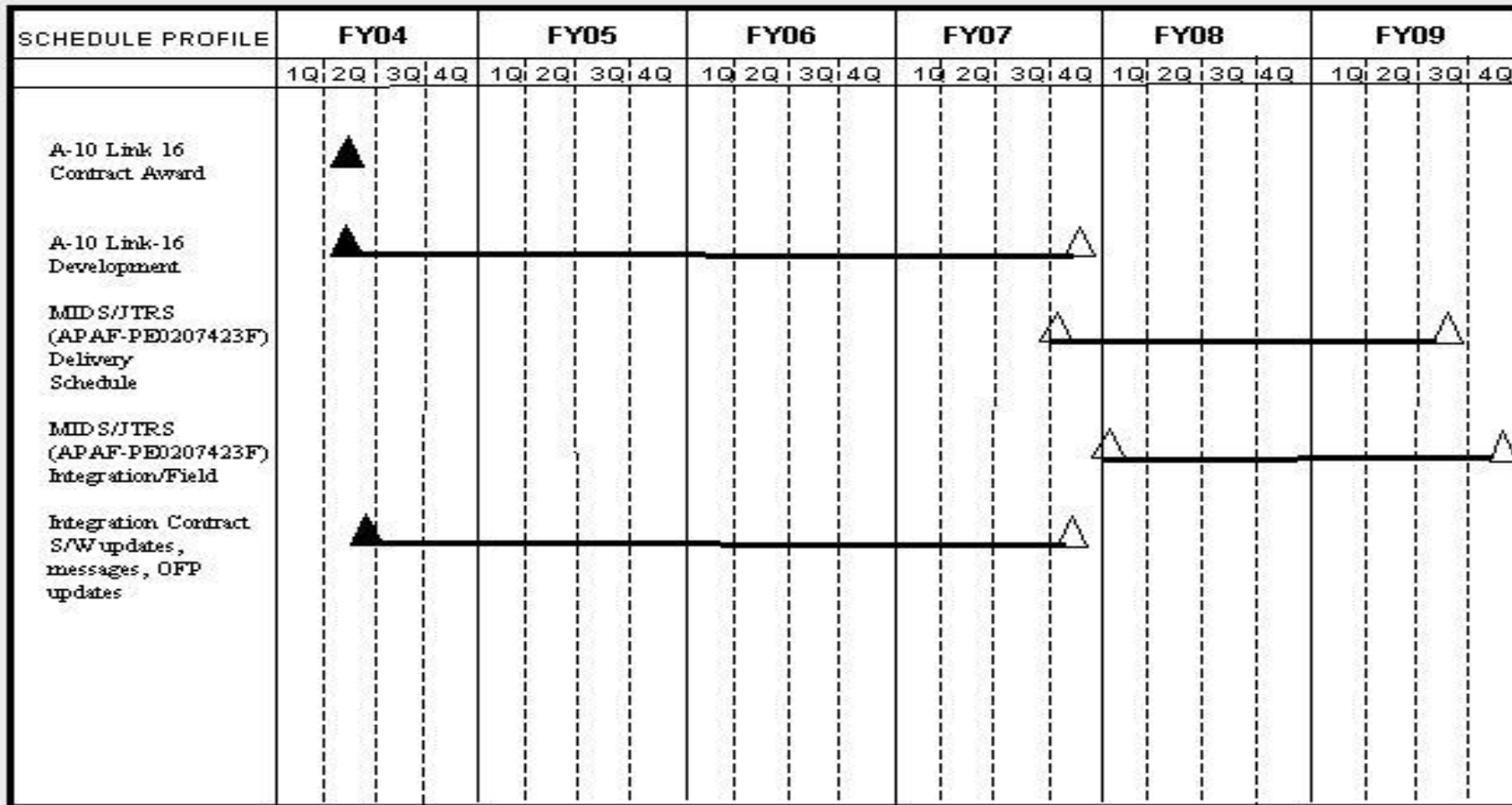


Exhibit R-4, RDT&E Schedule Profile

DATE

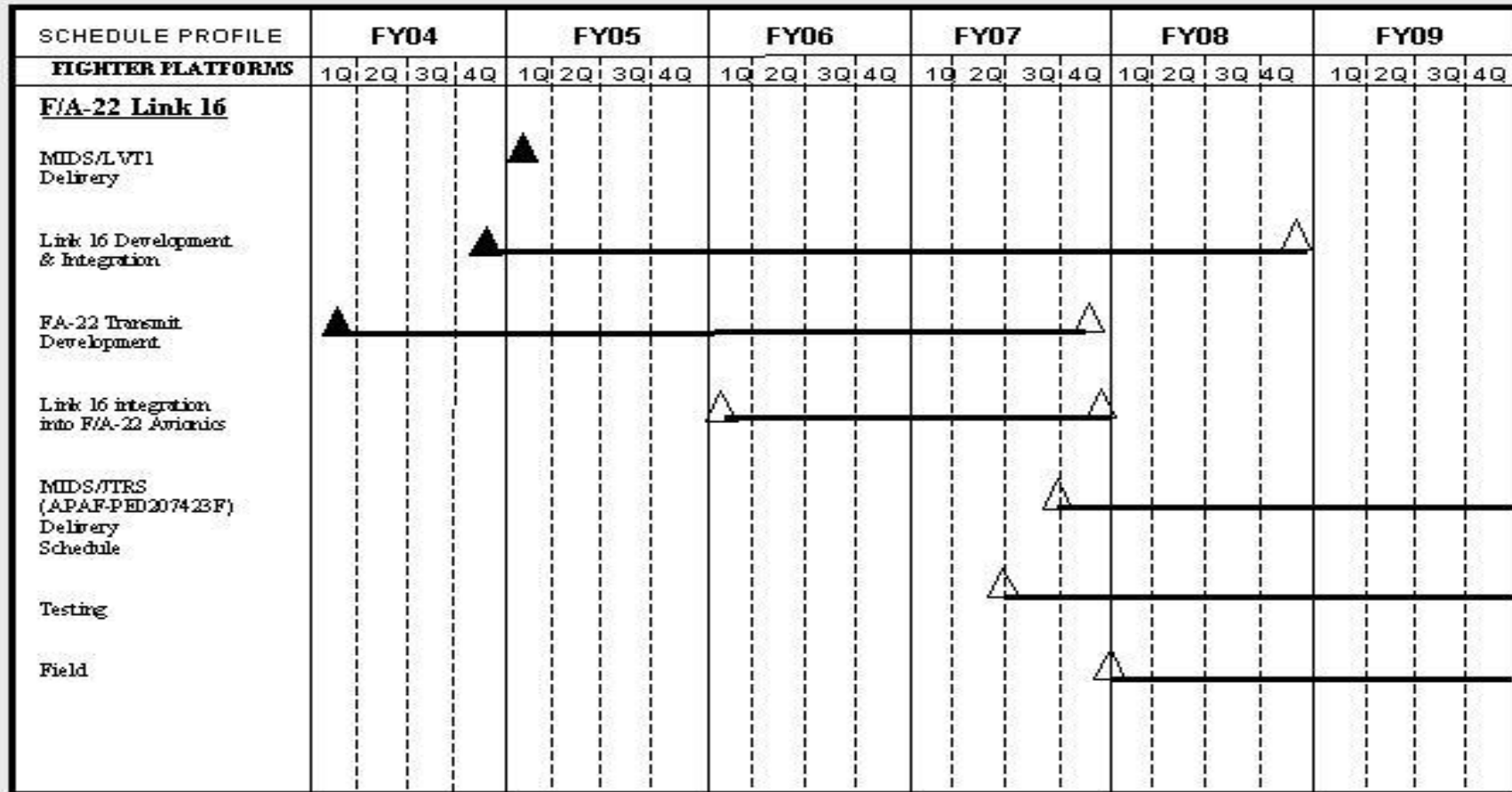
February 2005

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0207445F FIGHTER TACTICAL DATA
LINK

PROJECT NUMBER AND TITLE
5043 Fighter Tactical Data Link

F/A-22 Link 16- Long Term Schedule



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Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2005

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) Schedule Profile	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) F/A-22 MIDS LVT Delivery		1Q		
(U) Link 16 Development and Integration	4Q	1-4Q	1-4Q	1-4Q
(U) F/A-22 Link 16 Transmit Capability Development	1-4Q	1-4Q	1-4Q	1-4Q
(U) Link 16 Integration development into F/A-22 Avionics			1-4Q	1-4Q
(U) A/O-10 Link 16 Contract Award	2Q			
(U) A/O-10 Link 16 Development	2-4Q	1-4Q	1-4Q	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 2005	
BUDGET ACTIVITY 07 Operational System Development					PE NUMBER AND TITLE 0207446F Bomber Tactical Data Link					
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	12.049	78.721	144.863	136.624	57.556	0.000	0.000	0.000	Continuing	TBD
5041 Bomber Tactical Data Link	12.049	78.721	144.863	136.624	57.556	0.000	0.000	0.000	Continuing	TBD

(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 provide a jam-resistant, secure digital data transfer network capability with a standardized waveform and data format allowing Line of Sight (LOS) and Beyond Line of Sight (BLOS) intra- and inter-flight communications. TDLs are used by all Service 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 aircraft, network, and weapon capabilities for all Air Force bomber platforms to include, but not limited to B-1B, B-2, and B-52 aircraft. Keeps all bomber platforms and datalinked weapons current, interoperable in the network, and compatible with the USAF Global Strike Task Force (GSTF) concept beyond 2020. It also expands Link 16 LOS and BLOS datalink capabilities. TDLs 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 networks to other areas/theaters. TDL efforts include incorporating changes and additions to the TDL message standard (MIL-STD-6016C) and applicable Interface Change Proposals (ICPs); assisting with AF and Joint interoperability certification testing; future development, integration, and verification of Operational Flight Programs (OFP) upgrade due to TDL integration and supports data gathering processes; studying and incorporating data link technologies to ensure effectiveness and efficiency of the Global Strike CONOPS; and incorporating Interoperable Systems Management and Requirements Transformation (iSMART), a process which enables network centric interoperability assessments to be made more quickly and effectively.

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 2005

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207446F Bomber Tactical Data Link

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	12.849	120.256	166.082	88.827
(U) Current PBR/President's Budget	12.049	78.721	144.863	136.624
(U) Total Adjustments	-0.800	-41.535		
(U) Congressional Program Reductions		-39.000		
Congressional Rescissions		-1.240		
Congressional Increases				
Reprogrammings	-0.400	-1.295		
SBIR/STTR Transfer	-0.400			

(U) **Significant Program Changes:**

The current budget request for FY06-08 reflects the one year delay incorporating a TDL capability into the B-52 fleet. In FY06 the B-52 TDL program will transition from Pre-System Development and Demonstration (Pre-SDD) to System Development and Demonstration (SDD) activities which include: B-52 initial TDL hardware development and the start of flight and simulator software development. Also in FY06, the B-1 Line-of-Sight/Beyond Line-of-Sight (LOS/BLOS) TDL hardware development and the majority of flight software development will be executed. Rephased into the FY07-08 budget request are the B-52 flight-software integration, B-52 task-specific simulator development, B-52 training simulator upgrades, and development testing at the B-52 test range in compliance with SALT II Treaty requirements.

Exhibit R-2a, RDT&E Project Justification

DATE
February 2005

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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
5041 Bomber Tactical Data Link	12.049	78.721	144.863	136.624	57.556	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	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 provide a jam-resistant, secure digital data transfer network capability with a standardized waveform and data format allowing Line of Sight (LOS) and Beyond Line of Sight (BLOS) intra- and inter-flight communications. TDLs are used by all Service 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 aircraft, network, and weapon capabilities for all Air Force bomber platforms to include, but not limited to B-1B, B-2, and B-52 aircraft. Keeps all bomber platforms and datalinked weapons current, interoperable in the network, and compatible with the USAF Global Strike Task Force (GSTF) concept beyond 2020. It also expands Link 16 LOS and BLOS datalink capabilities. TDLs 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 networks to other areas/theaters. TDL efforts include incorporating changes and additions to the TDL message standard (MIL-STD-6016C) and applicable Interface Change Proposals (ICPs); assisting with AF and Joint interoperability certification testing; future development, integration, and verification of Operational Flight Programs (OFP) upgrade due to TDL integration and supports data gathering processes; studying and incorporating data link technologies to ensure effectiveness and efficiency of the Global Strike CONOPS; and incorporating Interoperable Systems Management and Requirements Transformation (iSMART), a process which enables network centric interoperability assessments to be made more quickly and effectively.

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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Contract for LOS Link 16 terminals and BLOS radios for development labs and aircraft.	1.800	2.000	1.440	1.440
(U) Provide Link 16 system engineering, testing, and technical support	0.500	11.100	7.000	4.000
(U) B-1 FIDL Pre-System Development and Demonstration (SDD)	9.749	3.500		
(U) B-1 FIDL System Development and Demonstration (SDD)		49.039	67.674	31.776
(U) B-52 IDL Pre-System Development and Demonstration (SDD)		13.082		
(U) B-52 IDL System Development and Demonstration (SDD)			68.749	99.408
(U) Total Cost	12.049	78.721	144.863	136.624

Exhibit R-2a, RDT&E Project Justification

DATE

February 2005

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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E										
(U) 0207434F (Link 16 Sup & Sus)	61.150	134.547	157.677	184.100	151.289	155.710	159.298	162.024	Continuing	TBD
(U) 0207445F (Fighter TDL)	36.418	50.093	122.160	84.513	50.860	0.000	0.000	0.000		343.735
(U) 0207448F (C2ISR TDL)	25.003	25.150	14.838	4.479	1.952	1.948	1.953	1.939	Continuing	TBD
(U) 0401839F (Airlift TDL)	0.000	0.000	0.000	31.967	0.000	0.000	0.000	0.000		31.466
(U) Other APPN										
(U) Procurement (3010)										
(U) 0207434F (Link 16 Sup & Sus)	0.040	6.455	3.036	2.737	0.000	9.464	9.703	9.806	Continuing	TBD
(U) 0207445F (Fighter TDL)	29.300	95.934	90.430	60.614	12.507	0.000	0.000	0.000		419.662
(U) 0207446F (Bomber TDL)	0.000	44.245	22.237	11.624	4.392	0.000	0.000	0.000		82.498
(U) 0207423F (JTRS I&I)	0.000	0.000	17.192	43.445	52.032	53.650	49.645	53.695	Continuing	TBD
(U) 0401839F (Airlift TDL)	0.000	3.091	24.443	11.350	14.407	12.427	25.882	26.175	Continuing	TBD
(U) O&M (3400)										
(U) 0207434F (Link 16 Sup & Sus)	12.877	13.055	21.360	18.590	16.301	16.320	16.862	15.964	Continuing	TBD
(U) 0401839F (Airlift TDL)	0.000	1.812	2.776	5.883	12.073	16.843	17.105	17.397	Continuing	TBD
(U) Other Procurement (3080)										
(U) 0207434F (Link 16 Sup & Sus)	0.000	27.810	32.446	30.656	12.758	8.376	8.413	8.460	Continuing	TBD

(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 2005

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) 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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>	
(U) <u>Product Development</u>															
Link 16 Terminal EMD Terminal Purchases	MIPR	SPAWAR, San Diego CA		1.800	Jan-04							0.000	1.800	1.800	
*B-1 JRE DEMO	CPFF	Northrop Grumman		0.600	Apr-04							0.000	0.600	0.600	
*B-1/B-52 BLOS DEMO for JEFX		Northrop Grumman		3.600	Apr-04							0.000	3.600	3.600	
*B-1 FIDL Pre-System Development and Demonstration (SDD)	SS/CPFF	Boeing Co. Long Beach CA		5.600	May-04	3.583	Oct-04					0.000	9.183	9.183	
*B-1 FIDL System Development and Demonstration (SDD)	TBD	TBD				60.556	Apr-05	76.114	Apr-06	30.236	Apr-07	0.000	166.906	166.906	
*B-52 Pre-System Development and Demonstration (SDD)	TBD	TBD				13.082	Feb-05						13.082	13.082	
*B-52 System Development and Demonstration (SDD)	TBD	TBD						67.209	Feb-06	104.848	Feb-07	Continuing	TBD	TBD	
MITRE	SS/FFP	MITRE, Bedford MA		0.200	Dec-03	0.200	Dec-04	0.200	Dec-05	0.200	Dec-06	Continuing	TBD	TBD	
Subtotal Product Development			0.000	11.800		77.421		143.523		135.284		Continuing	TBD	TBD	
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		0.249	Dec-03	1.300	Dec-04	1.340	Dec-05	1.340	Dec-06	Continuing	TBD	TBD	
Subtotal Management			0.000	0.249		1.300		1.340		1.340		Continuing	TBD	TBD	
Remarks:															
(U) Total Cost			0.000	12.049		78.721		144.863		136.624		Continuing	TBD	TBD	

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

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

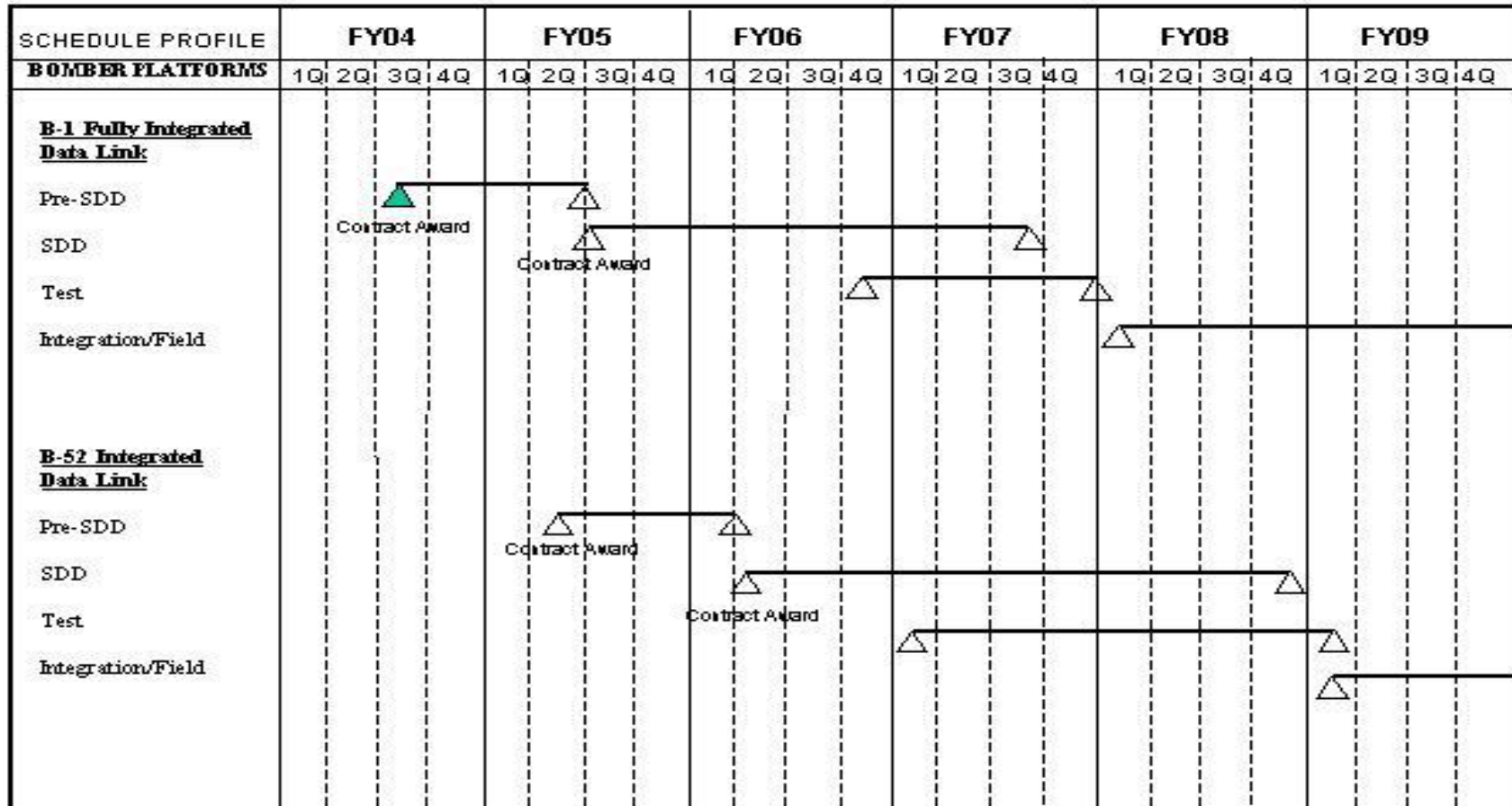


Exhibit R-4a, RDT&E Schedule Detail	DATE February 2005
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207446F Bomber Tactical Data Link	PROJECT NUMBER AND TITLE 5041 Bomber Tactical Data Link
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<u>(U) Schedule Profile</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) B-1 Fully Integrated Data Link Contract Award (Pre-SDD)	3Q			
(U) B-1 Fully Integrated Data Link Pre-SDD	3-4Q	1-2Q		
(U) B-1 Fully Integrated Data Link Contract Award (SDD)		3Q		
(U) B-1 Fully Integrated Data Link SDD		3-4Q	1-4Q	1-3Q
(U) B-1 Fully Integrated Data Link (DT&E, Flight Test)			4Q	1-4Q
(U) B-52 Integrated Data Link Contract Award (Pre-SDD)		2Q		
(U) B-52 Integrated Data Link Pre-SDD		2-4Q	1Q	
(U) B-52 Integrated Data Link Contract Award (SDD)			2Q	
(U) B-52 Integrated Data Link SDD			2-4Q	1-4Q
(U) B-52 Integrated Data Link Test				1-4Q

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PE NUMBER: 0207448F
 PE TITLE: C2ISR Tactical Data Link

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2005
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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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	25.003	25.150	14.838	4.479	1.952	1.948	1.953	1.939	Continuing	TBD
5045 C2ISR Tactical Data Link	25.003	25.150	14.838	4.479	1.952	1.948	1.953	1.939	Continuing	TBD

(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 all Service 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, E-10, and the North Atlantic Treaty Organization (NATO) Iceland Air Defense System (IADS). TDLs provide a jam-resistant, secure digital data transfer network capability with a standardized waveform and data format allowing intra- and inter-flight communications. TDLs 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. TDL efforts include incorporating changes and additions to the Link-16 message standard (MIL-STD-6016C) and applicable Interface Change Proposals (ICPs), assisting with AF and Joint interoperability certification testing with the Air Force Command and Control Intelligence Surveillance and Reconnaissance Center (AFC2ISRC) and Joint Interoperability Test Center (JITC); future development, integration, and verification of Operational Flight Program (OFP) upgrades due to TDL integration and supporting data gathering processes; and incorporating Interoperable Systems Management and Requirements Transformation (iSMART), a process which enables network centric interoperability assessments to be made more quickly and effectively.

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

DATE

February 2005

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207448F C2ISR Tactical Data Link

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	26.503	25.441	7.234	0.743
(U) Current PBR/President's Budget	25.003	25.150	14.838	4.479
(U) Total Adjustments	-1.500	-0.291		
(U) Congressional Program Reductions				
Congressional Rescissions	-0.057	-0.291		
Congressional Increases				
Reprogrammings	-0.543			
SBIR/STTR Transfer	-0.900			

(U) **Significant Program Changes:**

Beginning in FY06, funds were programmed to develop AWACS Block 30/35 TDL upgrades to address capability shortfalls in theater command and control and battle management identified during combat, which enables an enhanced TDL capability until AWACS Block 40/45 Final Operational Capability.

In FY06-07, funding was added to provide AWACS Block 40/45 Data Link Infrastructure (DLI) and Combat Identification (CID) capabilities. DLI and CID address recent combat lessons learned related to rapid exchange of fleeting target information, inter-service combat identification, and providing weapons-quality coordinates.

C2ISR Tactical Data Link baseline funding decreases across FY06-07 due to (1) JSTARS Attack Support Upgrade (ASU) completion in FY06, and (2) AWACS Block 40/45 Data Link Infrastructure completion in FY07.

Exhibit R-2a, RDT&E Project Justification

DATE

February 2005

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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
5045 C2ISR Tactical Data Link	25.003	25.150	14.838	4.479	1.952	1.948	1.953	1.939	Continuing	TBD
Quantity of RDT&E Articles	0	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 all Service 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, E-10, and the North Atlantic Treaty Organization (NATO) Iceland Air Defense System (IADS). TDLs provide a jam-resistant, secure digital data transfer network capability with a standardized waveform and data format allowing intra- and inter-flight communications. TDLs 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. TDL efforts include incorporating changes and additions to the Link-16 message standard (MIL-STD-6016C) and applicable Interface Change Proposals (ICPs), assisting with AF and Joint interoperability certification testing with the Air Force Command and Control Intelligence Surveillance and Reconnaissance Center (AFC2ISRC) and Joint Interoperability Test Center (JITC); future development, integration, and verification of Operational Flight Program (OFP) upgrades due to TDL integration and supporting data gathering processes; and incorporating Interoperable Systems Management and Requirements Transformation (iSMART), a process which enables network centric interoperability assessments to be made more quickly and effectively.

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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) AWACS Blocks 40/45 Upgrades	1.153	1.986		
(U) Support system integration for JSTARS Link 16 Attack Support Upgrade (ASU) capability	20.678	22.807	7.222	
(U) AWACS 40/45 Data Link Infrastructure (DLI)			2.120	0.743
(U) AWACS 40/45 Combat ID (CID)			3.496	1.741
(U) AWACS Block 30/35			2.000	1.995
(U) C2ISR Integration	3.172	0.357		
(U) Total Cost	25.003	25.150	14.838	4.479

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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 0207448F C2ISR Tactical Data Link	PROJECT NUMBER AND TITLE 5045 C2ISR Tactical Data Link
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(U) C. Other Program Funding Summary (\$ in Millions)

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E										
(U) 0207434F (Link 16 Sup & Sus)	61.150	134.547	157.677	184.100	151.289	155.710	159.298	162.024	Continuing	TBD
(U) 0207445F (Fighter TDL)	36.418	50.093	122.160	84.513	50.860	0.000	0.000	0.000	Continuing	TBD
(U) 0207446F (Bomber TDL)	12.049	78.721	144.863	136.624	57.556	0.000	0.000	0.000	Continuing	TBD
(U) 0401839F (Airlift/Other TDL)	0.000	0.000	0.000	31.967	0.000	0.000	0.000	0.000	Continuing	TBD
(U) Aircraft Procurement, AF (3010)										
(U) 0207423F (JTRS I&I)	0.000	0.000	17.192	43.445	52.032	53.650	49.645	53.695		
(U) 0207434F (Link 16 Sup & Sus)	0.040	6.455	3.036	2.737	0.000	9.464	9.703	9.806	Continuing	TBD
(U) 0207445F (Fighter TDL)	29.300	95.934	90.430	60.614	12.507	0.000	0.000	0.000	Continuing	TBD
(U) 0207446F (Bomber TDL)	0.000	44.245	22.237	11.624	4.392	0.000	0.000	0.000	Continuing	TBD
(U) 0401839F (Airlift TDL)	0.000	3.091	24.443	11.350	14.407	12.427	25.882	26.175	Continuing	TBD
(U) O&M (3400)										
(U) 0207434F (Link 16 Sup & Sus)	12.877	13.055	21.360	18.590	16.301	16.320	16.862	15.964	Continuing	TBD
(U) 0401839F (Airlift 3400)	0.000	1.812	2.776	5.883	12.073	16.843	17.105	17.397	Continuing	TBD
(U) Other Procurement, AF (3080)										
(U) 0207434F (Link 16 Sup & Sus)	0.000	27.810	32.446	30.656	12.758	8.376	8.413	8.460	Continuing	TBD

(U) D. Acquisition Strategy

The Air Force Tactical Data Links Network (TDN) 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										0207448F C2ISR Tactical Data Link					5045 C2ISR Tactical Data Link				
(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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>					
(U) <u>Product Development</u> Joint STARS	SS/CPAF	Northrop Grumman, Melbourne FL		18.475	Nov-03	22.807	Nov-04	7.222	Nov-05				48.504	48.504					
AWACS	SS/FPIF/C PAF	Boeing, Seattle WA		1.153	Dec-03	1.986	Dec-04	7.616	Dec-05	4.479	Dec-06	Continuing	TBD	TBD					
Subtotal Product Development			0.000	19.628		24.793		14.838		4.479		Continuing	TBD	TBD					
Remarks:	FY05-07 test requirements are rolled to the platform level (i.e. E-3 AWACS, E-8 Joint STARS)																		
(U) <u>Test & Evaluation</u> 46th Test Squadron	MIPR	46th Test Sqdn, Eglin AFB FL		1.246	Jul-04								1.246	1.246					
JTIC Testing 605th Test Squadron	MIPR	605th Test Sqdn, Hurlburt Field, FL		0.092									0.092	0.092					
Subtotal Test & Evaluation			0.000	1.444		0.000		0.000		0.000		0.000	1.444	1.444					
Remarks:	FY05-07 test requirements are rolled to the platform level (i.e. E-3 AWACS, E-8 Joint STARS)																		
(U) <u>Management</u> Program Office and Contractor Support	C/FFP	Various		3.931	Dec-03	0.357	Dec-04					Continuing	TBD	TBD					
Subtotal Management			0.000	3.931		0.357		0.000		0.000		Continuing	TBD	TBD					
Remarks:	Joint STARS and TDL Program Office via Memorandum of Agreement (MOA) transfer on/off year support costs. The Joint STARS Program picks up responsibility in FY06-07.																		
(U) Total Cost			0.000	25.003		25.150		14.838		4.479		Continuing	TBD	TBD					

Exhibit R-4, RDT&E Schedule Profile

DATE

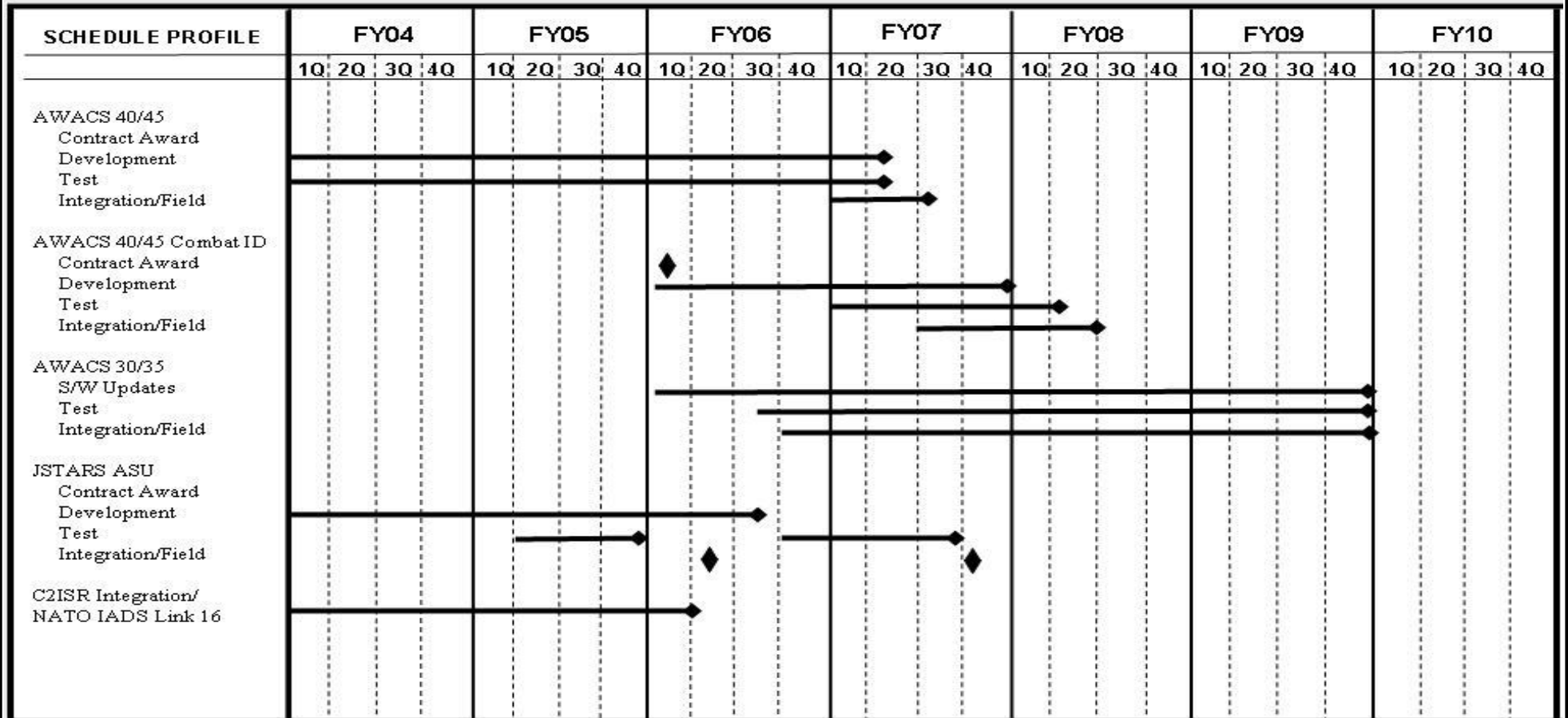
February 2005

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	DATE February 2005
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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
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<u>(U) Schedule Profile</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) AWACS Block 40/45 Initiative Development	1-4Q	1-4Q	1-4Q	1-2Q
(U) AWACS Block 40/45 Initiative Test	1-4Q	1-4Q	1-4Q	1-2Q
(U) AWACS Block 40/45 Initiative Integration/Field				1-2Q
(U) AWACS Block 40/45 Combat ID Initiative Contract Award			1Q	
(U) AWACS Block 40/45 Combat ID Initiative Development			1-4Q	1-4Q
(U) AWACS Block 40/45 Combat ID Initiative Test				1-4Q
(U) AWACS Block 40/45 Combat ID Initiative Integration/Field				3-4Q
(U) AWACS Block 30/35 Software Updates/Development			1-4Q	1-4Q
(U) AWACS Block 30/35 Test			3-4Q	1-4Q
(U) AWACS Block 30/35 Integration/Field			4Q	1-4Q
(U) JSTARS ASU Development	1-4Q	1-4Q	1-3Q	
(U) JSTARS ASU Test		2-4Q	4Q	1-3Q
(U) JSTARS ASU Integration /Field			2Q	4Q
(U) C2ISR NATO IADS Link 16 Integration	1-4Q	1-4Q	1Q	

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PE NUMBER: 0207449F
 PE TITLE: C2 Constellation

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2005
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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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	355.333	43.530	41.071	45.409	58.376	58.636	59.535	60.082	Continuing	TBD
5064 Airframe	209.747	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5065 Sensors	145.586	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5078 Horizontal Integration	0.000	12.646	10.665	13.705	25.615	25.229	25.702	26.012	Continuing	TBD
5140 Joint Expeditionary Force Experiments	0.000	30.884	30.406	31.704	32.761	33.407	33.833	34.070	Continuing	TBD

In Fiscal Year 2005, project 5064 and project 5065 work transferred to PE 0207450F, E-10 Squadrons, project 5131 and project 5132.

(U) A. Mission Description and Budget Item Justification

The C2 Constellation is the Air Force's capstone concept for achieving persistent air and space operations Battle Management Command and Control (BMC2) interoperability and connectivity and is part of the AF implementation of Joint Vision 2020. Primary effects will be a reduced kill chain timeline executed through Predictive Battlespace Awareness (PBA) and Effects-Based Operations (EBO) enabled by the ConstellationNET network-centric infrastructure. This vision integrates over 120 (systems or nodes) 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. The C2 Constellation provides the Joint Force commander insight into AF command, control, communications, computers, intelligence, surveillance, and reconnaissance assets. C2 Constellation network-centric capabilities mentioned above (PBA/EBO/NET Operations) will be achieved through an architecture and experimentation-driven operational concept approach. The C2 Constellation network-centric infrastructure uses a standards-based, open systems architecture approach that will capitalize on industry innovations. Capability gaps will be explored across the range of AF CONOPS through the large-scale warfighter Joint Expeditionary Force Experiments (JEFX). These experiments are part of the total AF experimentation effort and 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.

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.

Exhibit R-2, RDT&E Budget Item Justification

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207449F C2 Constellation**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	360.051	44.035	42.250	46.570
(U) Current PBR/President's Budget	355.333	43.530	41.071	45.409
(U) Total Adjustments	-4.718	-0.505		
(U) Congressional Program Reductions		-0.036		
Congressional Rescissions		-0.469		
Congressional Increases				
Reprogrammings	5.916			
SBIR/STTR Transfer	-10.634			

(U) Significant Program Changes:

The difference between FY04 and FY05 is due to project 5064 and project 5065 work moved to PE 0207450F, E-10 Squadrons, projects 5131 and 5132.

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		
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
5064 Airframe	209.747	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	0		

1. See PE 0207450F, Project 5131 for funding data beginning in FY 2005.

(U) A. Mission Description and Budget Item Justification

This project is established to design, develop, and integrate modifications to a wide-body aircraft to host multiple sensor configurations, and its Battle Management Command and Control (BMC2) suite. 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, equipped with the Multi-Platform Radar Technology Insertion Program (MP-RTIP) radar, will deliver a focused Air Moving Target Indicator (AMTI) capability for Cruise Missile Defense (CMD); an advanced, next-generation Ground Moving Target Indicator (GMTI) and Synthetic Aperture Radar (SAR) imaging capability for surface surveillance; and an 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--all integrated onto a 767-400ER testbed. The initial spiral of E-10A's Increment 1 will deliver the core capability to perform the focused AMTI and GMTI missions to include 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 future studies/spiral development to support continuous improvement and implementation of Command & Control, Intelligence, Surveillance, and Reconnaissance (C2ISR) capabilities.

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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</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)	7.534			
(U) Incremental funding of a 767-400ER testbed	5.000			

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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(U) Systems engineering associated with the modification of the commercial testbed	22.406			
(U) BMC2 efforts	15.300			
(U) Weapons Systems Integration (WSI) efforts	143.635			
(U) SPO Ops Effort	0.940			
(U) Sensor Lab/Test Hardware	14.400			
(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.	0.532			
(U) Total Cost	209.747	0.000	0.000	0.000

Remark: In FY 2005, activity transferred to PE 0207450F, Project 5131

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E										
(U) PE 0207449F/Project 5065 Sensors	145.586	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
(U) PE 0207450F/Project 5132 MC2A Sensors	0.000	201.020	146.429	183.982	166.973	122.955	45.921	0.000	Continuing	TBD
(U) PE 0207450F/Project 5131 Airframe	0.000	217.986	250.582	205.263	420.642	315.545	248.953	74.784	Continuing	TBD
(U) APAF										
(U) PE 0207450F (E-10A Production)	0.000	0.000	0.000	0.000	0.000	69.535	705.502	773.687	Continuing	TBD

(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.

The Multi-Platform Radar Technology Insertion Program (MP-RTIP) Acquisition Decision Memorandum (ADM), dated 4 Dec 03, delayed the E-10A Milestone 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 2005			
BUDGET ACTIVITY 07 Operational System Development						PE NUMBER AND TITLE 0207449F C2 Constellation					PROJECT NUMBER AND TITLE 5064 Airframe			
(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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) Product Development														
Weapon System Integration (WSI)	SS/CPAF	Northrop Grumman Systems Corporation; Melbourne, FL	64.500	143.635	May-03							Continuing	TBD	TBD
Systems Engineering	Various	Various	13.316	21.549	Oct-03							Continuing	TBD	TBD
AFOTEC	MIPR	Various	0.000	0.154	Jan-04							Continuing	TBD	TBD
JTF	SS/T&M	Titan Systems Corporation; Melbourne, FL	0.259	0.703	Jan-04							Continuing	TBD	TBD
DARPA	Allotment	Various	8.652	0.000								Continuing	TBD	TBD
BMC2-Winner	C/CPAF	Northrop-Gru mman, Melbourne, FL	0.000	4.800	Sep-04							Continuing	TBD	TBD
BMC2-Competition Team A	C/FFP	The Boeing Company; Seattle, WA	0.500	3.500	Oct-03							Continuing	TBD	TBD
BMC2-Competition Team B	C/FFP	Northrop-Gru mman, Melbourne, FL	0.500	3.500	Oct-03							Continuing	TBD	TBD
BMC2-Competition Team C	C/FFP	Lockheed-Ma rtin; Colorado Springs, CO	0.500	3.500	Oct-03							Continuing	TBD	TBD
767-400ER Testbed	SS/FFP	The Boeing Company; Seattle, WA	20.000	5.000	Oct-03							Continuing	TBD	TBD
Sensor Lab/Test Hardware	SS/CPAF	Northrop Grumman Systems Corporation (MP-RTIP); El Segundo, CA	0.000	14.400	Mar-04							Continuing	TBD	TBD
Horizontal Integration	Various	Various	20.500	7.534								Continuing	TBD	TBD
Project 5064														

R-1 Shopping List - Item No. 154-6 of 154-27

Exhibit R-3 (PE 0207449F)

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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			5064 Airframe		
Future Studies/Spiral Development	Various	Various	0.000	0.532	Mar-04				Continuing	TBD	TBD
Subtotal Product Development			128.727	208.807		0.000	0.000	0.000	Continuing	TBD	TBD
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	0.668	0.940	Oct-03				Continuing	TBD	TBD
Subtotal Management			0.668	0.940		0.000	0.000	0.000	Continuing	TBD	TBD
Remarks:	Where Various Contract Method & Types take place, earliest date funds will obligated is noted.										
(U) Total Cost			129.395	209.747		0.000	0.000	0.000	Continuing	TBD	TBD
Remark:	See PE 0207450F, Project 5131 for activity beginning in FY 2005										

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
5064 Airframe

E-10A Schedule



Please refer to PE 0207450F for the E-10A schedule.

***Funding and Activity
Transferred to PE 0207450F
in FY 2005***

Exhibit R-4a, RDT&E Schedule Detail	DATE February 2005
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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) <u>Schedule Profile</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) System Requirements Review	2Q			
(U) Initial Design Review (IDR)	4Q			
Remark: In FY 2005, activity transferred to PE 0207450F, Project 5131				

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		
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
5065 Sensors	145.586	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	0		

1. See PE 0207450F, Project 5132 for funding data beginning in FY2005.

(U) A. Mission Description and Budget Item Justification

This project is established to develop a family of modular, scalable next generation sensors for multiple platforms to support network centric operations with integrated intelligence, surveillance, and reconnaissance capability.

The Multi-Platform Radar Technology Insertion Program (MP-RTIP) radar, a modular, scalable, two-dimensional active electronically scanned array (2D-AESA) radar, is the sensor capability of the E-10A Increment 1 weapon system to provide cruise missile defense and improved ground moving target indicator (GMTI)/synthetic aperture radar (SAR) imaging. MP-RTIP will deliver a "large sensor" variant for the E-10A aircraft, and a "small sensor" variant for the Global Hawk.

Funds in this project will be used for the development, fabrication, and test of the MP-RTIP family of scaleable radars on the various platforms (E-10A and Global Hawk). The MP-RTIP program continues to support NATO Alliance Ground Surveillance (AGS) conceptual design and early design development activities.

This program is Budget Activity 7 (BA-7) because 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 and remained in the BA-7 category.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Continue Multi-Platform RTIP radar design and development for integration on the E-10A and Global Hawk target platforms	143.742			
(U) Continue Test Efforts (examples include: Operator-In-The-Loop [OITL]; Joint Test Force Support; AFOTEC Support, and Independent Verification & Validation IV&V).	1.031			
(U) Continue SPO Operations	0.678			
(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.	0.135			
(U) Total Cost	145.586	0.000	0.000	0.000
Remark: In FY 2005, activity transferred to PE 0207450F, Project 5132				

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

5065 Sensors

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E										
(U) PE 0207449F/Project 5064 Airframe	209.747	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
(U) PE 0207450F/Project 5132 Sensors	0.000	201.020	146.429	183.982	166.973	122.955	45.921	0.000	Continuing	TBD
(U) PE 0207450F/Project 5131 Airframe	0.000	217.986	250.582	205.263	420.642	315.545	248.953	74.784	Continuing	TBD
(U) PE 0305205F/Project 4799 (Global Hawk MP-RTIP Sensor)	30.062	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
(U) PE 0305220F/Project 5144 (Global Hawk MP-RTIP Sensor)	0.000	33.594	18.000	8.000	0.000	0.000	0.000	0.000	Continuing	TBD
(U) APAF										
(U) PE 0207450F (E-10A Production)	0.000	0.000	0.000	0.000	0.000	69.535	705.502	773.687	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 began in FY 2004.

The MP-RTIP program currently plans to provide sensors for seven aircraft (1 test bed and 6 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 Milestone B in FY 2005.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2005

BUDGET ACTIVITY										PE NUMBER AND TITLE		PROJECT NUMBER AND TITLE			
07 Operational System Development										0207449F C2 Constellation		5065 Sensors			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &</u> <u>Type</u>	<u>Performing</u> <u>Activity &</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2004</u> <u>Cost</u>	<u>FY 2004</u> <u>Cost</u>	<u>FY 2004</u> <u>Award</u> <u>Date</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</u>	<u>FY 2006</u> <u>Cost</u>	<u>FY 2006</u> <u>Award</u> <u>Date</u>	<u>FY 2007</u> <u>Cost</u>	<u>FY 2007</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>	
(U) <u>Product Development</u>															
Multi-Platform Radar Technology Insertion Program (MP-RTIP)	SS/CPAF	Northrop Grumman Systems Corporation; El Segundo, CA	302.259	128.830	Oct-03							Continuing	TBD	TBD	
Systems Engineering associated with MP-RTIP	Various	Various	16.357	14.912	Oct-03							Continuing	TBD	TBD	
DARPA	Allotment	Various	7.748	0.000								Continuing	TBD	TBD	
Future Studies/Spiral Development	Various	Various	0.000	0.135	Mar-04							Continuing	TBD	TBD	
Subtotal Product Development			326.364	143.877		0.000		0.000		0.000		Continuing	TBD	TBD	
Remarks:	For "Various" earliest date funds will be obligated is noted.														
(U) <u>Test & Evaluation</u>															
OITL	SS/T&M	Hanscom AFB, MA	1.300	0.000								Continuing	TBD	TBD	
JTF Support	SS/T&M	Titan Systems Corporation; Melbourne, FL	0.421	0.556	Jan-04							Continuing	TBD	TBD	
AFOTEC Support	MIPR	Various	0.366	0.000								Continuing	TBD	TBD	
IV&V	MIPR	Various	0.450	0.475	Jan-04							Continuing	TBD	TBD	
Subtotal Test & Evaluation			2.537	1.031		0.000		0.000		0.000		Continuing	TBD	TBD	
Remarks:															
(U) <u>Management</u>															
Program Office Support	Various	Various	1.358	0.678	Oct-03							Continuing	TBD	TBD	
Subtotal Management			1.358	0.678		0.000		0.000		0.000		Continuing	TBD	TBD	
Remarks:	For "Various" earliest date funds will be obligated is noted.														
(U) Total Cost			330.259	145.586		0.000		0.000		0.000		Continuing	TBD	TBD	
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 PE 0207450F, Project 5132														

Exhibit R-4, RDT&E Schedule Profile

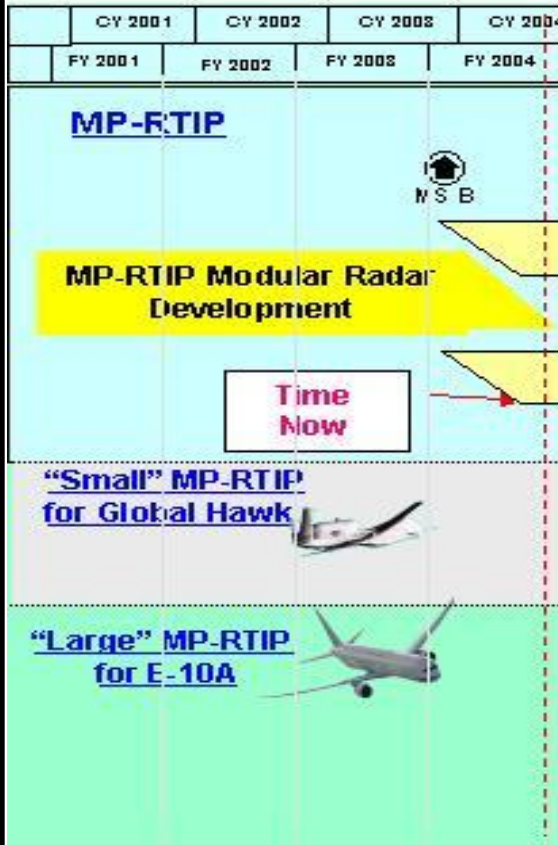
DATE
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BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0207449F C2 Constellation

PROJECT NUMBER AND TITLE
5065 Sensors

MP-RTIP Schedule



Please refer to PE 0207450F for the MP-RTIP schedule.

***Funding and Activity
Transferred to PE 0207450F
in FY 2005***

Exhibit R-4a, RDT&E Schedule Detail	DATE February 2005
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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) <u>Schedule Profile</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) MILESTONE B	1Q			
(U) FINAL DESIGN REVIEW (FDR)	3Q			
Remark: In FY 2005, activity transferred to PE 0207450F, Project 5132				

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				5078 Horizontal Integration		
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
5078 Horizontal Integration	0.000	12.646	10.665	13.705	25.615	25.229	25.702	26.012	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

In FY04, Horizontal Integration efforts were done in project 5064, Airframe.

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

Project 5078, Horizontal Integration, is established to develop an integrated capability to support network centric operations. Project 5078 defines the C2 Constellation (C2C) through six thrust areas: first, Operational Requirements and Planning documentation will be created/updated; second, Systems Engineering Policy & Guidance, Education and Architecture will be developed to further refine the C2C and provide baseline data for more detailed analysis; third, operators and systems engineers will perform analyses to validate and prioritize the major issues facing the C2C and develop net-centric roadmaps; fourth, various Modeling & Simulation and experimentation methods will be used to test both non-materiel and materiel solutions; fifth, Joint Integration/applicability will be researched and applied; and sixth, Horizontal Integration Initiatives will be built and transitioned to the warfighter as the final step in the C2C systems engineering process. Program specifics are:

- (1) Operational Requirements documents (e.g., Program Management Directive, Concept of Employment, Initial Capability Document and C2C Architecture) will be published/revise. A FYDP Implementation plan identifying the most significant C2C net-centric integration issues will continue to be developed.
- (2) Systems Engineering and Architecture Development is the 'glue' which will hold C2C elements together, and close the seams in the C4ISR architecture. C2C system and technical architectures, cross program requirements allocation, key cost drivers, risk assessments and corresponding risk mitigation strategies will be examined.
- (3) Operators and System Engineers Analysis for Net-centric capability across Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) programs will continue. The resulting Net-centric Strategic Plan will impact C4ISR program roadmaps and feed directly into the C2ISR and C4ISR Net-centric Flight Plans. Provides Air Staff with issue development, data collection, data analysis, mapping of capabilities to system functions, and supports the ability to develop trade space recommendations through use of a Capability Evolution Methodology assessment tool.
- (4) M&S and Experimentation will leverage existing government/industry development and simulation sites to allow 'virtual' assessments of the C2 Constellation. 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 alternatives and targets of opportunity for further engineering improvements and integration.
- (5) Numerous C4ISR Joint Interoperability/Integration issues exist due to the dozens of non-Air Force programs/nodes contained within the C2 Constellation enterprise. Focuses on supporting several major venues including: JBMC2 Roadmap, JFCOM Board of Directors and the Multi - Service Working Group.
- (6) Horizontal Integration Initiatives will capitalize on near-term opportunities to eliminate known horizontal integration deficiencies in the seamless C4ISR network vision. These initiatives will become integral to weapon systems' configuration controlled baselines.

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 5078 Horizontal Integration
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This program is in Budget Activity 7 - Operational System Development because it provides horizontal integration and provides developers, testers and warfighters a way 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) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Operational Requirements/Planning documents creation/update	0.000	0.818	0.920	0.990
(U) Systems Engineering Policy/Guidance and Architecture & Architecture Education Development	0.000	6.157	4.075	6.045
(U) Operational Analysis supporting Net-Centric Integration;	0.000	2.071	1.906	2.671
(U) M&S Infrastructure and Operational Experimentation	0.000	2.000	2.000	2.000
(U) Joint Interoperability/Integration Efforts	0.000	0.600	0.764	0.800
(U) Horizontal Integration Initiative focused on warfighting capability development	0.000	1.000	1.000	1.199
(U) Total Cost	0.000	12.646	10.665	13.705

(U) <u>C. Other Program Funding Summary (\$ in Millions)</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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	

(U) Not applicable

(U) **D. Acquisition Strategy**
 This project uses full and open competition for one or more operational requirements document creation, systems engineering & architecture development, modeling & simulation and experimentation, joint interoperability/integration, and horizontal integration approaches.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2005

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 Prior to FY 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>		
<u>(U) Product Development</u>																
Systems Engineer, Operation Integration Analysis, M&S, and Experimentation	C/CPAF	Lockheed Martin, ESC Hanscom AFB, MA				2.816	Nov-04	0.823	Nov-05	3.020	Nov-06	Continuing	TBD	TBD		
Horizontal Integration	C/CPAF	ACS Defense, ESC Hanscom AFB, MA				0.600	Apr-05	0.600	Apr-06	0.650	Apr-07	Continuing	TBD	TBD		
Experimentation	SPO Managed	ESC/SR, ESC Hanscom AFB, MA				0.250	Dec-04	0.250	Dec-05	0.250	Dec-06	Continuing	TBD	TBD		
System Engineering and Experimentation	C/T&M	MIT/LL, ESC Hanscom AFB, MA				1.200	Dec-04	1.200	Dec-05	1.500	Dec-06	Continuing	TBD	TBD		
System Engineering	FFRDC	MITRE, ESC Hanscom AFB, MA				2.676	Dec-04	2.676	Dec-05	2.676	Dec-06	Continuing	TBD	TBD		
Operational Integration Analysis	MIPR	AF/XI				1.000	Dec-04	1.000	Oct-05	1.199	Oct-06	Continuing	TBD	TBD		
Operational Requirements Planning Documents, System Engineering, Operation Integration Analysis, and Joint Interoperability Integration efforts	MIPR	AFC2ISRC/CX				2.564	Oct-04	2.564	Oct-05	2.000	Oct-06	Continuing	TBD	TBD		
Various	Various	ESC Hanscom AFB, MA				0.912	Dec-04	0.912	Dec-05	1.770	Dec-06	Continuing	TBD	TBD		
Subtotal Product Development			0.000	0.000		12.018		10.025		13.065		Continuing	TBD	TBD		
Remarks:																
<u>(U) Support</u>																
Subtotal Support			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000		
Remarks:																
<u>(U) Test & Evaluation</u>																
T&E	PO	605th Test Squadron				0.300	Nov-04	0.300	Nov-05	0.300	Nov-06	Continuing	TBD	TBD		
Subtotal Test & Evaluation			0.000	0.000		0.300		0.300		0.300		Continuing	TBD	TBD		
Remarks:																
<u>(U) Management</u>																
Program Management Support	FFRDC	MITRE, ESC				0.328	Dec-04	0.340	Dec-05	0.340	Dec-05	Continuing	TBD	TBD		

Project 5078

R-1 Shopping List - Item No. 154-17 of 154-27

Exhibit R-3 (PE 0207449F)

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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		5078 Horizontal Integration			
	Hanscom AFB, MA								
Subtotal Management		0.000	0.000	0.328	0.340	0.340	Continuing	TBD	TBD
Remarks:									
(U) Total Cost		0.000	0.000	12.646	10.665	13.705	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
0207449F C2 Constellation

PROJECT NUMBER AND TITLE
5078 Horizontal Integration



U.S. AIR FORCE



C2C Schedule

Activities	CY04	CY05	CY06	CY07	CY08	CY09
		FY05	FY06	FY07	FY08	FY09
1) Operational Requirements		FYDP Update △	FYDP Update △	FYDP Update △	FYDP Update △	FYDP Update △
2) Systems Engineering/Architecture Development		GG\$ ▽	GG\$ ▽	GG\$ ▽	GG\$ ▽	GG\$ ▽
3) Operational Integration Analysis		ICRRA Analysis ▽	ICRRA Analysis ▽	ICRRA Analysis ▽	ICRRA Analysis ▽	ICRRA Analysis ▽
4) Experimentation		JEFX ▲	JEFX ▲	JEFX ▲	JEFX ▲	JEFX ▲
5) Joint Interoperability / Integration		▲	COI, ForceNET, LandwarNET			▲
6) Horizontal Integration Initiatives (HII's)		▲	Horizontal Integration Initiatives			▲

Integrity - Service - Excellence

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 5078 Horizontal Integration
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(U) <u>Schedule Profile</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Operational Requirements Documents		3-4Q	3-4Q	3-4Q
(U) Systems Engineering & Architecture		4Q	4Q	4Q
(U) Operational Integration Analysis		2-3Q	2-3Q	2-3Q
(U) M&S Infrastructure and Experimentation		2-3Q	2-3Q	2-3Q
(U) Joint Interoperability/Integration		1-4Q	1-4Q	1-4Q
(U) Horizontal Integration Initiatives		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 0207449F C2 Constellation				PROJECT NUMBER AND TITLE 5140 Joint Expeditionary Force Experiments			
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total	
5140 Joint Expeditionary Force Experiments	0.000	30.884	30.406	31.704	32.761	33.407	33.833	34.070	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0			

In FY05, work transferred in from PE 0207028F, Joint Expeditionary Force Experiments, project 4373.

(U) A. Mission Description and Budget Item Justification

The Joint Expeditionary Force Experiments (JEFX) and Advanced Process Technology Experiments (APTIX) are large-scale warfighter experiments that address emerging operational challenges and are part of the total Air Force (AF) experimentation effort. JEFX and APTIX 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. JEFX, spirally conducted, and APTIX provide a multi-dimensional, multi-national, multi-service environment for an end-to-end process of exploration, assessment, and transition of capabilities that will provide joint and coalition warfighters with solutions to gaps identified in the Integrated Capability Review and Risk Assessment (I-CRRA) process and through lessons learned in recent and current operations. They are part of a broader effort to implement the Joint Vision 2020, 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. JEFX occurs on even years and APTIX on odd years.

This program is in Budget Activity 7 - Operational System Development because it provides 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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Spiral develop systems architecture, systems engineering, and integration of initiatives into a cohesive system of systems, the integration of systems and process is the major reason JEFX is an experiment and not simply a demonstration or exercise		5.124	3.583	5.160
(U) Plan, design, coordinate, assess and report the APTIX and JEFX experiments, provide expertise to support SPO functions of initiative selection, acquisition, program management, communications and systems planning		6.725	4.914	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		6.861	5.731	7.164
(U) Implement architectural configuration, conduct M&S, install and the test the communications infrastructure and execute the experiment		2.174	16.178	2.380
(U) Transition the integration of new intoxicative and legacy systems into an integrated C2ISR baseline		10.000	0.000	10.000
(U) Total Cost	0.000	30.884	30.406	31.704

Exhibit R-2a, RDT&E Project Justification	DATE February 2005
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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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	

(U) Not applicable

(U) **D. Acquisition Strategy**

JEFX supports evolutionary acquisition of multiple programs by providing a venue to experiment new and emerging technologies to be integrated into other systems-or-record.

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Exhibit R-3, RDT&E Project Cost Analysis											DATE February 2005			
BUDGET ACTIVITY 07 Operational System Development						PE NUMBER AND TITLE 0207449F C2 Constellation					PROJECT NUMBER AND TITLE 5140 Joint Expeditionary Force Experiments			
(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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> Experimentation	FFRDC	MITRE, ESC Hanscom AFB, MA				2.324	Dec-04	1.882	Dec-05	2.360	Dec-06	Continuing	TBD	TBD
Experimentation	C/CPAF	Lockheed Martin, ESC Hanscom AFB, MA				1.800	Dec-04	3.000	Dec-05	1.800	Dec-06	Continuing	TBD	TBD
Experimentation	C/IDIQ	ACS Defense, ESC Hanscom AFB, MA				1.575	Apr-05	0.951	Apr-06	1.575	Apr-07	Continuing	TBD	TBD
Experimentation	C/T&M	Northrop Grumman, ESC Hanscom AFB, MA				0.200	Dec-04	0.275	Dec-05	0.200	Dec-06	Continuing	TBD	TBD
Experimentation	C/T&M	Logicon, ESC Hanscom AFB, MA				0.500	Dec-04	0.290	Dec-05	0.500	Dec-06	Continuing	TBD	TBD
Experimentation	MIPR	GSA				1.706	Dec-04	0.806	Dec-05	1.706	Dec-06	Continuing	TBD	TBD
Experimentation	MIPR	ASC/RAB										Continuing	TBD	TBD
Experimentation	MIPR	AFRL				0.500	Dec-04			0.500	Dec-06	Continuing	TBD	TBD
Experimentation	C/T&M	General Dynamics, ESC Hanscom AFB, MA				0.450	Dec-04	0.290	Oct-05	0.450	Oct-06	Continuing	TBD	TBD
Various	Various	ESC				0.180	Dec-04			0.180	Dec-06	Continuing	TBD	TBD
Various	MIPR	Various				4.589	Dec-04	1.513	Dec-05	5.043	Dec-06	Continuing	TBD	TBD
Various	C/T&M	CITPAD, ESC Hanscom AFB, MA										Continuing	TBD	TBD
Experimentation	MIPR	L3 Comm				1.000	Dec-04	1.050	Dec-05	1.050	Dec-06	Continuing	TBD	TBD
Experimentation	C/GSA	Sverdrup				0.175	Oct-04	0.175	Oct-05	0.175	Oct-06	Continuing	TBD	TBD
Experimentation	C/GSA	Northrop Grumman				0.250	Oct-04	0.250	Oct-05	0.250	Oct-06	Continuing	TBD	TBD

Project 5140

R-1 Shopping List - Item No. 154-23 of 154-27

Exhibit R-3 (PE 0207449F)

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Exhibit R-3, RDT&E Project Cost Analysis										DATE February 2005			
BUDGET ACTIVITY 07 Operational System Development					PE NUMBER AND TITLE 0207449F C2 Constellation				PROJECT NUMBER AND TITLE 5140 Joint Expeditionary Force Experiments				
Experimentation	MIPR	505CCW Hurlburt Field, FL			0.000	Feb-05	8.025	Feb-06	0.000	Feb-07	Continuing	TBD	TBD
Experimentation	C/GSA	Alion, AFC2ISRC Langley AFB, VA			1.675	Dec-04	1.850	Nov-05	1.850	Nov-06	Continuing	TBD	TBD
Experimentation	C/GSA	Lockheed Martin, AFC2ISRC Langley AFB, VA			0.500	Dec-04	0.500	Nov-05	0.500	Nov-05	Continuing	TBD	TBD
Experimentation	C/GSA	SAIC, AFC2ISRC Langley AFB, VA			1.058	Dec-04	1.058	Nov-05	1.058	Nov-05	Continuing	TBD	TBD
Experimentation	C/GSA	L3 Comm, AFC2ISRC Langley AFB, VA			1.207	Dec-04	1.207	Nov-05	1.207	Nov-06	Continuing	TBD	TBD
Experimentation	C/GSA	Northrop Grumman, AFC2ISRC Langley AFB, VA			0.300	Dec-04	0.300	Nov-05	0.300	Nov-05	Continuing	TBD	TBD
Experimentation	C/GSA	Zel Tech, AFC2ISRC Langley AFB, VA			0.220	Dec-04	0.220	Nov-05	0.220	Nov-06	Continuing	TBD	TBD
Various	MIPR	Various			10.575	Feb-05	6.364	Jan-06	10.580	Oct-06	Continuing	TBD	TBD
Subtotal Product Development			0.000	0.000	30.784		30.006		31.504		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	0.000
Remarks:													
(U) <u>Test & Evaluation</u>													
T&E	PO	46th Test Squadron			0.100	Dec-04	0.400	Dec-05	0.200	Dec-06	Continuing	TBD	TBD
Subtotal Test & Evaluation			0.000	0.000	0.100		0.400		0.200		Continuing	TBD	TBD
Remarks:													
(U) <u>Management</u>													
Subtotal Management			0.000	0.000	0.000		0.000		0.000		0.000	0.000	0.000

Project 5140

R-1 Shopping List - Item No. 154-24 of 154-27

Exhibit R-3 (PE 0207449F)

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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

0207449F C2 Constellation

PROJECT NUMBER AND TITLE

5140 Joint Expeditionary Force Experiments

Remarks:									
(U) Total Cost	0.000	0.000	30.884	30.406	31.704	Continuing	TBD	TBD	

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0207449F C2 Constellation

PROJECT NUMBER AND TITLE
5140 Joint Expeditionary Force Experiments

	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				
Perform Assessment , JEFX					★								★												★			
Commence integration of selected initiative					★								★												★			
Call for Initiatives, 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	DATE February 2005
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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) <u>Schedule Profile</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) JEFX 04/06 Assessment		1Q	4Q	1Q
(U) Integration of Initiatives		1Q	4Q	1Q
(U) APTX 05/07 Integration		2Q		2Q
(U) APTX Initiative Selection		2Q		2Q
(U) Architecture Development		3Q		3Q
(U) APTX 05/07		2Q		2Q
(U) JEFX 06/08 Call for Initiatives		3Q		3Q
(U) JEFX 06/08 Selection		3Q		3Q
(U) JEFX 06/08 Architecture Developed		3Q		3Q
(U) Conduct Spiral 1	2Q		1Q	
(U) Conduct Spiral 2	3Q		2Q	
(U) Conduct Spiral 3	3Q		2Q	
(U) Conduct JEFX Experiments	4Q		3Q	

UNCLASSIFIED

PE NUMBER: 0207581F
 PE TITLE: JOINT STARS

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2005
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207581F JOINT STARS
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Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	59.877	88.238	78.084	79.836	81.543	58.286	58.091	58.043	Continuing	TBD
0003 JSTARS	59.877	88.238	78.084	79.836	81.543	58.286	58.091	58.043	Continuing	TBD

(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, and helps achieve predictive battlespace awareness.

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 technologies to enable rapid decisions in tracking and killing time-critical targets. Concept exploration, program definition/risk reduction efforts, and studies support continuous improvements in Command/ Control and ISR (C2ISR) capabilities, and interoperability with Joint Service, allied, and coalition systems. 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, Network Centric Collaborative Targeting (NCCT), Interim Capability for Airborne Networking (ICAN), and other large airborne platform integration efforts. These efforts include the use of a dedicated test aircraft, laboratories, and test support facilities. The result is greater mission capability, higher mission reliability, and maximum weapon system availability. The Joint STARS program will coordinate with and participate in projects developing international standards (including NATO standards) to ensure joint, allied, and coalition interoperability.

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

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2005

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207581F JOINT STARS

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	57.760	89.247	128.415	79.361
(U) Current PBR/President's Budget	59.877	88.238	78.084	79.836
(U) Total Adjustments	2.117	-1.009		
(U) Congressional Program Reductions				
Congressional Rescissions		-1.009		
Congressional Increases				
Reprogrammings	3.827			
SBIR/STTR Transfer	-1.710			

(U) **Significant Program Changes:**

- 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.
- FY04 received funding for Traffic Collision Avoidance System (TCAS) & MODE S (transponder upgrade/replacement).

Exhibit R-2a, RDT&E Project Justification

DATE

February 2005

BUDGET ACTIVITY							PE NUMBER AND TITLE		PROJECT NUMBER AND TITLE	
07 Operational System Development							0207581F JOINT STARS		0003 JSTARS	
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
0003 JSTARS	59.877	88.238	78.084	79.836	81.543	58.286	58.091	58.043	Continuing	TBD
Quantity of RDT&E Articles	0	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, and helps achieve predictive battlespace awareness.

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 technologies to enable rapid decisions in tracking and killing time-critical targets. Concept exploration, program definition/risk reduction efforts, and studies support continuous improvements in Command/ Control and ISR (C2ISR) capabilities, and interoperability with Joint Service, allied, and coalition systems. 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, Network Centric Collaborative Targeting (NCCT), Interim Capability for Airborne Networking (ICAN), and other large airborne platform integration efforts. These efforts include the use of a dedicated test aircraft, laboratories, and test support facilities. The result is greater mission capability, higher mission reliability, and maximum weapon system availability. The Joint STARS program will coordinate with and participate in projects developing international standards (including NATO standards) to ensure joint, allied, and coalition interoperability.

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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Connectivity, Airborne Battlefield Command & Control Center Capability Insertion (ACI), etc.	6.533	0.000	0.000	0.000
(U) Spiral Development, Kill Chain and Integration/Analysis, Interoperability (examples: Wide Area Tracker, Advanced Radar Modes, Automatic Target Recognition, NCCT, ICAN, Find-Fix-Target-Track-Engage-Assess (F2T2EA), SPO operations, International, Kassper, etc.)	11.534	7.006	5.787	4.680
(U) Communication, Navigation, and Surveillance/Air Traffic Management (CNS/ATM) formerly Global Air Traffic Mgmt (GATM) (i.e.; TCAS, Mode 5/S, etc.)	6.866	46.821	29.385	34.583
(U) Training & Support Systems development (examples: Weapon System Trainer Motion/Visual, Navigation Trainer, etc.)	0.987	0.500	0.000	0.000
(U) Link 16 ASU support, connectivity efforts, etc.	0.000	3.821	17.032	10.095
(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.)	33.957	30.090	25.880	30.478

Exhibit R-2a, RDT&E Project Justification

DATE

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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207581F JOINT STARS	PROJECT NUMBER AND TITLE 0003 JSTARS
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(U) Total Cost	59.877	88.238	78.084	79.836
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(U) **C. Other Program Funding Summary (\$ in Millions)**

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
(U) Aircraft Procurement, AF, BP10 (PE 0207581F)									Continuing	TBD
(U) Modifications, BP11 (PE 0207581F)	34.406	44.452	15.506	12.558	44.865	31.532	32.442	32.757	Continuing	TBD
(U) Spares, BP16 (PE 0207581F)	15.699	8.024	0.592	1.120	1.292	1.404	1.439	1.456	Continuing	TBD

(U) **D. Acquisition Strategy**

The AF will continue development for various fleetwide modifications throughout the life of the Joint STARS weapon system using modifications to the post-production contract.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2005

BUDGET ACTIVITY				PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE					
07 Operational System Development				0207581F JOINT STARS						0003 JSTARS					
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &</u> <u>Type</u>	<u>Performing</u> <u>Activity &</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2004</u> <u>Cost</u>	<u>FY 2004</u> <u>Cost</u>	<u>FY 2004</u> <u>Award</u> <u>Date</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</u>	<u>FY 2006</u> <u>Cost</u>	<u>FY 2006</u> <u>Award</u> <u>Date</u>	<u>FY 2007</u> <u>Cost</u>	<u>FY 2007</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>	
(U) <u>Product Development</u>															
Weapon System Trainer (WST)	Various	Various	17.570	0.000		0.000		0.000		0.000		Continuing	TBD	TBD	
ASU	SS/CPAF	HAFB, MA	8.485	0.000		1.395	Jan-05	17.032	Nov-05	10.095	Nov-06	0.000	37.007	39.644	
CNS/ATM (GATM)	Various	HAFB, MA	15.266	6.521	Apr-04	43.707	Jan-05	29.385	Nov-05	34.583	Nov-06	22.819	152.281	TBD	
Spiral Development	Various	Various	3.213	4.491	Nov-03	2.625	Nov-04	1.456	Nov-05	1.044	Nov-06	Continuing	TBD	TBD	
ACI Migration (formally ABCCC)	SS/CPAF	HAFB, MA	12.548	5.614	Jan-04	0.000		0.000		0.000		0.000	18.162	TBD	
Subtotal Product Development			57.082	16.626		47.727		47.873		45.722		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	102.968	8.810	Oct-03	13.389	Oct-04	2.717	Oct-05	2.907	Oct-06	Continuing	TBD	TBD	
Subtotal Support			102.968	8.810		13.389		2.717		2.907		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)	Various	Various	358.082	26.164	Nov-03	19.130	Nov-04	17.799	Nov-05	22.362	Nov-06	Continuing	TBD	TBD	
JTF Range/Support	Various	Various	39.038	6.761	Nov-03	6.826	Nov-04	7.501	Nov-05	7.510	Nov-06	Continuing	TBD	TBD	
PL-2	Various	Various	0.465	0.630	Nov-03	0.929	Nov-04	0.580	Nov-05	0.606	Nov-06	Continuing	TBD	TBD	
Subtotal Test & Evaluation			397.585	33.555		26.885		25.880		30.478		Continuing	TBD	TBD	
Remarks:	Where Various Contract Method & Types take place, earliest date funds will be obligated is noted.														
(U) <u>Management</u>															
Integration & Analysis				0.886		0.237		1.614		0.729		Continuing	TBD	TBD	
Subtotal Management			0.000	0.886		0.237		1.614		0.729		Continuing	TBD	TBD	
Remarks:															
(U) Total Cost			557.635	59.877		88.238		78.084		79.836		Continuing	TBD	TBD	

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY
07 Operational System Development

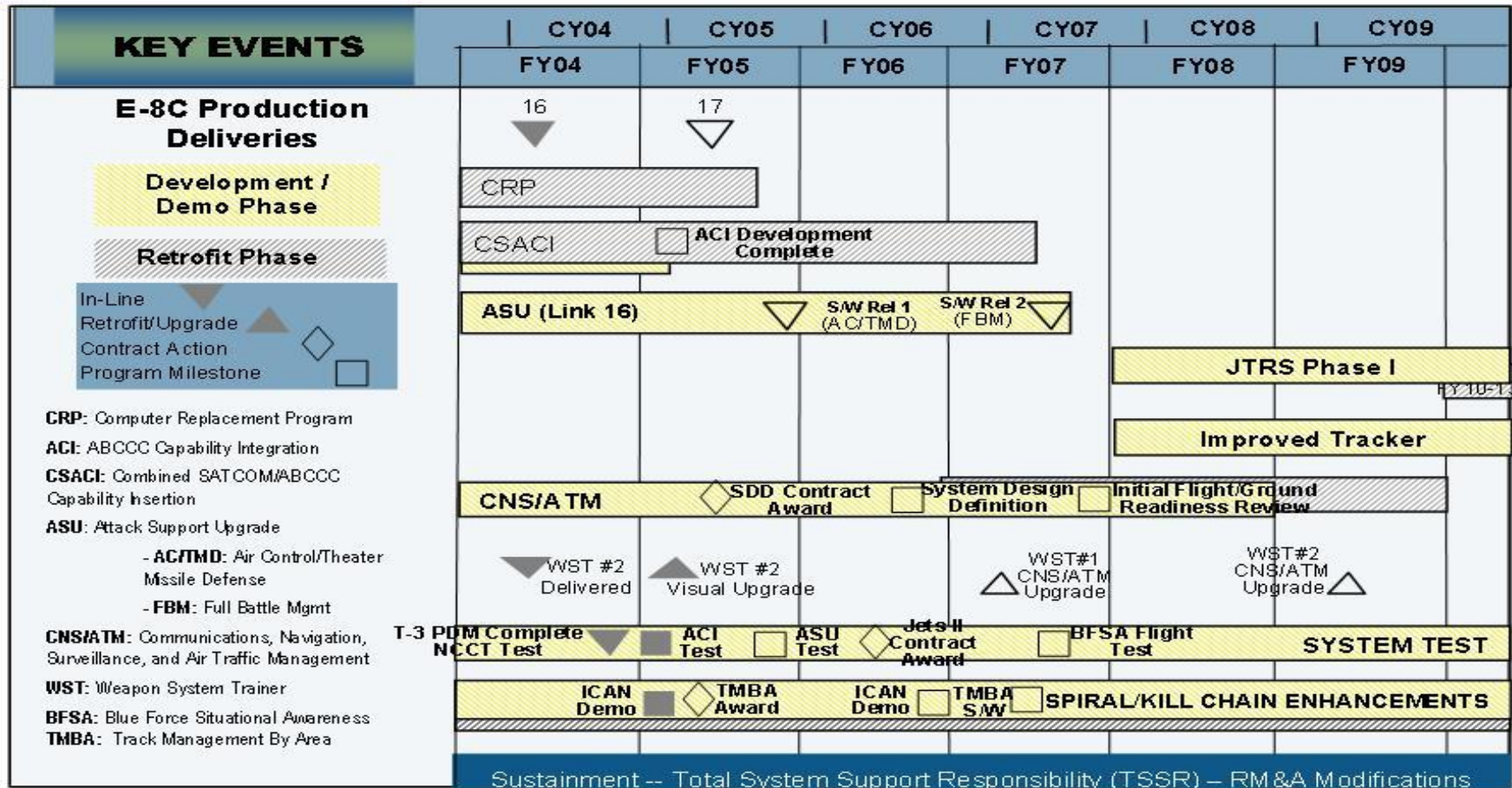
PE NUMBER AND TITLE
0207581F JOINT STARS

PROJECT NUMBER AND TITLE
0003 JSTARS



Joint STARS Program Schedule

U.S. AIR FORCE



- CRP: Computer Replacement Program
- ACI: ABCCC Capability Integration
- CSACI: Combined SATCOM/ABCCC Capability Insertion
- ASU: Attack Support Upgrade
 - AC/TMD: Air Control/Theater Missile Defense
 - FBM: Full Battle Mgmt
- CNS/ATM: Communications, Navigation, Surveillance, and Air Traffic Management
- WST: Weapon System Trainer
- BFSAs: Blue Force Situational Awareness
- TMBA: Track Management By Area

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Exhibit R-4a, RDT&E Schedule Detail

DATE

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BUDGET ACTIVITY	PE NUMBER AND TITLE		PROJECT NUMBER AND TITLE		
07 Operational System Development	0207581F JOINT STARS		0003 JSTARS		
(U) Schedule Profile	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	
(U) Weapon System Trainer Delivered (WST)	2Q				
(U) WST #1 Flight Crew Training System Visual Upgrade		1Q			
(U) CNS/ATM RFP Release	3Q				
(U) CNS/ATM Contract Award		2Q			
(U) CNS/ATM WST Development Contract Award		3Q			
(U) CNS/ATM Initial System Design Review			1Q		
(U) CNS/ATM System Design Definition Complete			3Q		
(U) CNS/ATM Critical Design Review				3Q	
(U) CNS/ATM Initial Flight/Ground Readiness Review				4Q	
(U) ACI Development Complete (formally ABCCC)		1Q			
(U) ASU Air Control/Theater Missile Defense, S/W Release		4Q			
(U) ASU Full Battle Management, S/W Release				4Q	
(U) Sys Test - JETS Wing Structural Integrity Program Complete/Delivered	4Q		1Q		
(U) Sys Test - NCCT Flight Test	4Q				
(U) Sys Test - ACI Capability Insertion Flight Test		1Q			
(U) Sys Test - ASU Phase I Flight Test		3Q			
(U) Sys Test - CNS/ATM (Weather Radar & TCAS) Flight Test		4Q			
(U) Sys Test - JETS II Contract Award			1Q	1Q	
(U) Sys Test - ASU Phase II Flight Test			2Q		
(U) Sys Test - CNS/ATM Flight Test				2Q	
(U) Sys Test - Blue Force Situational Awareness Flight Test				3Q	
(U) Spiral Development - ICAN Proof of Concept @ Red Flag		1Q	4Q	4Q	
(U) Spiral Development - Track Mgt By Area (TMBA) Award		2Q			
(U) Spiral Development - TMBA Integrated S/W Release				3Q	

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PE NUMBER: 0207590F
 PE TITLE: Seek Eagle

Exhibit R-2, RDT&E Budget Item Justification									DATE February 2005	
BUDGET ACTIVITY 07 Operational System Development					PE NUMBER AND TITLE 0207590F Seek Eagle					
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	18.482	22.955	19.510	16.620	19.953	20.209	20.632	20.816	Continuing	TBD
4037 SEEK EAGLE Certifications	18.482	22.955	19.510	16.620	19.953	20.209	20.632	20.816	Continuing	TBD

(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 analyses. Over 2000 aircraft/store combinations are recommended for flight testing each year. Depending upon the complexity, certification takes from weeks to years. The SEEK EAGLE program is also responsible for insertion of new and emerging technologies into the SEEK EAGLE process, and for providing resources for sustainment of a viable Air Force aircraft/store certification capability. Integrated solutions to combat aircrew weapon delivery planning problems are developed and provided to the warfighters via Combat Weapons Delivery Software (CWDS). This includes the development of electronic technical orders (TOs), which results in cost savings by eliminating paper TOs. SEEK EAGLE funds are currently budgeted to support certification for new weapons programs including Small Diameter Bomb (SDB), Joint Direct Attack Munition (JDAM), Joint Air-to-Surface Standoff Missile (JASSM), Joint Standoff Weapon (JSOW), AIM-9X, AIM-120 C7 (AMRAAM), Miniature Air-Launched Decoy (MALD), BRU-57 (Smart Bomb Racks), and many other inventory stores on inventory aircraft. Planning and budgeting estimates are in progress for future certifications of weapons on F/A-22, F-35, MQ-9 (Predator), and the Joint Unmanned Combat Aerial System (J-UCAS).

The RDT&E Budget Activity is 07, Operational System Development, because the program supports fielded systems.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	19.421	23.159	21.152	18.319
(U) Current PBR/President's Budget	18.482	22.955	19.510	16.620
(U) Total Adjustments	-0.939	-0.204		
(U) Congressional Program Reductions		-0.204		
Congressional Rescissions				
Congressional Increases				
Reprogrammings	-0.352			
SBIR/STTR Transfer	-0.587			
(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 0207590F Seek Eagle		PROJECT NUMBER AND TITLE 4037 SEEK EAGLE Certifications	
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4037 SEEK EAGLE Certifications	18.482	22.955	19.510	16.620	19.953	20.209	20.632	20.816	Continuing	TBD
Quantity of RDT&E Articles	0	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 analyses. Over 2000 aircraft/store combinations are recommended for flight testing each year. Depending upon the complexity, certification takes from weeks to years. The SEEK EAGLE program is also responsible for insertion of new and emerging technologies into the SEEK EAGLE process, and for providing resources for sustainment of a viable Air Force aircraft/store certification capability. Integrated solutions to combat aircrew weapon delivery planning problems are developed and provided to the warfighters via Combat Weapons Delivery Software (CWDS). This includes the development of electronic technical orders (TOs), which results in cost savings by eliminating paper TOs. SEEK EAGLE funds are currently budgeted to support certification for new weapons programs including Small Diameter Bomb (SDB), Joint Direct Attack Munition (JDAM), Joint Air-to-Surface Standoff Missile (JASSM), Joint Standoff Weapon (JSOW), AIM-9X, AIM-120 C7 (AMRAAM), Miniature Air-Launched Decoy (MALD), BRU-57 (Smart Bomb Racks), and many other inventory stores on inventory aircraft. Planning and budgeting estimates are in progress for future certifications of weapons on F/A-22, F-35, MQ-9 (Predator), and the Joint Unmanned Combat Aerial System (J-UCAS).

The RDT&E Budget Activity is 07, Operational System Development, because the program supports fielded systems.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(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	0.500	0.500
(U) Conduct various automation projects and automated Technical Orders/mission planning projects using CWDS	3.300	3.300	3.200	3.000
(U) Continue/complete various technology process improvement projects and aircraft load/separation prediction capabilities using ACFD (Applied Computational Fluid Dynamics)	2.800	3.000	3.000	2.600
(U) Conduct various aircraft-store certifications on USAF fighter and bomber aircraft	11.882	15.655	12.810	10.520
(U) Total Cost	18.482	22.955	19.510	16.620

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E										
(U) Other APPN										

Exhibit R-2a, RDT&E Project Justification

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

(U) Proc of Ammunition, AF*									
(U) - JDAM (PE 0207583F)	0.143	0.000	0.000	0.105	0.000	0.000		Continuing	TBD
(U) - WCMD (PE 0207600F)	0.133	0.000	0.000	0.000	0.000	0.000		Continuing	TBD
(U) Missile Procurement, AF*									
(U) - JSOW (PE 0207324F)	0.000	0.000	0.971	0.000	0.000	0.000		Continuing	TBD
(U) - AIM-120 C7 (AMRAAM) (PE 0207163F)	0.000	0.000	0.000	0.000	0.000	0.000		Continuing	TBD
(U) - AIM-9X (PE 0207161F)	0.000	0.000	0.000	0.000	0.000	0.000		Continuing	TBD
(U) - JASSM (PE 0207325F)	0.000	2.826	0.000	2.899	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

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BUDGET ACTIVITY				PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE					
07 Operational System Development				0207590F Seek Eagle						4037 SEEK EAGLE Certifications					
(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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>	
(U) <u>Product Development</u>															
Lockheed Martin	C/CPFF	Marietta, GA	3.560	0.500		1.000		0.500		0.500		0.500	6.560		
Leigh Aerosystems	FFP	Carlsbad, CA	0.943	0.000		0.000		0.000		0.000		0.000	0.943		
Subtotal Product Development			4.503	0.500		1.000		0.500		0.500		0.500	7.503	0.000	
Remarks:															
(U) <u>Support</u>															
Mission Support	PO/REO	Eglin AFB, FL	11.854	1.050		1.100		1.150		1.200		Continuing	TBD		
Subtotal Support			11.854	1.050		1.100		1.150		1.200		Continuing	TBD	0.000	
Remarks:															
(U) <u>Test & Evaluation</u>															
46th Test Wing	PO/REO	Eglin AFB, FL	126.719	11.857		14.600		11.600		9.660		Continuing	TBD		
AEDC	PO/REO	Arnold Engineering Dev Center TN	17.766	0.000		0.000		2.000		2.000		Continuing	TBD		
Various	PO/REO/ MIPR	Multiple other for T&E Support	64.968	5.075		6.255		4.260		3.260		Continuing	TBD		
Subtotal Test & Evaluation			209.453	16.932		20.855		17.860		14.920		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	0.000	
Remarks:															
(U) Total Cost			225.810	18.482		22.955		19.510		16.620		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

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

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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

(U) Schedule Profile

FY 2004

FY 2005

FY 2006

FY 2007

(U) JDAM

1-4Q

1-4Q

(U) WCMD

1-4Q

(U) JSOW

1-4Q

(U) JASSM

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

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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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	12.459	13.479	30.541	24.347	22.858	28.896	27.638	30.396	Continuing	TBD
4567 M&S Foundations	11.112	5.190	6.203	5.800	6.277	6.263	6.258	6.209	Continuing	TBD
4991 Accelerated Acquisitions	0.000	2.316	4.824	4.880	5.055	5.047	5.164	5.252	Continuing	TBD
5004 New and Emerging Capabilities	0.487	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5005 Executive Agent For Air /Space Natural Environment	0.860	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5135 Warfighter Readiness	0.000	5.973	19.514	13.667	11.526	17.586	16.216	18.935	Continuing	TBD

In FY06, PE 0207601F, United States Air Force (USAF) Modeling & Simulation (M&S) was aligned to better support customer needs into four thrusts. This resulted in project 4567, being renamed from the Joint Synthetic Battlespace (JSB) Environment to M&S Foundations (MSF); project 4991, being renamed from the Joint Distributed Engineering Plant to Accelerated Acquisitions (AA); project 5004, being renamed from Joint Model Transition to New and Emerging Warfighting Capabilities (NEWC), and project 5135, being renamed from Distributed Mission Operations to Warfighter Readiness (WR). The four thrusts enable the communities of interest to focus and prioritize the PE's capabilities.

(U) A. Mission Description and Budget Item Justification

Modeling & Simulation Foundations (MSF) 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. Accelerated Acquisitions (AA) connects combat system engineering sites within the Air Force-Integrated Collaborative Environment (AF-ICE), formally known as Joint Distributed Engineering Plant (JDEP)/ Center for Domain Integration (CDI), and replicates the Joint Force Combat system to create a network test-bed to assess Joint Battle Management, Command, Control, Communication, Computers and Intelligence. AA's objective is to improve interoperability of weapons systems and platforms through more rigorous interoperability evaluation in a replicated battlefield environment. AA provides the capability to improve Service and Joint system performance in a system-of-systems environment. New and Emerging Warfighting Capabilities (NEWC) focuses on future capabilities and force structure. Examples include Science and Technology, analysis, concept exploration and future wargaming. Models are being developed for a broad range of areas including acquisition, analysis, test and evaluation and training. Warfighter Readiness (WR) focuses on improving warfighting decision-making, execution, skills and processes using modeling and simulation. WR leverages AA, MSF, and Distributed Mission Operations/Training (mission rehearsal/training) programs to create the most efficient robust, collaborative M&S environment available.

For FY05, the Joint Model Transition (JMT), project 5004, supports the next generation of modeling and simulation (M&S) systems for the Air Force during transition from legacy M&S. JMT fulfills emerging models and architecture capabilities. Numerous legacy models exist and are being modified or developed for a broad range of areas including acquisition, analysis, test, evaluation, and training. For FY06, JMT efforts are included in project 5135.

For FY04, the Air and Space Natural Environment (ASNE), project 5005, DoD Modeling and Simulation Executive Agent (MSEA) coordinates all aspects of DoD M&S related to representations of the air and space natural environment. Air Force's Director of Weather is designated as the MSEA for ASNE. The Director of

Exhibit R-2, RDT&E Budget Item Justification

DATE

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207601F USAF Modeling and Simulation

Weather ensures air and space weather is properly represented in Joint and Service models, simulations, wargames, and experiments. For FY05 and FY06, ASNE efforts are included in project 4567.

For FY04, this Program Element (PE) contained the Congressional add that enabled the development of 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 analysis efforts and support Quadrennial Defense Reviews. In FY05, the work transferred to PE 0207605F, Wargaming & Simulation Centers, project 2888, Distributed Mission Operations Center (DMOC).

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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	12.873	18.693	11.475	11.583
(U) Current PBR/President's Budget	12.459	13.479	30.541	24.347
(U) Total Adjustments	-0.414	-5.214		
(U) Congressional Program Reductions				
Congressional Rescissions		-0.165		
Congressional Increases				
Reprogrammings	-0.040	-5.049		
SBIR/STTR Transfer	-0.374			

(U) Significant Program Changes:

In FY06 and FY07, the increases between the previous President's Budget and the current President's Budget supports the next generation of Modeling & Simulation (M&S) in project 675135, Warfighter Readiness. This adjustment will be used to create the integration environment to facilitate exercises as stated in the Air Force Annual Planning and Programming Guidance. This integration environment brings together stand-alone simulators with constructive models and live assets. Distribution Mission Operations Integration (DMOI) permits multi-team, multi-site and operational level participation necessary for Air Operation Center and Aerospace Expeditionary Force certification. The change also supports M&S infrastructure enhancements within the DMO environment, necessary for horizontal and vertical integration with AF, Joint, and coalition combat teams and resources.

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 M&S Foundations			
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total	
4567 M&S Foundations	11.112	5.190	6.203	5.800	6.277	6.263	6.258	6.209	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0			

In FY06, PE 0207601F, United States Air Force (USAF) Modeling & Simulation (M&S) was aligned to better support customer needs into four thrusts. This resulted in project 4567, being renamed from the Joint Synthetic Battlespace (JSB) Environment to M&S Foundations (MSF). The four thrusts enable the communities of interest to focus and prioritize the PE's capabilities.

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

M&S Foundations (MSF) focuses on integrating foundational capabilities needed to improve the usefulness, productivity, scalability and efficiency of M&S capabilities derived from Warfighter Readiness (WR), Accelerated Acquisitions (AA), and New and Emerging Warfighting Capabilities (NEWC). The efforts supporting the M&S Foundations thrust include both concept exploration and development.

MSF will provide standards and interfaces to be used by model developers to ensure model reuse. M&S Foundations 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.

Air Force Director of Weather (AF/XOO-W) is designated as the DoD Modeling and Simulation Executive Agent (MSEA) for Air and Space Natural Environment (ASNE). ASNE MSEA coordinates all aspects of DoD M&S related to representations of the air and space natural environment, ensuring air and space weather is properly represented in Joint and Service models, simulations, wargames, and experiments. The ASNE part of this project funds, but not limited to the following: Environmental Scenario Generator, Warfighter Weather Effects, and the Space Weather Analysis as required by Joint M&S program offices and activities like Joint National Training Capability, Distributed Mission Operations/Training, Joint Forces Command, One Semi-Automated Force, Joint Strike Fighter, Virtual Flag, Unified Engagement, and Joint Expeditionary Force Experiment support. Primary users are unified commanders and service components conducting simulations and exercises involving air, ground, sea, and space campaigns. In addition, ASNE develops environmental scenarios: necessary for robust "What-if" mission planning and rehearsal; which supply realistic data essential for valid Training, Analysis, and Acquisition simulations to support the expanding Combatant Commander customer base; and for the Defense Threat Reduction Agency on an enhanced high-resolution HAZMAT dispersion model. ASNE adheres to, develops, and promotes environmental database standards and leads in the development/execution of the DoD Integrated Natural Environment Authoritative Representation Process (INEARP) Concept of Operations.

This project includes 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 representations and fully support Quadrennial Defense Reviews. JMASS is a simulation support environment for the development, configuration, execution, and analysis of high fidelity, repeatable simulations with re-usable models-focus is tactical/engagement level

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 M&S Foundations

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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) MSF Concept exploration/model development/model transition	9.252	4.252	5.247	4.825
(U) Develop ASNE natural reforestation	0.860	0.938	0.956	0.975
(U) STORM implementation (Congressional Add)	1.000	0.000	0.000	0.000
(U) Total Cost	11.112	5.190	6.203	5.800

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	

(U) Not applicable

(U) **D. Acquisition Strategy**

Electronic Systems Center (ESC) at Hanscom AFB, MA and ASC, Wright Patterson AFB, OH will manage the acquisition and model development process for all M&S Foundation activities. All major contracts 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						4567 M&S Foundations				
(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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>														
System Engineering and Technology Support	Various	Northrop Grumman, ESC, Hanscom AFB, MA	0.000	8.825	Jun-04							Continuing	TBD	TBD
Concept Exploration and Technology Support	Various	ASC, Wright Patterson AFB, OH	13.080	0.427	Oct-03	4.252	Oct-04	5.247	Oct-05	4.825	Oct-06	Continuing	TBD	TBD
STORM	T&M	Group W Inc.; AFSAA, Washington, DC	0.000	1.000	Apr-04							Continuing	TBD	TBD
ASNE	Various	Various		0.860	Oct-03	0.938	Oct-04	0.956	Oct-05	0.975	Oct-06	Continuing	TBD	TBD
Subtotal Product Development			13.080	11.112		5.190		6.203		5.800		Continuing	TBD	TBD
Remarks:														
(U) <u>Support</u>													0.000	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>													0.000	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	0.000
Subtotal Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
(U) Total Cost			13.080	11.112		5.190		6.203		5.800		Continuing	TBD	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
4567 M&S Foundations

Exhibit R-4: M&S Foundations (MSF)

	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
Concept Exploratory/ Refinement					★				★				☆				☆				☆				☆				☆			
Technology Development						★				☆				☆				☆				☆				☆				☆		
STORM			★																													

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2005
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207601F USAF Modeling and Simulation	PROJECT NUMBER AND TITLE 4567 M&S Foundations
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	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Schedule Profile				
(U) Concept exploration/refinement, development, and enhancement of AF next generation modeling & simulation efforts	1-4Q	1-4Q	1-4Q	1-4Q
(U) Storm development	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 Accelerated Acquisitions			
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total	
4991 Accelerated Acquisitions	0.000	2.316	4.824	4.880	5.055	5.047	5.164	5.252	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0			

In FY06, PE 0207601F, United States Air Force (USAF) Modeling & Simulation (M&S) was aligned to better support customer needs into four thrusts. This resulted in project 4991, being renamed from the Joint Distributed Engineering Plant to Accelerated Acquisitions (AA). The four thrusts enable the communities of interest to focus and prioritize the PE's capabilities.

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

Accelerated Acquisitions (AA) focuses on reducing the time and resources required to provide material solutions to the Warfighter. Examples include more efficient and coordinated processes for design, development, test and evaluation, maintainability and sustainment.

AA's objective is to improve interoperability of weapon systems and platforms through more rigorous interoperability evaluation in a replicated battlefield environment. The AA thrust area includes 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 network centric systems and Command, Control, Communication, Computers and Intelligence (C4I).

In addition, AA provides the capability to improve both Service and Joint system performance in a System-of-Systems environment. Air Force-Integrated Collaborative Environment (AF-ICE) will use this network to build upon 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). AF-ICE will develop the concept of operations, business rules, and procedures to enable acquisition managers to effectively use the network. The AF-ICE initiative supports the Homeland Defense Testbed, Command & Control (C2) Constellation, Node Additions, and various other activities that use the network infrastructure located around the country.

The AF-ICE will coordinate activities involving Air Force engineering and test sites. AF-ICE will ensure that accurately represented C4I networks are established for system development and testing activities and will evaluate those systems for interoperability and integration into a joint environment.

This project is in Budget Activity 7 - Operational System Development because it enhances operational system developments.

(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Continue communications architectures, links and operations support Air Force-Integrated Collaborative Environment (AF-ICE) activities	0.000	1.000	1.526	1.735
(U) Continue to expand existing JDEP to support AF-ICE activities to include the management, operations and test support along with contracted personnel to assist in DT/OT activities	0.000	1.000	1.500	1.656
(U) Provide event analysis support to product centers	0.000	0.316	0.898	0.589
(U) Develop and execute various simulations/stimulation environments for CDI test events	0.000	0.000	0.900	0.900
(U) Total Cost	0.000	2.316	4.824	4.880

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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207601F USAF Modeling and Simulation	PROJECT NUMBER AND TITLE 4991 Accelerated Acquisitions
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(U) C. Other Program Funding Summary (\$ in Millions)

<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	

(U) Not applicable

(U) D. Acquisition Strategy

Electronic Systems Center (ESC) at Hanscom AFB, MA will manage the acquisition and development process for the experimentation, integration, and site activation activities for AA. All major contracts will be awarded after full and open competition

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Exhibit R-3, RDT&E Project Cost Analysis											DATE February 2005			
BUDGET ACTIVITY 07 Operational System Development						PE NUMBER AND TITLE 0207601F USAF Modeling and Simulation					PROJECT NUMBER AND TITLE 4991 Accelerated Acquisitions			
(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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> HLD Testbed	Various	ESC Hanscom AFB, MA		0.000		0.220	Nov-04					Continuing	TBD	TBD
AF-ICE Activities Support	Various	BOEING, ESC Hanscom AFB, MA		0.000		0.000		0.526	Nov-05	0.391	Nov-06	Continuing	TBD	TBD
AWSIM Support	T&M	NORTHROP GRUMMAN, ESC Hanscom AFB, MA		0.000		0.000		0.500	Nov-05	0.350	Nov-06	Continuing	TBD	TBD
Node Activities	MIPR	Defense Information Systems Agency (DISA)		0.000		1.000	Oct-04	1.600	Nov-05	1.600	Nov-06	Continuing	TBD	TBD
HLD Testbed/AF-ICE Activities Support	C/CPFF	Solipsys, ESC Hanscom AFB, MA		0.000		0.000		0.200	Dec-05	0.200	Jan-07	Continuing	TBD	TBD
AA Requirements/Capabilities	Various	Aeronautical Systems Center (ASC)		0.000		1.000	Dec-04	0.500	Dec-05	0.600	Jan-07	Continuing	TBD	TBD
AF-ICE Support	C/CPFF	RAYTHEON , ESC Hanscom AFB, MA		0.000		0.000		0.298	Dec-05	0.289	Jan-07	Continuing	TBD	TBD
Various	Various	Mitre, ESC Hanscom AFB, MA				0.000		0.300	Oct-05	0.350	Oct-06	Continuing	TBD	TBD
ITSP Support	Various	ESC Hanscom AFB, MA				0.096	Oct-04	0.500	Mar-06	0.500	Mar-07	Continuing	TBD	TBD
Subtotal Product Development			0.000	0.000		2.316		4.424		4.280		Continuing	TBD	TBD
Remarks:														
(U) <u>Support</u> 46th Test Squadron	Project Order	Various						0.400	Nov-05	0.600	Nov-06	Continuing	TBD	TBD

Project 4991

R-1 Shopping List - Item No. 158-10 of 158-26

Exhibit R-3 (PE 0207601F)

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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 Accelerated Acquisitions		
Subtotal Support	0.000	0.000	0.000	0.400	0.600	Continuing	TBD	TBD
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	0.000	0.000	2.316	4.824	4.880	Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

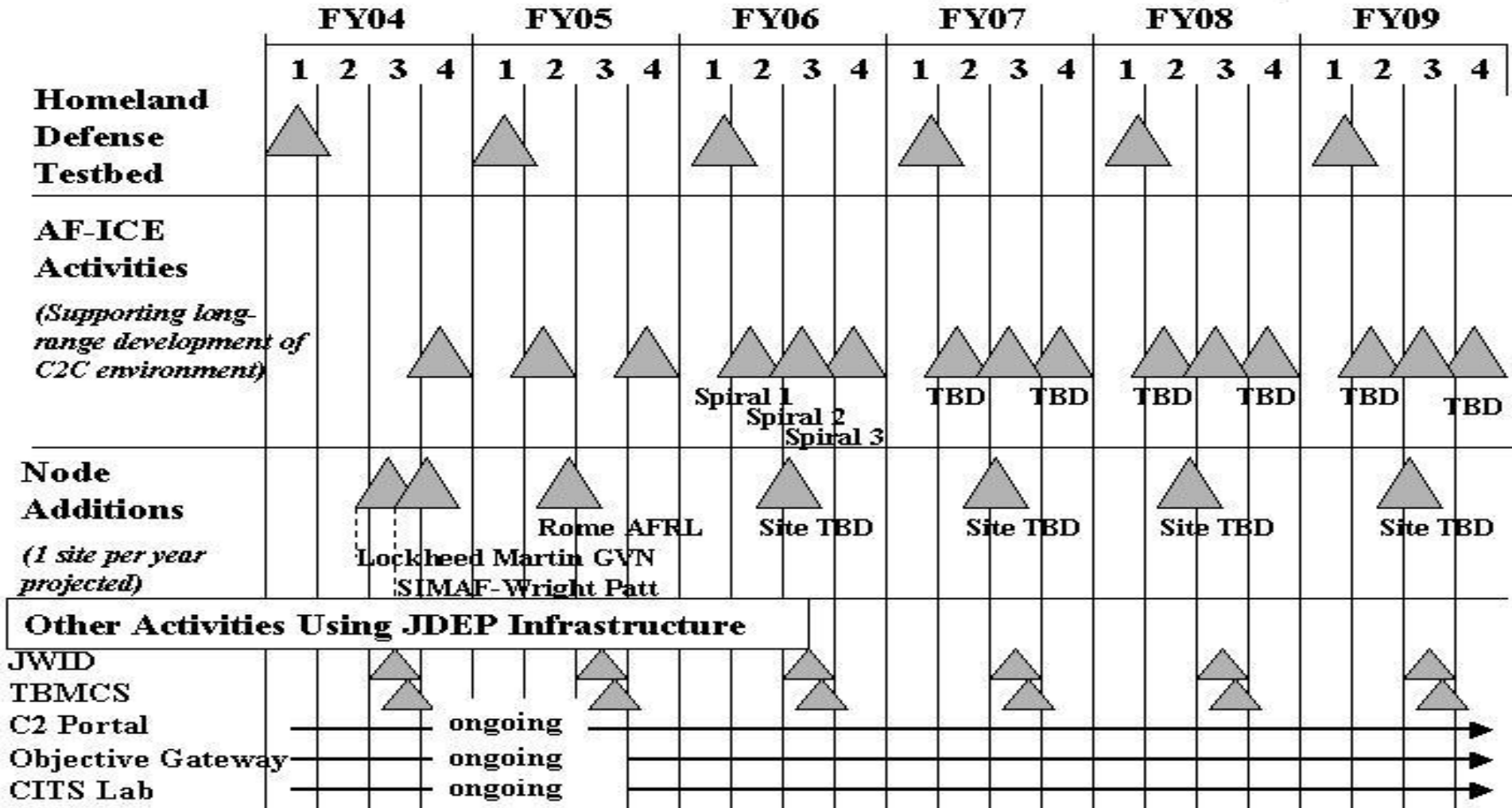
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BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0207601F USAF Modeling and Simulation

PROJECT NUMBER AND TITLE
4991 Accelerated Acquisitions

Accelerated Acquisitions (AA)



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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 Accelerated Acquisitions

(U) Schedule Profile

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Event Planning		1-4Q	1-4Q	1-4Q
(U) Conduct Homeland Defense Testbed event		1Q	1Q	1Q
(U) Implement C2 Constellation (JDEP/AF-ICE) and node connectivity events at Air Force sites		2-4Q	2-4Q	2-4Q
(U) Support other events using JDEP/AF-ICE infrastructure		3Q	3Q	3Q

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 New and Emerging Capabilities		
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
5004 New and Emerging Capabilities	0.487	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	0		

In FY06, PE 0207601F, United States Air Force (USAF) Modeling & Simulation (M&S) was aligned to better support customer needs into four thrusts. This resulted in project 5004, being renamed from Joint Model Transition to New and Emerging Warfighting Capabilities (NEWC). The four thrusts enable the communities of interest to focus and prioritize the PE's capabilities.

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

New and Emerging Warfighting Capabilities (NEWC) focuses on future capabilities and force structure. Examples include Science & Technology, analysis, concept exploration and futures wargaming. Numerous models are being developed for a broad range of areas including acquisition, analysis, test and evaluation, and training.

For FY04, this project supported Joint Model Transition (JMT). JMT developed and upgraded of R&D models selected through a board process. The selection process allowed the board to influence the direction of model development and integration for the M&S community. Digital System Models (DSMs) are digitally represented weapon system platforms and are used to evaluate existing capabilities. In FY05, the work was moved to project 5135, Warfighter Readiness.

No activity is currently planned for FY06.

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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Developed and integrated service models according to M&S architecture roadmap	0.187	0.000	0.000	0.000
(U) Developed cost benefit analysis for Next Generation Mission Model	0.215	0.000	0.000	0.000
(U) Developed comprehensive Digital System Models (DSMs) and Simulations to support potential development programs	0.085	0.000	0.000	0.000
(U) Total Cost	0.487	0.000	0.000	0.000

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
(U) Not Applicable										

(U) **D. Acquisition Strategy**

All major contracts for model development were awarded after full and open competition.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2005

BUDGET ACTIVITY				PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE				
07 Operational System Development				0207601F USAF Modeling and Simulation						5004 New and Emerging Capabilities				
(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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>														
Various	Various	Various		0.487	Mar-05							Continuing	TBD	TBD
Subtotal Product Development			0.000	0.487		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	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	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			0.000	0.487		0.000		0.000		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
0207601F USAF Modeling and Simulation

PROJECT NUMBER AND TITLE
5004 New and Emerging Capabilities

Exhibit R-4a, RDT&E Schedule:
Joint Model Transition


	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11
	2 3 4							
Develop Digital System Models								
Develop Interfaces	*							
Implement M&S Architecture	*							

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

5004 New and Emerging Capabilities

(U) Schedule Profile

- (U) Develop Digital System Models (DSM)
- (U) Develop/Extend Enhance AF Models
- (U) Develop/Implement M&S Architecture

FY 2004

FY 2005

FY 2006

FY 2007

1-4Q
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 5005 Executive Agent For Air /Space Natural Environment		
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
5005 Executive Agent For Air /Space Natural Environment	0.860	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	0		

In FY05, work transferred to project 4567, M&S Foundations.

(U) A. Mission Description and Budget Item Justification

Air Force Director of Weather (AF/XOW) 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 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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Complete Space Weather Prototyping and Integration	0.327	0.000	0.000	0.000
(U) Complete Production Center Integration	0.323	0.000	0.000	0.000
(U) Complete Air/Land Battlefield Integration	0.210	0.000	0.000	0.000
(U) Total Cost	0.860	0.000	0.000	0.000

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
(U) Not applicable										

(U) D. Acquisition Strategy

All major contracts under ASNE were 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							5005 Executive Agent For Air /Space Natural Environment				
(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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>														
ASNE	Various	Various		0.860	Oct-03	0.000						Continuing	TBD	TBD
Subtotal Product Development			0.000	0.860		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	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	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			0.000	0.860		0.000		0.000		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
0207601F USAF Modeling and Simulation

PROJECT NUMBER AND TITLE
5005 Executive Agent For Air /Space Natural Environment

Exhibit R-4A, RDT&E Schedule, ASNE

Acquisition Milestones	FY04				FY05	FY06	FY07	FY09	FY10	FY11
	1	2	3	4						
Weather Scenario IOC	*									
Weather Scenario FOC	*									
Space Environment IOC		*								

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

FY 2004

FY 2005

FY 2006

FY 2007

1Q

1Q

3Q

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 Warfighter Readiness			
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
5135 Warfighter Readiness	0.000	5.973	19.514	13.667	11.526	17.586	16.216	18.935	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

In FY06, PE 0207601F, United States Air Force (USAF) Modeling & Simulation (M&S) was aligned to better support customer needs into four thrusts. This resulted in project 5135, being renamed from Distributed Mission Operations to Warfighter Readiness (WR). The four thrusts enable the communities of interest to focus and prioritize the PE's capabilities.

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

Warfighter Readiness (WR) focuses on putting the Warfighter in a simulated environment to improve warfighting decision-making, execution, skills and processes. Examples include operational training, mission rehearsal, operational decision-making, mission execution, concept development and wargaming.

WR includes the Air and Space Constructive Environment, provided by Distributed Mission Operations (DMO) which is the constructive back plane for live and virtual assets to work within. Distributive Mission Operations (DMO) is the Air Force's contribution to the Joint National Training Concept (JNTC). WR's capabilities provided within the environment are the AF's contribution to the Joint Training Confederation's battle staff training environment used to support Combatant Commanders, Joint Task Force, and component commander staff readiness training. The capabilities support Joint/Service exercises including, but not limited to: Joint National Training Concept (JNTC), Yama Sakura, Reception, Staging, Onward-movement & Integration (RSO&I), Ulchi Focus Lens, Roving Sands, Austere Challenge, Flexible Leader, Blue Flag, Joint Expeditionary Force Experiment, and Virtual Flag.

Other capabilities will provide for Intelligence, Surveillance, and Reconnaissance (ISR) training and exercise supported by using a virtual ISR system for command and staff level training. The simulation provides commanders, staffs and operators with a common training system for the employment, tasking, exploitation and dissemination of imagery. The environment also provides models simulating electronic combat, electronic warfare, targeting, ISR representation, and intelligence integral to the Air and Space Operations Center training.

WR also includes the Air Force Modeling & Simulation Training Toolkit (AFMSTT) modernization. AFMSTT provides: the Air Warfare Simulation System (AWSIM) which interfaces to Command, Control, Communications, Computers, and Intelligence (C4I) to 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). AFMSTT's capabilities require modernization to support Air Force Title X requirements.

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.

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 Warfighter Readiness
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(U) Aggregate Level Simulation Protocol (ALSP)	0.000	0.000	0.150	0.200
(U) Total Cost	0.000	5.973	19.514	13.667

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	

(U) Not applicable

(U) **D. Acquisition Strategy**

Electronic Systems Center (ESC) at Hanscom AFB, MA will manage the acquisition and model development process for all WR activities. All major contracts 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						5135 Warfighter Readiness				
(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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>														
AFMSTT	Various	ESC, Hanscom AFB, MA				5.600	Dec-04	14.059	Dec-05	8.000	Dec-06	Continuing	TBD	TBD
DMOI	Various	ESC, Hanscom AFB, MA						4.955	Dec-05	4.967	Dec-06	Continuing	TBD	TBD
JMT	Various	General Services Administratio n (GSA)and Office of Aerospace Studies (OAS), Kirtland AFB, NM				0.373	Feb-05	0.350	Dec-05	0.500	Dec-06	Continuing	TBD	TBD
ALSP	Various	ESC, Hanscom AFB, MA						0.150	Dec-05	0.200	Dec-06	Continuing	TBD	TBD
Subtotal Product Development			0.000	0.000		5.973		19.514		13.667		Continuing	TBD	TBD
Remarks:														
(U) <u>Support</u>													0.000	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>													0.000	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	0.000
Subtotal Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
(U) Total Cost			0.000	0.000		5.973		19.514		13.667		Continuing	TBD	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 Warfighter Readiness

Exhibit R-4: Warfighter Readiness (WR)

	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				
AFMSTT Modernization							★				☆				☆				☆				☆				☆				☆				☆	
DMO Integration											☆				☆				☆				☆				☆				☆				☆	
JMT							★				☆				☆				☆				☆				☆				☆				☆	
ALSP											☆				☆				☆				☆				☆				☆				☆	

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2005
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207601F USAF Modeling and Simulation	PROJECT NUMBER AND TITLE 5135 Warfighter Readiness
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	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Schedule Profile				
(U) AFMSTT Modernization		1-4Q	1-4Q	1-4Q
(U) DMOI Development			1-4Q	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	1-4Q	1-4Q
(U) ALSP Development			1-4Q	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 2005
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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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	6.879	7.292	6.369	6.580	6.372	3.833	7.058	7.172	Continuing	TBD
2888 Distributed Mission Operations Center (DMOC)	6.879	7.292	6.369	6.580	6.372	3.833	7.058	7.172	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

The United States Air Force (USAF) Distributed Mission Operations Center (DMOC) is an Air Combat Command, Air Warfare Center, 505th Command and Control Wing organization. It provides Joint interoperability training and testing to geographically separated Live, Virtual, and Constructive (LVC) assets--real-world weapon systems, warfighter-in-the-loop (WITL), and computer-driven simulations. Responsibilities include: integrating DMO training and test events, networks, scenarios, and databases in support of service, joint and coalition warfighters. DMOC is the lead integrator for AF DMO and virtual contributions to the Joint National Training Capability (JNTC). Additionally, it is the lead agency for Virtual Flag (VF) exercises and the DMO Multi-Level Security (MLS) Testbed.

This program is categorized as Budget Activity (BA) 7 because it provides for development of technology in support of Distributed Mission Operations.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	7.201	6.377	6.369	6.580
(U) Current PBR/President's Budget	6.879	7.292	6.369	6.580
(U) Total Adjustments	-0.322	0.915		
(U) Congressional Program Reductions				
Congressional Rescissions		-0.085		
Congressional Increases		1.000		
Reprogrammings	-0.118			
SBIR/STTR Transfer	-0.204			

(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 0207605F Wargaming and Simulation Centers			PROJECT NUMBER AND TITLE 2888 Distributed Mission Operations Center (DMOC)		
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
2888 Distributed Mission Operations Center (DMOC)	6.879	7.292	6.369	6.580	6.372	3.833	7.058	7.172	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The United States Air Force (USAF) Distributed Mission Operations Center (DMOC) is an Air Combat Command, Air Warfare Center, 505th Command and Control Wing organization. It provides Joint interoperability training and testing to geographically separated Live, Virtual, and Constructive (LVC) assets--real-world weapon systems, warfighter-in-the-loop (WITL), and computer-driven simulations. Responsibilities include: integrating DMO training and test events, networks, scenarios, and databases in support of service, joint and coalition warfighters. DMOC is the lead integrator for AF DMO and virtual contributions to the Joint National Training Capability (JNTC). Additionally, it is the lead agency for Virtual Flag (VF) exercises and the DMO Multi-Level Security (MLS) Testbed.

This program is categorized as Budget Activity (BA) 7 because it provides for development of technology in support of Distributed Mission Operations.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Continue to maintain core structure to support users conducting RDT&E, mission rehearsal, and concepts of operation development	4.771	6.098	5.166	5.358
(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	0.680	0.681	0.685
(U) Program Management Office support/Planning	0.259	0.305	0.315	0.325
(U) Communications connectivity between DMOC and various other modeling & simulation (M&S) facilities	0.202	0.209	0.207	0.212
(U) C4ISR Warfighting Integration	0.972	0.000	0.000	0.000
(U) Total Cost	6.879	7.292	6.369	6.580

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
(U) Not applicable										

(U) D. Acquisition Strategy

All contracts are full and open.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2005

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) 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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>	
(U) <u>Product Development</u> 505 DWG	CPFF	Lockheed Martin, Kirtland AFB, NM	6.860	6.879	Oct-03	6.098	Oct-04	5.166	Oct-05	5.358	Oct-06	Continuing	TBD	TBD	
Subtotal Product Development			6.860	6.879		6.098		5.166		5.358		Continuing	TBD	TBD	
Remarks:															
(U) <u>Support</u>						0.680	Oct-04	0.681	Oct-05	0.685	Oct-06		2.046		
Subtotal Support			0.000	0.000		0.680		0.681		0.685		0.000	2.046	0.000	
Remarks:															
(U) <u>Test & Evaluation</u>						0.305	Oct-04	0.315	Oct-05	0.325	Oct-06		0.945		
Subtotal Test & Evaluation			0.000	0.000		0.305		0.315		0.325		0.000	0.945	0.000	
Remarks:															
(U) <u>Management</u>						0.209	Oct-04	0.207	Oct-05	0.212	Oct-06		0.628		
Subtotal Management			0.000	0.000		0.209		0.207		0.212		0.000	0.628	0.000	
Remarks:															
(U) Total Cost			6.860	6.879		7.292		6.369		6.580		Continuing	TBD	TBD	

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

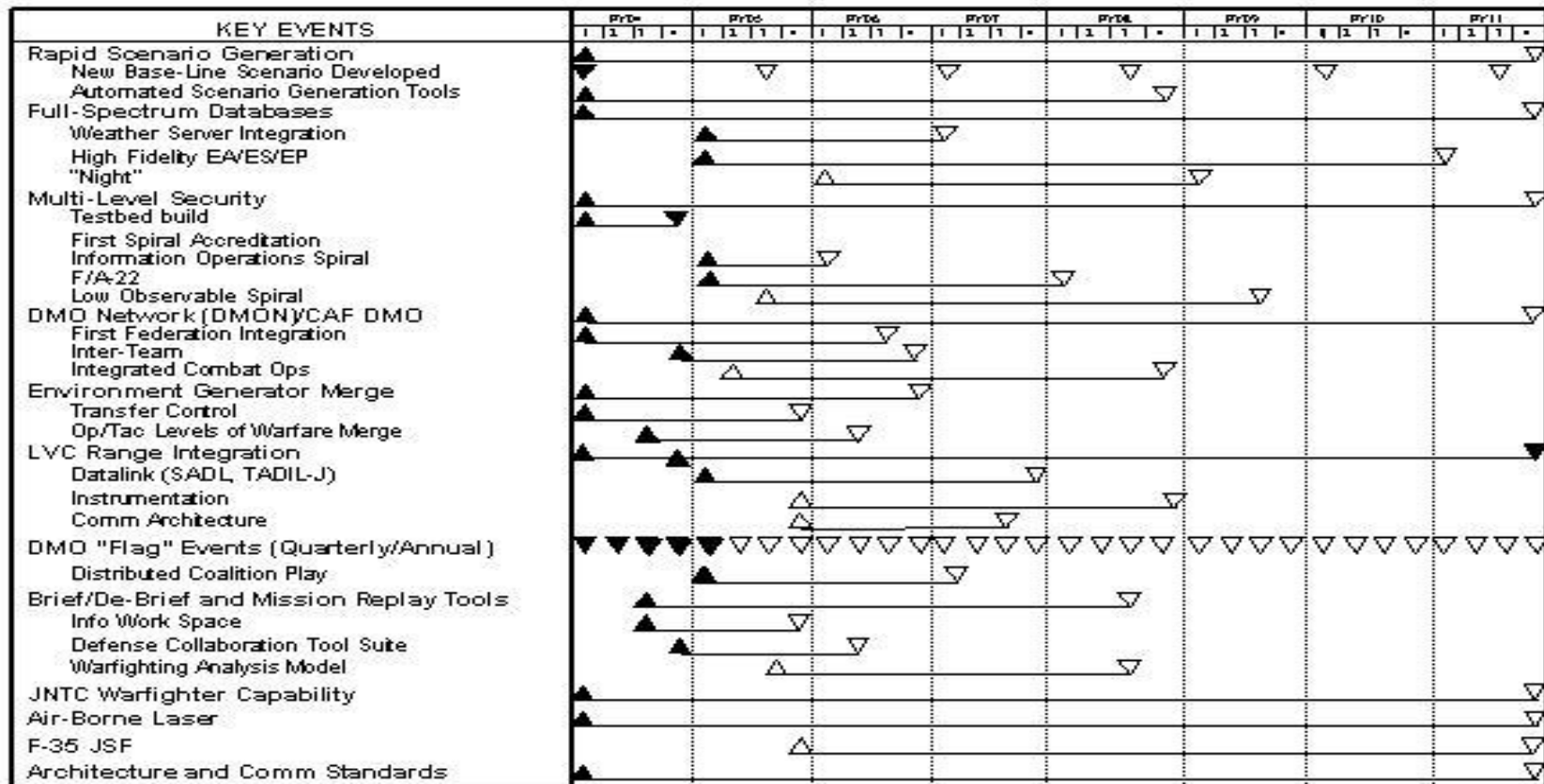
BUDGET ACTIVITY
07 Operational System Development

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-4a, RDT&E Schedule Detail	DATE February 2005
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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) <u>Schedule Profile</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Distributed Mission Operations/Integration (Virtual / Blue Flags)	1-4Q	1-4Q	1-4Q	1-4Q
(U) C4ISR Warfighting Integration Efforts	1-4Q			

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PE NUMBER: 0207697F
 PE TITLE: Wargaming Operations (Distributed Training)

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2005
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207697F Wargaming Operations (Distributed Training)
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Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	0.000	4.222	6.113	7.331	7.353	7.377	7.355	0.000	0.000
5190 JFCOM Wargaming	0.000	0.000	4.222	6.113	7.331	7.353	7.377	7.355	0.000	0.000

(U) A. Mission Description and Budget Item Justification

In September 03 the AF/CV directed the establishment of an 11-person AF Liaison Office at USJFCOM with representatives from across the AF to increase participation in joint transformation activities including joint concept development and experimentation and joint DOTMLPF recommendations. The LNO is chartered to ensure accurate representation of air and space capabilities in joint activities.

This program is categorized in Budget Activity (BA) 7 because it supports an operational system.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget			4.222	6.113
(U) Current PBR/President's Budget	0.000	0.000	4.222	6.113
(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 0207697F Wargaming Operations (Distributed Training)			PROJECT NUMBER AND TITLE 5190 JFCOM Wargaming		
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
5190 JFCOM Wargaming	0.000	0.000	4.222	6.113	7.331	7.353	7.377	7.355	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

In September 03 the AF/CV directed the establishment of an 11-person AF Liaison Office at USJFCOM with representatives from across the AF to increase participation in joint transformation activities including joint concept development and experimentation and joint DOTMLPF recommendations. The LNO is chartered to ensure accurate representation of air and space capabilities in joint activities.

This program is categorized in Budget Activity (BA) 7 because it supports an operational system.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Develops air and space wargaming specific functionality in existing simulation and analysis tools (e.g., JWARS, THUNDER/STORM)			1.440	1.560
(U) Provides for capabilities, Requirements, and Risk Assessment (CRRA)			1.440	1.580
(U) Enables entity-level simulation tools and effects-based modeling for Joint Concept Development and Experimentation			0.542	1.230
(U) Supplies platforms for software in operational environments and for programmed replacement costs			0.800	1.743
(U) Total Cost	0.000	0.000	4.222	6.113

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
(U) Not applicable										

(U) D. Acquisition Strategy

All contracts will be awarded based on full and open competition.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2005

BUDGET ACTIVITY				PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE				
07 Operational System Development				0207697F Wargaming Operations (Distributed Training)						5190 JFCOM Wargaming				
(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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>														
Various	TBD	TBD						4.222	Mar-06	6.113	Apr-06	Continuing	TBD	TBD
Subtotal Product Development			0.000	0.000		0.000		4.222		6.113		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	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	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			0.000	0.000		0.000		4.222		6.113		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
0207697F Wargaming Operations
(Distributed Training)

PROJECT NUMBER AND TITLE
5190 JFCOM Wargaming

AF Liaison Office (LNO) to USJFCOM

FY06

FY07

FY08

	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Receipt of Funds	▲											
Adapt models for wargaming	▲									▼		
Determine integration req						▲				▼		
Integrate AF and joint models										▲		
Perform CRRA Analysis	▲					▼				▲		▼
ID models to fill shortfalls					▲					▼		
Replace platforms										▲		▼

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2005
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207697F Wargaming Operations (Distributed Training)	PROJECT NUMBER AND TITLE 5190 JFCOM Wargaming
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(U) <u>Schedule Profile</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Adapt STORM/THUNDER and JWARS for wargaming		2-4Q	1-4Q	1-4Q
(U) Determine other model integration/adaptation requirements				2-4Q
(U) Perform CRRA analysis biannually			1-4Q	

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PE NUMBER: 0208006F
 PE TITLE: Mission Planning Systems

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2005
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0208006F Mission Planning Systems
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Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	49.391	105.003	138.475	130.626	102.900	96.489	98.685	99.822	Continuing	TBD
3858 Mission Planning Systems (MPS)	49.391	105.003	138.475	130.626	102.900	96.489	98.685	99.822	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

The Mission Planning Systems (formally Air Force Mission Support Systems (AFMSS)) program was established in 1990 to consolidate the many mission planning system development efforts into a single-unit level mission planning system. In FY04, the Mission Planning Systems System Program Office at Hanscom AFB, MA was directed to execute all JMPS development activities and funding was added to accomplish this directive. Today there are two legacy AF mission planning systems migrating to a single, multi-service system, called the Joint Mission Planning System (JMPS). Until all aircraft and weapons are migrated to JMPS, Mission Planning Systems maintains current combat capabilities on the two existing legacy planning systems. Mission Planning Systems is considered a family of products program consisting of the UNIX-based Mission Planning System (MPS), the PC-based Portable Flight Planning Software (PFPS) and the JMPS.

Mission Planning Systems encompasses evolutionary software and hardware development by integrating military and commercial software on Commercial-Off-The-Shelf (COTS) hardware in an open systems architecture. This allows the program to take advantage of the latest PC technology to meet user demands for the most capable systems.

Mission Planning provides comprehensive mission planning tools to aid the warfighter in planning a variety of worldwide missions ranging from homeland security and the global war on terrorism to operations supporting conventional and nuclear armed conflicts. These tools also support peacetime exercises as well as day-to-day training. The UNIX-based MPS operates in combination with the PC-based PFPS to deliver planning capability uploads for aircraft and missile systems, and routing data for platforms utilizing low observable (LO) technology.

Mission Planning Systems supports/will support a variety of aircraft and weapons including (but not limited to) the following: A-10, B-1, B-2, B-52, C-5, C-17, C-130, E-3, E-8, F-15, F-16, F-117, F/A-22, KC-10, KC-135, RC-135, U-2, Joint Strike Fighter (JSF), Air to Ground Munitions (AGM) -130, AGM-142, Joint Direct Attack Munitions (JDAM), Joint Stand Off Weapon (JSOW), Wind Corrected Munitions Dispenser (WCMD), Joint Air-to-Surface, Stand off Munitions (JASSM), Miniature Air Launched Decoy (MALD), Predator, and Global Hawk. Mission Planning Systems software is used in the Cockpit Auxiliary Targeting System (CATS) portion of the Integrated Air Ground Imaging (IAGI) capability for the A-10.

The migration to JMPS will replace the Air Force's, Navy's, Army's and US Special Operations Command's legacy mission planning systems. Mission Planning Systems will use an evolutionary acquisition approach, which emphasizes spiral development and the use of Increments (Increment content is described below) to provide capabilities to individual platforms. Additionally, the JMPS architecture ensures common components are utilized among all service platforms and weapons systems, thereby reducing duplicative software development efforts and increasing interoperability between services. Further spirals of JMPS will eliminate stovepipe systems. The JMPS framework and common components will require continuous upgrades to: reduce timelines for route planning, transmit near real-time intelligence data to the platforms, increase the accuracy of the mapping products, and provide a Windows-based, COTS-based, user friendly product. JMPS has inter-service leadership and requirements.

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

- a. Increment I was the initial development effort, which provided the framework for basic flight planning for all platforms.
- b. Increment II provides for the initial migration of legacy mission planning capability to JMPS for the F-15 and RC-135 aircraft.
- c. Increment III continues the migration of additional aircraft platforms (F/A-22, F-16, B-1B, etc) and weapons (JASSM, etc) to JMPS, upgrades the framework, and develops new common components (e.g. weather, electronic warfare) and unique platform capabilities. Additionally, engineering studies will be conducted to plan and support the migration of future platforms to JMPS.
- d. Increment IV continues the JMPS migration for additional platforms (Tanker Airlift Special Mission (TASM), Intelligence, Surveillance & Reconnaissance (ISR) aircraft, etc.) to JMPS while upgrading the framework and Common Components Capabilities.
- e. Increment V continues the migration to JMPS for additional aircraft platforms (B-2, B-52) as well as the development of new and improved JMPS capabilities. It also considers the potential upgrade of the JMPS architecture.
- f. Net centric capabilities are/will be developed to provide web based JMPS mission planning to stay in concert with current C2 strategies.

The Mission Planning Systems program is in Budget Activity 7 because it provides for development of technologies and capabilities in support of the currently fielded MPS and PFPS systems.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	51.645	136.701	143.154	196.749
(U) Current PBR/President's Budget	49.391	105.003	138.475	130.626
(U) Total Adjustments	-2.254	-31.698		
(U) Congressional Program Reductions	0.000	-30.000		
Congressional Rescissions	0.000	-1.698		
Congressional Increases	0.000			
Reprogrammings	-0.709			
SBIR/STTR Transfer	-1.545			

(U) Significant Program Changes:

FY 06/07 reductions are for higher AF priorities and defers the migration of some platforms (e.g., B-2) to JMPS until FY12/13.

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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
3858 Mission Planning Systems (MPS)	49.391	105.003	138.475	130.626	102.900	96.489	98.685	99.822	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The Mission Planning Systems (formally Air Force Mission Support Systems (AFMSS)) program was established in 1990 to consolidate the many mission planning system development efforts into a single-unit level mission planning system. In FY04, the Mission Planning Systems System Program Office at Hanscom AFB, MA was directed to execute all JMPS development activities and funding was added to accomplish this directive. Today there are two legacy AF mission planning systems migrating to a single, multi-service system, called the Joint Mission Planning System (JMPS). Until all aircraft and weapons are migrated to JMPS, Mission Planning Systems maintains current combat capabilities on the two existing legacy planning systems. Mission Planning Systems is considered a family of products program consisting of the UNIX-based Mission Planning System (MPS), the PC-based Portable Flight Planning Software (PFPS) and the JMPS.

Mission Planning Systems encompasses evolutionary software and hardware development by integrating military and commercial software on Commercial-Off-The-Shelf (COTS) hardware in an open systems architecture. This allows the program to take advantage of the latest PC technology to meet user demands for the most capable systems.

Mission Planning provides comprehensive mission planning tools to aid the warfighter in planning a variety of worldwide missions ranging from homeland security and the global war on terrorism to operations supporting conventional and nuclear armed conflicts. These tools also support peacetime exercises as well as day-to-day training. The UNIX-based MPS operates in combination with the PC-based PFPS to deliver planning capability uploads for aircraft and missile systems, and routing data for platforms utilizing low observable (LO) technology.

Mission Planning Systems supports/will support a variety of aircraft and weapons including (but not limited to) the following: A-10, B-1, B-2, B-52, C-5, C-17, C-130, E-3, E-8, F-15, F-16, F-117, F/A-22, KC-10, KC-135, RC-135, U-2, Joint Strike Fighter (JSF), Air to Ground Munitions (AGM) -130, AGM-142, Joint Direct Attack Munitions (JDAM), Joint Stand Off Weapon (JSOW), Wind Corrected Munitions Dispenser (WCMD), Joint Air-to-Surface, Stand off Munitions (JASSM), Miniature Air Launched Decoy (MALD), Predator, and Global Hawk. Mission Planning Systems software is used in the Cockpit Auxiliary Targeting System (CATS) portion of the Integrated Air Ground Imaging (IAGI) capability for the A-10.

The migration to JMPS will replace the Air Force's, Navy's, Army's and US Special Operations Command's legacy mission planning systems. Mission Planning Systems will use an evolutionary acquisition approach, which emphasizes spiral development and the use of Increments (Increment content is described below) to provide capabilities to individual platforms. Additionally, the JMPS architecture ensures common components are utilized among all service platforms and weapons systems, thereby reducing duplicative software development efforts and increasing interoperability between services. Further spirals of JMPS will eliminate stovepipe systems. The JMPS framework and common components will require continuous upgrades to: reduce timelines for route planning, transmit near real-time intelligence data to the platforms, increase the accuracy of the mapping products, and provide a Windows-based, COTS-based, user friendly product. JMPS has inter-service leadership and requirements.

Exhibit R-2a, RDT&E Project Justification

DATE

February 2005

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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- a. Increment I was the initial development effort, which provided the framework for basic flight planning for all platforms.
- b. Increment II provides for the initial migration of legacy mission planning capability to JMPS for the F-15 and RC-135 aircraft.
- c. Increment III continues the migration of additional aircraft platforms (F/A-22, F-16, B-1B, etc) and weapons (JASSM, etc) to JMPS, upgrades the framework, and develops new common components (e.g. weather, electronic warfare) and unique platform capabilities. Additionally, engineering studies will be conducted to plan and support the migration of future platforms to JMPS.
- d. Increment IV continues the JMPS migration for additional platforms (Tanker Airlift Special Mission (TASM), Intelligence, Surveillance & Reconnaissance (ISR) aircraft, etc.) to JMPS while upgrading the framework and Common Components Capabilities.
- e. Increment V continues the migration to JMPS for additional aircraft platforms (B-2, B-52) as well as the development of new and improved JMPS capabilities. It also considers the potential upgrade of the JMPS architecture.
- f. Net centric capabilities are/will be developed to provide web based JMPS mission planning to stay in concert with current C2 strategies.

The Mission Planning Systems program is in Budget Activity 7 because it provides for development of technologies and capabilities in support of the currently fielded MPS and PFPS systems.

(U) B. Accomplishments/Planned Program (\$ in Millions)	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Continue Mission Planning Systems development effort (including but not limited to JMPS development)	7.365	13.299	0.000	0.000
(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	18.565	24.000	0.000	0.000
(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.	16.038	60.023	0.000	0.000
(U) Increment II - Migration of mission planning capability to JMPS	0.000	0.000	3.493	0.370
(U) Increment III - continues the migration of additional platforms as well as adding upgrades to JMPS	0.000	0.000	108.823	69.648
(U) Increment IV - continues to add enhancements and/or upgrades to JMPS framework and common components	0.000	0.000	12.774	42.441
(U) Increment V - continues the migration JMPS into additional aircraft platforms	0.000	0.000	0.869	5.058

Project 3858

R-1 Shopping List - Item No. 161-5 of 161-9

Exhibit R-2a (PE 0208006F)

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Exhibit R-2a, RDT&E Project Justification	DATE February 2005
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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) NetCentric Capability - continuing the development and design of web-based tools to provide information to JMPS	0.000	0.000	1.313	1.208
(U) Continue Responsible Test Organization support	2.000	4.098	5.795	6.269
(U) Program Office Support	5.423	3.583	5.408	5.632
(U) Total Cost	49.391	105.003	138.475	130.626

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
(U) Other Appn										
(U) OPAF PE 0208006F (Other Procurement Air Force, WSC 833040, Theater Air Control System Improvement)	11.594	14.185	15.239	16.470	14.038	14.505	15.565	13.941	Continuing	TBD

(U) **D. Acquisition Strategy**

Mission Planning Systems utilizes an evolutionary acquisition approach to develop and deliver an interoperable, network centric, mission planning system tailored for multiple Air Force, Navy, and Marine Corps systems using open competition and a variety of contract vehicles.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2005

BUDGET ACTIVITY										PE NUMBER AND TITLE		PROJECT NUMBER AND TITLE			
07 Operational System Development										0208006F Mission Planning Systems		3858 Mission Planning Systems (MPS)			
(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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>	
(U) Product Development															
Northrop Grumman Information Technology (NGIT, formerly Logicon) (JMPS)	C/CPIF	San Pedro, CA		4.919	Dec-03	0.000		0.000		0.000		Continuing	TBD	TBD	
Tybrin Corporation	PO	Fort Walton Beach, FL		2.071		0.000		0.000		0.000		Continuing	TBD	TBD	
A/W/E and/or UPC development and integration activity	Various	Various		20.033	Dec-03	0.000		0.000		0.000		Continuing	TBD	TBD	
SPO Misc* (*Prior year total includes past, inactive contracts)				0.000	Nov-03	1.451	Nov-04	0.000		0.000		Continuing	TBD	TBD	
Mission Planning Systems Common Capabilities	C/Various	Various		4.656	Dec-03	0.000		0.000		0.000		Continuing	TBD	TBD	
Mission Planning Enterprise Contract	C/Various	Various		1.150	Nov-04	77.634	Feb-05	108.779	Nov-05	101.474	Nov-06	Continuing	TBD	TBD	
Systems Engineering and Integration	C/Various	Various		8.275	Apr-05	17.656	Jun-05	18.493	Nov-05	17.251	Nov-06	Continuing	TBD	TBD	
N/A													0.000		
Subtotal Product Development			0.000	41.104		96.741		127.272		118.725		Continuing	TBD	TBD	
Remarks:															
(U) Support															
Software Engineering Institute (SEI)	C/T&M	Pittsburgh, PA		0.150	Feb-04	0.187	Feb-05	0.000		0.000		Continuing	TBD	TBD	
Tecolote	C/T&M	Bedford, MA		0.584	Nov-03	0.394	Nov-04	0.000		0.000		Continuing	TBD	TBD	
Subtotal Support			0.000	0.734		0.581		0.000		0.000		Continuing	TBD	TBD	
Remarks:															
(U) Test & Evaluation															
46TW	PO	Eglin AFB, FL		2.130	Oct-03	4.098	Oct-04	5.795	Nov-05	6.269	Nov-06	Continuing	TBD	TBD	
N/A													0.000		
Subtotal Test & Evaluation			0.000	2.130		4.098		5.795		6.269		Continuing	TBD	TBD	
Remarks:															
(U) Management															
FFRDC (MITRE)	SS/T&M	Bedford, MA		0.395	Oct-03	1.450	Oct-04	0.547	Nov-05	0.574	Nov-06	Continuing	TBD	TBD	
SPO Support	C/T&M	Various		5.028	Oct-03	2.133	Oct-04	4.861	Nov-05	5.058	Nov-06	Continuing	TBD	TBD	
Subtotal Management			0.000	5.423		3.583		5.408		5.632		Continuing	TBD	TBD	
Remarks:															
(U) Total Cost			0.000	49.391		105.003		138.475		130.626		Continuing	TBD	TBD	

Exhibit R-4, RDT&E Schedule Profile

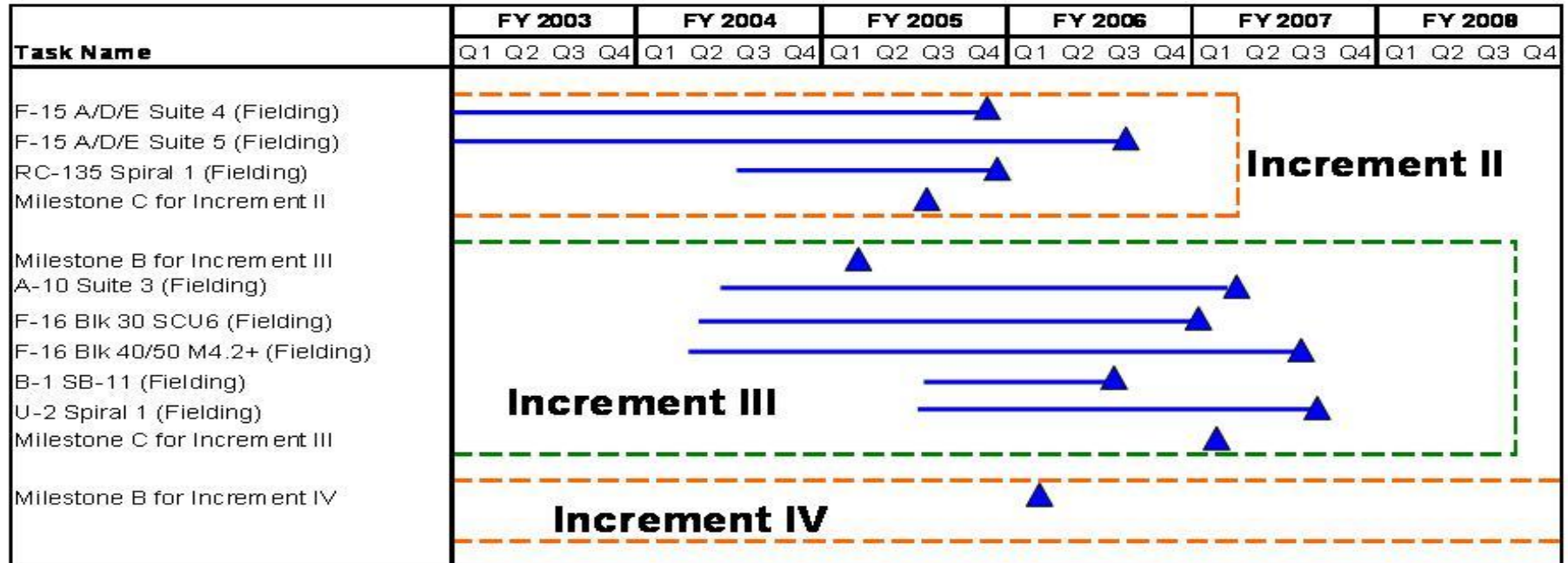
DATE

February 2005

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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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2005
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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>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Schedule Profile				
(U) Milestone B for Increment III		1Q		
(U) Milestone C for Increment II		3Q		
(U) RC-135 Fielding		4Q		
(U) F-15A-E Suite 4 Fielding		4Q		
(U) Milestone B for Increment IV			1Q	
(U) B-1 SB-11 Fielding			3Q	
(U) U-2 Fielding			3Q	
(U) F-15A-E Suite 5 Fielding			3Q	
(U) A-10 Suite 3 Fielding				1Q
(U) F-16 Block 30, SCU6 Fielding				1Q
(U) Milestone C for Increment III				1Q
(U) F-16 (Block 40, M4.2+ and Block 50, M4.2+) Fielding				3Q

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PE NUMBER: 0208021F
 PE TITLE: Information Warfare Support

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2005
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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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	13.038	7.147	15.204	15.191	16.416	16.677	17.456	17.771	Continuing	TBD
0374 Electronic Combat Spt, C3 Protection/Multi-Mission, Technology and Spt	13.038	7.147	7.260	6.968	8.091	8.238	8.580	8.726	Continuing	TBD
4871 Information Operations Technology	0.000	0.000	7.944	8.223	8.325	8.439	8.876	9.045	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

The Information Warfare Planning Capability (IWPC) is a full-spectrum, offensive and defensive, planning capability. IWPC is an Air and Space Operations Center (AOC) weapon system component which will enable operators to develop IO courses of action for the Joint Forces Air Component Commander (JFACC) and nominate IO "targets" for inclusion into the Master Air Attack Plan and the Joint Integrated Prioritized Target List (JIPTL).

The Information Operations Planning Capability-Joint (IOPC-J), is a follow on capability to IWPC that is scoped to develop IO courses of action for the Joint and National IO community. The AF is about to assume the joint requirements definitions and procurement for this capability following JROC approval. The on-going development provided by the Air Force's IWPC tool provides commonality with a joint program's planning requirement. Studies and software interface documentation has already been completed that will accomodate joint IO applications in subsequent software versions of IWPC. These IO planning tools are scheduled to become baseline capabilities in the Air Operations Center (AOC) Weapon System and National Intel fusion centers. As part of the AOC, IWPC will participate in each Joint Expeditionary Force Experiment (JEFX) as part of the overall IWPC software development and integration.

This program funds development of and continued research to identify existing military and commercial efforts which can satisfy unfulfilled operational requirements for an IO planning and integration tool.

This program is in Budget Activity 7, Operational System Development, because it studies, develops, and fields IO tools.

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2005

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0208021F Information Warfare Support

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	13.141	7.147	7.221	6.838
(U) Current PBR/President's Budget	13.038	7.147	15.204	15.191
(U) Total Adjustments	-0.103	0.000		
(U) Congressional Program Reductions				
Congressional Rescissions	-0.103			
Congressional Increases				
Reprogrammings				
SBIR/STTR Transfer				

(U) **Significant Program Changes:**

This program received additional funding beginning in FY-06 from OSD to begin the requirements definition and program acquisition of the Joint IO planning tools IOPC-J and the Joint Inter Agency Planning Capability (JIAPC). These joint capabilities are pre-planned program improvements to the the baseline IWPC program to be activated following the Air Forces decision to become the executive agent for IO planning.

Exhibit R-2a, RDT&E Project Justification

DATE

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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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
0374 Electronic Combat Spt, C3 Protection/Multi-Mission, Technology and Spt	13.038	7.147	7.260	6.968	8.091	8.238	8.580	8.726	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The Information Warfare Planning Capability (IWPC) is a full-spectrum, offensive and defensive, planning capability. IWPC is an Air and Space Operations Center (AOC) weapon system component which will enable operators to develop IO courses of action for the Joint Forces Air Component Commander (JFACC) and nominate IO "targets" for inclusion into the Master Air Attack Plan and the Joint Integrated Prioritized Target List (JIPTL).

This project funds the development of an evolving suite of interoperable IO planning and decision support capabilities comprised of, software, hardware, and communications products. This project will identify and implement an open, scalable system architecture that will accommodate the expansive growth in the IO mission area. The project builds functional software modules that are designed to be interoperable with baseline C2 systems such as the Theater Battle Management Control System (TBMCS) and other AOC tools. IWPC will participate in the Joint Expeditionary Force Experiment (JEFX) as part of the overall IWPC software development and integration effort into the AOC. An IWPC increment will be released approximately every 12 - 18 months. The IWPC Spiral Development Integrated Process Team (IWPC SD IPT), chaired by ACC will define requirements for each incremental release. Integration efforts will capitalize on the synergy between evolving technologies and on-going system program modifications to maximize the return on investment.

This project is in Budget Activity 7, Operational System Development, because it studies, develops, and demonstrates IO prototypes. It identifies existing military and commercial research and development efforts which can satisfy unfulfilled operational requirements for an IO planning and integration tool.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) IWPC Software Development and Integration	4.428	3.333	4.444	0.130
(U) AOC Integration	0.000	1.464	2.275	6.278
(U) IWPC Software Testing and Evaluation	0.720	0.680	0.541	0.560
(U) JEFX System integration	2.993	1.670	0.000	
(U) Information Operations Technology Alliance (IOTA) Testing and Development	4.897	0.000	0.000	
(U) Total Cost	13.038	7.147	7.260	6.968

Exhibit R-2a, RDT&E Project Justification

DATE

February 2005

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
IWPC Operations &										
(U) Maintenance, AF (3400) PE 35193	1.045	1.061	1.210	1.154	1.176	1.198			Continuing	TBD

(U) **D. Acquisition Strategy**

These efforts will use an evolutionary acquisition strategy using contracts awarded after full and open competition.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2005

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 Prior to FY 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> JEFX - Various	Various	Lackland AFB TX/Mountain View CA		2.993	Feb-04	1.990	Oct-04	0.000	Oct-05	0.000	Oct-06	Continuing	TBD	TBD
Information Technologies Support Program II (ITSP II)	AF Form 9	Lackland AFB TX		0.000	Dec-03	0.740	Oct-04	0.679	Oct-05	0.679	Oct-06	Continuing	TBD	2.652
IWPC	AF Form 9	General Dynamics, Lackland AFB TX/Mountain View CA		3.378	Feb-04	3.370	Oct-04	5.317	Oct-05	4.861	Oct-06	Continuing	TBD	16.926
IWPC	DDForm 448	MITRE, Lackland AFB TX		0.000	Oct-03	0.380	Oct-04	0.395	Oct-05	0.415	Oct-06	Continuing	TBD	1.585
Information Operations Technology Alliance	Various	Lackland AFB TX		4.897	Oct-03	0.000	N/A	0.000	N/A	0.000	N/A	Continuing	TBD	TBD
System Program Office Costs	Various	Lackland AFB TX		1.270	Oct-03	0.137	Oct-04	0.328	Oct-05	0.453	Oct-06	Continuing	TBD	1.052
Subtotal Product Development			0.000	12.538		6.617		6.719		6.408		Continuing	TBD	TBD
Remarks:														
(U) <u>Test & Evaluation</u> Test	MIPR	46th Test Squadron, Eglin AFB FL		0.500	Nov-03	0.530	Nov-04	0.541	Nov-05	0.560	Nov-06	Continuing	TBD	2.131
Subtotal Test & Evaluation			0.000	0.500		0.530		0.541		0.560		Continuing	TBD	2.131
Remarks:														
(U) Total Cost			0.000	13.038		7.147		7.260		6.968		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

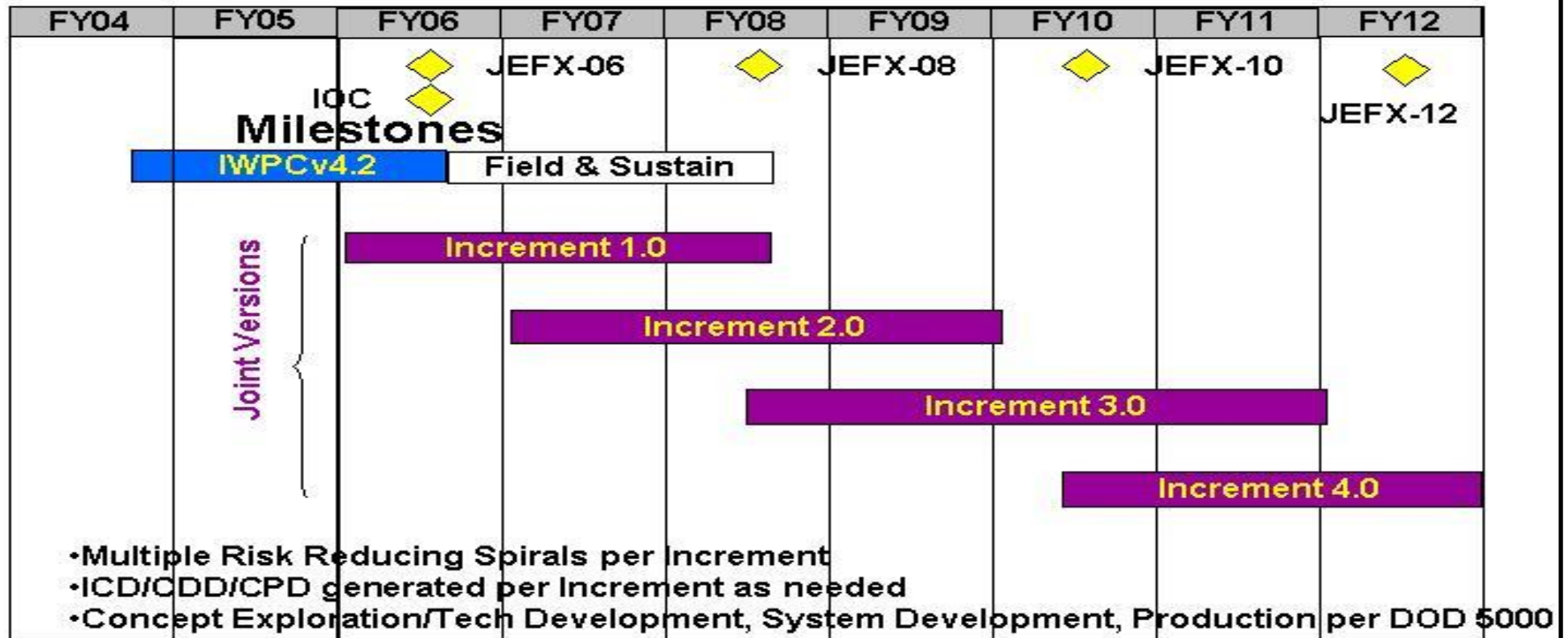
BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0208021F Information Warfare Support

PROJECT NUMBER AND TITLE
0374 Electronic Combat Spt, C3 Protection/Multi-Mission, Technology and Spt



IWPC Program Schedule



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Project 0374

R-1 Shopping List - Item No. 162-6 of 162-11

Exhibit R-4 (PE 0208021F)

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2005
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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>Schedule Profile</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) JEFX			2Q	
(U) IWPC Contract Award		1-3Q	1-3Q	1-3Q
(U) IWPC Software Development Increments 1 and 2		1-4Q	1-4Q	1-4Q
(U) IWPC Software Release Increments 1 and 2		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 0208021F Information Warfare Support			PROJECT NUMBER AND TITLE 4871 Information Operations Technology		
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4871 Information Operations Technology	0.000	0.000	7.944	8.223	8.325	8.439	8.876	9.045	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The Information Operations Planning Capability-Joint (IOPC-J), is a follow on capability to IWPC that is scoped to develop IO courses of action for the Joint and National IO community. The AF is about to assume the joint requirements definitions and procurement for this capability following JROC approval. The on-going development provided by the Air Force's IWPC tool provides commonality with a joint program's planning requirement. Studies and software interface documentation has already been completed that will accomodate joint IO applications in subsequent software versions of IWPC at ver 4.2. This IO planning tool is to become a baseline capability in the Air Operations Center (AOC) Weapon System and National Intel fusion centers. As part of the AOC, IWPC will participate in each Joint Expeditionary Force Experiment (JEFX) as part of the overall IWPC software development and integration.

This project funds development of and continued research to identify existing military and commercial efforts which can satisfy unfulfilled operational requirements for an IO planning and integration tool.

This program is in Budget Activity 7, Operational System Development, because it studies, develops, and fields IO tools.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) IOPC-J Software Development and Integration	0.000	0.000	5.109	4.947
(U) (U) Site Integration	0.000	0.000	2.275	2.576
(U) (U) IOPC-J Software Testing and Evaluation	0.000	0.000	0.560	0.700
(U) Total Cost	0.000	0.000	7.944	8.223

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
(U) IWPC Operations and maintenance, AF 3400 and PE 35193	1.045	1.061	1.210	1.154	1.176	1.198				

(U) D. Acquisition Strategy

All major contracts will be awarded after full and open competition.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2005

BUDGET ACTIVITY				PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE					
07 Operational System Development				0208021F Information Warfare Support						4871 Information Operations 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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>	
(U) <u>Product Development</u>															
IOPC-J development	TBD	TBD						7.944	Apr-06	8.223	Apr-07	Continuing	TBD	TBD	
Subtotal Product Development			0.000	0.000		0.000		7.944		8.223		Continuing	TBD	TBD	
Remarks:	Specific WBS information will be available following JROC actions allowing the SPO to initiate programmatic detail														
(U) <u>Support</u>															
TBD													0.000	TBD	
Subtotal Support			0.000	0.000		0.000		0.000		0.000		0.000	0.000	TBD	
Remarks:	Specific WBS information will be available following JROC actions allowing the SPO to initiate programmatic detail														
(U) <u>Test & Evaluation</u>															
TBD													0.000	TBD	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000		0.000	0.000	TBD	
Remarks:	Specific WBS information will be available following JROC actions allowing the SPO to initiate programmatic detail														
(U) <u>Management</u>															
TBD													0.000	TBD	
Subtotal Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000	TBD	
Remarks:	Specific WBS information will be available following JROC actions allowing the SPO to initiate programmatic detail														
(U) Total Cost			0.000	0.000		0.000		7.944		8.223		Continuing	TBD	TBD	

Exhibit R-4, RDT&E Schedule Profile

DATE

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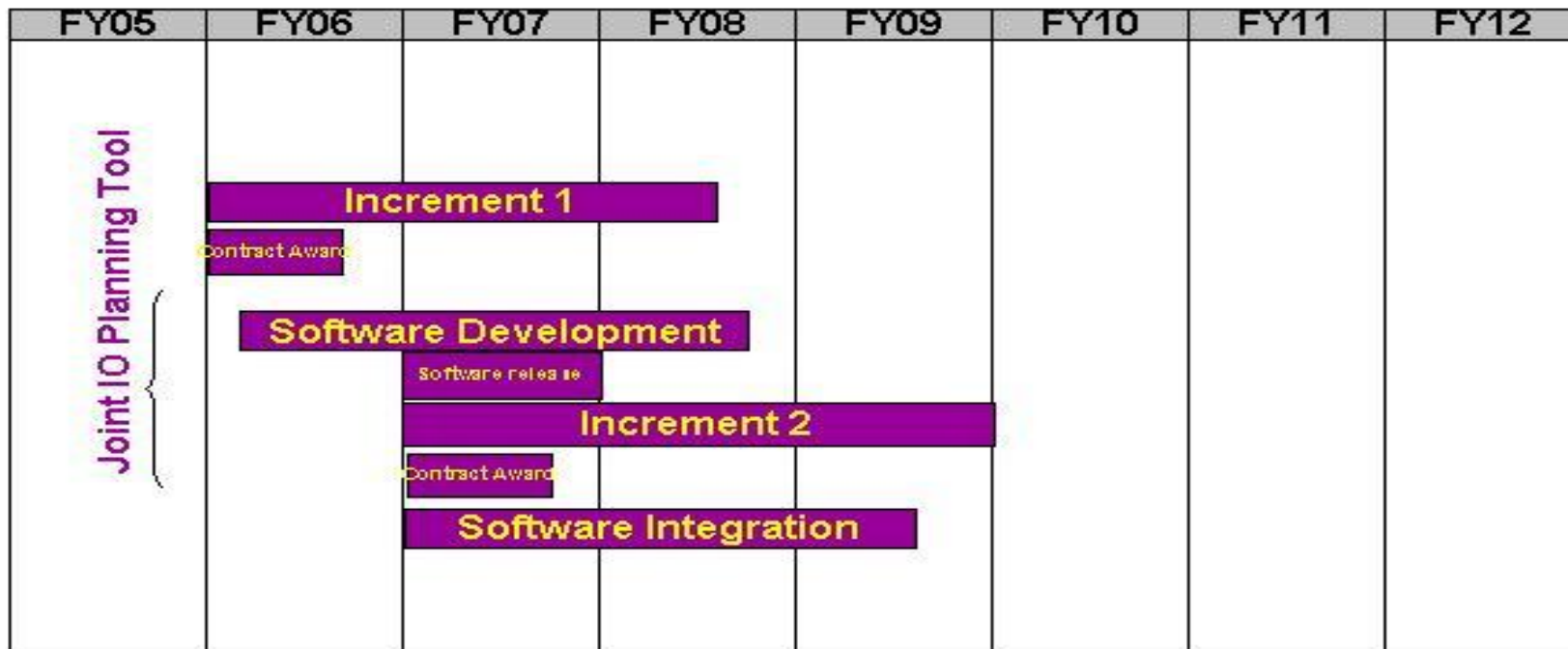
BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0208021F Information Warfare
Support

PROJECT NUMBER AND TITLE
4871 Information Operations
Technology



IOPC/J Program Schedule



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Project 4871

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Exhibit R-4 (PE 0208021F)

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2005
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0208021F Information Warfare Support	PROJECT NUMBER AND TITLE 4871 Information Operations Technology
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(U) <u>Schedule Profile</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) (U) IOPC/J Contract Award			1-3Q	1-3Q
(U) (U) IOPC/J Software Development			1-3Q	1-4Q
(U) (U) IOPC/J Software Integration Testing				3-4Q
(U) (U) IOPC/J Software Release				1-4Q

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Exhibit R-2, RDT&E Budget Item Justification	DATE February 2005
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0302015F E-4B NATIONAL AIRBORNE OPERATIONS CENTER
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Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	34.661	11.074	18.909	6.489	8.436	13.034	17.476	0.000	0.000	210.293
4777 E-4B Aircraft Modernization	34.661	11.074	18.909	6.489	8.436	13.034	17.476	0.000	0.000	210.293

(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 for its two primary missions (nuclear command and control and senior national leader support). 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 seven 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 Aircraft Procurement (Aircraft Modification) funds.

- Audio Infrastructure Update (AIU) affects the primary mission internal audio distribution and recording system. It replaces obsolete 1960s era analog equipment with digital technology that corrects a major sustainment issue associated with out-dated analog voice, data distribution, and recording equipment. The planning for the internal 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 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 for Area 4 is being performed as part of the AIU modification.

- Global Air Traffic Management (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.

- Senior Leader Communication System (SLCS): The FY02 Defense Emergency Response Funds (DERF) funded a SLCS study which concluded that the technical solution 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), International Maritime Satellite (INMARSAT) access, and video teleconferencing capability, plus access to Defense Information System Network (DISN) and Public Switch Network (PSN) for secure/non-secure voice, video and data exchange on and off the airplane (external e-mail and Internet access).

Exhibit R-2, RDT&E Budget Item Justification

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0302015F E-4B NATIONAL AIRBORNE OPERATIONS CENTER

- Data LAN Infrastructure (DLI) (formerly part of Block 5B): A primary mission equipment modification that will greatly improve the ability to receive, store, manipulate, distribute and view information related to the aircraft's primary mission. DLI will increase bandwidth onto, throughout, and from the aircraft for the movement of intelligence, organizational messaging, war planning, and operational information. 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). This modification may be installed either during depot level maintenance or during field maintenance.
- Communications, Navigation, Surveillance/Air Traffic Management (CNS/ATM-1): This modification is the third phase of implementing air traffic communications and management capabilities via a series DoD-wide projects formerly known as GATM. The CNS/ATM-1 modification implements capabilities that increases the precision of the E-4B air navigation thus permitting the aircraft to meet the evolving required navigation performance down to 0.3 nautical mile (RNP .3). This CNS/ATM I phase provides hardware, software and integration efforts for Automatic Dependent Surveillance-Broadcast (ADS-B), Wide Area Augmentation System (WAAS) and Local Area Augmentation System (LAAS). These modifications are required for compliance with both US and foreign air traffic management requirements. Failure to bring the E-4B into compliance with these requirements will result in circuitous routing and/or access denial to some air space typically used in support of E-4B missions. Installation of this modification requires a depot level maintenance availability.
- C-3 Ultra High Frequency (UHF) Digitization: The UHF radio link between the airborne elements (which includes the E-4B) and the Northstar ground entry points (GEPs) is in the process of converting from an analog to a digital format to both reduce long term network costs and to provide additional communication capabilities to its users. The funds for this modernization is for work on just the E-4B aircraft and will provide Internet Protocol (IP) based connectivity to the Internet at both the unclassified and the secret classification levels. It will also provide Video Teleconference Conference (VTC) capabilities, Voice over IP (VoIP) and access to Secure Internet Protocol Router (SIPRNET) with data rate processing up to 1.544Mbps via the digital UHF link to the GEPs. This modification may be installed either during depot level maintenance or during field maintenance.
- Super High Frequency (SHF) Multiplexer (MUX) Upgrade: This modification combines secure and non-secure digital signals into one data stream for transmission over the Frequency Division Multiple Access (FDMA) modem or USC-28. The multiplexer replacement is a dual V-100 MUX. The technical risk of integrating the new multiplexer into the E-4B communication suite is sufficiently high to justify the use of RDT&E funding on the prototype aircraft. This modification may be installed either during depot level maintenance or during field maintenance.

The E-4B program is categorized as a budget activity 7 - Operational System Development, because it develops modifications for a fielded system.

Exhibit R-2, RDT&E Budget Item Justification

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0302015F E-4B NATIONAL AIRBORNE OPERATIONS CENTER

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	44.000	11.172	6.323	0.286
(U) Current PBR/President's Budget	34.661	11.074	18.909	6.489
(U) Total Adjustments	-9.339	-0.098		
(U) Congressional Program Reductions				
Congressional Rescissions		-0.098		
Congressional Increases				
Reprogrammings	-8.040			
SBIR/STTR Transfer	-1.299			

(U) **Significant Program Changes:**

The Department has updated the estimated cost of the DLI project and has subsequently revised the mix of RDT&E and Procurement funds in FY06 and FY07. The increased amount of R&D requested in FY06 and FY07 is a reflection of the revised program estimate and is indicative of an expanded development to program to more thoroughly identify and solve technical problems associated with accreditation and operation of a COTS-based, airborne, multi-level secure (MLS) LAN. Additionally, a new project begins in FY06 to redesign and replace a component (multiplexer) in the aircraft's SHF communication system. This replacement is required to correct a design fault that has degraded the reliability of this mission critical communication system. The reprogramming of about \$8.0M of FY04 funds out of the program was done when contracts were awarded below estimated costs. No program content nor schedule change resulted from this transfer of funds.

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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total	
4777 E-4B Aircraft Modernization	34.661	11.074	18.909	6.489	8.436	13.034	17.476	0.000	0.000	210.293	
Quantity of RDT&E Articles	0	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 for its two primary missions (nuclear command and control and senior national leader support). 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 seven 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 Aircraft Procurement (Aircraft Modification) funds.

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-- Global Air Traffic Management (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.

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Exhibit R-2a, RDT&E Project Justification	DATE February 2005
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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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- Data LAN Infrastructure (DLI) (formerly part of Block 5B): A primary mission equipment modification that will greatly improve the ability to receive, store, manipulate, distribute and view information related to the aircraft's primary mission. DLI will increase bandwidth onto, throughout, and from the aircraft for the movement of intelligence, organizational messaging, war planning, and operational information. 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). This modification may be installed either during depot level maintenance or during field maintenance.

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- C-3 Ultra High Frequency (UHF) Digitization: The UHF radio link between the airborne elements (which includes the E-4B) and the Northstar ground entry points (GEPs) is in the process of converting from an analog to a digital format to both reduce long term network costs and to provide additional communication capabilities to its users. The funds for this modernization is for work on just the E-4B aircraft and will provide Internet Protocol (IP) based connectivity to the Internet at both the unclassified and the secret classification levels. It will also provide Video Teleconference Conference (VTC) capabilities, Voice over IP (VoIP) and access to Secure Internet Protocol Router (SIPRNET) with data rate processing up to 1.544Mbps via the digital UHF link to the GEPs. This modification may be installed either during depot level maintenance or during field maintenance.

- Super High Frequency (SHF) Multiplexer (MUX) Upgrade: This modification combines secure and non-secure digital signals into one data stream for transmission over the Frequency Division Multiple Access (FDMA) modem or USC-28. The multiplexer replacement is a dual V-100 MUX. The technical risk of integrating the new multiplexer into the E-4B communication suite is sufficiently high to justify the use of RDT&E funding on the prototype aircraft. This modification may be installed either during depot level maintenance or during field maintenance.

The E-4B program is categorized as a budget activity 7 - Operational System Development, because it develops modifications for a fielded system.

(U) B. Accomplishments/Planned Program (\$ in Millions)	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Completed AIU (formerly part of Blk 5A, now a component of Mod Blk 1) System Engineering & Prototype Kit (MN-4381)	2.800			
(U) Completed GATM II System Engineering and Prototype Kit (MN-9709)	0.618			
(U) Contractor Technical and Program Management Support	2.371	1.504	1.185	0.165
(U) Mod Blk 1 - AIU prototype installation (formerly called Block 5A)	25.083	8.470		
(U) Mod Blk 1 - GATM II prototype installation	3.539	1.000		
(U) Began Data LAN Infrastructure (formerly part of Blk 5B) - Data Concept Exploration (MN-4381B)	0.250	0.100		

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Exhibit R-2a, RDT&E Project Justification								DATE February 2005			
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)	Engineering Development of DLI							10.872	1.368		
(U)	Hardware Purchase for DLI Prototype							5.782			
(U)	Install of DLI Prototype								0.951		
(U)	CNS/ATM-1 Requirements Study								0.286		
(U)	Engineering Development of SHF MUX Upgrade (MN-4391)							0.895	0.278		
(U)	Hardware Purchase for SHF MUX Prototype							0.175			
(U)	Install of SHF MUX Prototype								0.007		
(U)	Engineering Development of C-3 UHF Digitization (MN-4389)								1.839		
(U)	Hardware Purchase for C-3 UHF Digitization Prototype								1.595		
(U)	Total Cost					34.661	11.074	18.909	6.489		
(U) C. Other Program Funding Summary (\$ in Millions)											
		<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
(U)	Aircraft Procurement AF, Budget Activity 5, Weapon System Code E00400, PE 0302015F; Mod 4381 (AIU--formerly Blk 5A); Mod 9709 (GATM Phase II)	28.504	75.325	63.235	28.570					0.000	195.634
(U)	Aircraft Procurement AF, Budget Activity 5, Weapon System Code E00400, PE 0302015F; Mod 4381 DLI				26.957	18.163				0.000	45.120
(U)	Aircraft Procurement AF, Budget Activity 5, Weapon System Code E00400, PE 0302015F; Mod 9709D Communciation Navigation Surveillance/Air Traffic Management -1							5.800	20.261	34.466	60.527
(U)	Aircraft Procurement AF, Budget Activity 5, Weapon System Code E00400, PE				0.188	0.121					0.309

Exhibit R-2a, RDT&E Project Justification

DATE

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

0302015F; Mod 4391 SHF

MUX Upgrade

Aircraft Procurement AF,

Budget Activity 5, Weapon

(U) System Code E00400, PE

3.258

2.894

6.152

0302015F; Mod 4389 C-3

UHF Digitization

(U) **D. Acquisition Strategy**

The E-4B is executing an incremental improvement of E-4B capabilities and in some cases replacing components due to aging aircraft sustainment issues. System engineering, design, and prototype installations will be obtained under a directed award (sole source), Cost Plus Incentive Fee (CPIF) contract.

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Exhibit R-3, RDT&E Project Cost Analysis												DATE February 2005		
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) 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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> Boeing - Wichita	Sole Source CPIF	Wichita Development & Modificaiton Center	29.506	32.241	Nov-03	9.570	Nov-04	17.724	Nov-05	6.324	Nov-06	36.101	131.466	TBD
Subtotal Product Development			29.506	32.241		9.570		17.724		6.324		36.101	131.466	TBD
Remarks:														
(U) <u>Support</u> Communications interoperability engineering and requirements development	Various MIPRs	DISA and other DoD Activities at Arlington, VA	1.742	0.673	Feb-04	0.115	Jan-05	0.100	Nov-05				2.630	TBD
Requirements development and programming support	MIPR	Air Combat Command (ACC) at Hampton, VA	0.364	0.185	Nov-05	0.377	Jan-05	0.200	Jan-06				1.126	TBD
DLI MLS Testing	MIPR	Space and Naval Warfare Systems Command (SPAWARS YSCOM) at San Diego, CA		0.240	Feb-04								0.240	TBD
Mod Blk 1 Test Development and Execution	MIPR	Joint Interoperability Test Command (JITC) at Fort Huachuca, AZ				0.079	Jan-05						0.079	TBD
Subtotal Support			2.106	1.098		0.571		0.300		0.000		0.000	4.075	TBD
Remarks:														
(U) <u>Test & Evaluation</u> Mod Blk 1 test plan development and test execution	Project Order	605th Flight Test	0.443	0.288	Oct-03	0.299	Nov-04	0.109	Nov-05				1.139	TBD
Project 4777														

R-1 Shopping List - Item No. 169-9 of 169-14

Exhibit R-3 (PE 0302015F)

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2005

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		
CNS/ATM I test plan development and execution	TBD	Squadron at Eglin AFB, FL TBD								0.000	TBD
Subtotal Test & Evaluation			0.443	0.288	0.299	0.109	0.000	0.000	1.139	TBD	
Remarks:											
(U) <u>Management</u>											
E-4B Program Office contractor support	Sole Source T&M	Northrop Grumman at Oklahoma City, OK	2.956	1.034	Jan-04	0.634	Jan-05	0.776	Jan-06	5.400	TBD
Recompete of above E-4B Program Office support	TBD	TBD	0.000					0.165	Jan-07	2.717	2.882
Subtotal Management			2.956	1.034		0.634	0.776	0.165	2.717	8.282	TBD
Remarks:											
(U) Total Cost			35.011	34.661		11.074	18.909	6.489	38.818	144.962	TBD

Exhibit R-4, RDT&E Schedule Profile

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February 2005





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

E-4B, National Airborne Operations Center (NAOC)

E-4B NAOC	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				
MB1 System Development	[Completed Activity]																																			
MB1 Kit Acquisitions	▲ Kit #2 (A PAF)				△ Kit #3 (A PAF)				△ Kit #4 (A PAF)																											
MB1 Installations	#1				#2				#3				#4																							
MB1 OT&E																																				
DLI System Development	STUDY								DEVELOPMENT																											
DLI Kit Acquisitions													△ Kit #1 (R&D)				△ Kit #2 (A PAF)				△ Kit #3 (A PAF)				△ Kit #4 (A PAF)											
DLI Installations																	1	2	3		4															
DLI OT&E																																				

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

- ACRONYMS & ABBREVIATIONS**
- MB1: Modification Block 1
 - DLI: Data LAN Infrastructure
 - SHF: Super High Frequency
 - UHF: Ultra High Frequency
 - MUX: Multiplexer
 - CNS/ATM: Communications, Navigation, Surveillance/Air Traffic Management

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Exhibit R-4, RDT&E Schedule Profile

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February 2005





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

E-4B, National Airborne Operations Center (NAOC) Con't

E-4B NAOC	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
SHF MUX Upgrade System Development									[Planned Activity]																							
SHF MUX Upgrade Kit Acquisition									Kit #1 (R&D)								Kit #3 (APAF)								Kit #4 (APAF)							
SHF MUX Upgrade Installations													#1	#2	#3	#4																
C3 UHF Digitization System Development													[Planned Activity]																			
C3 UHF Digitization Kit Acquisitions									Kit #1 (R&D)								Kit #3 (APAF)								Kit #4 (APAF)							
C3 UHF Digitization Installations																	#1	#2	#3	#4												
CNS/ATM-1 Development													Study				Development															
CNS/ATM-1 Kit Acquisitions																	Kit #1 (R&D)							Kit #2 (APAF)								
CNS/ATM-1 Installations																								#1 R&D				#2				
CNS/ATM-1 OUE																																

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

- ACRONYMS & ABBREVIATIONS**
- MB1: Modification Block 1
 - DLI: Data LAN Infrastructure
 - SHF: Super High Frequency
 - UHF: Ultra High Frequency
 - MUX: Multiplexer
 - CNS/ATM: Communications, Navigation, Surveillance/Air Traffic Management

19 Jan 05

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Exhibit R-4a, RDT&E Schedule Detail		DATE February 2005		
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) Schedule Profile	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Modification Block I (Mod Blk 1)	1Q			
(U) -- Mod Blk 1 - System engineering Complete		2Q		
(U) -- Prototype Install Input	1Q			
(U) -- Prototype Delivers		2Q		
(U) -- Prototype OT&E		3Q		
(U) -- Production Kit #1 Ordered	2Q			
(U) -- Production Kit #1 Delivers		2Q		
(U) -- Production #1 Input		3Q		
(U) -- Production #1 Delivers			3Q	
(U) -- Production Kit #2 Ordered		2Q		
(U) -- Production Kit #2 Delivers			2Q	
(U) -- Production #2 Input			3Q	
(U) -- Production #2 Delivers				3Q
(U) -- Production Kit #3 Ordered			2Q	
(U) -- Production Kit #3 Delivers				2Q
(U) -- Production #3 Input				3Q
(U) Data LAN Infrastructure (DLI)	2Q			
(U) -- Multi-Level Security Testbed Study	2Q	2Q		1Q
(U) -- Dev Begins			1Q	
(U) -- System Engineering Complete				3Q
(U) -- Prototype Hardware Buy			2Q	
(U) -- Prototype Hardware Delivers				3Q
(U) -- Prototype Install Begins				4Q
(U) -- Production Kit #1 Buy				1Q
(U) -- Production Kit #1 Delivers				3Q
(U) -- Production #1 Install Begins				4Q
(U) Super High Frequency (SHF) Multiplexer Upgrade			1Q	
(U) -- Development Begins			1Q	
(U) -- System Engineering Complete				1Q
(U) -- Prototype Kit Ordered			3Q	
(U) -- Prototype Kit Delivers				1Q
(U) -- Prototype Install Begins				1Q

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Exhibit R-4a, RDT&E Schedule Detail		DATE February 2005
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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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(U) -- Prototype Install Delivers	2Q
(U) -- Production Kit #1 Ordered	1Q
(U) -- Production Kit #1 Delivers	3Q
(U) -- Production #1 Install Begins	3Q
(U) -- Production #1 Delivers	4Q
(U) -- Production Kit #2 Ordered	3Q
(U) C3 UHF Digitization	1Q
(U) -- Development Begins	1Q
(U) CNS/ATM I	1Q
(U) -- Requirements Update Study Begins	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 2005
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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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	9.776	32.539	57.344	47.622	44.454	13.978	3.878	3.489	Continuing	TBD
2832 MEECN System Improvements	2.284	1.204	3.443	3.496	3.734	3.809	3.878	3.489	Continuing	TBD
4521 DIRECT	0.100	0.282	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.319
4610 Minuteman MEECN Program (MMP)	0.260	1.484	11.006	22.627	35.773	5.112	0.000	0.000	Continuing	TBD
5047 Ground Element MEECN System (GEMS)	7.132	29.569	42.895	21.499	4.947	5.057	0.000	0.000	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 Injection Reception Emergency Action Message (EAM) Command and Control (C2) Terminal (DIRECT). Upgrades hardware and software to ensure the capability for the President to transmit nuclear and non-nuclear EAMs and other time-critical messages to strategic and non-strategic forces
- Minuteman MEECN Program (MMP) - is the combination of Minuteman ICBM Launch Control Center (LCC) Very Low Frequency/Low Frequency (VLF/LF) upgrade efforts along with a new Minuteman ICBM Extremely High Frequency (EHF) communications capability
- 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 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 2005

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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	10.716	33.190	52.035	50.880
(U) Current PBR/President's Budget	9.776	32.539	57.344	47.622
(U) Total Adjustments	-0.940	-0.651		
(U) Congressional Program Reductions	-0.031	-0.651		
Congressional Rescissions	-0.090			
Congressional Increases				
Reprogrammings	-0.565			
SBIR/STTR Transfer	-0.254			
(U) <u>Significant Program Changes:</u>				
None.				

Exhibit R-2a, RDT&E Project Justification

DATE
February 2005

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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
2832 MEECN System Improvements	2.284	1.204	3.443	3.496	3.734	3.809	3.878	3.489	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

- This project funds the Continuing Evaluation Program (CEP) for technical analysis of the currently fielded Nuclear Command, Control, and Communication (NC3) systems. CEP is a key factor in determining Assured MEECN Interoperability (AMI). The program implements a detailed test program for Emergency Action Message (EAM) injection 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 and network interoperability.

- 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. The MEECN architecture is currently evaluating/planning modernization of the VLF/LF cryptographic capability, application of using Defense Injection Reception Emergency Action Message (EAM) Command and Control (C2) Terminal (DIRECT) in mobile configurations (E-4, E-6 and Mobile Consolidated Command Center (MCCC)) and application of High Data Rate (HIDAR/HIDAR+) VLF/LF in other strategic communications platforms. In addition, MSI will build a long range planning process with Users (Air Combat Command (ACC), Air Force Space Command (AFSPC) and Navy) to develop positions for current and future requirements/issues based on available technology.

- This project will now fund System Development and Demonstration (SDD) to develop interface between DIRECT and Strategic Automated Command and Control System (SACCS), as well as other communication interfaces as directed by Joint Staff in accordance with Vol VII of JCS guidance.

- 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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Continue Communications Evaluation Program (CEP) Studies	0.250	0.250	0.265	0.265
(U) AEHF risk reduction study, DIRECT mobile application, Advanced C2 for land based strategic deterrence	1.034			
(U) Analysis and trade studies on current/future communication systems/architectures.	1.000	0.954	3.178	3.231
(U) Total Cost	2.284	1.204	3.443	3.496

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	

(U) None

Exhibit R-2a, RDT&E Project Justification

DATE

February 2005

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

(U) D. Acquisition Strategy

Johns Hopkins University is on contract to provide CEP Analysis. Other trade-off studies will be full and open competitions.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2005

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>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &</u> <u>Type</u>	<u>Performing</u> <u>Activity &</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2004</u> <u>Cost</u>	<u>FY 2004</u> <u>Cost</u>	<u>FY 2004</u> <u>Award</u> <u>Date</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</u>	<u>FY 2006</u> <u>Cost</u>	<u>FY 2006</u> <u>Award</u> <u>Date</u>	<u>FY 2007</u> <u>Cost</u>	<u>FY 2007</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
(U) <u>Product Development</u> CEP Analysis	MIPR	Johns Hopkins Univ, MD	5.226	0.250	Oct-04	0.250	Oct-04	0.265	Oct-05	0.265	Oct-06	Continuing	TBD	
Various (Trade studies and analysis)	Open Competiti on	Various		1.084	Dec-04			1.768	Dec-05	1.611	Dec-06		4.463	
Development Prior to FY04	Various	Various	79.626										79.626	
Subtotal Product Development			84.852	1.334		0.250		2.033		1.876		Continuing	TBD	0.000
Remarks:														
(U) <u>Support</u> SE/TA [Integrated Technical Support Program (ITSP)]	Various	Various	3.926	0.804	Oct-04	0.804	Oct-04	1.250	Oct-05	1.450	Oct-06	Continuing	TBD	
MITRE	LOE	Bedford, MA	2.500	0.146	Oct-04	0.150	Oct-04	0.160	Oct-05	0.170	Oct-06	Continuing	TBD	
Support Prior to FY04	Various	Various	0.486										0.486	
Subtotal Support			6.912	0.950		0.954		1.410		1.620		Continuing	TBD	0.000
Remarks:														
(U) <u>Test & Evaluation</u> T&E Prior to FY04	Various	Various	5.758											5.758
Subtotal Test & Evaluation			5.758	0.000		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	0.000
Remarks:														
(U) Total Cost			97.522	2.284		1.204		3.443		3.496		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

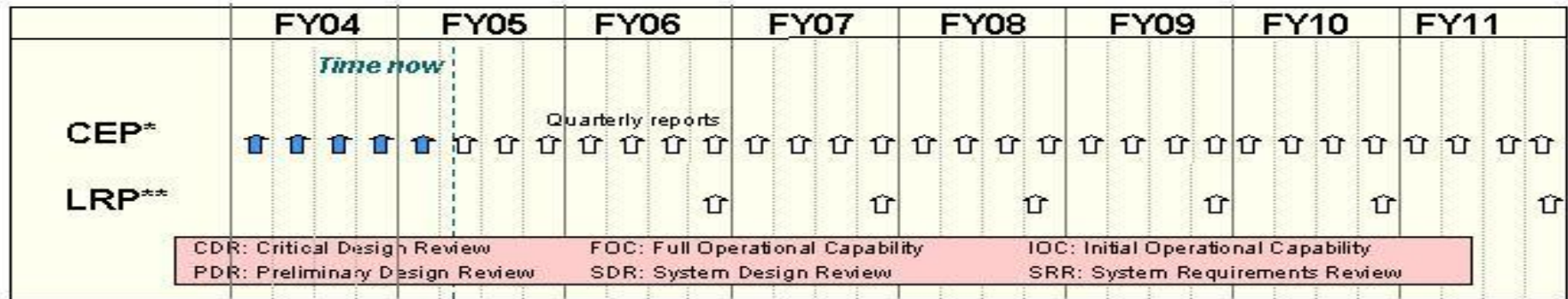
February 2005

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



* CEP: Continuing Evaluation Program

** LRP: Long Range Plan

Concept activities
Production / fielding

Design / development
Operations / sustainment

Integration / test
Key events

Exhibit R-4a, RDT&E Schedule Detail	DATE February 2005
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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>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Schedule Profile				
(U) CEP Study and Analysis - Quarterly Report(s)	1-4Q	1-4Q	1-4Q	1-4Q
(U) Trade studies and analyses			4Q	4Q

Exhibit R-2a, RDT&E Project Justification

DATE
February 2005

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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4521 DIRECT	0.100	0.282	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.319
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The Defense Injection Reception Emergency Action Message (EAM) 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 and supports OPLAN 8044 (formally SIOP) messaging systems. DIRECT reached Full Operational Capability (FOC) on 15 Feb 02. In addition, DIRECT must implement interfaces to new EAM dissemination systems when required by updates to Vol VII of JCS emergency action procedures.

Continued System Development and Demonstration (SDD) to develop interfaces between DIRECT and other communication interfaces will be accomplished in BPAC 672832 - MEECN System Improvement.

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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Develop interface between DIRECT and Strategic Automated Command and Control System (SACCS) in accordance with Vol VII of JCS emergency action procedures.	0.100	0.282		
(U) Total Cost	0.100	0.282	0.000	0.000

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
(U) None										

(U) D. Acquisition Strategy

An SS/CPAF contract was awarded to General Dynamics C4 Systems, Needham, MA.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2005

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</u> <u>Method &</u> <u>Type</u>	<u>Performing</u> <u>Activity &</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2004</u> <u>Cost</u>	<u>FY 2004</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2007</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
				<u>Cost</u>	<u>Award</u> <u>Date</u>	<u>Cost</u>	<u>Award</u> <u>Date</u>	<u>Cost</u>	<u>Award</u> <u>Date</u>	<u>Cost</u>	<u>Award</u> <u>Date</u>			
(U) <u>Product Development</u> SACCS Interface	FPIF	General Dynamice C4 Systems, MA		0.098	Oct-03	0.212	Oct-04						0.310	
Development Prior to FY04			35.971										35.971	
Subtotal Product Development			35.971	0.098		0.212		0.000		0.000		0.000	36.281	0.000
Remarks:														
(U) <u>Support</u> SETA				0.002	Oct-03	0.070	Oct-04						0.072	
Support Prior to FY04			7.347										7.347	
Subtotal Support			7.347	0.002		0.070		0.000		0.000		0.000	7.419	0.000
Remarks:														
(U) <u>Test & Evaluation</u> T&E Prior to FY04			0.471										0.471	
Subtotal Test & Evaluation			0.471	0.000		0.000		0.000		0.000		0.000	0.471	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			43.789	0.100		0.282		0.000		0.000		0.000	44.171	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

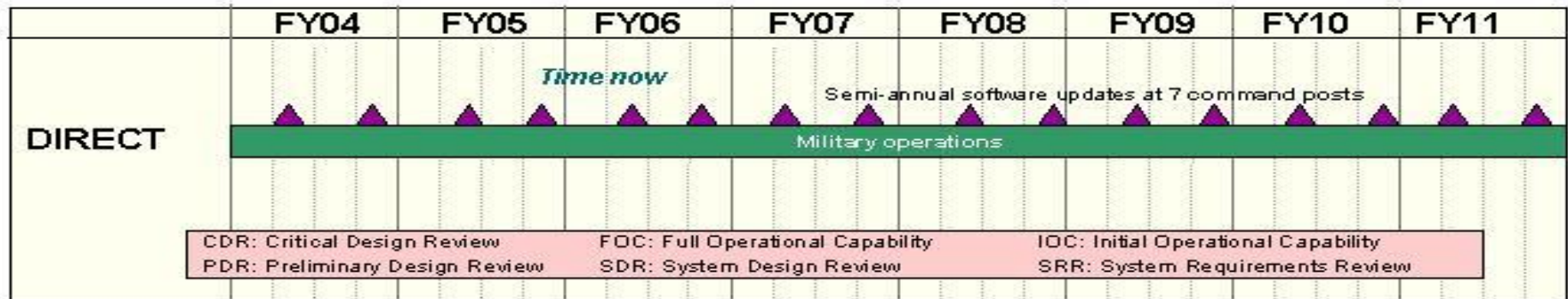
February 2005

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0303131F Minimum Essential
Emergency Communications Network
(MEECN)

PROJECT NUMBER AND TITLE
4521 DIRECT

DIRECT Schedule



■ Concept activities
■ Production / fielding

■ Design / development
■ Operations / sustainment

■ Integration / test
△◇ Key events

Exhibit R-4a, RDT&E Schedule Detail	DATE February 2005
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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) Schedule Profile	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Hybrid Solution Support	1-4Q	1-2Q		

Exhibit R-2a, RDT&E Project Justification

DATE
February 2005

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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Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4610 Minuteman MEECN Program (MMP)	0.260	1.484	11.006	22.627	35.773	5.112	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	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) communications capability. The Extremely High Frequency (EHF) 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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Completed MMP ECPS/Weapon System Test/Operational Test (WST/OT)	0.260			
(U) Begin AEHF Concept Development Studies		1.484		
(U) Continue AEHF System Development and Demonstration (SDD) to include: AEHF terminal integration, AEHF modem design, cryptographic upgrade, weapon system hardness analysis, AEHF hardware development, AEHF software development, analysis of power and cooling requirements, antenna integration, analysis of Software Compliant Architecture (SCA).			9.856	20.677
(U) Analytical Support			1.150	1.950
(U) Total Cost	0.260	1.484	11.006	22.627

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

	<u>FY 2004</u> <u>Actual</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>FY 2010</u> <u>Estimate</u>	<u>FY 2011</u> <u>Estimate</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
MPAF, Missile Modifications										
(U) (MEECN, PE 0303131F, BA 03, P-012)	32.265	15.720	22.180	16.220	6.540	24.540	7.090	0.000	0.000	124.555

(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).

Exhibit R-2a, RDT&E Project Justification

DATE

February 2005

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)**

The AEHF upgrade for MMP will be a full and open competition.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2005

BUDGET ACTIVITY				PE NUMBER AND TITLE								PROJECT NUMBER AND TITLE			
07 Operational System Development				0303131F Minimum Essential Emergency Communications Network (MEECN)								4610 Minuteman MEECN Program (MMP)			
(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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>	
(U) <u>Product Development</u>															
AEHF Concept Development	Open Competition	TBD				0.984	Dec-04						0.984		
AEHF System Development and Demonstration(SDD)	Open Competition	TBD						10.006	Dec-05	20.127	Dec-06		30.133		
NGC Development Prior to FY04	SS/CPAF Various	Various	45.970 0.836	0.060	Oct-03								46.030 0.836		
Subtotal Product Development			46.806	0.060		0.984		10.006		20.127		0.000	77.983	0.000	
Remarks:															
(U) <u>Support</u>															
SETA	LOE	Various		0.080		0.200	Apr-05	0.500	Apr-06	2.000	Apr-07		2.780		
MITRE	LOE	Bedford, MA			Oct-03	0.300	Oct-04	0.500	Oct-05	0.500	Oct-06		1.300		
Support Prior to FY04	Various	Various	2.597										2.597		
Subtotal Support			2.597	0.080		0.500		1.000		2.500		0.000	6.677	0.000	
Remarks:		Various Award Dates													
(U) <u>Test & Evaluation</u>															
Various	Various	Various		0.120									0.120		
Subtotal Test & Evaluation			0.000	0.120		0.000		0.000		0.000		0.000	0.120	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			49.403	0.260		1.484		11.006		22.627		0.000	84.780	0.000	

Exhibit R-4, RDT&E Schedule Profile

DATE

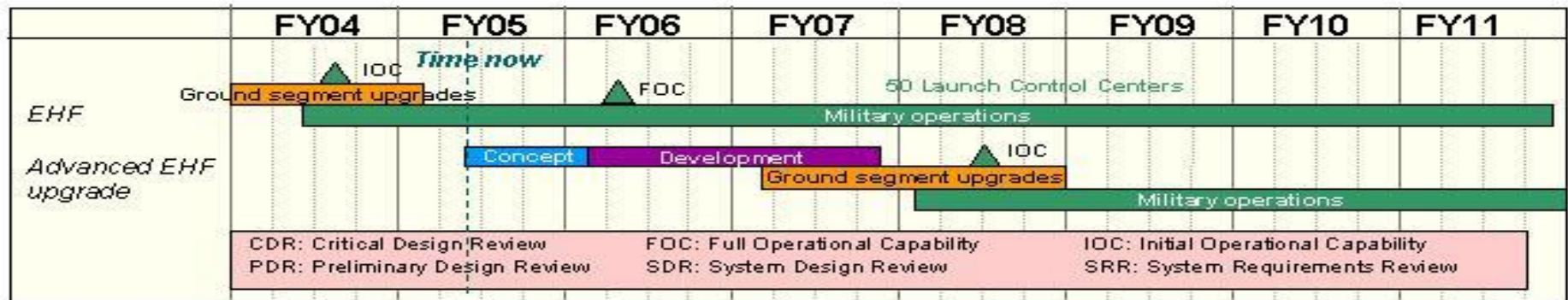
February 2005

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

Exhibit R-4a, RDT&E Schedule Detail	DATE February 2005
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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)
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(U) Schedule Profile	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Exercise MMP Production Option		1Q		
(U) MMP IOC	3Q			
(U) Award AEHF Concept Development Studies			1Q	
(U) Award AEHF SDD			3Q	1Q
(U) MMP FOC			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)		
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Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
5047 Ground Element MEECN System (GEMS)	7.132	29.569	42.895	21.499	4.947	5.057	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	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 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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Concept & Technology Demonstration Studys	3.942			
(U) System Development and Demonstration (SDD) contract to include: EHF, VLF and UHF terminal integration; EHF, VLF and UHF modem design; cryptographic upgrade; weapon system hardness analysis; EHF, VLF and UHF hardware development; EHF, VLF and UHF software development; analysis of power and cooling requirements, antenna integration, analysis of Software Compliant Architecture (SCA); and pager/klaxon system development.		26.819	39.345	19.549
(U) Analytical Support	3.190	2.750	3.550	1.950
(U) Total Cost	7.132	29.569	42.895	21.499

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

	<u>FY 2004</u> <u>Actual</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>FY 2010</u> <u>Estimate</u>	<u>FY 2011</u> <u>Estimate</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) Other Procurement - AF, (MEECN, PE0303131F, BA-03, P-053)			20.550	102.870	93.730	87.280	72.440	21.530	0.000	398.400

(U) D. Acquisition Strategy

Two Concept and Technology Demonstration (C&TD) contracts awarded to separate vendors following full and open competition. Upon completion of C&TD, there will

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07 Operational System Development

PE NUMBER AND TITLE

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Emergency Communications Network
(MEECN)**

PROJECT NUMBER AND TITLE

**5047 Ground Element MEECN System
(GEMS)**

be full and open competition to award a single SDD contract.

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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 5047 Ground Element MEECN System (GEMS)
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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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> C&TD Contracts	Full and open competitio n	General Dynamics C4 System, MA Rockwell Collins, TX TBD		3.942	Jan-04							Continuing	TBD	
SDD Contract						26.738	Apr-05	41.295	Dec-05	19.793	Dec-06		87.826	
Subtotal Product Development			0.000	3.942		26.738		41.295		19.793		Continuing	TBD	0.000
Remarks:														
(U) <u>Support</u> ITSP	SETA Contract	Various		0.728	Apr-04	0.839	Apr-05	0.600	Apr-06	0.650	Apr-07	Continuing	TBD	
MITRE	MIPR	Bedford, MA		0.927	Oct-03	1.050	Oct-04	0.900	Oct-05	0.950	Oct-06	Continuing	TBD	
PMA				1.535	Oct-03	0.942	Oct-04	0.100	Oct-05	0.106			2.683	
Subtotal Support			0.000	3.190		2.831		1.600		1.706		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	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			0.000	7.132		29.569		42.895		21.499		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

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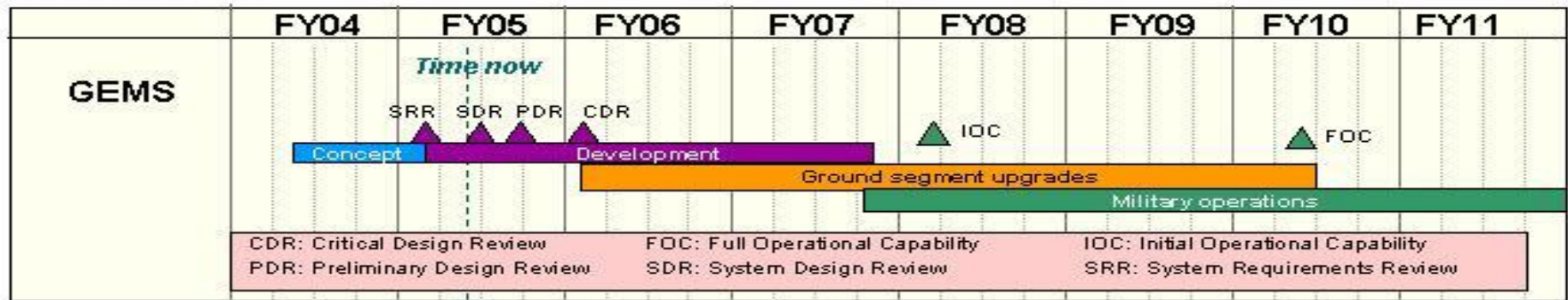
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BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
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 2005
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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) <u>Schedule Profile</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) ORD Approval	4Q			
(U) C&TD Study	3Q			
(U) MS B		2Q		
(U) SSD		3Q		

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PE NUMBER: 0303140F
 PE TITLE: Information Systems Security Program

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2005
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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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	51.649	84.542	109.292	175.012	315.639	199.504	296.230	205.267	Continuing	TBD
4579 Adv Security Solutions & Technologies (ASST)	4.954	5.380	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
4861 Electronic Key Mgmt Sys - Key Mgmt Sys Infrastructure (AF EKMS-KMI)	9.202	2.762	3.320	3.600	7.430	6.163	6.044	5.994	Continuing	TBD
4871 Information Operations Technology	0.706	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.238
5100 Cryptographic Modernization	28.974	69.945	101.869	165.674	302.166	185.978	282.656	191.614	Continuing	TBD
7820 Computer Security RDT&E: Firestarter	7.813	6.455	4.103	5.738	6.043	7.363	7.530	7.659	Continuing	TBD

- NOTES:
1. In FY 2005, Project 4579 Information Warfare was terminated. To better reflect the multiple Congressional adds received in this project it has been renamed Advanced Security Solutions and Technologies (ASST) and its Mission Statement rewritten to reflect the new focus.
 2. Project 4861, formerly Cryptologic 2000, has been retitled Electronic Key Management System - Key Management Infrastructure (EKMS-KMI) to reflect the program's progress and future direction.
 3. In FY2005 and out, Project 4871, Information Operations Technology, was transferred to PE 0305887, Intelligence Support to Information Warfare, Project 0374, Information Warfare Support.

(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.

Project 4579, Advanced Security Solutions and Technologies, develops defensive information warfare solutions for AF Command and Control (C2), Intelligence, Surveillance, and Reconnaissance (ISR) systems. Within ASST, Cyber Lighthouse is a cyber security research and development program managed by the Air Forces HQ Electronic Systems Center (ESC). This 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. Cyber Lighthouse investigates the feasibility of various cyber technologies and in selected cases will progress to develop and prototype a system to resolve a known cyber vulnerability. The Center for Infrastructure Assurance and Security (CIAS) is also managed and funded from within this project. The CIAS provides multi-disciplinary information assurance research and development, academic, and operational-based program addressing both technical and policy

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issues.

Project 4861, EKMS-KMI, efforts will allow the AF to migrate from the current legacy manual system of generation, distribution, accounting, training, and material management of AF cryptographic keying materials to the new DoD Electronic Key Management System and secure Key Management Infrastructure being acquired by NSA. Because the keying material will be transmitted electronically over a secure network, with no man-in-the-loop, potential compromise of the Keys will be drastically reduced; and the time required for transmission to the user will become virtually instantaneous. The EKMS equipment procurement and fielding is well underway. The R&D portion of the AF EKMS-KMI Program is supporting sustainment and building interfaces to the next generation KMI. The warfighter will continue to use EKMS for the next four to five years -- having access to it through the old EKMS hierarchy OR through the new KMI hierarchy and its EKMS interfaces. Eventually the KMI capability will spiral to the point of taking over the EKMS functions completely.

Project 5100, AF Crypto Modernization, is part of a Joint Program led 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 incur only the cost to reprogram those chips. The total inventory will be greatly reduced by doing a box-for-family of systems/functions replacement rather than the current box-for-box replacement; and the logistics requirements will be greatly simplified and reduced. The total inventory and logistics requirements are also reduced by going to multi-purpose, joint solution crypto devices instead of the Service unique inventory we now have.

Project 7820, Computer Security RDT&E: Firestarter, encompasses 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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	47.718	79.625	109.735	216.535
(U) Current PBR/President's Budget	51.649	84.542	109.292	175.012
(U) Total Adjustments	3.931	4.917		
(U) Congressional Program Reductions	0.000			
Congressional Rescissions	0.000	-1.583		
Congressional Increases	0.000	7.500		
Reprogrammings	5.358	-1.000		
SBIR/STTR Transfer	-1.427			

(U) **Significant Program Changes:**

Project 5100, Cryptographic Modernization (CM), has undergone significant reprioritization of individual CM projects to be addressed. This has driven a major revision of the CM schedule of projects. This was due primarily to a more detailed scoping of user requirements for each of the CM projects; specifically, to the findings among the

Exhibit R-2, RDT&E Budget Item Justification

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space systems community of users. Consequently, the Air Force has reallocated (primarily due to the acceleration and rephasing of Space CM efforts) the individual CM funding lines to match the new schedule for FY07 and out.

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BUDGET ACTIVITY		PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE		
07 Operational System Development		0303140F Information Systems Security Program						4579 Adv Security Solutions & Technologies (ASST)		
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4579 Adv Security Solutions & Technologies (ASST)	4.954	5.380	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	0		

In FY 2005, Project 4579 Information Warfare was terminated. To better reflect the multiple Congressional Adds received in this project the project has been renamed Advanced Security Solutions & Technologies (ASST) and its Mission Statement rewritten to reflect the new focus.

(U) A. Mission Description and Budget Item Justification

The Advanced Security Solutions and Technologies (ASST) funding line will cover the following items:

Cyber Lighthouse is a cyber security research and development program managed by the Air Forces HQ Electronic Systems Center (ESC). 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. Cyber Lighthouse investigates the feasibility of a cyber technology and in selected cases will progress to develop and prototype a system to resolve a known cyber vulnerability. Examples include the following:

Cyber Lighthouse researchers are developing technologies that will counter spoofing of Global Positioning System (GPS) timing transmissions.

Research and development efforts are underway to provide a Security Policy Integrated Correlation Engine (SPICE) that will better enable the Air Force to manage the effectiveness of their security boundaries based on global and local implementations of network traffic rules from Air Force's Ports, Protocols, and Services (PP&S) Matrix policies. Embedded within SPICE will be an Insider Threat component that is currently being developed.

Research and development efforts are underway to provide an Integrated SATCOM Interference Detection and Response (ISIDR) system to develop geo-location of jamming and interference sources.

Research, development, demonstration, and integration of Large Scale Analysis Tools (LAST), a new set of operator decision support tools that utilizes router connection data to provide preemptive warning against new virus/work attacks, identification of low and slow network probing and identification of network anomalies.

The Center for Infrastructure Assurance and Security (CIAS) at the University of Texas at San Antonio (UTSA) is a multidisciplinary information assurance research and development, academic and operational -based program addressing technical and policy issues. The CIAS, working closely with the Air Intelligence Agency (AIA), currently conducts numerous research projects to include an efficient wireless encryption algorithm, high-speed intrusion detection and detection of steganographic content.

Current intrusion detection techniques, including those employed by the Air Force, utilize a variety of techniques including the examination of packet contents. High-Speed Intrusion Detection is needed as network speeds increase (IPv6 protocol) the ability to conduct real-time packet analysis and correlation becomes more difficult. Research is being conducted to perform intrusion detection in hardware to increase the speeds it can be accomplished. A prototype board has been built and will be coupled with kernel-level, host-based intrusion detection to allow for packet inspection in the face of encrypted traffic.

The CIAS is also developing improved methods to protect critical infrastructures by conducting cyber security exercises. The aim is to identify the following:

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 Adv Security Solutions & Technologies (ASST)
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reliance of military establishments on locally operated services; how military bases and posts participate in testing the local critical infrastructures; and how would they participate and respond to possible attacks.

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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Manage Cyber Lighthouse Security Technology Development Program (Congressional Add)	0.967	2.460	0.000	0.000
(U) Manage the Center for Infrastructure Assurance and Security (CIAS) (Congressional Add)	1.951	1.960	0.000	0.000
(U) Manage Enabling Technologies for Information Assurance (IA) (Congressional Add)	0.966	0.960	0.000	0.000
(U) Completed Exportable Vulnerability Assessment/Risk Management (VA/RM) Attack Trees	0.480	0.000	0.000	0.000
(U) Completed IA Architecture Infrastructure Assessments, but will continue as a participant in the Architecture Council Meetings	0.590	0.000	0.000	0.000
(U) Transferred responsibility for IO SA IPT activities, analyses, database support	0.000	0.000	0.000	0.000
(U) Transferred responsibility for cross-domain solutions	0.000	0.000	0.000	0.000
(U) Cancelled Common Access Card (CAC) concept exploration and prototyping of wireless technologies	0.000	0.000	0.000	0.000
(U) Cancelled Migration of Attack Tree Methodology for enterprise Mission Assurance Support System (eMASS)	0.000	0.000	0.000	0.000
(U) Total Cost	4.954	5.380	0.000	0.000

(U) <u>C. Other Program Funding Summary (\$ in Millions)</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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
(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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BUDGET ACTIVITY				PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE				
07 Operational System Development				0303140F Information Systems Security Program						4579 Adv Security Solutions & Technologies (ASST)				
(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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) Product Development														
Cyber Lighthouse contracts for computer security RDT&E	CPFF	MITRE, San Antonio, TX	30.272	1.753	Oct-03	1.835	Mar-05	0.000		0.000		0.000	33.860	TBD
Cyber Lighthouse contracts for computer security RDT&E	CRNF	MIT/Lincoln Labs, Boston, MA	2.992	0.813	Oct-03	0.994	Mar-05	0.000		0.000		0.000	4.799	TBD
Cyber Lighthouse contracts for computer security RDT&E	CRNF	Carnegie-Mellon Software Engineering Institute (SEI) Pittsburgh, PA	1.444	0.288	Oct-03	0.369	Mar-05	0.000		0.000		0.000	2.101	TBD
Center for Infrastructure Assurance and Security (CIAS) Projects	RL Grant /CRADA	University of TX San Antonio, San Antonio, TX	3.500	2.100	Mar-03	2.182	Mar-05	0.000		0.000		0.000	7.782	TBD
Subtotal Product Development			38.208	4.954		5.380		0.000		0.000		0.000	48.542	TBD
Remarks:														
(U) Total Cost			38.208	4.954		5.380		0.000		0.000		0.000	48.542	TBD

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY
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PE NUMBER AND TITLE
0303140F Information Systems Security Program

PROJECT NUMBER AND TITLE
4579 Adv Security Solutions & Technologies (ASST)

Exhibit R-4: BPAC 4579, ASST (p 1 of 1)

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	3	4	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	█				█																											
Architecture Councils	█				█																											
Manage CIAS	█				█																											
Manage Enabling Technologies for IA	█				█																											
KMI																																
GIG End-to-End Study				▲																												
SPICE																																
Completed CAC & wireless tech				▲																												
Transferred responsibility IO 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 Adv Security Solutions & Technologies (ASST)
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(U) Schedule Profile	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Manage Cyber Lighthouse Program	1-4Q	1-4Q		
(U) Manage the Center for Infrastructure Assurance and Security (CIAS)	1-4Q	1-4Q		
(U) Manage Enabling Technologies for IA (Congressional Add)	1-4Q	1-4Q		
(U) Participate in IA Architecture Councils	1-4Q	1-4Q		
(U) Completed Exportable VA/RM Attack Trees	1-4Q			
(U) Completed IA Architecture Infrastructure Assessments	1-4Q			
(U) Transferred the integration of cross-domain solutions	4Q			
(U) Transferred support of the IO SA IPT activities, analysis, database support	4Q			
(U) Cancelled CAC concept exploration and prototype wireless	4Q			
(U) Cancelled the Migration of Attack Tree Methodology for enterprise Mission Assurance Support System (eMASS)	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 Electronic Key Mgmt Sys - Key Mgmt Sys Infrastructure (AF EKMS-KMI)		
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4861 Electronic Key Mgmt Sys - Key Mgmt Sys Infrastructure (AF EKMS-KMI)	9.202	2.762	3.320	3.600	7.430	6.163	6.044	5.994	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

NOTES: Project 4861, formerly Cryptologic 2000, has been retitled Electronic Key Management System - Key Management Infrastructure (EKMS-KMI) to reflect the program's progress and future direction. The AF EKMS-KMI Program will soon concentrate more of its R&D activities toward developing the AF Key Management Infrastructure (KMI). The program's R&D efforts will include building the AF KMI architecture, defining all its linkages, and building the interfaces that will allow them to communicate.

(U) A. Mission Description and Budget Item Justification

The EKMS-KMI Project consists of multiple developments supporting the Air Force Electronic Key Management Systems and emerging Key Management Infrastructure (AFEKMS-KMI). AFEKMS-KMI, in concert with National Security Agency's (NSA's) overarching EKMS and KMI, 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) and weapon systems. AFEKMS-KMI replaces the existing physical distribution and management system providing cryptographic keying material for USAF Information Assurance. Information Assurance emphasizes confidentiality, access control, multi-level secure databases, trusted computing and information integrity. AFEKMS-KMI 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 generation and control capability. Tier 2 installations comprise the local distribution network and Tier 3 comprises the retail where keying material leaves the AFEKMS-KMI and enters the consumer Information Assurance Components (IACs).

AFEKMS-KMI improves protection of National Security-related information by substantially enhancing confidentiality, integrity, and non-repudiation characteristics over legacy key management systems. AFEKMS-KMI is greatly accelerating availability of crypto key materials through electronic transmission vice shipping of materials, and will enhance mission responsiveness and flexibility. While much of the current AFEKMS-KMI 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. Beginning KMI functionality is expected in 2008.

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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Managed Enterprise Data Warehouse (Congressional Add)	4.600			
(U) Managed Services Support Information Systems Security Program (ISSP) for Northcom (Congressional Add)	1.000			
(U) Continue program office contract support for Air Force Key Management planning, migration to the Key	0.794	0.602	1.309	1.334

Exhibit R-2a, RDT&E Project Justification	DATE February 2005
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0303140F Information Systems Security Program	PROJECT NUMBER AND TITLE 4861 Electronic Key Mgmt Sys - Key Mgmt Sys Infrastructure (AF EKMS-KMI)
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Management Infrastructure, and AFKMS-KMI deployment				
(U) Continue End User Application Software Development: Common UAS, Local Management Device (LMD/Data Management Device (DMD) and computer-based training	2.808	2.160	2.011	2.266
(U) Total Cost	9.202	2.762	3.320	3.600

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>		
(U) AF Other Procurement PE 0303140F	11.002	3.062	19.341	7.677	10.562	7.931	20.974	21.093		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

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<p>BUDGET ACTIVITY 07 Operational System Development</p>	<p>PE NUMBER AND TITLE 0303140F Information Systems Security Program</p>	<p>PROJECT NUMBER AND TITLE 4861 Electronic Key Mgmt Sys - Key Mgmt Sys Infrastructure (AF EKMS-KMI)</p>
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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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> End User Application Software Development	T&M	Science Applications International Corporation (SAIC), San Antonio, TX	3.488	2.808	Oct-03	2.160	Oct-04	2.011	Oct-05	2.266	Oct-06	Continuing	TBD	TBD
Architectural planning & Migration (to) the KMI Infrastructure Enterprise Data Warehouse (Congressional Add)	CPFF	Mitre, San Antonio, TX	0.620	0.794	Oct-03	0.602	Oct-04	1.309	Oct-05	1.334	Oct-06	Continuing	TBD	TBD
Services Support Information Systems Security Program (ISSP) for Northcom (Congressional Add)				4.600									4.600	
Subtotal Product Development			4.108	9.202		2.762		3.320		3.600		Continuing	TBD	TBD
Remarks:														
(U) <u>N/A</u>														
(U) Total Cost			4.108	9.202		2.762		3.320		3.600		Continuing	TBD	TBD
(U) Remarks:		N/A												

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
4861 Electronic Key Mgmt Sys - Key Mgmt Sys Infrastructure (AF EKMS-KMI)

Exhibit R-4: BPAC 4861, AF EKMS-KMI

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
Architectural planning & migration to Key Mgmt. Infrastructure																																
User Application Software Development																																

- ☆ 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 2005
BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0303140F Information Systems Security Program	PROJECT NUMBER AND TITLE 4861 Electronic Key Mgmt Sys - Key Mgmt Sys Infrastructure (AF EKMS-KMI)

(U) <u>Schedule Profile</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Continue End User Application Software Development: Common UAS, Local Management Device (LMD/Data Management Device (DMD) and computer-based training	1-4Q	1-4Q	1-4Q	1-4Q
(U) Continue program office contract support for Air Force Key Management Architecural planning, migration to the Key Management Infrastructure (KMI), and AFKMS-KMI deployment	1-4Q	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 0303140F Information Systems Security Program				PROJECT NUMBER AND TITLE 4871 Information Operations Technology		
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4871 Information Operations Technology	0.706	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.238
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

In FY2005, Project 4871, Information Operations Technology, efforts were transferred to PE 0305887, Intelligence Support to Information Warfare, Project 0374, Information Warfare Support.

(U) A. Mission Description and Budget Item Justification

(U) This program expedited Information Operations (IO) Technology transition from laboratory, industry, and academia to operational use via studies, rapid prototyping, and demonstrations.

(U) The program office investigated and selected 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 (MAP) and Mission Need Statements (MNS). IO areas considered include: Psychological Operations (PSYOP), Electronic Warfare, Military Deception, Physical Attack, Information Attack, Information Assurance, Operational Security (OPSEC), Counterintelligence, Counter PSYOP, Electronic Protection, and Counterdeception.

(U) The program office worked 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) Solutions Analysis Integrated Planning Team (SA IPT) 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 (IADS), Command and Control systems, and applying advanced IO applications in emerging physics, communications, directed energy, electronic sensors, and intelligence.

(U) This program also funded 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 was classified. Current and historical project information is available in the Panther Den (PD) Special Access Program (SAP) Report.

(U) 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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) The IO Technology Program supported the Information Warfare Solutions Analysis (IW SA) IPT 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.	0.706	0.000	0.000	0.000
(U) Total Cost	0.706	0.000	0.000	0.000

Exhibit R-2a, RDT&E Project Justification

DATE

February 2005

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0303140F Information Systems Security Program

PROJECT NUMBER AND TITLE

4871 Information Operations Technology

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	

(U) Other APPN

0.000

This project's studies leveraged current DoD lab efforts. Studies were deconflicted with and complemented PE 0208021F, Information Warfare Support. Some aspects of this program were protected under the Panther Den Special Access Program.

(U) **D. Acquisition Strategy**

All major contracts within this Project used existing pre-competed contracts and added tasks/delivery orders to them.

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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 4871 Information Operations Technology
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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 2004</u> <u>Cost</u>	<u>FY 2004</u> <u>Cost</u>	<u>FY 2004</u> <u>Award</u> <u>Date</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</u>	<u>FY 2006</u> <u>Cost</u>	<u>FY 2006</u> <u>Award</u> <u>Date</u>	<u>FY 2007</u> <u>Cost</u>	<u>FY 2007</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
(U) <u>Product Development</u>														
Lockheed-Martin	CPFF	Boston, MA	1.778	0.473	Oct-03	0.000		0.000		0.000		0.000	2.251	2.251
BAE Systems	CPFF	Boston, MA	0.285	0.048	Oct-03	0.000		0.000		0.000		0.000	0.333	0.333
Mitre	CPFF	Boston, MA	0.469	0.185	Oct-03	0.000		0.000		0.000		0.000	0.654	0.654
Subtotal Product Development			2.532	0.706		0.000		0.000		0.000		0.000	3.238	3.238
Remarks:	Continuing under its own PE, PE 0305887, Intelligence Support to Information Warfare													
(U) Total Cost			2.532	0.706		0.000		0.000		0.000		0.000	3.238	3.238

Exhibit R-4, RDT&E Schedule Profile

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February 2005

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 (p 1 of 1)

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
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 2005
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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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) IO Technology Study/Prototype	1-4Q			
(U) Bi-annual IO Technology Demos	2-4Q			

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 5100 Cryptographic Modernization			
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total	
5100 Cryptographic Modernization	28.974	69.945	101.869	165.674	302.166	185.978	282.656	191.614	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0			

NOTE: The CTIC/CDH project which was in the FY04 and FY05 PBs has been cancelled by the CJCS. This change to the program will be formally documented in the upcoming revision to the Secret document, CJCSI 6510, Communications Security (COMSEC) Modernization Plan (U).

(U) A. Mission Description and Budget Item Justification

The AF Cryptographic Modernization (CM) Program goal is to develop a modern Type I cryptographic base that supports security, interoperability, flexibility, programmability, key management infrastructure compatibility and transforms to the next generation of cryptographic capabilities. This support and transformation will provide US forces, operating unilaterally or in combination with multinational and interagency partners, with the security needed to protect the flow and exchange of operational decision-making information. The urgent need for CM is critical, as existing cryptographic units are quickly reaching service life end. Near-term replacement of vulnerable systems must occur immediately and within the timeframe specified by the Chairman of the Joint Chiefs of Staff (CJCS) in CJCS Notice (CJSCN) 6510, Communications Security (COMSEC) Modernization Plan. CM technology and cryptographic operational studies will determine capability gaps, redundancies, best practices and technology advances, ultimately enhancing future cryptographic warfighting capabilities. Additionally, modernization of the cryptographic inventory, through incremental improvements will support the evolutionary transformation of network operations.

Replacement Effort: Four near-term replacement efforts are identified: KG-3X and KI-22 (KS-60) both support the Nuclear Command and Control (NC2) mission; Communication Security/Transportation Security (COMSEC/TRANSEC) Integrated Circuit/DS-101 Hybrid (CTIC/CDH) was 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. The CTIC/CDH Project, as noted, has been cancelled.

Modernization Effort: The modernization effort will include analyzing inventory suitability in a network-centric environment while evaluating capability gaps, redundancies, and best practices. The following modernization strategies will be accomplished: development of single solutions for multiple cryptographic end items with same capability; incorporation of new and emerging technologies; incremental capability enhancements; inclusion of modernized key management techniques; and modularity/scalability features. Thorough evaluation will highlight modernization opportunities and lead the way ahead for the CM transformation effort.

Transformation Effort: Transformation strategies will enhance modern key management systems and maximize machine-to-machine interfaces to achieve network-centric operations. Revolutionary cryptographic modernization application to end-unit development will result in an inventory that robustly secures and enables network-centric warfare, whose operation is transparent to the user, is re-configurable and interoperates with Joint and Coalition partners for maximum warfighting effectiveness.

This project is in Budget Activity 07, Operation 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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Continue KI-22 (KS-60) Cryptographic Modernization analysis and development of replacement	8.990	22.952	24.300	12.700

Project 5100

R-1 Shopping List - Item No. 171-20 of 171-31

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
(U) Continue KG-3X Cryptographic Modernization analysis and development of replacement *	0.000	1.872 21.500 7.800
(U) Continue IFF Cryptographic Modernization analysis and development of replacement	4.970	16.572 8.833 3.600
(U) Cancelled CTIC/CDH Cryptographic Modernization analysis and development of replacement	0.000	0.000 0.000 0.000
(U) Initiate/complete CI-13 Cryptographic Modernization analysis and development of replacement	0.000	0.000 2.050 19.203
(U) Continue Studies and Analyses	5.028	15.862 7.079 5.665
(U) Continue Space Cryptographic Modernization analyses and development of replacements	0.986	11.687 33.550 75.723
(U) Initiate KOV-20 Cryptographic Modernization analysis and development	0.000	0.000 0.000 4.000
(U) Initiate KM Network Crypto analysis and development	0.000	0.000 0.000 2.000
(U) Initiate KM Network Equipment Modernization analyses and development	0.000	0.000 0.000 4.000
(U) Initiate Wireless Cryptographic Modernization analysis and development	0.000	0.000 0.000 6.764
(U) Initiate KEESEE Cryptographic Modernization analysis and development	0.000	0.000 4.557 5.000
(U) Initiate Advanced Cryptographic Modernization analysis and development	0.000	0.000 0.000 10.915
(U) Initiate High Speed Optical Crypto analysis and development	0.000	0.000 0.000 8.304
(U) Transferred to National Security Agency (NSA) for OSD-directed Trusted Foundry Program	9.000	1.000 0.000 0.000
(U) NOTE: NSA contributes funds to the AF CM Project. In FY04 NSA funds alone were used for the KG-3X.		
(U) Total Cost	28.974	69.945 101.869 165.674

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
(U) AF Other Procurement PE 0303140F	0.000	0.000	4.350	80.426	113.818	155.766	197.080	257.829	Continuing	TBD

(U) D. Acquisition Strategy

All major contracts within this project are awarded after full and open competition utilizing evolutionary and incremental development.

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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 5100 Cryptographic 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 Prior to FY 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> KG-3X	MIPR	ESC/NDM, Hanscom AFB, MA	0.000	0.000	Jan-05	1.872	Jan-05	21.500		7.800		0.000	31.172	25.300
IFF	MIPR	ESC/DIW, Lackland AFB, TX	0.000	4.970	Apr-05	16.572	Apr-05	8.833		3.600		Continuing	TBD	TBD
KI-22 (KS-60)	MIPR	OO-ALC/LM, Hill AFB, UT	0.000	8.990	Jun-05	22.952	Jun-05	24.300		12.700		0.000	68.942	76.458
Studies and Analyses	In-house	CPSG, Lackland AFB, TX	0.000	5.028	Apr-05	15.862	Apr-05	7.079		5.665		Continuing	TBD	TBD
Space	In-house	CPSG, Lackland AFB, TX	0.000	0.986	Feb-05	11.687	Feb-05	33.550		75.723		Continuing	TBD	TBD
KOV-20	TBD		0.000	0.000		0.000		0.000		4.000		Continuing	TBD	TBD
CI-13	TBD		0.000	0.000		0.000		2.050		19.203		0.000	21.253	19.000
Type 1 KMI Equipment	TBD		0.000	0.000		0.000		0.000		4.000		Continuing	TBD	TBD
KMI to Crypto Network Interface	TBD		0.000	0.000		0.000		0.000		2.000		Continuing	TBD	TBD
KEESEEE	TBD		0.000	0.000		0.000		4.557		5.000		Continuing	TBD	TBD
Advanced Crypto	TBD		0.000	0.000		0.000		0.000		10.915		Continuing	TBD	TBD
Laser Crypto	TBD		0.000	0.000		0.000		0.000		8.304		Continuing	TBD	TBD
Wireless Crypto	TBD		0.000	0.000		0.000		0.000		6.764		Continuing	TBD	TBD
Trusted Foundry	MIPR	NSA, Fort Meade, MD	0.000	9.000		1.000		0.000		0.000		0.000	10.000	9.000
Subtotal Product Development			0.000	28.974		69.945		101.869		165.674		Continuing	TBD	TBD
Remarks:														
(U) Total Cost			0.000	28.974		69.945		101.869		165.674		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
5100 Cryptographic Modernization

Exhibit R-4: BPAC 5100 Cryptographic Modernization (p 1 of 2)

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
IFF Mode 5 CM	█				█				█				█				█				█				█				█			
KI-22 (KS-60)	█				█				█				█				█				█				█				█			
Studies and Analyses	█				█				█				█				█				█				█				█			
KG-3X	█				█				█				█				█				█				█				█			
Space CM	█				█				█				█				█				█				█				█			
CI-13	█				█				█				█				█				█				█				█			
KOV-20	█				█				█				█				█				█				█				█			
Type 1 KMI Equipment Mod	█				█				█				█				█				█				█				█			
KMI to Crypto Network Interface	█				█				█				█				█				█				█				█			
KEESEE	█				█				█				█				█				█				█				█			

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

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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

Exhibit R-4: BPAC 5100 Cryptographic Modernization (p 2 of 2)

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
Advanced Crypto																																
Laser Crypto																																
Wireless Crypto																																

- ☆ 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 0303140F Information Systems Security Program	PROJECT NUMBER AND TITLE 5100 Cryptographic Modernization
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(U) Schedule Profile	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Continue KG-3X Cryptographic Modernization		1-4Q	1-4Q	1-4Q
(U) Continue IFF Mode 5 Cryptographic Modernization	1-4Q	1-4Q	1-4Q	1-4Q
(U) Continue KI-22 (KS-60) Cryptographic Modernization	1-4Q	1-4Q	1-4Q	1-4Q
(U) Continue Studies and Analyses		1-4Q	1-4Q	1-4Q
(U) Continue Space Cryptographic Modernization		1-4Q	1-4Q	1-4Q
(U) Initiate Cryptographic Modernization of KOV-20 Box				1-4Q
(U) Initiate CI-13 Cryptographic Modernization			1-4Q	1-4Q
(U) Initiate Type 1 KMI Equipment Modernization				1-4Q
(U) Initiate KMI to Crypto Network Interface				1-4Q
(U) Initiate KEESEE Cryptographic Modernization			1-4Q	1-4Q
(U) Initiate Advanced Crypto				1-4Q
(U) Initiate Laser Crypto				1-4Q
(U) Initiate Wireless Crypto				1-4Q

Exhibit R-2a, RDT&E Project Justification

DATE
February 2005

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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
7820 Computer Security RDT&E: Firestarter	7.813	6.455	4.103	5.738	6.043	7.363	7.530	7.659	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

This program 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 and self healing from attacks. As the USAF single manager for Information Assurance 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 rapid access to vast quantities of information to support fast moving and often time-critical military operations has demanded increasing reliance on advanced information systems and coalition connectivity. The susceptibilities inherent in such reliance on advanced information systems and coalition connectivity has heightened the awareness that 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, self healing 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 situational awareness and prevention, 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 Information Warfare Planning Capability (IWPC) leverage the technology from this project to meet their information protection needs and planning requirements. Additionally, this project utilizes information assurance technology investments by the Defense Advanced Research Projects Agency (DARPA) and the Advanced Research and Development Activity (ARDA) 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 Information Assurance/Computer Network Defense (IA/CND) Government off-the-shelf 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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Continue development of technology for self-healing network systems (to include automated system recovery)	0.288	0.304	0.463	0.625
(U) Continue development of information attack correlation methodologies	0.576	0.770	0.606	0.663
(U) Continue development of methodologies for commercial software evaluation and steganography detection	0.283	0.084	0.126	0.190

Exhibit R-2a, RDT&E Project Justification					DATE February 2005						
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							
(U)	Continue development of secure agent frameworks for Enterprise Defense to support protection of the warfighter C4ISR systems	0.893	0.292	0.315	0.545						
(U)	Continue effort to transition DARPA information assurance (IA) technology into AF Information Protection, Detection, & Response architecture	0.443	0.309	0.258	0.451						
(U)	Continue effort to develop metrics for reliable information assurance (IA) measurement and testing	0.187	0.156	0.140	0.161						
(U)	Continue development of secure interoperable distributed agent computing (partial Congressional Add)	2.676	2.760	0.514	0.503						
(U)	Completed effort to evaluate biometric systems in conjunction with wired and wireless IA network applications	0.195	0.000	0.000	0.000						
(U)	Continue development of cyber forensic tools and methodologies	0.426	0.323	0.282	0.410						
(U)	Continue effort to provide active response and dynamic policy enforcement to computer/network attack	0.424	0.409	0.328	0.489						
(U)	Continue effort to provide dynamic, cost effective, risk mitigation information assurance techniques for wireless terminals and networks	0.406	0.320	0.270	0.351						
(U)	Continue effort to provide IA/Cyber modeling and simulation for mission impact assessment and dynamic planning	0.388	0.271	0.215	0.272						
(U)	Continue effort to provide secure coalition IA data management, collaboration, and visualization	0.423	0.345	0.331	0.392						
(U)	Continue effort to provide Internet Protocol (IP) Telephony (Voice Over IP) security tools	0.205	0.112	0.055	0.273						
(U)	Initiate IPv6 Risk Mitigation			0.200	0.207						
(U)	Initiate Cyber Security Bots				0.206						
(U)	Total Cost	7.813	6.455	4.103	5.738						
(U)	<u>C. Other Program Funding Summary (\$ in Millions)</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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
(U)	Other APPN N/A										
(U)	<u>D. Acquisition Strategy</u> All major contracts within this project are awarded after full and open competition utilizing evolutionary capability and incremental development.										

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2005

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> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> FFRDC (MITRE)	CPFF	Multiple Locations	5.455	0.471	Oct-04	0.271	Oct-05	0.308	Oct-06	0.332	Oct-07	Continuing	TBD	TBD
Multiple Contractors	CPFF	Multiple Locations	8.224	6.556		5.609		3.234		4.682		Continuing	TBD	TBD
Multiple Universities	CPFF	Multiple Locations	0.391	0.786		0.575		0.561		0.724		Continuing	TBD	TBD
Subtotal Product Development			14.070	7.813		6.455		4.103		5.738		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			14.070	7.813		6.455		4.103		5.738		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

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 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
Reports, Review Board	▲				△				△				△				△				△				△				△			
Info Attack Correlation Methods	█																															
Commercial SW & Steganography	█																															
Secure Agent Frameworks for Enterprise	█																															
DARPA & ARDA IA Transition	█																															
Metrics for reliable IA meas. & test	█																															
Secure, interoperable distributed agent computing	█																															
Eval of biometric systems	█																															
Cyber forensic tools & methods	█																															
Active response & policy enforcement to attack	█																															

☆ 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 2005

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 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
Risk Mitigation for wireless	█				█				█				█																			
IA/Cyber Modeling & Simulation	█				█				█				█																			
Secure Coalition	█				█				█				█																			
IP Telephony	█				█				█				█																			
IPv6 Risk Mitigation									█				█				█															
Cyber Security Bots													█				█				█				█							

- ☆ 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 2005
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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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Requirements Review Boards	2Q	2Q	2Q	2Q
(U) Continue development of self-healing network systems	1-4Q	1-4Q	1-4Q	1-4Q
(U) Continue information attack correlation methodologies	1-4Q	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	1-4Q
(U) Continue DARPA and ARDA information assurance transition	1-4Q	1-4Q	1-4Q	1-4Q
(U) Continue to develop metrics for reliable IA measurement and testing	1-4Q	1-4Q	1-4Q	1-4Q
(U) Continue secure interoperable distributed agent computing (partial Congressional add)	1-4Q	1-4Q	1-4Q	1-4Q
(U) Completed the evaluation of biometric systems	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	1-4Q
(U) Continue risk mitigation IA technology for wireless terminals and networks	1-4Q	1-4Q	1-4Q	1-4Q
(U) Continue IA/Cyber modeling and simulation	1-4Q	1-4Q	1-4Q	1-4Q
(U) Continue secure coalition IA data management collaboration and visualization	1-4Q	1-4Q	1-4Q	1-4Q
(U) Continue Internet Protocol (IP) Telephony (Voice Over IP) security tools	1-4Q	1-4Q	1-4Q	1-4Q
(U) Initiate IPv6 Risk Mitigation			1-4Q	1-4Q
(U) Initiate Cyber Security Bots				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 2005
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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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	18.377	21.249	20.555	18.956	20.040	19.863	19.984	20.050	Continuing	TBD
5046 Systems Engineering & Integration	18.377	21.249	20.555	18.956	20.040	19.863	19.984	20.050	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 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. In this manner, GCSS-AF will achieve cost avoidance, remove business processing inefficiencies, enable reduced deployment footprint, and improve the speed with which information flows.

This program is in Budget Activity 7, Operational System Development, because the program modernizes Automated Information Systems (AIS).

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	17.239	18.637	20.544	19.670
(U) Current PBR/President's Budget	18.377	21.249	20.555	18.956
(U) Total Adjustments	1.138	2.612		
(U) Congressional Program Reductions				
Congressional Rescissions		-0.188		
Congressional Increases		2.800		
Reprogrammings	1.654			
SBIR/STTR Transfer	-0.516			

(U) Significant Program Changes:

The Air Force added \$1.654M in FY 04 to support world-wide rollout of the GCSS-AF presentation layer and advance the development of a Secret Internet Protocol Network (SIPRNET) instantiation of GCSS-AF. Both are part of the planned, GCSS-AF program. These are neither a new requirement nor a new start.

The Congress added \$2.8M for Air Force Knowledge Service (AFKS), a project that benefits GCSS-AF by providing for the mass storage of data. This is also known as and was called Enterprise Data Warehouse (EDW).

Exhibit R-2a, RDT&E Project Justification

DATE
February 2005

BUDGET ACTIVITY 07 Operational System Development					PE NUMBER AND TITLE 0303141F Global Combat Support System (GCSS)			PROJECT NUMBER AND TITLE 5046 Systems Engineering & Integration		
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
5046 Systems Engineering & Integration	18.377	21.249	20.555	18.956	20.040	19.863	19.984	20.050	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(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 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. In this manner, GCSS-AF will achieve cost avoidance, remove business processing inefficiencies, enable reduced deployment footprint, and improve the speed with which information flows.

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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Accomplishments/Planned Programs	0.000	0.000	0.000	0.000
(U) Field Support	4.452	0.000	0.000	0.000
(U) Integration Framework (IF) Development	4.913	4.859	4.912	4.541
(U) Multi-Site Engineering	3.956	2.102	3.921	3.608
(U) Portal Development	2.941	6.074	5.601	5.085
(U) Data Strategy	0.064	3.401	3.921	3.422
(U) Test and Evaluation	0.825	1.012	1.200	1.300
(U) ESC/NI Program Management and Operations	0.261	0.500	0.500	0.500
(U) Integrated Requirements Support System (IRSS) Integration	0.965	0.501	0.500	0.500
(U) Air Force Knowledge Service -- Congressional add		2.800		
(U) Total Cost	18.377	21.249	20.555	18.956

Exhibit R-2a, RDT&E Project Justification

DATE

February 2005

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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</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>Estimate</u>		
(U) Operation & Maintenance, AF; PE 0303141F	39.162	41.901	26.160	28.972	29.367	32.267	32.494	33.140	Continuing	TBD
(U) Other Procurement, AF; PE 0303141F	12.932	8.550	11.768	11.756	12.280	10.569	10.810	10.964	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 2005

BUDGET ACTIVITY													PE NUMBER AND TITLE		PROJECT NUMBER AND TITLE	
07 Operational System Development													0303141F Global Combat Support System (GCSS)		5046 Systems Engineering & 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 Prior to FY 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<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)	Level of Effort	Lockheed Martin IT, Owego, NY	4.361	2.941	Oct-04	6.074	Oct-05	5.601	Oct-06	5.085	Oct-07	Continuing	TBD	TBD		
Lockheed Martin Systems IF Development	Level of Effort	Lockheed Martin IT, Owego, NY	7.285	4.913	Oct-04	4.860	Oct-05	4.912	Oct-06	4.541	Oct-07	Continuing	TBD	TBD		
Multi-Site Engineering	Level of Effort	Lockheed Martin IT, Owego, NY		3.956	Oct-04	2.102	Oct-05	3.921	Oct-06	3.608	Oct-07	Continuing	TBD	TBD		
IRSS Integration Field Support	C/FFP	Lockheed Martin IT, Owego, NY	1.559	0.965	Dec-04	0.500	Oct-05	0.500	Oct-06	0.500	Oct-07	Continuing	TBD	TBD		
Data Strategy	Level of Effort	Lockheed Martin IT, Owego, NY	2.525	0.064	Oct-04	3.401	Oct-05	3.921	Oct-06	3.422	Oct-07	Continuing	TBD	TBD		
Air Force Knowledge Service Development						2.800	Oct-05						2.800	TBD		
Subtotal Product Development			22.163	17.291		19.737		18.855		17.156		Continuing	TBD	TBD		
Remarks:																
<u>(U) Support</u>																
ESC/NI Program Management and Operations	Various Contracts	Hanscom AFB, MA	0.623	0.261	Oct-04	0.500	Oct-05	0.500	Oct-06	0.500	Oct-07	Continuing	TBD	TBD		
Subtotal Support			0.623	0.261		0.500		0.500		0.500		Continuing	TBD	TBD		
Remarks:																
<u>(U) Test & Evaluation</u>																
Test and Evaluation	Statement of Commitment	46th CTF, WP AFB, OH; and JITC, Fort Huachuca, AZ	0.562	0.825	Oct-04	1.012	Oct-05	1.200	Oct-06	1.300	Oct-07	Continuing	TBD	TBD		
Subtotal Test & Evaluation			0.562	0.825		1.012		1.200		1.300		Continuing	TBD	TBD		
Remarks:																
<u>(U) Management</u>																
SSG/DII Program Management and Operations	Various Contracts	SSG, Montgomery, AL	2.599									Continuing	TBD	TBD		
Subtotal Management			2.599	0.000		0.000		0.000		0.000		Continuing	TBD	TBD		
Remarks:																

Project 5046

R-1 Shopping List - Item No. 172-4 of 172-7

Exhibit R-3 (PE 0303141F)

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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

0303141F Global Combat Support System (GCSS)

PROJECT NUMBER AND TITLE

5046 Systems Engineering & Integration

(U) Total Cost

25.947

18.377

21.249

20.555

18.956

Continuing

TBD

TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

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: 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			Ongoing Activity that is Complete																																										
Major Milestones		☆ IOC																																		☆ Planned IOC									
Cost Anal																																													
Req Desc							▲																																						
Software Migration	Ongoing Activity that is Complete																Planned Ongoing Activity																												
C C A Cat						▲																																							
Integd Framework	Ongoing Activity that is Complete																Planned Ongoing Activity																												
T & E Mstr Plan													△																																
MIPRNET Institution	Ongoing Activity that is Complete																Planned Ongoing Activity																												
SIPRNET Institution																																													
Ind Cost Estimate													△	Start Planned Installation																															
IRSS Integration																																													
Er Acq Dec Rev													△																																
AFKS Dev																																													
Dev 2nd SIPRNET																																													

☆ Major Event or Milestone



Ongoing Activity that is Complete



Planned Ongoing Activity



Planned Task(s)



Completed Event

Note: This form is an interpretation of requirements illustrated in the FMR, Vol 2A, Chapter 5 (June 2002). Congressional Staffer Day briefing formats are acceptable.

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2005
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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) <u>Schedule Profile</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Complete Test and Evaluation Master Plan (TEMP)	2Q			
(U) Independent Cost Estimate (ICE)	2Q			
(U) Evolutionary Acquisition Decision Review	4Q	4Q	4Q	
(U) Start and continue IRSS Integration	2Q	1-4Q		
(U) Multi-site and Integrated Framework Engineering	1-4Q	1-4Q	1-4Q	1-4Q
(U) Secret Internet Protocol Routing Network (SIPRNET) Installation, start to completion (Dayton)	3Q	1-2Q		
(U) Prepare and Install Second Staging Site (Dayton)		1-3Q		
(U) Develop Second SIPRNET Site (Gunter)			1-4Q	
(U) Develop Third Non-classified Internet Protocol Network (NIPRNET) Site			1-4Q	
(U) Develop Air Force Knowledge Service (Dayton)		1-4Q		

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PE NUMBER: 0303150F

PE TITLE: WWMCCS/GLOBAL COMMAND & CONTROL SYSTEM

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2005
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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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	3.725	5.248	3.541	3.649	3.734	3.720	3.809	3.868	Continuing	TBD
4667 Global Command and Control System - AF	3.725	5.248	3.541	3.649	3.734	3.720	3.809	3.868	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

The Global Command and Control System (GCCS) is the Joint Command and Control (C2) System of Record and the designated 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-Weapon System (AOC-WS) 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 of providing the right people with the right information at the right time while reducing the overall foot print of the system. As they become available, GCCS-AF will integrate applications into the WINx environment satisfying warfighter requirements for the Common Operational Picture (COP) and Single Integrated Air Picture (SIAP), Joint Defensive Planner (JDP), Joint Targeting Toolbox (JTT), Air Tasking Order (ATO) Reader, and Deliberate Crisis Action Planning and Execution Segment (DCAPES) capabilities.

This effort is Budget Activity 7, Operational System Development, because the program develops and implements software upgrades for integrating existing operational systems and computer networks that will eventually evolve to the Joint Command and Control (JC2) system riding on the Global Information Grid.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	3.500	3.611	3.622	3.694
(U) Current PBR/President's Budget	3.725	5.248	3.541	3.649
(U) Total Adjustments	0.225	1.637		
(U) Congressional Program Reductions				
Congressional Rescissions		-0.163		
Congressional Increases		1.800		
Reprogrammings	0.330			
SBIR/STTR Transfer	-0.105			

(U) Significant Program Changes:

FY05 \$1.8M Congressional add placed in this program line to finance the research laboratory.

Exhibit R-2a, RDT&E Project Justification

DATE
February 2005

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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4667 Global Command and Control System - AF	3.725	5.248	3.541	3.649	3.734	3.720	3.809	3.868	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The Global Command and Control System (GCCS) is the Joint Command and Control (C2) System of Record and the designated 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-Weapon System (AOC-WS) 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 of providing the right people with the right information at the right time while reducing the overall foot print of the system. As they become available, GCCS-AF will integrate applications into the WINx environment satisfying warfighter requirements for the Common Operational Picture (COP) and Single Integrated Air Picture (SIAP), Joint Defensive Planner (JDP), Joint Targeting Toolbox (JTT), Air Tasking Order (ATO) Reader, and Deliberate Crisis Action Planning and Execution Segment (DCAPES) capabilities.

This effort is Budget Activity 7, Operational System Development, because the program develops and implements software upgrades for integrating existing operational systems and computer networks that will eventually evolve to the Joint Command and Control (JC2) system riding on the Global Information Grid.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Continue Integration and Development of Future Aerospace C2 Concepts, Crisis Action Planning Evolution	0.800	0.850	0.875	0.900
(U) Continue Integration of Air Force Capabilities into GCCS (COP, SIAP, DCAPES, ATO Reader, Joint Defensive Planner (JDP), Joint Targeting Toolbox (JTT)), Prototype Software Development, GCCS Migration Support	1.625	1.298	1.300	1.339
(U) Congressional add for Applied Research in Computing Enterprise Services		1.800		
(U) Continue COE Development and Distribution	1.300	1.300	1.366	1.410
(U) Total Cost	3.725	5.248	3.541	3.649

Exhibit R-2a, RDT&E Project Justification

DATE

February 2005

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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E	3.725	5.248	3.541	3.649	3.734	3.720	3.809	3.868	Continuing	TBD
(U) Other APPN										TBD
(U) Other Procurement, AF (3080)	27.283	16.168	11.891	15.259	15.320	15.649	16.023	16.253	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 with Common Operating Environment (COE) and GCCS-Joint compliance 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 2005

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) 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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>														
Miscellaneous	SS/BOA		0.433	0.400	Oct-03	0.300	Oct-04	0.300	Oct-05	0.309	Oct-06	0.000	1.742	0.000
WINxB	SS/FFP	Northrop Gruman ITS/Herndon, VA	1.400	0.800	Oct-03	0.737	Oct-04	0.800	Oct-05	0.810	Oct-06	Continuing	TBD	TBD
DCAPES*	SS/FFP		8.776	0.000								0.000	8.776	
Subtotal Product Development			10.609	1.200		1.037		1.100		1.119		Continuing	TBD	TBD
Remarks:	*In FY 00 DCAPES funding was transferred to PE 27438													
(U) <u>Support</u>														
Information Technology Services Program (ITSP)	SS/FFP	Multiple	2.109	0.300	Oct-03	0.300	Oct-04	0.300	Oct-05	0.310	Oct-06	Continuing	TBD	TBD
Miscellaneous SPO	SS/BOA	Multiple	0.873	0.525	Oct-03	0.311	Oct-04	0.331	Oct-05	0.400	Oct-06	Continuing	TBD	TBD
Subtotal Support			2.982	0.825		0.611		0.631		0.710		Continuing	TBD	TBD
Remarks:														
(U) <u>Management</u>														
FFRDC	SS/FFP	Mitre/ESC	8.816	1.700	Oct-03	1.800	Oct-04	1.810	Oct-05	1.820	Oct-06	Continuing	TBD	TBD
Subtotal Management			8.816	1.700		1.800		1.810		1.820		Continuing	TBD	TBD
Remarks:														
(U) <u>Congressional Adds</u>														
Applied research in Computing Enterprise Services				0.000		1.800		0.000		0.000				1.800
Subtotal Congressional Adds			0.000	0.000		1.800		0.000		0.000		0.000	1.800	0.000
Remarks:														
(U) Total Cost			22.407	3.725		5.248		3.541		3.649		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

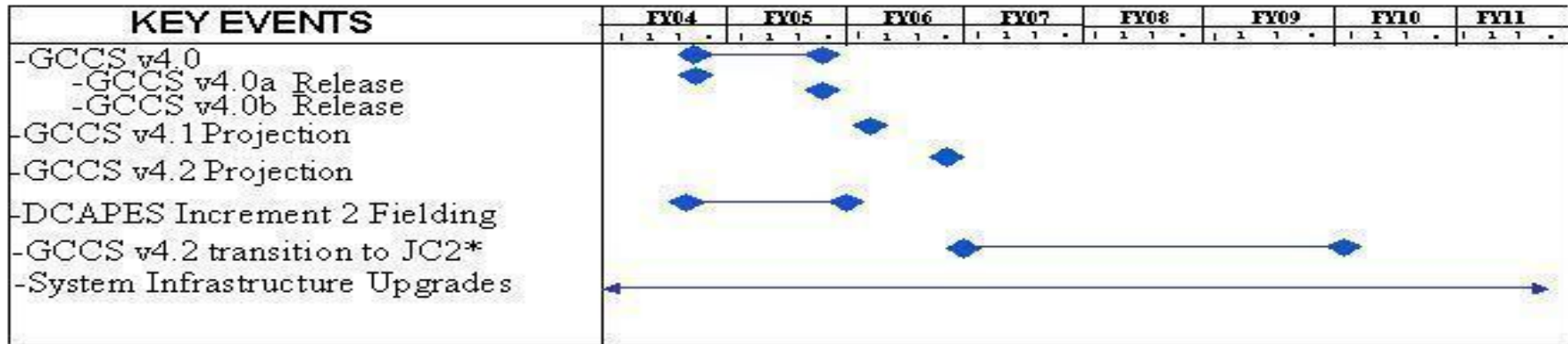
DATE

February 2005

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



*GCCS-AF v4.2 is the beginning of the transition to the Joint Command and Control System (JC2) in FY06.

Exhibit R-4a, RDT&E Schedule Detail	DATE February 2005
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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) <u>Schedule Profile</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) GGCS-AF v4.0a/b: Development/Integration/Testing/Fielding	3-4Q	1-3Q		
(U) GCCS-AF v4.1: Development/Integration/Testing/Fielding			1Q	
(U) GCCS-AF v4.2: Development/Integration/Testing/Fielding			4Q	
(U) DCAPES Increment 2: Integration/Testing/Fielding	2-4Q	1-4Q		
(U) GCCS-AF v4.x: Transition to Joint Command and Control System			4Q	1-4Q
(U) GCCS-AF System Infrastructure Upgrades to support v4.0/JC2	1-4Q	1-4Q	1-4Q	1-4Q

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PE NUMBER: 0303158F
 PE TITLE: Joint Command and Control

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2005
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0303158F Joint Command and Control
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Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	0.000	5.200	5.200	5.200	5.200	5.200	5.200	0.000	0.000
4667 JC2 Technology and System Development	0.000	0.000	5.200	5.200	5.200	5.200	5.200	5.200	0.000	0.000

(U) A. Mission Description and Budget Item Justification

Joint Command and Control (JC2) is the next generation of command and control capabilities for the Department of Defense. JC2 will eventually replace the Global Command and Control System (GCCS) Program. The GCCS program includes each of the component GCCS programs (i.e., GCCS-AF FoS, GCCS-M, GCCS-J, and GCCS-A), which are the current systems of record within each component. These GCCS programs will eventually transition into a single Joint Command and Control (JC2) Capability effort. JC2 will consist of eight Mission Capability Packages: Situational Awareness, Force Readiness, Force Projection, Intelligence, Force Protection, Force Employment (Air/Space), Force Employment (Land Operations), and Force Employment (Maritime/Littoral Operations).

The Air Force's initial contribution to JC2 will be drawn from the GCCS-Air Force Family of Systems (GCCS-AF FoS). GCCS-AF FoS consists of the following programs (each with their own program elements): TBMCS Force Level (TBMCS-FL), Joint Defensive Planner (JDP), Time Critical Targeting Functionality (TCT-F), Joint Targeting Toolkit (JTT), GCCS-AF Infrastructure (GCCS-AF I), Deliberate Crisis Action Planning and Execution Segment (DCAPES) and the C2 portion of the Joint Environmental Toolkit (JET). Using the concepts and capabilities of Net-Centric Enterprise Services, JC2 will provide a vast range of command and control capabilities to the warfighter. JC2 will begin an accelerated evolution toward a more net-centric, web-based, open system standards approach to providing C2 capabilities and services that will establish JC2 as the core of the DoD Command and Control architecture.

The current GCCS-AF FoS will transition to JC2 in the future. JC2 will deliver the capabilities as stated in the updated Operational Requirements Document (ORD) and complementing Capabilities Development Document (CDD). JC2 expands the capabilities developed and integrated into the GCCS FoS including the migration of capabilities to a more modern architecture. Risk reduction activities and engineering analysis with selected system and architectural analysis will provide the initial steps of the technical development. The requested RDT&E funding is critical to support Air Force Transformation efforts in the area of strategic and operational command and control.

Funding for FY06 and beyond will support the Air Force contribution of JC2 by establishing the Air Force Program Management Office (PMO) responsible for all AF acquisition activities related to JC2. The AF PMO will be responsible for development, integration, architecture, system engineering, testing and transition planning, as directed by the JC2 Joint Program Office (JPO).

This effort is Budget Activity 4, and will perform the efforts necessary to evaluate integrated technologies, representative modes or prototype joint command and control capabilities in a high fidelity and realistic operating environment.

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2005

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0303158F Joint Command and Control(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget				
(U) Current PBR/President's Budget	0.000	0.000	5.200	5.200
(U) Total Adjustments	0.000	0.000		
(U) Congressional Program Reductions				
Congressional Rescissions				
Congressional Increases				
Reprogrammings				
SBIR/STTR Transfer				

(U) **Significant Program Changes:**

In the FY05 President's Budget (PB), the Office of the Secretary of Defense (OSD) notified Congress of the Joint Command and Control (JC2) program new start and established Defense Information Systems Agency (DISA) Program Element (PE) 0303158K. JC2 will be managed as a joint program led by OSD/NII (Networks and Information Integration) with each Component having associated PEs. PE 0303158F is the Air Force (AF) PE associated with the JC2 program.

Exhibit R-2a, RDT&E Project Justification

DATE
February 2005

BUDGET ACTIVITY 07 Operational System Development					PE NUMBER AND TITLE 0303158F Joint Command and Control			PROJECT NUMBER AND TITLE 4667 JC2 Technology and System Development		
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4667 JC2 Technology and System Development	0.000	0.000	5.200	5.200	5.200	5.200	5.200	5.200	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

Joint Command and Control (JC2) is the next generation of command and control capabilities for the Department of Defense. JC2 will eventually replace the Global Command and Control System (GCCS) Program. The GCCS program includes each of the component GCCS programs (i.e., GCCS-AF FoS, GCCS-M, GCCS-J, and GCCS-A), which are the current systems of record within each component. These GCCS programs will eventually transition into a single Joint Command and Control (JC2) Capability effort. JC2 will consist of eight Mission Capability Packages: Situational Awareness, Force Readiness, Force Projection, Intelligence, Force Protection, Force Employment (Air/Space), Force Employment (Land Operations), and Force Employment (Maritime/Littoral Operations).

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The current GCCS-AF FoS will transition to JC2 in the future. JC2 will deliver the capabilities as stated in the updated Operational Requirements Document (ORD) and complementing Capabilities Development Document (CDD). JC2 expands the capabilities developed and integrated into the GCCS FoS including the migration of capabilities to a more modern architecture. Risk reduction activities and engineering analysis with selected system and architectural analysis will provide the initial steps of the technical development. The requested RDT&E funding is critical to support Air Force Transformation efforts in the area of strategic and operational command and control.

Funding for FY06 and beyond will support the Air Force contribution of JC2 by establishing the Air Force Program Management Office (PMO) responsible for all AF acquisition activities related to JC2. The AF PMO will be responsible for development, integration, architecture, system engineering, testing and transition planning, as directed by the JC2 Joint Program Office (JPO).

This effort is Budget Activity 4, and will perform the efforts necessary to evaluate integrated technologies, representative modes or prototype joint command and control capabilities in a high fidelity and realistic operating environment.

(U) B. Accomplishments/Planned Program (\$ in Millions)	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) JC2 Program Management			5.200	5.200
(U) Total Cost	0.000	0.000	5.200	5.200

Exhibit R-2a, RDT&E Project Justification	DATE February 2005
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0303158F Joint Command and Control	PROJECT NUMBER AND TITLE 4667 JC2 Technology and System Development
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(U) **C. Other Program Funding Summary (\$ in Millions)**

<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	<u></u>

(U) N/A

(U) **D. Acquisition Strategy**

The JC2 Acquisition Management Approach and Strategy is currently being developed by the Assistant Secretary of Defense for Networks and Information Infrastructure (ASD-NII), the Joint Forces Command (JFCOM), the Services and DISA. The Acquisition Strategy will be developed after JC2 achieves Milestone (MS) A (projected for 3rd quarter FY 2005) as a requirement from the Acquisition Decision Memorandum (ADM).

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2005

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT NUMBER AND TITLE				
07 Operational System Development			0303158F Joint Command and Control							4667 JC2 Technology and System Development				
(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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>														
Subtotal Product Development			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
(U) <u>Support</u>														
Technical Engineering Services	FP	TBD						2.100	Nov-05	2.100	Nov-06	Continuing	TBD	
Subtotal Support			0.000	0.000		0.000		2.100		2.100		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	0.000
Remarks:														
(U) <u>Management</u>														
Program Office Management		TBD						0.700		0.700		Continuing	TBD	
Program Management Support	C/CPFF	TBD						2.400	Nov-05	2.400	Nov-06	Continuing	TBD	
Subtotal Management			0.000	0.000		0.000		3.100		3.100		Continuing	TBD	0.000
Remarks:														
(U) Total Cost			0.000	0.000		0.000		5.200		5.200		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

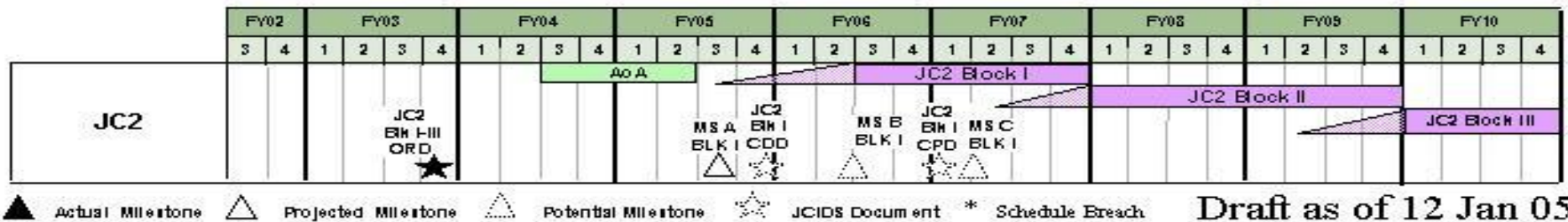
February 2005

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0303158F Joint Command and Control

PROJECT NUMBER AND TITLE
4667 JC2 Technology and System Development

Joint Command and Control*



Draft as of 12 Jan 05

- * This schedule represents the overall JC2 schedule. AF funding supports this schedule.
- * FY04-05 activities are funded by OSD.

LEGEND:

AoA – Analysis of Alternatives

BLK – Block

CDD – Capability Development Document

CPD – Capability Production Document

JCIDS – Joint Capabilities Integration and Development System

MS - Milestone

ORD – Operational Requirements Document

UNCLASSIFIED

Exhibit R-4a, RDT&E Schedule Detail	DATE February 2005
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0303158F Joint Command and Control	PROJECT NUMBER AND TITLE 4667 JC2 Technology and System Development
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(U) <u>Schedule Profile</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Block 1 Milestone A		3Q		
(U) Block 1 Milestone B			3Q	
(U) Block 1 Milestone C				2Q

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Exhibit R-2, RDT&E Budget Item Justification									DATE February 2005	
BUDGET ACTIVITY 07 Operational System Development					PE NUMBER AND TITLE 0303601F MILSATCOM Terminals					
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	159.647	264.795	273.974	273.782	191.087	220.734	198.158	194.439	Continuing	TBD
2487 MILSATCOM Terminals	159.647	264.795	273.974	273.782	191.087	220.734	198.158	194.439	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

The Military Satellite Communications (MILSATCOM) Terminals program develops equipment enabling users to communicate via Milstar, Advanced Extremely High Frequency (AEHF), Ultra High Frequency (UHF) Follow-On (UFO), Wideband Gapfiller System (WGS), Defense Satellite Communication System (DSCS), Transformational Communications Satellite (TSAT), and other military and 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-bands on WGS, X-band on DSCS, and commercial C- and Ku-band on commercial satellites to significantly increase throughput for inter- and intra-theater tactical force information such as air tasking orders, battle damage assessments, and reconnaissance data. The RDT&E effort for GMT completed in FY05.
- 3) FAB-T will develop robust, secure, survivable voice and data satellite communications terminals for nuclear and conventional forces. FAB-T provides an open architecture terminal to develop a “family of airborne/ground terminals” with hardware/software commonality for multiple waveforms supporting multiple satellites via an incremental approach. FAB-T Increment 1 program will provide Extremely High Frequency (EHF) voice and data communications for nuclear and conventional forces as well as ground and airborne command posts with connectivity to MILSTAR and Advanced EHF satellites. FAB-T Increment 2 will provide robust secure 2-way Ku/Ka band SATCOM capability on High Altitude Endurance (HAE) Intelligence, Surveillance and Reconnaissance (ISR) aircraft to operate with increased RF capacity on WGS, TSAT, and commercial satellites. FAB-T Increment 3 will provide XDR+ capabilities (45 Mbps) to platforms requiring communications in support of TSAT. Also included in the FAB-T program is the Advanced Multi-band Communications Antenna System (AMCAS) that provides a small multi-beam, multi-band phased array antenna that enables simultaneous connectivity to more than one satellite. This antenna 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 and future high data requirements while providing a common solution for each platform.
- 4) High Data Rate (HDR) Radio Frequency (RF) Ground Terminal Development. Develops terminals with transponded Ka-band HDR (274 Mbps) capabilities in support of the DCGS receipt of Airborne ISR (AISR) data. This bandwidth will be provided via the fourth and fifth WGS satellites. This terminal will also support the lower data rate (137 Mbps) provided by the first three WGS satellites.

Exhibit R-2, RDT&E Budget Item Justification

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0303601F MILSATCOM Terminals

5) Lasercom Development. Develops an airborne laser communications terminal (ALT) to support optical communications for ISR and command and control aircraft; supports transformational communications initiatives which require laser transmission of sensor data at rates over TSAT.

6) Joint Terminal Engineering Office (JTEO) provides tri-service coordination of terminal development, acquisition and fielding activities.

7) Mobile User Objective System (MUOS) terminal upgrade development has been terminated. Existing narrowband terminals will be backwards compatible with MUOS and will ultimately be replaced by JTRS radios at their end of life.

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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	173.831	272.149	241.099	161.529
(U) Current PBR/President's Budget	159.647	264.795	273.974	273.782
(U) Total Adjustments	-14.184	-7.354		
(U) Congressional Program Reductions	-0.494			
Congressional Rescissions	-1.477	-7.354		
Congressional Increases				
Reprogrammings	-3.123			
SBIR/STTR Transfer	-9.090			

(U) Significant Program Changes:

In FY 05, development efforts for Project Number 2, GMT, were completed.

In FY05, the Air Force terminated the Mobile User Objective System (MUOS) development as narrowband radios will operate in backwards compatibility and will ultimately be replaced by JTRS radios at end of life.

In FY 06, the Air Force is merging the HDR-RF Airborne development and the Advanced Multi-band Communications Antenna System (AMCAS) with the FAB-T development program in support of evolving the family of terminals concept to merge related programs. HDR-RF Airborne will become FAB-T Increment 2 as it reuses major components of Increment 1. The AMCAS antenna will be used on certain platforms in conjunction with FAB-T.

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				0303601F MILSATCOM Terminals				2487 MILSATCOM Terminals			
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total	
2487 MILSATCOM Terminals	159.647	264.795	273.974	273.782	191.087	220.734	198.158	194.439	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0			

(U) A. Mission Description and Budget Item Justification

The Military Satellite Communications (MILSATCOM) Terminals program develops equipment enabling users to communicate via Milstar, Advanced Extremely High Frequency (AEHF), Ultra High Frequency (UHF) Follow-On (UFO), Wideband Gapfiller System (WGS), Defense Satellite Communication System (DSCS), Transformational Communications Satellite (TSAT), and other military and 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-bands on WGS, X-band on DSCS, and commercial C- and Ku-band on commercial satellites to significantly increase throughput for inter- and intra-theater tactical force information such as air tasking orders, battle damage assessments, and reconnaissance data. The RDT&E effort for GMT completed in FY05.
- 3) FAB-T will develop robust, secure, survivable voice and data satellite communications terminals for nuclear and conventional forces. FAB-T provides an open architecture terminal to develop a "family of airborne/ground terminals" with hardware/software commonality for multiple waveforms supporting multiple satellites via an incremental approach. FAB-T Increment 1 program will provide Extremely High Frequency (EHF) voice and data communications for nuclear and conventional forces as well as ground and airborne command posts with connectivity to MILSTAR and Advanced EHF satellites. FAB-T Increment 2 will provide robust secure 2-way Ku/Ka band SATCOM capability on High Altitude Endurance (HAE) Intelligence, Surveillance and Reconnaissance (ISR) aircraft to operate with increased RF capacity on WGS, TSAT, and commercial satellites. FAB-T Increment 3 will provide XDR+ capabilities (45 Mbps) to platforms requiring communications in support of TSAT. Also included in the FAB-T program is the Advanced Multi-band Communications Antenna System (AMCAS) that provides a small multi-beam, multi-band phased array antenna that enables simultaneous connectivity to more than one satellite. This antenna 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 and future high data requirements while providing a common solution for each platform.
- 4) High Data Rate (HDR) Radio Frequency (RF) Ground Terminal Development. Develops terminals with transponded Ka-band HDR (274 Mbps) capabilities in support of the DCGS receipt of Airborne ISR (AISR) data. This bandwidth will be provided via the fourth and fifth WGS satellites. This terminal will also support the lower data rate (137 Mbps) provided by the first three WGS satellites.
- 5) Lasercom Development. Develops an airborne laser communications terminal (ALT) to support optical communications for ISR and command and control aircraft; supports transformational communications initiatives which require laser transmission of sensor data at rates over TSAT.

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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6) Joint Terminal Engineering Office (JTEO) provides tri-service coordination of terminal development, acquisition and fielding activities.

7) Mobile User Objective System (MUOS) terminal upgrade development has been terminated. Existing narrowband terminals will be backwards compatible with MUOS and will ultimately be replaced by JTRS radios at their end of life.

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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Continue concept/prototype demo/MILSATCOM Terminals roadmap/SATCOM funding	1.812	3.983	3.902	3.957
(U) Completed Ground Multi-band Terminal (GMT) development	10.276	22.393		
(U) Continue Family of Advanced Beyond Line-of-Sight Terminals (FAB-T) development (FAB-T Inc 1)	112.795	147.379	224.604	203.583
(U) Continue High Data Rate (HDR) RF Air (merge with FAB-T in FY06 to become FAB-T Inc 2)	3.824	32.368		
(U) Continue Advanced Multi-band Communications Antenna System (AMCAS) development (merge with FAB-T in FY06)	3.860	8.418		
(U) Continue High Data Rate (HDR) RF Ground Terminals	3.865	14.369	12.200	0.000
(U) Continue Lasercom Terminals development	16.406	28.736	25.217	58.083
(U) Continue Joint Terminal Engineering Office (JTEO) Support	6.809	7.149	8.051	8.159
(U) Total Cost	159.647	264.795	273.974	273.782

(U) C. Other Program Funding Summary (\$ in Millions)	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
(U) Aircraft Procurement, Air Force, Project 119992 (Budget Activity 5, P-27 and P-61, PE 0303601F only) (1)	35.628	27.161	2.742	10.389	122.551	152.137	291.344	351.024	Continuing	TBD
(U) Other Procurement, Air Force, 'MILSATCOM Space', Project 836780 (Budget Activity 3, P-66, PE 0303601F only) (1) (1) Spares Included	24.694	23.032	31.809	75.973	106.915	86.760	131.664	137.728	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 (Space)

Exhibit R-2a, RDT&E Project Justification

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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 0603430F Advanced EHF MILSATCOM (Space)
 PE 0603845F Transformational SATCOM (TSAT)
 PE 0603432F Polar MILSATCOM (Space)
 PE 0603854F Wideband Gapfiller System (RDT&E) Space
 PE 0604479F Milstar LDR/MDR SATCOM (Space)
 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 FY04, the AF began the development for the FAB-T Increment 2 Ka SATCOM capability. Increment 2 will be developed in 2 phases. In FY05, Phase 1 was awarded and encompasses requirements definition to develop the Contractor Technical Requirements Document (CTRD). Phase 2 will be awarded in FY06 and will be the implementation of this CTRD.

In FY 04 the Air Force began the Advanced Multi-Band Communications Antenna System (AMCAS) concept development phase. This effort is known as the AMCAS Technology Development Plan, which involves multiple studies to define the system architecture to be completed in FY07. The results of the studies will be used as a basis for awarding a System Design and Development (SDD) contract based on full and open competition.

In FY04, the Airborne Lasercom Terminal (ALT) program initiated first phase, the Concept and Architecture Development Study Phase, of the program. Four technology demonstration contracts were awarded in June 04 and two architecture development contracts were awarded in August 04. The results of these efforts, in conjunction with the results of a FAB-T sponsored effort conducted by the FAB-T prime contractor, will be used to plan the Risk Reduction and Design Development Phase of the ALT program. The second phase of the program will feature the design and development of Engineering Development Models of terminals and is planned for award in FY06 and will run through FY09.

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Exhibit R-3, RDT&E Project Cost Analysis												DATE February 2005			
BUDGET ACTIVITY 07 Operational System Development						PE NUMBER AND TITLE 0303601F MILSATCOM Terminals					PROJECT NUMBER AND TITLE 2487 MILSATCOM Terminals				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2004 Cost	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost to Complete	Total Cost	Target Value of Contract	
(U) <u>Product Development</u> GMT Development	CPAF	Harris Corp., Melbourne, FL	30.696	6.571	Oct-03	19.500	Oct-04					0.000	56.767	55.939	
FAB-T Development	CPAF	Boeing Corp., Anaheim, CA	45.904	97.232	Oct-03	119.569	Oct-04	208.683	Oct-05	195.161	Oct-06	Continuing	TBD	236.349	
Joint STARS A-kit Development	AF-616	ESC/JS, Hanscom AFB	0.401									0.000	0.401	0.400	
High Data Rate (HDR) RF Ground terminal study (Associated Contract Agreement)	TRN	Harris, Raytheon,	0.500	0.800	Feb-04							0.000	1.300	1.380	
High Data Rate (HDR) RF Airborne terminal study (Associated Contract Agreement)	TRN	Boeing Corp., Anaheim, CA	0.500	1.946	Oct-03							0.000	2.446	0.500	
High Data Rate (HDR) RF Ground Terminal Development	TBD	TBD				23.384	Oct-04	7.294	Oct-05	0.000	Oct-06	Continuing	TBD		
High Data Rate (HDR) RF Air Terminal Development (merged with FAB-T beginning in FY06)	CPAF	Boeing Corp., Anaheim, CA				25.689	Oct-04						25.689		
Lasercom Terminal Development	TBD	TBD		8.801	Oct-03	24.606	Oct-04	16.981	Oct-05	46.737	Oct-06	Continuing	TBD		
AMCAS Development (merged with FAB-T beginning in FY06)	TBD	TBD		5.136	Oct-03	6.654	Oct-04					Continuing	TBD		
Subtotal Product Development			78.001	120.486		219.402		232.958		241.898		0.000	0.000	294.568	
Remarks:												Continuing	TBD		
(U) <u>Support</u> Systems Engineering Support	CPAF	MITRE, Bedford MA	134.568	19.699	Oct-03	21.425	Oct-04	23.009	Nov-05	16.650	Nov-06	Continuing	TBD		
Systems Engineering/Functional/Financial Support	Various	Various	165.836	12.156	Oct-03	14.258	Oct-04	12.850	Oct-05	11.542	Oct-06	Continuing	TBD		
Financial Support (Beginning in FY04 totals included in Systems Engineering/Functional/Financial Support)	Various	Tecolote, Bedford MA		0.000		0.000						Continuing	TBD		
Miscellaneous	Various	Various	20.763	3.207	Oct-03	4.059	Oct-04	4.374	Oct-05	3.085	Oct-06	Continuing	TBD		
Subtotal Support			321.167	35.062		39.742		40.233		31.277		Continuing	TBD	0.000	
Remarks:												Continuing	TBD		
(U) <u>Test & Evaluation</u> Various Programs	Various	AF Research	24.603			4.388	Oct-04					Continuing	TBD		
Project 2487						R-1 Shopping List - Item No. 175-7 of 175-10								Exhibit R-3 (PE 0303601F)	

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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				0303601F MILSATCOM Terminals						2487 MILSATCOM Terminals			
Miscellaneous T&E	Various	Lab Various	6.207	4.099	Oct-03	1.263	Oct-04	0.783	Oct-05	0.607	Oct-06	Continuing	TBD 0.000
Subtotal Test & Evaluation			30.810	4.099		5.651		0.783		0.607		Continuing	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			429.978	159.647		264.795		273.974		273.782		Continuing	TBD
													294.568

Exhibit R-4, RDT&E Schedule Profile

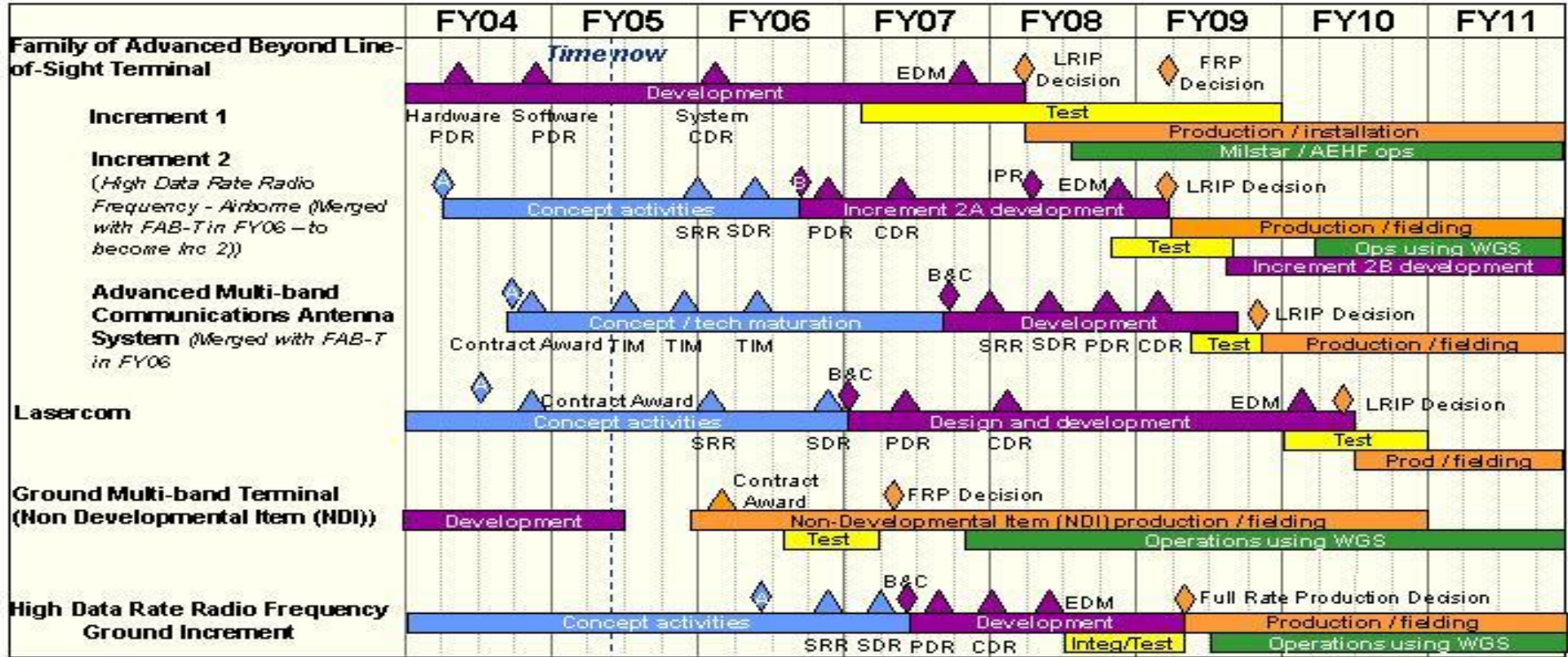
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BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0303601F MILSATCOM Terminals

PROJECT NUMBER AND TITLE
2487 MILSATCOM Terminals



■ Concept activities
 ■ Design / development
 ■ Integration / test
■ Production / fielding
 ■ Operations / sustainment
 ▽◇ Key events

CDR: Critical Design Review DT&E: Development Test & Evaluation EDM: Engineering Design Model FRP: Full Rate Production
 IPR: Integrated Program Review LRIP: Low Rate Initial Production OT&E: Operational Test & Evaluation PDR: Preliminary Design Review
 SDR: System Design Review SRR: System Requirements Review TIM: Technical Interchange Meeting

Exhibit R-4a, RDT&E Schedule Detail	DATE February 2005
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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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Schedule Profile				
(U) FAB-T (Inc 1) Critical Design Review (CDR)			1Q	
(U) Begin Initial development of FAB-T Increment 2		1Q		
(U) Award Technology Maturation contracts for Advanced Multi-band Communications Antenna System (AMCAS)	4Q			
(U) Begin Initial Development of AMCAS				3Q
(U) Award Technology Maturation contracts for Lasercom Optical Apertures	4Q			
(U) Begin Initial Development of Lasercom Terminals			2Q	
(U) Begin Initial Development of High Data Rate (HDR) RF Ground Terminals			2Q	

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PE NUMBER: 0304260F
 PE TITLE: Airborne SIGINT Enterprise (JMIP)

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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0304260F Airborne SIGINT Enterprise (JMIP)
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Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	0.000	78.920	71.843	81.385	100.454	105.183	105.941	Continuing	TBD
5181 U-2 (Airborne SIGINT Development - U-2)	0.000	0.000	2.000	5.200	5.305	5.424	5.544	5.632	Continuing	TBD
5183 Common Development (Airborne SIGINT Development - Common Development)	0.000	0.000	71.499	53.286	62.409	81.010	85.266	85.666	Continuing	TBD
5184 RQ-4 (Airborne SIGINT Development - Global Hawk)	0.000	0.000	5.029	5.200	5.305	5.424	5.544	5.632	Continuing	TBD
5185 Compass Bright (Airborne SIGINT Development - Compass Bright)	0.000	0.000	0.392	8.157	8.366	8.596	8.829	9.011	Continuing	TBD

(U) In FY 2006, this is a new PE, but this effort is not a new start. This PE combines SIGINT development efforts previously being accomplished in multiple USAF PEs. The funds in this PE came from USAF SIGINT RDT&E efforts previously resident in three other PEs: Global Hawk (0305220F); U-2 (0305202F); and Airborne Reconnaissance Systems (0305206F) Project 4882 Compass Bright. The funds were then redistributed (with inflation adjustment) among all seven ASE BPACs based on new development priorities established by the USAF SIGINT Capabilities Working Group in order to build a total capability. Global Hawk SIGINT RDT&E funds were the Joint SIGINT Avionics Family (JSAF) funds that were placed in that PE when JSAF was terminated in 2001. These funds made up all of the dedicated SIGINT RDT&E funds in the USAF. This program element will participate in the development, testing, and implementation of international standards (to include NATO standardization agreements) to ensure joint, allied, and coalition interoperability.

(U) A. Mission Description and Budget Item Justification

(U) This Program Element (PE) funds efforts associated with the Airborne SIGINT (Signals Intelligence) Enterprise (ASE). ASE is the SIGINT modernization framework for all USAF airborne SIGINT collection platforms and their appropriate interfaces with the Air Force Distributed Common Ground System (AF DCGS). Funds for this PE were previously resident in other USAF PEs doing SIGINT development. These funds were moved to one PE to allow a synergistic development effort to be accomplished while developing a true Air Force-wide capability. This enterprise will use the Air Force Cryptologic Architecture (AFCA) for planning and decision-making and, in turn, employ the Joint Airborne SIGINT Architecture (JASA) open architecture standards to allow maximum ease of future upgrades and system interoperability. The primary goal of ASE is to produce an architecture-based, capability-focused SIGINT investment strategy for the USAF.

(U) This program is Budget Activity 7, Operational Systems Development, because it involves the development of SIGINT capabilities and integration with operational systems such as the RC-135, U-2, MQ-1/MQ-9, RQ-4, Special Programs (Senior Scout and others as required) their associated ground stations and data links, and Compass Bright programs.

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0304260F Airborne SIGINT Enterprise (JMIP)

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget			0.000	0.000
(U) Current PBR/President's Budget	0.000	0.000	78.920	116.500
(U) Total Adjustments	0.000	0.000		
(U) Congressional Program Reductions				
Congressional Rescissions				
Congressional Increases				
Reprogrammings				
SBIR/STTR Transfer				

(U) Significant Program Changes:

(U) This is a new program element established for the Airborne SIGINT Enterprise (ASE). The funds in this PE came from USAF SIGINT RDT&E effort previously resident in three other PEs: Global Hawk (0305220F); U-2 (0305202F); and Airborne Reconnaissance Systems (0305206F) Project 4882 Compass Bright. Global Hawk SIGINT RDT&E funds were the Joint SIGINT Avionics Family (JSAF) funds that were placed in that PE when JSAF was terminated in 2001. These funds made up all of the dedicated SIGINT RDT&E funds in the USAF. In order to develop an Air Force-wide SIGINT capability, a new SIGINT PE was established and these funds were moved into this PE. The funds were then redistributed (with inflation adjustment) among all seven BPACs based on new development priorities established by the USAF SIGINT Capabilities Working Group in order to build a total capability.

Previous years funds PB (in millions) for Global Hawk/U-2 SIGINT and Compass Bright are as follows:

	FY04	FY05	
Global Hawk (ASIP)	66.733	62.767	
U-2 (ASIP)	34.327*	64.300	* after an 8.0M Congressional reduction
Compass Bright	4.9	5.1	

(U) The amount of funds (in millions) moved from each of these was as follows (Note: these amounts were moved in FY04 prior to inflation adjustments being made for FY06 and out. That is why these figures do not add exactly to the amounts above):

	FY06	FY07	FY08	FY09	FY10	FY11
SIGINT Funds in Global Hawk	27.0	107.7	113.8	131.8	134.4	137.1
SIGINT Funds in U-2	54.2	1.4				
Compass Bright	5.2	5.3	5.4	5.4	5.5	5.6

(U) The funds moved from PE 0305206F, Project 4882, Compass Bright was reduced in FY06 due to higher USAF priorities. The USAF determined that additional amounts for Compass Bright would be required in the future and the amounts in Project 675185 above for FY07 and out reflect this.

(U) The growth in funds reflects the fact that FY06 completes the baseline Airborne Signals Intelligence Program (ASIP) for the Global Hawk/U-2 and the continuation of

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0304260F Airborne SIGINT Enterprise (JMIP)

Compass Bright. Beginning in FY07, SIGINT development projects will add work for the RC-135s, MQ-1/9, and Senior Scout.

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BUDGET ACTIVITY 07 Operational System Development					PE NUMBER AND TITLE 0304260F Airborne SIGINT Enterprise (JMIP)			PROJECT NUMBER AND TITLE 5181 U-2 (Airborne SIGINT Development - U-2)		
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
5181 U-2 (Airborne SIGINT Development - U-2)	0.000	0.000	2.000	5.200	5.305	5.424	5.544	5.632	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) The source for these funds was the redistribution of SIGINT funds moved into the ASE PE from other USAF SIGINT projects as explained above.

(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 U-2 SIGINT sensors and their associated air and ground components.

(U) This project provides the warfighter with a near term combat capability with increased capability improvements accomplished as soon as technology and risk achieve satisfactory levels. Sensors will be integrated and tested on the U-2 platform as funding permits. The current sensor being developed for U-2 SIGINT is ASIP, which is common with the Global Hawk. The baseline ASIP sensor is scheduled to start testing in FY06. The sensor will then be incrementally upgraded to meet the emerging threat.

(U) Budget Activity Justification This program effort is equivalent to RDT&E 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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Signals Intelligence (SIGINT) Sensor Integration			2.000	5.200
(U) Total Cost	0.000	0.000	2.000	5.200

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>		
(U) Airborne Signals Intelligence Program (ASIP) development in 0305202F	34.327	63.413								

(U) ASIP development for FY05 and before resides in the U-2 and Global Hawk PEs

(U) D. Acquisition Strategy

(U) Signals Intelligence (SIGINT) capabilities will be integrated on to this platform using an spiral acquisition approach.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2005

BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0304260F Airborne SIGINT Enterprise (JMIP)	PROJECT NUMBER AND TITLE 5181 U-2 (Airborne SIGINT Development - U-2)
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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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>														
SIGINT Sensors Integration	TBD	TBD		0.000				2.000	Jan-06	5.200	Jan-07	Continuing	TBD	TBD
Subtotal Product Development			0.000	0.000		0.000		2.000		5.200		Continuing	TBD	TBD
Remarks:														
(U) Total Cost			0.000	0.000		0.000		2.000		5.200		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE
February 2005

BUDGET ACTIVITY
07 Operational System Development

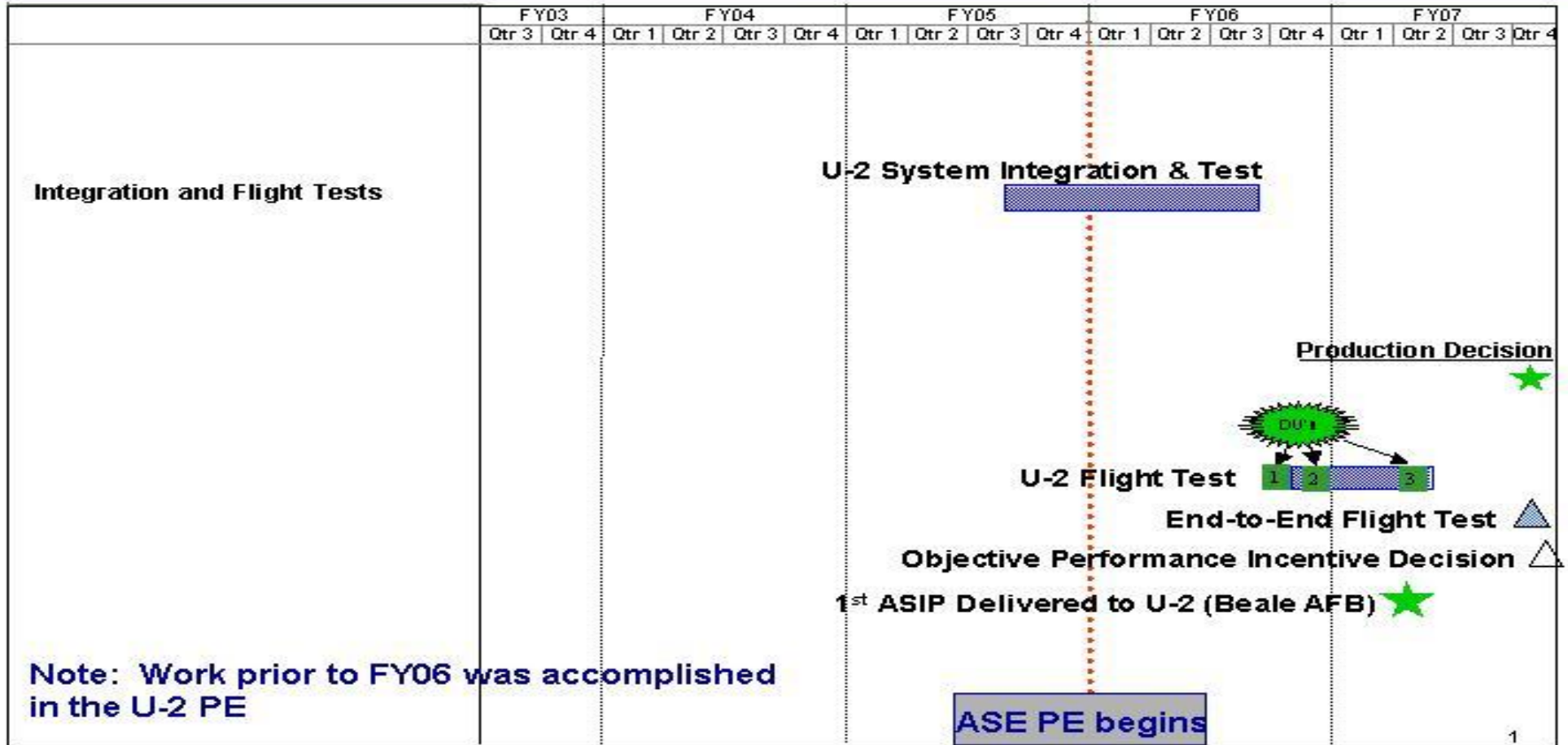
PE NUMBER AND TITLE
0304260F Airborne SIGINT Enterprise (JMIP)

PROJECT NUMBER AND TITLE
5181 U-2 (Airborne SIGINT Development - U-2)



U.S. AIR FORCE

U-2 SIGINT Integration



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Exhibit R-4a, RDT&E Schedule Detail		DATE February 2005
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0304260F Airborne SIGINT Enterprise (JMIP)	PROJECT NUMBER AND TITLE 5181 U-2 (Airborne SIGINT Development - U-2)
--	---	--

(U) <u>Schedule Profile</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) U-2 flight test of baseline ASIP sensor			3Q	
(U) End-to-end flight test of ASIP sensor				4Q
(U) Sensor integration efforts of capabilities developed under Project 675183 of this PE and of any quick reaction capabilities that are developed for the U-2			4Q	2-4Q

Exhibit R-2a, RDT&E Project Justification

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February 2005

BUDGET ACTIVITY 07 Operational System Development					PE NUMBER AND TITLE 0304260F Airborne SIGINT Enterprise (JMIP)			PROJECT NUMBER AND TITLE 5183 Common Development (Airborne SIGINT Development - Common Development)		
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
5183 Common Development (Airborne SIGINT Development - Common Development)	0.000	0.000	71.499	53.286	62.409	81.010	85.266	85.666	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) The source for these funds was the redistribution of SIGINT funds moved into the ASE PE from other USAF SIGINT projects as explained above.

(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 sensors and their associated air and ground components that will be used on/by more than one platform. The common development SIGINT Program develops new sensors 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 to meet emerging operational requirements. The current sensor being developed is the Airborne Signals Intelligence Program (ASIP), to be used by both the Global Hawk and U-2.

(U) This program will design, develop, and build a common/scalable modernized SIGINT system with a low-band subsystem integrated with a high-band system. ASIP prototype Developmental Units (DUs) will be delivered for system integration and testing on the U-2 and Global Hawk.

(U) This strategy provides the warfighter with a near term combat capability with increased capability improvements accomplished as soon as technology and risk achieve satisfactory levels. Sensors will be integrated and tested on the various platforms as funding permits.

(U) Budget Activity Justification This program effort is equivalent to RDT&E 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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Signals Intelligence (SIGINT) Sensor Development/Integration			71.499	53.286
(U) Complete Baseline ASIP development. Begin ASIP upgrades to meet the evolving threat				
(U) Total Cost	0.000	0.000	71.499	53.286

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>		
(U) RDT&E, 0305205F - ASIP Development	62.833	62.767								125.600
(U) RDT&E, 0305202F - ASIP Development	34.327	63.413								97.740

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0304260F Airborne SIGINT Enterprise (JMIP)	PROJECT NUMBER AND TITLE 5183 Common Development (Airborne SIGINT Development - Common Development)
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(U) C. Other Program Funding Summary (\$ in Millions)

(U) APAF, 0305220F - ASIP	4.700	6.400	84.100	48.300	49.600	55.500	248.600
Production BP10							
(U) APAF, 0305220F - ASIP			29.400	49.500	43.900	43.800	1.100
Production BP11							

(U) D. Acquisition Strategy

Signals Intelligence (SIGINT) capabilities will be developed and integrated on to various platforms using an Evolutionary Acquisition approach.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2005

BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0304260F Airborne SIGINT Enterprise (JMIP)	PROJECT NUMBER AND TITLE 5183 Common Development (Airborne SIGINT Development - Common Development)
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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 2004 Cost</u>	<u>FY 2004</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2007</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
				<u>Cost</u>	<u>Award Date</u>	<u>Cost</u>	<u>Award Date</u>	<u>Cost</u>	<u>Award Date</u>	<u>Cost</u>	<u>Award Date</u>			
(U) <u>Product Development</u>														
SIGINT Sensor Development and Integration				0.000				71.499	Jan-06	53.286	Jan-07	Continuing	TBD	TBD
Subtotal Product Development			0.000	0.000		0.000		71.499		53.286		Continuing	TBD	TBD
Remarks: Contractors are those listed above														
(U) Total Cost			0.000	0.000		0.000		71.499		53.286		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE
February 2005

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0304260F Airborne SIGINT Enterprise (JMIP)

PROJECT NUMBER AND TITLE
5183 Common Development (Airborne SIGINT Development - Common Development)



U.S. AIR FORCE

Common Development ASE Schedule

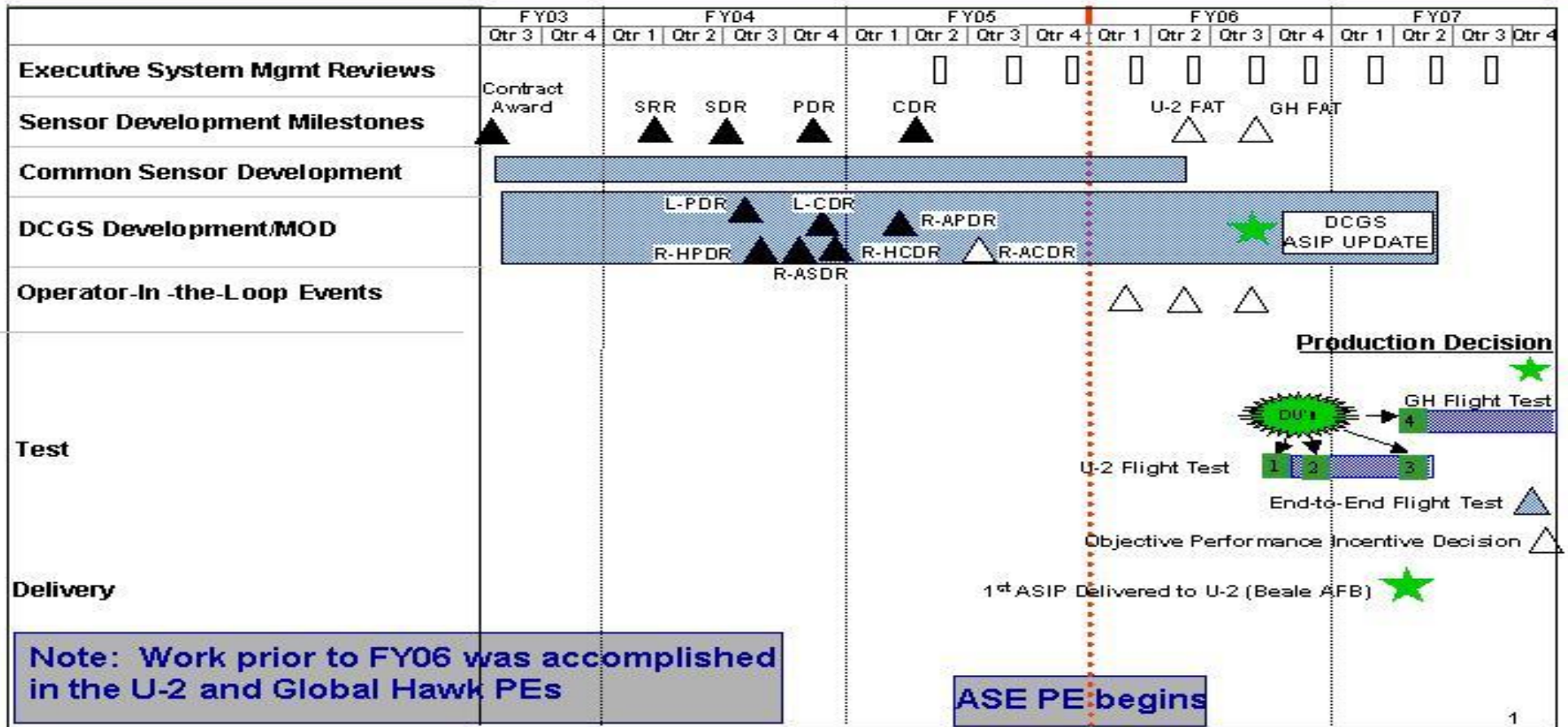


Exhibit R-4, RDT&E Schedule Profile

DATE
February 2005

BUDGET ACTIVITY
07 Operational System Development

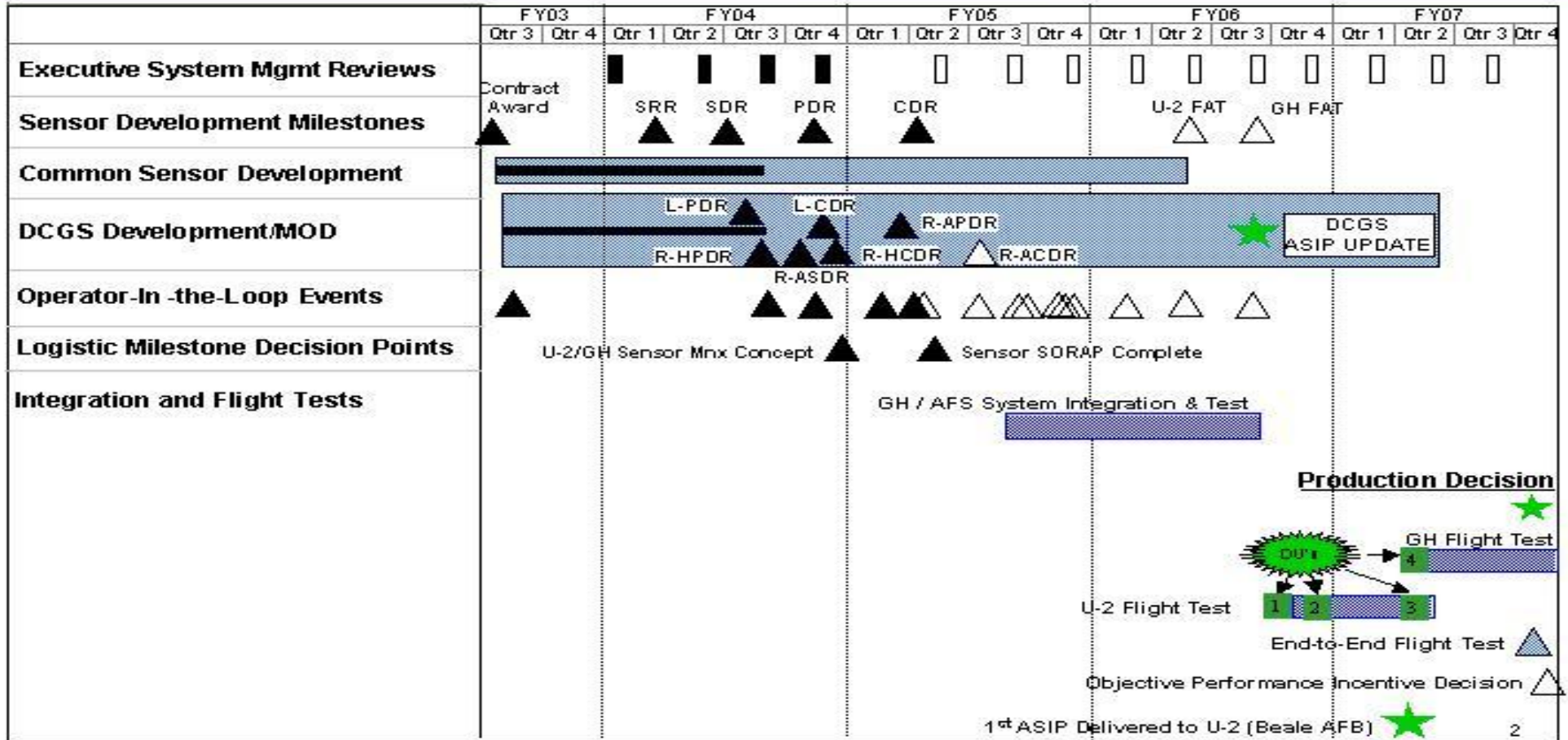
PE NUMBER AND TITLE
0304260F Airborne SIGINT Enterprise (JMIP)

PROJECT NUMBER AND TITLE
5183 Common Development (Airborne SIGINT Development - Common Development)



U.S. AIR FORCE

Overall ASIP Schedule



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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2005
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0304260F Airborne SIGINT Enterprise (JMIP)	PROJECT NUMBER AND TITLE 5183 Common Development (Airborne SIGINT Development - Common Development)
--	---	--

(U) <u>Schedule Profile</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Sensor Development	1-4Q	1-4Q	1-4Q	1-4Q
(U) - SRR	1Q			
(U) - SDR	3Q			
(U) - PDR	4Q			
(U) - CDR		2Q		
(U) DCGS Development	3-4Q			
(U) - L-PDR	3Q			
(U) - R-HPDR	3Q			
(U) - L-CDR	4Q			
(U) - R-ASDR	4Q			
(U) - R-HCDR	4Q			
(U) - R-APDR		2Q		
(U) - R-ACDR		3Q		
(U) Global Hawk FAT			3Q	
(U) U-2 FAT			2Q	
(U) DCGS ASIP Update			3Q	
(U) Global Hawk Flight Test				2Q
(U) U-2 Flight Test			3Q	
(U) End-to-End Flight Test				4Q

(U) Note: FY04 and 05 efforts were accomplished in the Global Hawk 0305220F and U-2 0305202F PEs.

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development					PE NUMBER AND TITLE 0304260F Airborne SIGINT Enterprise (JMIP)			PROJECT NUMBER AND TITLE 5184 RQ-4 (Airborne SIGINT Development - Global Hawk)		
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
5184 RQ-4 (Airborne SIGINT Development - Global Hawk)	0.000	0.000	5.029	5.200	5.305	5.424	5.544	5.632	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) The source for these funds was the redistribution of SIGINT funds moved into the ASE PE from other USAF SIGINT projects as explained above.

(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 Global Hawk SIGINT sensors and their associated air and ground components.

(U) This project provides the warfighter with a near term combat capability with increased capability improvements accomplished as soon as technology and risk achieve satisfactory levels. Sensors will be integrated and tested on the RQ-4 platform as funding permits.

(U) Budget Activity Justification This program effort is equivalent to RDT&E 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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Signals Intelligence (SIGINT) Sensor Integration			5.029	5.200
(U) Total Cost	0.000	0.000	5.029	5.200

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
(U) 0305205/030220F - Sensor Development	62.833	62.767								

(U) ASIP development for FY05 and before resides in the U-2 and Global Hawk PEs

(U) D. Acquisition Strategy

(U) Signals Intelligence (SIGINT) capabilities will be integrated on to this platform using an Evolutionary Acquisition approach.

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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 0304260F Airborne SIGINT Enterprise (JMIP)	PROJECT NUMBER AND TITLE 5184 RQ-4 (Airborne SIGINT Development - Global Hawk)
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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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> SIGINT Sensor Integration	TBD	Northrop Grumman Mission Sys		0.000		0.000		5.029	Jan-06	5.200	Jan-07	Continuing	TBD	TBD
Subtotal Product Development			0.000	0.000		0.000		5.029		5.200		Continuing	TBD	TBD
Remarks:														
(U) Total Cost			0.000	0.000		0.000		5.029		5.200		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0304260F Airborne SIGINT Enterprise (JMIP)

PROJECT NUMBER AND TITLE
5184 RQ-4 (Airborne SIGINT Development - Global Hawk)



U.S. AIR FORCE

Global Hawk SIGINT Integration

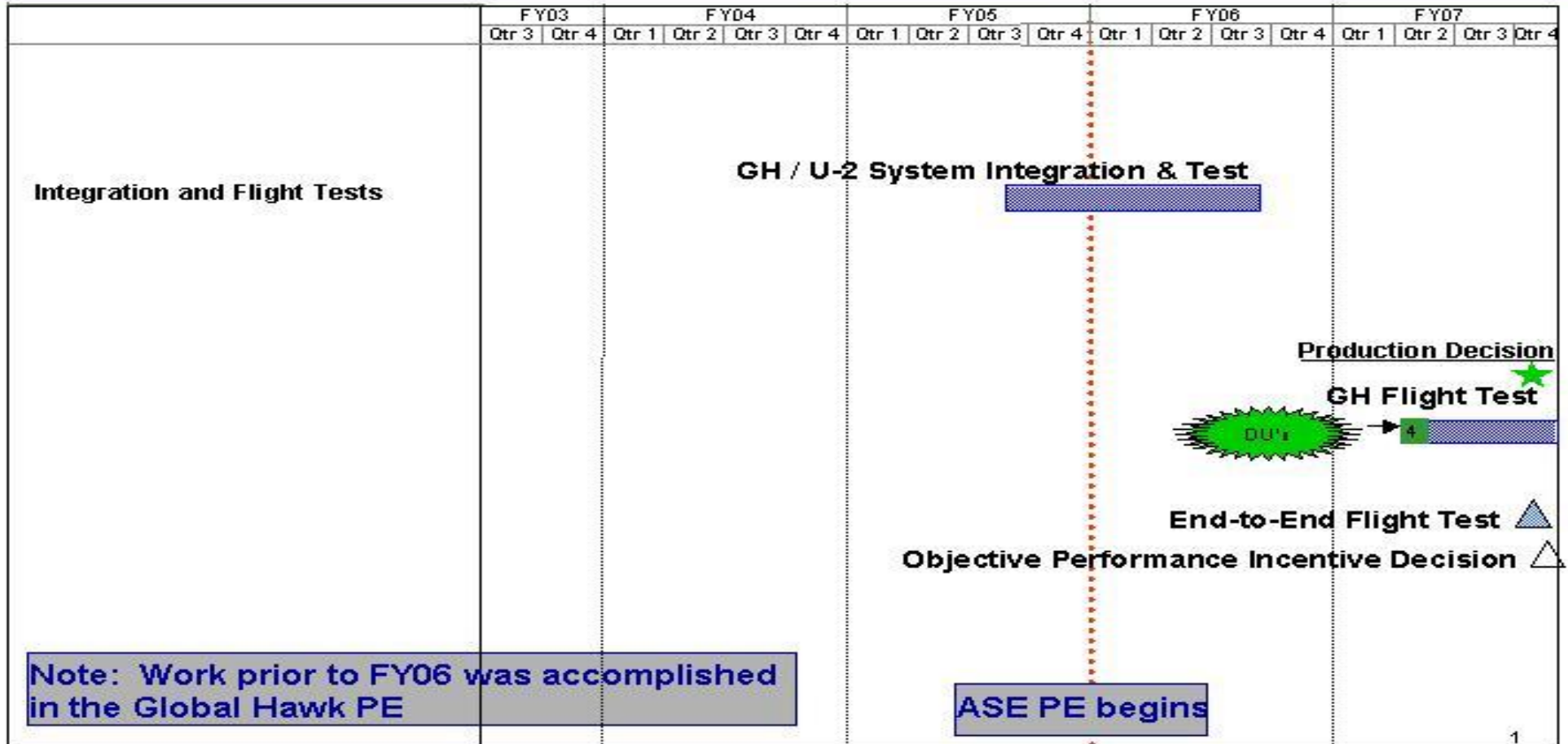


Exhibit R-4a, RDT&E Schedule Detail	DATE February 2005
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0304260F Airborne SIGINT Enterprise (JMIP)	PROJECT NUMBER AND TITLE 5184 RQ-4 (Airborne SIGINT Development - Global Hawk)
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(U) <u>Schedule Profile</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) GH flight test of baseline ASIP sensor				2Q
(U) End-to-end flight test of ASIP sensor				4Q
(U) Sensor integration efforts of capabilities developed under Project 675183 of this PE and of any quick reaction capabilities that are developed for the RQ-4			4Q	2-4Q

Exhibit R-2a, RDT&E Project Justification

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February 2005

BUDGET ACTIVITY 07 Operational System Development					PE NUMBER AND TITLE 0304260F Airborne SIGINT Enterprise (JMIP)			PROJECT NUMBER AND TITLE 5185 Compass Bright (Airborne SIGINT Development - Compass Bright)		
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Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
5185 Compass Bright (Airborne SIGINT Development - Compass Bright)	0.000	0.000	0.392	8.157	8.366	8.596	8.829	9.011	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) All funds in Compass Bright are 3600 RDT&E. The source for these funds was the redistribution of SIGINT funds moved into the ASE PE from other USAF SIGINT projects as explained above.

(U) A. Mission Description and Budget Item Justification

(U) 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 SIGINT and RF MASINT technology transition. Funds were reduced in FY from previous submissions due to higher USAF priorities.

(U) 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.

(U) Compass Bright projects are selected through a data call process whereby the USAF evaluates proposals from the labs and industry to select those projects that are most promising. This process is completed the year prior to award.

(U) 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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Continue COMPASS BRIGHT development projects in the signal intelligence (SIGINT) and radio frequency (RF) measurement and signature intelligence (MASINT) areas				7.193
(U) Mission Support, Program Management Activities			0.392	0.964
(U) Total Cost	0.000	0.000	0.392	8.157

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>		
(U) RDT&E, PE 0305206F, BPAC 674882 - Compass Bright Development	4.796	2.105							7.020	7.020
Compass Bright Funds for FY06 and out were moved from the above PE to the ASE PE										

Exhibit R-2a, RDT&E Project Justification

DATE

February 2005

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

**0304260F Airborne SIGINT Enterprise
(JMIP)**

PROJECT NUMBER AND TITLE

**5185 Compass Bright (Airborne
SIGINT Development - Compass
Bright)****(U) D. Acquisition Strategy**

(U) On-going COMPASS BRIGHT technology development and demonstration contracts will continue through existing laboratory relationships and other existing contractual vehicles, with future development projects emphasizing full and open competition.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2005

BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0304260F Airborne SIGINT Enterprise (JMIP)	PROJECT NUMBER AND TITLE 5185 Compass Bright (Airborne SIGINT Development - Compass Bright)
--	---	--

(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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>														
Various	TBD	AFRL						0.000	Jan-06	7.193	Jan-07	Continuing	TBD	TBD
Subtotal								0.000		7.193		Continuing	TBD	TBD
Subtotal Product Development			0.000	0.000		0.000		0.000		7.193		Continuing	TBD	TBD
Remarks:														
(U) <u>Management</u>														
Various. FY06 Management funds will be used to manage previously funded projects still under work			0.000	0.000		0.000		0.392		0.964		Continuing	TBD	TBD
Subtotal Management			0.000	0.000		0.000		0.392		0.964		Continuing	TBD	TBD
Remarks:														
(U) Total Cost			0.000	0.000		0.000		0.392		8.157		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE
February 2005

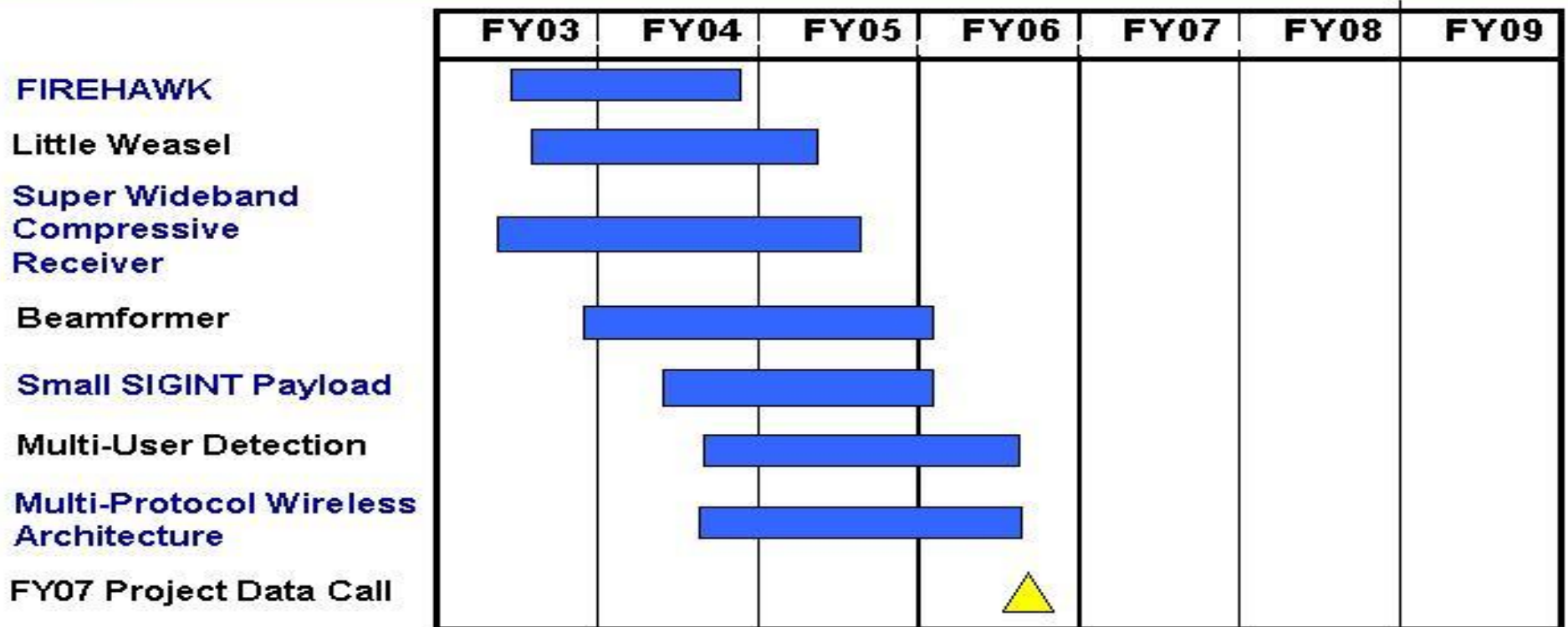
BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0304260F Airborne SIGINT Enterprise (JMIP)

PROJECT NUMBER AND TITLE
5185 Compass Bright (Airborne SIGINT Development - Compass Bright)



COMPASS BRIGHT Project Schedules



Note 1: COMPASS BRIGHT Projects are 1-2 years in duration, thus no outyear projects are shown

Note 2: Efforts previous to FY 06 were funded from PE 0305206F, Project 4882

Exhibit R-4a, RDT&E Schedule Detail	DATE February 2005
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0304260F Airborne SIGINT Enterprise (JMIP)	PROJECT NUMBER AND TITLE 5185 Compass Bright (Airborne SIGINT Development - Compass Bright)
--	---	--

(U) <u>Schedule Profile</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Multi-User Detection Demo			2Q	
(U) Multi-Protocol Wireless Architecture Demo			2Q	
(U) Beamformer Demo	1Q			
(U) SSP Demo		1Q		
(U) FY07 Proposal Call			3Q	
(U) FY07 Proposals Evaluated and Approved			4Q	
(U) FY07 Proposals Authorized to Proceed				1Q
(U) FY08 Proposal Call				3Q
(U) FY08 Proposals Evaluated and Approved				4Q

UNCLASSIFIED

PE NUMBER: 0305099F

PE TITLE: Communication, Navigation, Surveillance/Air Traffic Management (CNS/ATM)

Exhibit R-2, RDT&E Budget Item Justification									DATE February 2005	
BUDGET ACTIVITY 07 Operational System Development					PE NUMBER AND TITLE 0305099F Communication, Navigation, Surveillance/Air Traffic Management (CNS/ATM)					
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	8.364	6.974	7.139	7.679	7.869	7.978	8.131	8.235	Continuing	TBD
4689 Global Access Architecture	8.364	6.974	7.139	7.679	7.869	7.978	8.131	8.235	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

Communication, Navigation, Surveillance/Air Traffic Management (CNS/ATM): is the Air Force program designed to meet the evolving aviation requirements of the International Civil Aviation Organization (ICAO). CNS/ATM, 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 CNS/ATM 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 CNS/ATM 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 CNS/ATM initiatives. This program upgrades avionics to add air traffic management capabilities to currently fielded weapon systems and is assigned Budget Activity 7, Operational Systems Development.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	7.164	7.291	7.410	7.635
(U) Current PBR/President's Budget	8.364	6.974	7.139	7.679
(U) Total Adjustments	1.200	-0.317		
(U) Congressional Program Reductions	-0.283	-0.317		
Congressional Rescissions	-0.061			
Congressional Increases				
Reprogrammings	1.728			
SBIR/STTR Transfer	-0.184			

(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 0305099F Communication, Navigation, Surveillance/Air Traffic Management (CNS/ATM)			PROJECT NUMBER AND TITLE 4689 Global Access Architecture		
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4689 Global Access Architecture	8.364	6.974	7.139	7.679	7.869	7.978	8.131	8.235	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

Communication, Navigation, Surveillance/Air Traffic Management (CNS/ATM): is the Air Force program designed to meet the evolving aviation requirements of the International Civil Aviation Organization (ICAO). CNS/ATM, 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 CNS/ATM 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 AFD 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 CNS/ATM 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 CNS/ATM initiatives. This program upgrades avionics to add air traffic management capabilities to currently fielded weapon systems and is assigned Budget Activity 7, Operational Systems Development.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Continue operational requirements analysis, demonstration, and evaluation	1.123	1.195	1.187	1.222
(U) Continue development of common avionics and technologies	2.115	2.185	2.223	2.290
(U) Continue acquisition of ID/IQ aviation equipment	0.858	0.912	0.964	0.993
(U) Continue Nav/Safety and GPS/NAVWAR integration and interoperability evaluations	2.286	0.629	0.593	0.610
(U) Continue system architecture definitions, development, and certification.	1.982	2.053	2.172	2.564
(U) Total Cost	8.364	6.974	7.139	7.679

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	

(U) The methodology used to attain CNS/ATM capabilities as required by the MAJCOMs

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

**0305099F Communication,
Navigation, Surveillance/Air Traffic
Management (CNS/ATM)**

PROJECT NUMBER AND TITLE

4689 Global Access Architecture**(U) C. Other Program Funding Summary (\$ in Millions)**

for each platform varies widely - the estimating and tracking of these costs varies even more from program to program. Funding summary information can only be provided by analyzing the specific platform's budget/PE. Please refer to each particular PE affected by CNS/ATM for funding data.

(U) D. Acquisition Strategy

The CNS/ATM 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 provide performance assessment, 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										PE NUMBER AND TITLE		PROJECT NUMBER AND TITLE			
07 Operational System Development										0305099F Communication, Navigation, Surveillance/Air Traffic Management (CNS/ATM)		4689 Global Access Architecture			
(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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>	
(U) <u>Product Development</u>															
MIT	FFP			1.000	Oct-04	0.500	Oct-05	0.534	Oct-06	0.849	Oct-07	Continuing	TBD		
Honeywell	FFP			0.029	Nov-04							Continuing	TBD		
Allied Signal	FFP											0.000	0.000		
Rockwell Collins	FFP											Continuing	TBD		
MITRE Corporation	CPAF			2.685	Oct-04	3.270	Oct-05	3.300	Oct-06	3.400	Oct-07	Continuing	TBD		
Horizons Technology Inc	FFP											Continuing	TBD		
TASC	CPFF											0.000	0.000		
Smiths Industries	FFP											Continuing	TBD		
SAIC	T&M											0.000	0.000		
ARINC Inc	FFP											Continuing	TBD		
Lockheed Martin	CPAF											0.000	0.000		
Bremmer Associates	FFP											0.000	0.000		
Northrop Grumman	CPAF											0.000	0.000		
MCR	IDIQ			0.382	Jun-04	0.466	May-05	0.500	May-06	0.525	May-07	Continuing	TBD		
Federal Tech Services	FFP											0.000	0.000		
DISA/DIT	FFP			1.758								Continuing	TBD		
ACS Defense				1.623	May-04	1.794	May-05	1.815	May-06	1.850	May-07		7.082		
Various	various			0.338		0.400		0.420		0.440		Continuing	TBD		
Subtotal Product Development			0.000	7.815		6.430		6.569		7.064		Continuing	TBD	0.000	
Remarks:															
(U) <u>Support</u>															
MITRE Corporation												Continuing	TBD		
Various	Various			0.549		0.544		0.570		0.615		Continuing	TBD		
Subtotal Support			0.000	0.549		0.544		0.570		0.615		Continuing	TBD	0.000	
Remarks:															
(U) <u>Test & Evaluation</u>															
412th FLTS (Edwards AFB)												Continuing	TBD		
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000		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	0.000	
Remarks:															
(U) Total Cost			0.000	8.364		6.974		7.139		7.679		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 Communication,
Navigation, Surveillance/Air Traffic
Management (CNS/ATM)

PROJECT NUMBER AND TITLE
4689 Global Access Architecture

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GATM

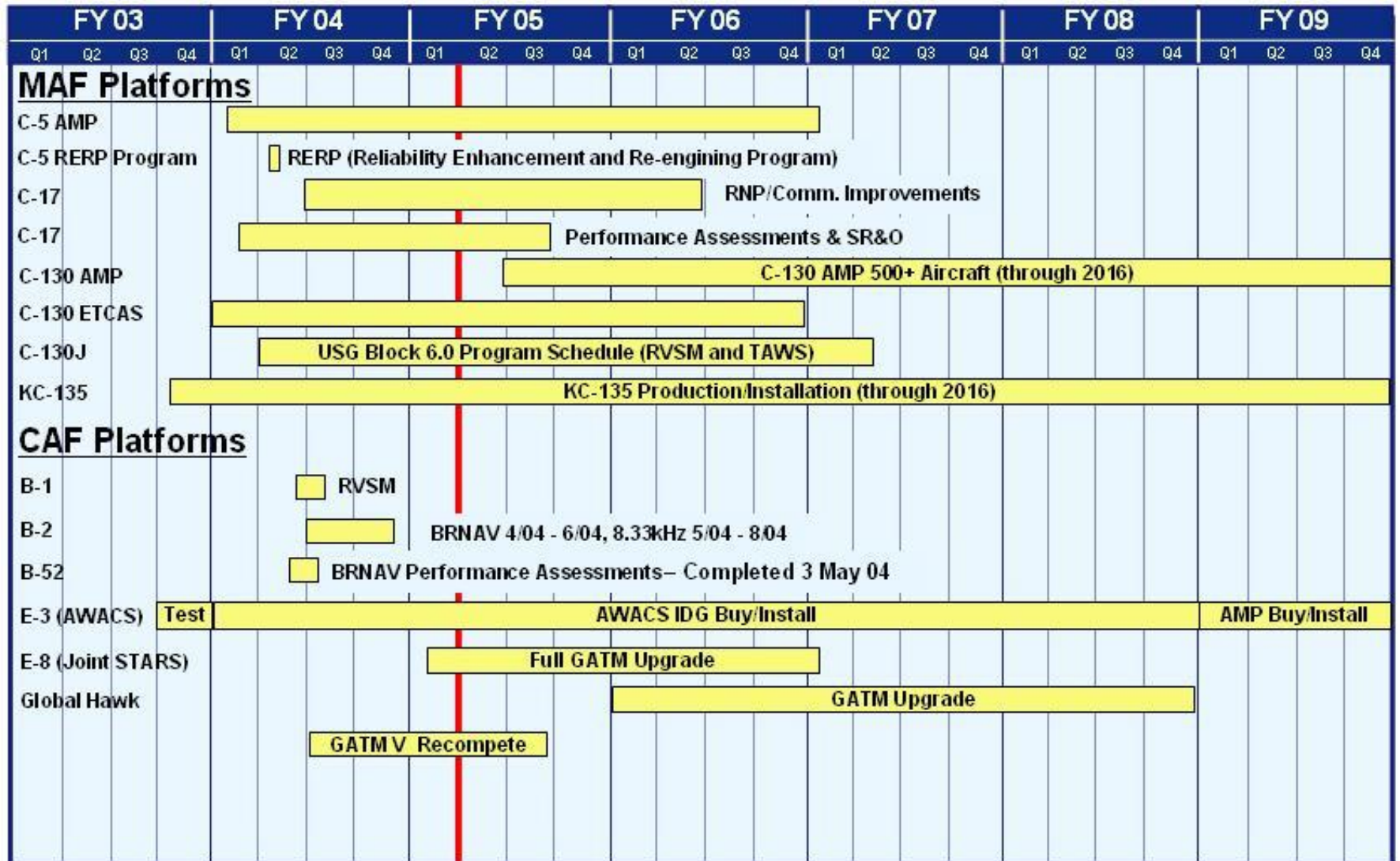


Exhibit R-4a, RDT&E Schedule Detail	DATE February 2005
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305099F Communication, Navigation, Surveillance/Air Traffic Management (CNS/ATM)	PROJECT NUMBER AND TITLE 4689 Global Access Architecture
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(U) <u>Schedule Profile</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) System Architecture Definitions	1-4Q	1-4Q	1-4Q	1-4Q
(U) Operational Requirements Analysis	1-4Q	1-4Q	1-4Q	1-4Q
(U) Development of common avionics and technologies	1-4Q	1-4Q	1-4Q	1-4Q
(U) Acquisition of ID/IQ equipment	1-4Q	1-4Q	1-4Q	1-4Q
(U) GPS/NAVWAR Integration Activities	1-4Q	1-4Q	1-4Q	1-4Q

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PE NUMBER: 0305110F
 PE TITLE: Satellite Control Network

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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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	19.521	20.013	29.143	20.487	18.240	17.899	20.351	18.547	Continuing	TBD
3276 Satellite Control Network	19.521	20.013	29.143	20.487	18.240	17.899	20.351	18.547	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 provide operational capabilities validated by a Joint Staff Capstone Requirements Document and a Headquarters 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 provides unique capability for DoD to deploy and operate its satellites. AFSCN provides 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 and future satellite systems: Defense Meteorological Satellite Program (DMSP), National Polar Orbiting Environmental Satellite System (NPOESS), Global Positioning System (GPS), Defense Satellite Communications System (DSCS), Defense Support Program (DSP), Space Based Infrared System (SBIRS), Space Based Surveillance System (SBSS), Space Tracking and Surveillance System (STSS), Fleet Satellite (FLEETSAT), Military Strategic and Tactical Relay Satellite (MILSTAR), the Navy's Ultra High Frequency Follow-On (UHF F/O), Mobile User Objective System (MUOS), Advanced EHF (AEHF), Wideband Gapfiller System (WGS), Transformational Communications Satellites (TSAT), 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 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

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

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.

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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	20.468	17.833	22.086	20.138
(U) Current PBR/President's Budget	19.521	20.013	29.143	20.487
(U) Total Adjustments	-0.947	2.180		
(U) Congressional Program Reductions	-0.947	-0.320		
Congressional Rescissions				
Congressional Increases		2.500		
Reprogrammings				
SBIR/STTR Transfer				

(U) **Significant Program Changes:**

FY05: Congressional increase to continue research, development, and testing for Civil Reserve Space Service (CRSS) to augment AFSCN capabilities with commercial satellite control antennas

FY06: Funding increased to complete High Power Amplifier development for Remote Tracking Station Block Change

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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total	
3276 Satellite Control Network	19.521	20.013	29.143	20.487	18.240	17.899	20.351	18.547	Continuing	TBD	
Quantity of RDT&E Articles	0	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 provide operational capabilities validated by a Joint Staff Capstone Requirements Document and a Headquarters 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 provides unique capability for DoD to deploy and operate its satellites. AFSCN provides 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 and future satellite systems: Defense Meteorological Satellite Program (DMSP), National Polar Orbiting Environmental Satellite System (NPOESS), Global Positioning System (GPS), Defense Satellite Communications System (DSCS), Defense Support Program (DSP), Space Based Infrared System (SBIRS), Space Based Surveillance System (SBSS), Space Tracking and Surveillance System (STSS), Fleet Satellite (FLEETSAT), Military Strategic and Tactical Relay Satellite (MILSTAR), the Navy's Ultra High Frequency Follow-On (UHF F/O), Mobile User Objective System (MUOS), Advanced EHF (AEHF), Wideband Gapfiller System (WGS), Transformational Communications Satellites (TSAT), 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 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-2a, RDT&E Project Justification

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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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Range Upgrades: continue upgrades to include development of interoperability and RTS Block Change efforts. Continue predeployment system engineering and network integration.	10.533	11.243	21.966	11.986
(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.	3.155	2.268	2.912	4.032
(U) Program support for Systems Program Office	3.883	4.177	4.265	4.469
(U) Conduct research into technical feasibility of augmenting AFSCN capabilities with commercial satellite control antennas (Civil Reserve Space Service -- CRSS)	1.950	2.325		
(U) Total Cost	19.521	20.013	29.143	20.487

(U) C. Other Program Funding Summary (\$ in Millions)	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
OPAF, Electronics & Telecom Equipment (BA 03, PE 0305110F, P-64)	48.486	43.328	51.778	86.487	67.366	67.337	65.035	68.077	Continuing	TBD
(U) OPAF, Initial Spares & Repair Parts (BA 05 PE 0305110F, P-103)	2.911	3.155	3.442	3.567	0.000	0.000	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

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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			
(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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>	
(U) <u>Product Development</u> Satellite Control Network Contract	C/CPAF	Honeywell, Colorado Springs, CO	35.034	13.688	Nov-03	13.511	Dec-04	24.878	Dec-05	16.018	Dec-06	Continuing	TBD	TBD	
Congressional increase for Civil Reserve Space Service	various	various	0.000	1.950	Jul-04	2.325	Feb-05	0.000		0.000			4.275	TBD	
Subtotal Product Development			35.034	15.638		15.836		24.878		16.018		Continuing	TBD	TBD	
Remarks:															
(U) <u>Support</u> Program Support (FFRDC, SETA, SPO ops)	various	various	82.947	3.883	Dec-03	4.177	Dec-04	4.265	Dec-05	4.469	Dec-06	Continuing	TBD	TBD	
Subtotal Support			82.947	3.883		4.177		4.265		4.469		Continuing	TBD	TBD	
Remarks:															
(U) <u>Subtotal additional reprogrammings</u>															
(U) Total Cost			117.981	19.521		20.013		29.143		20.487		Continuing	TBD	TBD	
Remarks:															

Exhibit R-4, RDT&E Schedule Profile

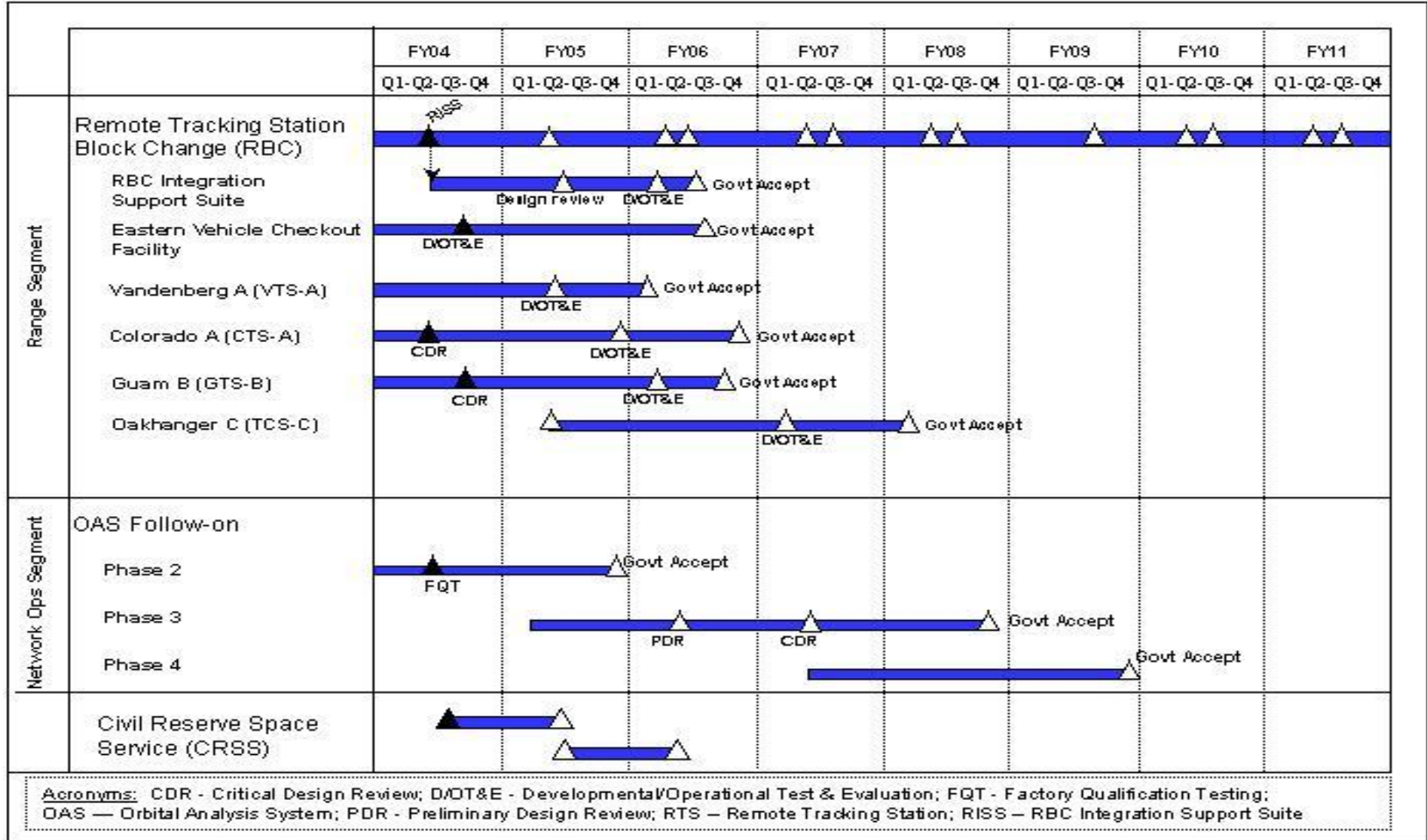
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BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0305110F Satellite Control Network

PROJECT NUMBER AND TITLE
3276 Satellite Control Network



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Exhibit R-4a, RDT&E Schedule Detail			DATE	
			February 2005	
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE		
07 Operational System Development	0305110F Satellite Control Network	3276 Satellite Control Network		
	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Schedule Profile				
(U) RANGE UPGRADES (Remote Tracking Station (RTS) Block Change)				
(U) - Colorado RTS CDR	2Q			
(U) - Colorado RTS Gov't acceptance			4Q	
(U) - Guam RTS CDR	3Q			
(U) - Eastern Vehicle Checkout Facility (EVCF) Developmental/operational test & eval	3Q			
(U) - EVCF Gov't acceptance			3Q	
(U) - Vandenberg RTS Developmental/operational test & eval		2Q		
(U) - Vandenberg RTS Gov't acceptance			1Q	
(U) - Remote Tracking Station Block Change Integration Support Suite (RISS) CDR		2Q		
(U) - RISS Gov't acceptance			3Q	
(U) NETWORK OPERATIONS UPGRADES				
(U) - Orbit Analysis System (OAS) follow-on Phase 2 Factory Qualification Testing	2Q			
(U) - OAS Follow-on Phase 2 Gov't acceptance		4Q		
(U) - OAS Follow-on Phase 3 Preliminary Design Review			2Q	
(U) - OAS Follow-on Phase 3 Critical Design Review				2Q

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Exhibit R-2, RDT&E Budget Item Justification	DATE February 2005
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305111F WEATHER SERVICE
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Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	15.293	17.340	28.675	34.836	41.022	51.850	34.335	30.798	Continuing	TBD
2738 Weather Service	15.293	17.340	28.675	34.836	41.022	51.850	34.335	30.798	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 Air and Space Expeditionary Force (EAF) with weather observing and forecasting capabilities at in-garrison and deployed locations. Air Force Weather (AFW) programs are aligned under the five capability areas of Weather Data Collection (WDC), Weather Data Analysis (WDA), Weather Forecasting, Product Tailoring/Warfighter Applications (PT/WA), and Weather Dissemination (relies on Commercial-off-the-Shelf products and so does not use RDT&E funding). 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. Beginning in FY06, funding becomes available within the WDC, WDA, and Forecasting capabilities to exploit data from the National Polar-orbiting Operational Environmental Satellite System (NPOESS), a joint DoD/Department of Commerce program. 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.

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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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305111F WEATHER SERVICE

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	16.098	16.526	16.670	16.970
(U) Current PBR/President's Budget	15.293	17.340	28.675	34.836
(U) Total Adjustments	-0.805	0.814		
(U) Congressional Program Reductions		-0.186		
Congressional Rescissions				
Congressional Increases		1.000		
Reprogrammings	-0.323			
SBIR/STTR Transfer	-0.482			

(U) **Significant Program Changes:**

FY05: Congressional Mark-up of \$1.0M for Pacific Islands Ocean Typhoon Experiment (PILOT) to be conducted by US Army Corps of Engineers.

FY06-07: Increased funding starting in FY06 to support the integration of National Polar-orbiting Operational Environmental Satellite Systems (NPOESS) data and to develop and field direct readout terminals prior to FY10 satellite launch.

Exhibit R-2a, RDT&E Project Justification

DATE
February 2005

BUDGET ACTIVITY 07 Operational System Development					PE NUMBER AND TITLE 0305111F WEATHER SERVICE			PROJECT NUMBER AND TITLE 2738 Weather Service		
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
2738 Weather Service	15.293	17.340	28.675	34.836	41.022	51.850	34.335	30.798	Continuing	TBD
Quantity of RDT&E Articles	0	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 Air and Space Expeditionary Force (EAF) with weather observing and forecasting capabilities at in-garrison and deployed locations. Air Force Weather (AFW) programs are aligned under the five capability areas of Weather Data Collection (WDC), Weather Data Analysis (WDA), Weather Forecasting, Product Tailoring/Warfighter Applications (PT/WA), and Weather Dissemination (relies on Commercial-off-the-Shelf products and so does not use RDT&E funding). 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. Beginning in FY06, funding becomes available within the WDC, WDA, and Forecasting capabilities to exploit data from the National Polar-orbiting Operational Environmental Satellite System (NPOESS), a joint DoD/Department of Commerce program. 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.

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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Accomplishments/Planned Program				
(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 and starting in FY06 includes development of NPOESS direct readout terminals	1.225	1.365	2.338	5.338
(U) WDA: Continues incremental software development and integration of enhanced analysis capabilities to include efforts to integrate NPOESS data starting in FY06	2.652	2.188	6.980	8.344
(U) Forecasting: Continues integration of advanced terrestrial and space weather forecast capabilities within AFW Strategic Center to include the efforts to integrate NPOESS data starting in FY06	5.199	4.205	11.563	13.002
(U) PT/WA: Continues software development and integration of regional and tactical weather systems and	6.217	8.582	7.794	8.152

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305111F WEATHER SERVICE	PROJECT NUMBER AND TITLE 2738 Weather Service
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integration with warfighter C4I systems.

(U) PILOT: Pacific Islands Ocean Typhoon experiment to be conducted by US Army Corps of Engineers.		1.000		
(U) Total Cost	15.293	17.340	28.675	34.836

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

	<u>FY 2004</u> <u>Actual</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>FY 2010</u> <u>Estimate</u>	<u>FY 2011</u> <u>Estimate</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) Other Procurement, AF, Weather Service (PE 0305111F WSC 833070, 838010, and 86190A)	42.928	42.970	49.077	49.023	55.477	62.671	59.061	58.756	Continuing	TBD
(U) Operations and Maintenance	131.381	118.401	141.221	144.426	151.284	155.627	160.972	164.781	Continuing	TBD

Note: Includes Congressional reduction of \$4.13M of Other Procurement, AF in FY05

(U) **D. Acquisition Strategy**

AFWWS employs an incremental development strategy with a series of incremental IOCs and software releases to enable rapid development and fielding of capabilities using full and open competition.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2005

BUDGET ACTIVITY										PE NUMBER AND TITLE		PROJECT NUMBER AND TITLE			
07 Operational System Development										0305111F WEATHER SERVICE		2738 Weather Service			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2004 Cost	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost to Complete	Total Cost	Target Value of Contract	
(U) <u>Product Development</u>															
Northrup Grumman	GSA schedule/L	Colorado Springs, CO	2.341	2.344	Nov-03	2.072	Feb-05	2.296	Oct-05	2.357	Oct-06	Continuing	TBD	TBD	
Raytheon	C/CPFF	Bellevue, NE		2.112	May-04	1.681	Mar-05	1.903	Mar-06	1.949	Mar-07	Continuing	TBD	TBD	
Multiple [PT/WA]	GSA schedule/L	various	13.368	2.311	Jan-04								15.679	15.679	
Multiple [PT/WA JET]	OE			2.730	Jul-04	5.920	Nov-04						8.650	9.089	
TBD [JET]	C/FPF	various						4.788	Nov-05	5.133	Nov-06	Continuing	TBD	TBD	
TBD [WDC - NPOESS]	C/CPAF							2.000	Mar-06	5.000	Jan-07	Continuing	TBD	TBD	
TBD [WDA - NPOESS]	C/CPAF							4.300	Mar-06	5.600	Jan-07	Continuing	TBD	TBD	
TBD [Forecasting - NPOESS]	C/CPAF							5.650	Mar-06	6.900	Jan-07	Continuing	TBD	TBD	
Atmospheric Environmental Research	GSA Task Order	Lexington, MA		1.994	Jun-04							Continuing	TBD	TBD	
National Center for Atmospheric Research	MIPR	Boulder, CO				1.215	Feb-05	1.200	Jan-06	1.500	Jan-07	Continuing	TBD		
National Weather Service	MIPR	Norman, OK		1.225	Apr-04							Continuing	TBD	TBD	
US Army Corps of Engineers [PILOT]	MIPR	Millington, TN				1.000	Feb-05						1.000		
Various	various	various	4.359	0.945	Oct-03	3.032	Oct-04	3.499	Oct-05	3.325	Oct-06	Continuing	TBD	TBD	
Subtotal Product Development			20.068	13.661		14.920		25.636		31.764		Continuing	TBD	TBD	
Remarks:															
(U) <u>Management</u>															
Electronic Sytems Center		Hanscom AFB, MA	2.254	1.501	Oct-03	2.086	Oct-04	2.709	Oct-05	2.742	Oct-06	Continuing	TBD	TBD	
Space & Missile Systems Center		Los Angeles AFB, CA	0.220	0.131	Oct-03	0.099	Oct-04	0.095	Oct-05	0.095	Oct-06	Continuing	TBD	TBD	
Air Force Research Laboratory		Hanscom AFB, MA				0.235	Oct-04	0.235	Oct-05	0.235	Oct-06	Continuing	TBD		
Subtotal Management			2.474	1.632		2.420		3.039		3.072		Continuing	TBD	TBD	
Remarks:															
(U) Total Cost			22.542	15.293		17.340		28.675		34.836		Continuing	TBD	TBD	

Exhibit R-4, RDT&E Schedule Profile

DATE

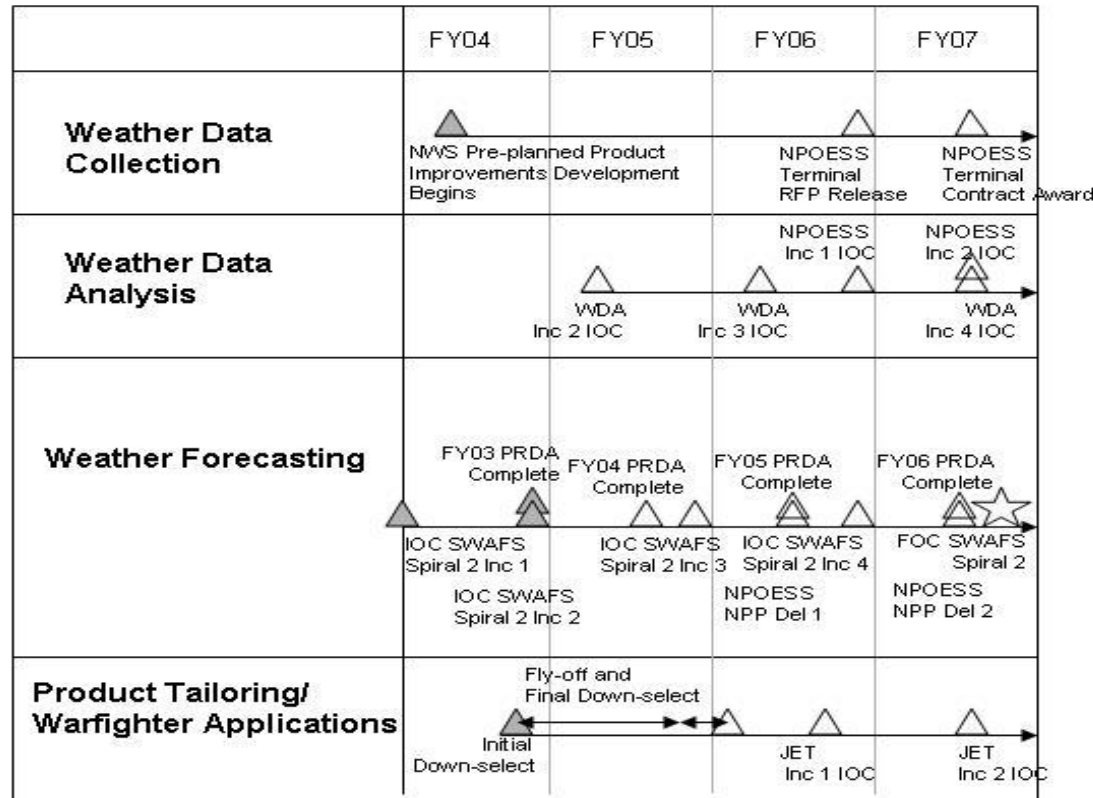
February 2005

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0305111F WEATHER SERVICE

PROJECT NUMBER AND TITLE
2738 Weather Service

Exhibit R-4: PE 0305111F Weather Service



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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2005
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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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) WDC NWS Pre Product Improvement Begins (Note 1)	2Q			
(U) WDC - NPOESS Terminal RPF Release			4Q	
(U) WDC - NPOESS Terminal Contract Award				3Q
(U) WDA Increment 2 IOC		2Q		
(U) WDA Increment 3 IOC			2Q	
(U) WDA Increment 4 IOC				3Q
(U) WDA - NPOESS Increment 1 IOC			4Q	
(U) WDA - NPOESS Increment 2 IOC				3Q
(U) Forecasting FY03 PRDA Tasks Complete (Note 2)	4Q			
(U) Forecasting FY04 PRDA Tasks Complete		3Q		
(U) Forecasting FY05 PRDA Tasks Complete			3Q	
(U) Forecasting FY06 PRDA Tasks Complete				3Q
(U) Forecasting - NPOESS Preparatory System delivery 1			3Q	
(U) Forecasting - NPOESS Preparatory System delivery 2				3Q
(U) Forecasting - SWAFS Spiral 2 Increment 1 IOC	1Q			
(U) Forecasting - SWAFS Spiral 2 Increment 2 IOC	4Q			
(U) Forecasting - SWAFS Spiral 2 Increment 3 IOC		4Q		
(U) Forecasting - SWAFS Spiral 2 Increment 4 IOC			4Q	
(U) Forecasting - SWAFS Spiral 2 FOC				4Q
(U) PT/WA Initial JET Down-Select	4Q			
(U) PT/WA JET Fly-Off		4Q		
(U) PT/WA Final JET Down-Select			1Q	
(U) PT/WA JET Increment 1 IOC			3Q	
(U) PT/WA JET Increment 2 IOC				3Q

Note 1: AF participation with National Weather Service (NWS) and Federal Aviation Administration (FAA) 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 replaced 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 2005
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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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	11.516	9.783	0.000	0.000	0.000	2.608	3.901	3.427	Continuing	TBD
3587 Air Traffic Control Systems	11.516	9.783	0.000	0.000	0.000	2.608	3.901	3.427	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

This program funds research, 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, unsupported, 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 Global Procedures Designer (GDP) formerly known as 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. This program will participate in the development, testing, and implementation of international standards (to include North Atlantic Treaty Organization (NATO) standardization agreements) to ensure joint, Allied, and coalition interoperability.

FY 2009 and beyond will see additional capabilities being planned 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 Communication, Navigation and Surveillance/Air Traffic Management (CNS/ATM) that predominantly focus on aircraft issues.

FY06-08 funding was realigned to other ATCALs priorities within the portfolio limits. Beginning in FY09 we will be starting modifications to add Mode S upgrades to the Digital Airport Surveillance Radar (DASR) and to upgrade the DoD Advanced Automation System to interface with host nation air traffic control systems. The FY09 and beyond modifications are required to allow AF to continue operations in the civil airspace in the Continental United States (CONUS) and at selected overseas locations.

This program is in budget activity 7, Operational System Development, because it upgrades currently fielded systems.

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2005

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305114F Air Traffic Control/Approach/Landing System (ATCALs)

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	10.622	7.371	5.221	5.314
(U) Current PBR/President's Budget	11.516	9.783	0.000	0.000
(U) Total Adjustments	0.894	2.412		
(U) Congressional Program Reductions	-0.110			
Congressional Rescissions	-0.091			
Congressional Increases		2.500		
Reprogrammings	1.405	-0.088		
SBIR/STTR Transfer	-0.310			

(U) **Significant Program Changes:**

- FY04 Reprogram of +\$1.405M for Global Procedures Design (GPD) Release C Development.

- FY06/07/08 funds for ATCALs Pre-Planned Product Improvements (P3I) activities realigned based on higher Air Force priorities (FY06-08). Activities planned to re-commence in FY09.

Exhibit R-2a, RDT&E Project Justification

DATE

February 2005

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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
3587 Air Traffic Control Systems	11.516	9.783	0.000	0.000	0.000	2.608	3.901	3.427	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

This program funds research, 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 Global Procedures Designer (GDP) formerly known as 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. This program will participate in the development, testing, and implementation of international standards (to include North Atlantic Treaty Organization (NATO) standardization agreements) to ensure joint, Allied, and coalition interoperability.

FY 2009 and beyond will see additional capabilities being planned 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 Communication, Navigation and Surveillance/Air Traffic Management (CNS/ATM) that predominantly focus on aircraft issues.

FY06-08 funding was realigned to other ATCALs priorities within the portfolio limits. Beginning in FY09 we will be starting modifications to add Mode S upgrades to the Digital Airport Surveillance Radar (DASR) and to upgrade the DoD Advanced Automation System to interface with host nation air traffic control systems. The FY09 and beyond modifications are required to allow AF to continue operations in the civil airspace in the Continental United States (CONUS) and at selected overseas locations.

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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Continue MACS Air Surveillance Radar (ASR) and Ops Shelter Development	3.921			
(U) Continue MACS Precision Approach Radar (PAR) development	0.965			
(U) Continue Global Prodecured Designer (GPD) Release C Study	2.324			
(U) Continue ATCALs pre-planned product improvement (P3I)	2.210			
(U) Continue Engineering Support for all ATCALs projects	1.244			

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Exhibit R-2a, RDT&E Project Justification	DATE February 2005
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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) Begin MACS Test & Evaluation Support	0.852		0.400		
(U) Complete MACS ASR and Ops Shelter Development			0.400		
(U) Complete MACS Precision Approach Radar (PAR) development			1.520		
(U) Complete GPD Release C Study			1.340		
(U) Complete Engineering Support for all ATCALs projects			1.165		
(U) Complete MACS Test & Evaluation Support			2.458		
(U) Continue ATCALs P3I support			2.500		
(U) Begin and Complete Transportable Transponder Landing System (TTLS)			11.516	9.783	0.000
(U) Total Cost					0.000

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E										
(U) Other APPN										
APAF - BA 5 (PE 35114F)										
(U) Weapon System Code		15.710	3.816						0.000	19.526
CO2900										
(U) OPAF - BA 3 (PE 0305114F)	32.029	4.431	16.795	6.238	0.987	0.991	1.016	1.030	Continuing	TBD
Weapon System Code 833010										
(U) OPAF, BA 3, (PE 0305137F)	26.895	40.361	51.919	55.675	57.043	58.238	60.477	61.139	Continuing	TBD
Weapon System Code 833020										
OPAF, BA 5, (PE 0305137F)										
(U) Weapon System Code	3.085	3.285	4.748	5.413	5.430	5.544	5.784	5.866	Continuing	TBD
86190A Initial Spares										

(U) D. Acquisition Strategy

Award multiple, competitive contract vehicles emphasizing off-the-shelf technology and maximizing the use of non-developmental items (NDIs).

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2005

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 Prior to FY 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u>														
Global Procedures Designer (GPD)	C/FFP	MacDonald Dettwiler; Vancouver, BC	2.450	2.324	Dec-03	1.520	Oct-04					0.000	6.294	4.101
MACS Airport Surveillance Radar (ASR) and Operational Shelter Development	C/FFP	ITT Gilfillan; Van Nuys, CA	30.360	3.921	Nov-03	0.400	Apr-05					0.000	34.681	34.138
Engineering Support	C/FFP	Mitre Corp; Bedford, MA	2.557	1.244	Oct-03	1.340	Nov-04					0.000	5.141	4.829
Various	Multiple	Multiple	3.003									0.000	3.003	3.353
MACS Precision Approach Radar (PAR) Development	C/FFP	ITT Gilfillan; Van Nuys, CA	2.427	0.965	Feb-04	0.400	Apr-05					0.000	3.792	7.230
Transportable Transponder Landing System (TTLS)	TBD	TBD				2.412	Jun-05						2.412	
Subtotal Product Development			40.797	8.454		6.072		0.000		0.000		0.000	55.323	53.651
Remarks:														
<u>(U) Support</u>														
Various	C/FFP/T&M	Multiple	2.205	1.033	May-04	0.786	Nov-04					0.000	4.024	5.423
Subtotal Support			2.205	1.033		0.786		0.000		0.000		0.000	4.024	5.423
Remarks:														
<u>(U) Test & Evaluation</u>														
Test & Evaluation for MACS & GDP	MIPR	46th Test Wing, Eglin AFB FL	2.297	0.400	Feb-04	1.165	Jan-05					0.000	3.862	3.058
Other Test Requirements		Multiple		0.452	Oct-03								0.452	
Subtotal Test & Evaluation			2.297	0.852		1.165		0.000		0.000		0.000	4.314	3.058
Remarks:														
<u>(U) Management</u>														
Cost Estimating Support	C/T&M	MCR Federal Inc; MacLean, VA	0.632	0.118	May-04	0.080	Jan-05					0.000	0.830	0.832
Program Management Support	C/T&M	ManTech Inc; Bedford, MA	1.515	1.059	May-04	1.680	Jan-05					0.000	4.254	3.515

Project 3587

R-1 Shopping List - Item No. 182-6 of 182-9

Exhibit R-3 (PE 0305114F)

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2005

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE							
07 Operational System Development	0305114F Air Traffic Control/Approach/Landing System (ATCALs)	3587 Air Traffic Control Systems							
Subtotal Management	2.147	1.177	1.760	0.000	0.000	0.000	5.084	4.347	
Remarks:									
(U) Total Cost	47.446	11.516	9.783	0.000	0.000	0.000	68.745	66.479	

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

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

ATCALs
Schedule

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
MACS ASR/OPS & PAR																																
Milestone C																																
ASR/OPS Development																																
PAR Development																																
Retrofit/Refurb LRIP (OPAF)																																
IOC (LRIP units)																																
ASR/OPS FRP Option (OPAF)																																
PAR FRP Option (OPAF)																																
GPD																																
Release C software																																
Release C update to field																																
TTLS																																
TTLS Evaluation																																
TTLS Fielding Decision																																
ATCALs P3I																																

Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2005

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) Schedule Profile	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Complete MACS ASR operations shelter development			2Q	
(U) Complete MACS PAR development			2Q	
(U) MACS MS C			2Q	
(U) MACS IOC				3Q
(U) Complete GPD Release C software development/testing			2Q	
(U) Field GPD Release C			2Q	
(U) Complete TTLS system evaluation		4Q		
(U) Decision to field TTLS			1Q	

UNCLASSIFIED

PE NUMBER: 0305116F
 PE TITLE: AERIAL TARGETS

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2005
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305116F AERIAL TARGETS
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Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	5.132	6.641	5.241	5.297	5.348	5.473	5.567	Continuing	TBD
5136 Target Systems Development	0.000	5.132	6.641	5.241	5.297	5.348	5.473	5.567	Continuing	TBD

Prior year (FY03 & FY04) RDT&E funding for Aerial Targets was in PE 64735F/BPAC 652286.
 In FY 2006 Aerial Targets includes a new start effort.

(U) A. Mission Description and Budget Item Justification

Full-scale and subscale targets assure warfighters that weapon systems will perform adequately against real-world enemy fighters and cruise missiles. Aerial targets help satisfy public law Title 10, Section 2366 that requires major systems and munitions programs to conduct survivability testing and lethality testing before full-scale production. The Aerial Targets program provides drones to satisfy "Live Fire/Lethality" developmental/operational test requirements. Target drones are used to validate operational missile/weapon system effectiveness and fighter operational flight program (OFP) updates. Target drones are also essential for development testing/operational testing for all air-to-air and ground-to-air missiles, and for the F/A-22, F-16, F-15, etc., aircraft. The objective is to provide realistic targets for missile testing to enable the development of air defense systems capable of defeating changing airborne threats. This funding improves/updates aerial target systems to ensure aerial targets represent enemy threat airborne systems. This program element also funds development of full-scale/subscale aerial targets and target control systems. Specialized target payload subsystems are developed for requirements such as: missile scoring, electronic attack and infrared (IR) countermeasures, radar and IR signature augmentation, and chaff and flare dispensing systems. In FY06, the Air Force Subscale Aerial Target (AFSAT) program will continue to evaluate product improvement opportunities that will identify areas of needed enhancements to the performance, payload capability, and payload capacity to support growth initiatives which will continue throughout the Future Years Defense Program (FYDP). FY06 will also fund system acquisition and engineering support for studies and analysis of alternatives for the Air Superiority Target which is the planned follow-on full scale target to the QF-4.

This program is in budget activity 7 - RDT&E Operational System Development because it provides aerial targets, target payloads and target control systems in support of operational and RDT&E testing.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	0.000	5.178	5.106	5.143
(U) Current PBR/President's Budget	0.000	5.132	6.641	5.241
(U) Total Adjustments	0.000	-0.046		
(U) Congressional Program Reductions		-0.046		
Congressional Rescissions				
Congressional Increases				
Reprogrammings				
SBIR/STTR Transfer				
(U) <u>Significant Program Changes:</u>				

Exhibit R-2, RDT&E Budget Item Justification

DATE

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305116F AERIAL TARGETS

\$1.5M in FY06 is for Air Superiority Target (AST) Analysis of Alternatives

Exhibit R-2a, RDT&E Project Justification

DATE

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BUDGET ACTIVITY 07 Operational System Development					PE NUMBER AND TITLE 0305116F AERIAL TARGETS			PROJECT NUMBER AND TITLE 5136 Target Systems Development		
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
5136 Target Systems Development	0.000	5.132	6.641	5.241	5.297	5.348	5.473	5.567	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

Full-scale and subscale targets assure warfighters that weapon systems will perform adequately against real-world enemy fighters and cruise missiles. Aerial targets help satisfy public law Title 10, Section 2366 that requires major systems and munitions programs to conduct survivability testing and lethality testing before full-scale production. The Aerial Targets program provides drones to satisfy "Live Fire/Lethality" developmental/operational test requirements. Target drones are used to validate operational missile/weapon system effectiveness and fighter operational flight program (OFP) updates. Target drones are also essential for development testing/operational testing for all air-to-air and ground-to-air missiles, and for the F/A-22, F-16, F-15, etc., aircraft. The objective is to provide realistic targets for missile testing to enable the development of air defense systems capable of defeating changing airborne threats. This funding improves/updates aerial target systems to ensure aerial targets represent enemy threat airborne systems. This program element also funds development of full-scale/subscale aerial targets and target control systems. Specialized target payload subsystems are developed for requirements such as: missile scoring, electronic attack and infrared (IR) countermeasures, radar and IR signature augmentation, and chaff and flare dispensing systems. In FY06, the Air Force Subscale Aerial Target (AFSAT) program will continue to evaluate product improvement opportunities that will identify areas of needed enhancements to the performance, payload capability, and payload capacity to support growth initiatives which will continue throughout the Future Years Defense Program (FYDP). FY06 will also fund system acquisition and engineering support for studies and analysis of alternatives for the Air Superiority Target which is the planned follow-on full scale target to the QF-4.

This program is in budget activity 7 - RDT&E Operational System Development because it provides aerial targets, target payloads and target control systems in support of operational and RDT&E testing.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Prior year (FY03 & FY04) RDT&E funding for Aerial Targets was in PE 64735F/BPAC 652286.				
(U) Continue Aerial Targets basic operating support.		0.200	0.200	0.200
(U) Continue system acquisition and engineering support to include studies, upgrades for the target control system, the weapon scoring system, payload systems and other aerial targets support systems		1.578	0.941	1.041
(U) Air Superiority Target Analysis of Alternatives			1.500	
(U) Continue product improvement program for the Air Force Subscale Aerial Target (AFSAT) program to include payload and propulsion improvements, radar augmentation, and other objective requirements/enhancements.		3.354	4.000	4.000
(U) Total Cost	0.000	5.132	6.641	5.241

Exhibit R-2a, RDT&E Project Justification

DATE

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305116F AERIAL TARGETS

PROJECT NUMBER AND TITLE

5136 Target Systems Development

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
PE35116F: Appn: Aircraft										
(U) Procurement, AF(APAF), Program Title: Aerial Targets	51.554	73.008	82.907	81.326	83.986	89.055	91.233	92.227	Continuing	TBD
(U) Initial Spares	0.758	0.397	0.478	0.480	0.495	0.511	0.524	0.530	Continuing	TBD
(U) Munitions	2.771	3.322	3.617	3.770	3.888	4.044	4.146	4.195	Continuing	TBD
(U) Electronic Attack Pods	0.000	0.000	4.992	5.407	5.420	5.069	5.302	5.465	Continuing	TBD

(U) **D. Acquisition Strategy**

The acquisition strategy is competitive, with cost plus and fixed price contracts.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2005

BUDGET ACTIVITY				PE NUMBER AND TITLE							PROJECT NUMBER AND TITLE			
07 Operational System Development				0305116F AERIAL TARGETS							5136 Target Systems Development			
(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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>														
Composite Engineering Inc.	CPFF		0.000	0.000		3.354	Feb-05	4.000	Nov-05	4.000	Nov-06		11.354	
TBD - AST Analysis of Alternatives	TBD							1.500	Mar-06				1.500	
Subtotal Product Development			0.000	0.000		3.354		5.500		4.000		0.000	12.854	0.000
Remarks:	Spiral Development Program for the BQM-167A (AFSAT) subscale program													
(U) <u>Support</u>														
Mission Support	Various	Various	0.000	0.000		0.951		0.750		0.803			2.504	
Subtotal Support			0.000	0.000		0.951		0.750		0.803		0.000	2.504	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>														
System Acq and Engineering Support	Various	Various	0.000	0.000		0.827		0.391		0.438			1.656	
Subtotal Management			0.000	0.000		0.827		0.391		0.438		0.000	1.656	0.000
Remarks:														
(U) Total Cost			0.000	0.000		5.132		6.641		5.241		0.000	17.014	0.000

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0305116F AERIAL TARGETS

PROJECT NUMBER AND TITLE
5136 Target Systems Development



BQM-167A Spiral Development Roadmap

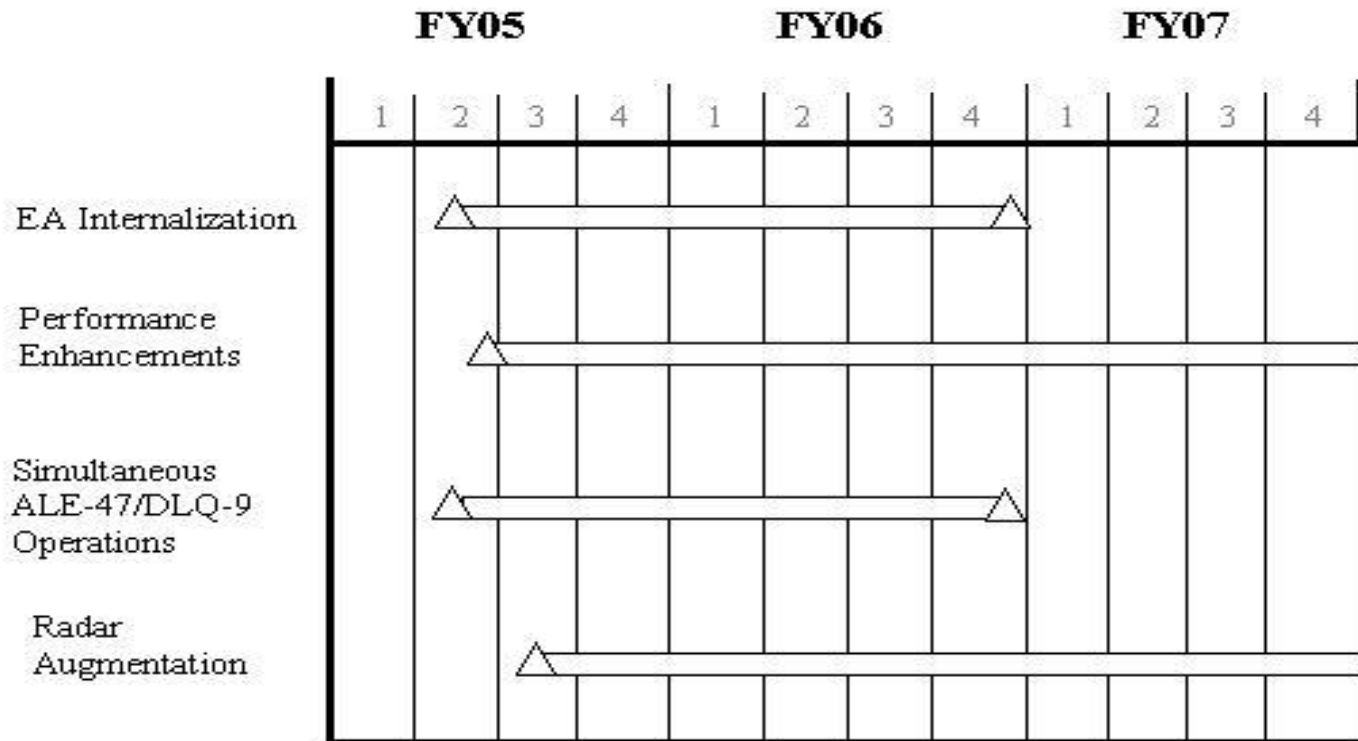


Exhibit R-4a, RDT&E Schedule Detail

DATE

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305116F AERIAL TARGETS

PROJECT NUMBER AND TITLE

5136 Target Systems Development

(U) **Schedule Profile**

(U) EA Internalization Modification for the BQM-167A

(U) BQM-167A Performance Enhancements

(U) Simultaneous ALE-47/DLQ-9 Operations for BQM-167A

FY 2004

FY 2005

FY 2006

FY 2007

2Q

2Q

2Q

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Exhibit R-2, RDT&E Budget Item Justification	DATE February 2005
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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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	19.705	0.480	0.491	0.507	0.513	0.523	0.535	0.544	Continuing	TBD
1931 TECH SURVEIL COUNTER MEAS EQPT	19.705	0.480	0.491	0.507	0.513	0.523	0.535	0.544	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

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305128F Security And Investigative Activities

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	0.474	0.484	0.484	0.497
(U) Current PBR/President's Budget	19.705	0.480	0.491	0.507
(U) Total Adjustments	19.231	-0.004		
(U) Congressional Program Reductions		-0.004		
Congressional Rescissions				
Congressional Increases	19.830			
Reprogrammings	-0.599			
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		0305128F Security And Investigative Activities						1931 TECH SURVEIL COUNTER MEAS EQPT		
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
1931 TECH SURVEIL COUNTER MEAS EQPT	19.705	0.480	0.491	0.507	0.513	0.523	0.535	0.544	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(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.

(U) **B. Accomplishments/Planned Program (\$ in Millions)**FY 2004FY 2005FY 2006FY 2007

(U) Accomplished/Planned Program

(U) Next generation Technical Surveillance Countermeasures (TSCM) receiver.

Project 1931

R-1 Shopping List - Item No. 185-4 of 185-9

Exhibit R-2a (PE 0305128F)

Exhibit R-2a, RDT&E Project Justification	DATE February 2005
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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) Continue development of Computer Crimes Investigative (CCI) Equipment. and Software.				
(U) Continue development of Computer Crimes Investigative (CCI) Equipment and Software.	0.300	0.240	0.300	0.300
(U) Next Generation TSCM receiver Continuing Development	0.184	0.240	0.191	0.207
(U) Funds intended for PE 91212F (see note below)	19.221			
(U) Total Cost	19.705	0.480	0.491	0.507

A Congressional Increase of \$19.830 M in FY 04 was intended for PE 91212F and will be executed there.

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
(U) Other Procurement/Technical Surveillance Countermeasures Equipment 3080/WSC 846030	3.998	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
(U) Other Procurement/Heavily Armored Vehicle 3080/WSC 821700	0.243	0.242	0.241	0.241	0.246	0.250	0.265	0.270	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 2005

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) 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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>														
Sandia Natl Lab	MIPR		1.376									Continuing	TBD	
AFWIC	MIPR		0.300									Continuing	TBD	
Other Agency	MIPR		0.590	0.474	Apr-04	0.480	Apr-05	0.491	Apr-06	0.507	Apr-07	Continuing	TBD	
Funds Intended for PE 91212F (see note below)				19.231									19.231	
Subtotal Product Development			2.266	19.705		0.480		0.491		0.507		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	0.000
Remarks:														
(U) <u>Test & Evaluation</u>														
US Armor Working Group	MIPR											Continuing	TBD	TBD
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000		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	0.000
Remarks:														
(U) <u>AF Infrastructure Protection Studies</u>														
AF Infrastructure Protection Studies			1.992									Continuing	TBD	TBD
Subtotal AF Infrastructure Protection Studies														
Remarks:														
(U) <u>Subtotal</u>														
Subtotal Subtotal			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			2.266	19.705		0.480		0.491		0.507		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

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																																

Exhibit R-4, RDT&E Schedule Profile

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February 2005

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 2005
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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) <u>Schedule Profile</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) TSCM Receiver	4Q	4Q	4Q	4Q
(U) CCI Software/Equipment	4Q	4Q	4Q	4Q

UNCLASSIFIED

PE NUMBER: 0305148F
 PE TITLE: AF Tac Measurement & Sign

Exhibit R-2, RDT&E Budget Item Justification									DATE February 2005	
BUDGET ACTIVITY 07 Operational System Development					PE NUMBER AND TITLE 0305148F AF Tac Measurement & Sign					
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	7.298	9.750	0.000	0.000	0.000	0.000	0.000	0.000	0.000	32.307
5053 ARGUS	7.298	9.750	0.000	0.000	0.000	0.000	0.000	0.000	0.000	32.307

(U) A. Mission Description and Budget Item Justification

The Advanced Remote Ground Unattended Sensor (ARGUS) Program will develop an air deliverable, unattended ground sensor design that will be tested and produced by the United States Marine Corps (USMC) Advanced Air Delivered Sensor (AADS) program. The sensor design will provide the USMC and joint forces with Intelligence, Surveillance & Reconnaissance (ISR) derived information for Intelligence Preparation of the Battlespace (IPB) on tactical targets. The system will inherently have the capability to provide situational awareness on mobile targets, to include Time Critical Targets (TCTs). The sensor will be autonomous and report in near real-time. The sensor is designed for 24/7 operations and can be air-delivered or hand-emplaced. Each sensor is self-contained with internal battery power, satellite communication transceiver, and sensor suite. The ARGUS design is a technology refresh and upgrade to the successful STEEL EAGLE and STEEL RATTLER Advanced Concept Technology Demonstrations.

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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	7.436	7.905	13.151	2.809
(U) Current PBR/President's Budget	7.298	9.750	0.000	0.000
(U) Total Adjustments	-0.138	1.845		
(U) Congressional Program Reductions				
Congressional Rescissions		-0.155		
Congressional Increases		2.000		
Reprogrammings	-0.138			
SBIR/STTR Transfer				

(U) Significant Program Changes:

Starting with FY06, USAF involvement in the ARGUS program will be cancelled to support higher priority requirements. ARGUS program will complete design phase of program in FY05 and transition test and procurement activity to the USMC AADS.

Exhibit R-2a, RDT&E Project Justification

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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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
5053 ARGUS	7.298	9.750	0.000	0.000	0.000	0.000	0.000	0.000	0.000	32.307
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The Advanced Remote Ground Unattended Sensor (ARGUS) Program will develop an air deliverable, unattended ground sensor design that will be tested and produced by the United States Marine Corps (USMC) Advanced Air Delivered Sensor (AADS) program. The sensor design will provide the USMC and joint forces with Intelligence, Surveillance & Reconnaissance (ISR) derived information for Intelligence Preparation of the Battlespace (IPB) on tactical targets. The system will inherently have the capability to provide situational awareness on mobile targets, to include Time Critical Targets (TCTs). The sensor will be autonomous and report in near real-time. The sensor is designed for 24/7 operations and can be air-delivered or hand-emplaced. Each sensor is self-contained with internal battery power, satellite communication transceiver, and sensor suite. The ARGUS design is a technology refresh and upgrade to the successful STEEL EAGLE and STEEL RATTLER Advanced Concept Technology Demonstrations.

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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Accomplishments/Planned Program	0.000	0.000		
(U) System Development and Demonstration (SDD)	4.902	9.750		
(U) Test support to SDD	1.896	0.000		
(U) Simulation Support	0.500	0.000		
(U) Total Cost	7.298	9.750	0.000	0.000

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
(U) O&M, AF (3400)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		

Funds previously allocated to ARGUS O&M in future years have been reprogrammed to higher priority operational efforts with the termination of ARGUS in FY06.

(U) D. Acquisition Strategy

ARGUS develops the design for a remote measurement and signatures intelligence (MASINT) ground sensor using a spiral approach. ARGUS will terminate its activity with the completion of Spiral 1 design activities. AADS will test and produce the design. Future improvements will be addressed by AADS and the acquisition strategy will be determined by the USMC.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2005

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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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions) <u>System Development & Demonstration & Contract Termination</u>	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2004</u> <u>Cost</u>	<u>FY 2004</u> <u>Cost</u>	<u>FY 2004</u> <u>Award</u> <u>Date</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</u>	<u>FY 2006</u> <u>Cost</u>	<u>FY 2006</u> <u>Award</u> <u>Date</u>	<u>FY 2007</u> <u>Cost</u>	<u>FY 2007</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
<u>(U) Contract Termination</u> Textron	C/CPAF	ESC, Hanscom AFB, MA	6.138	4.902	Oct-03	9.750	Aug-04					0.000	20.790	
Subtotal System Development & Demonstration & Contract Termination			6.138	4.902		9.750		0.000		0.000		0.000	20.790	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-Washin gton, DC; Hanscom AFB, MA	3.685	1.896	Dec-03							0.000	5.581	
Subtotal Test & Evaluation			3.685	1.896		0.000		0.000		0.000		0.000	5.581	0.000
Remarks:														
<u>(U) Simulation Support</u> Lincoln Lab, SEEK Eagle	FFRDC, MIPR	Hanscom AFB, MA; Eglin AFB, FL	0.200	0.500	Mar-04	0.000						0.000	0.700	
Subtotal Simulation Support			0.200	0.500		0.000		0.000		0.000		0.000	0.700	0.000
Remarks:														
<u>(U) Concept & Technology Development (ACTD Completion)</u> Sandia; Joint Munitions T&E Program Office	MIPR	DOE-Washin gton DC; Eglin AFB, FL	5.236	0.000		0.000						0.000	5.236	
Subtotal Concept & Technology Development (ACTD Completion)			5.236	0.000		0.000		0.000		0.000		0.000	5.236	0.000
Remarks:														
<u>(U) Total Cost</u>			15.259	7.298		9.750		0.000		0.000		0.000	32.307	0.000

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305148F AF Tac Measurement &
Sign

PROJECT NUMBER AND TITLE

5053 ARGUS



ARGUS/AADS Acronyms & Legend



- ARGUS: Advanced Remote Ground Unattended Sensor
- AADS: Advanced Air-Delivered Sensor
- SRR: System Readiness Review
- PDR: Preliminary Design Review
- CDR: Critical Design Review
- LRIP: Low-Rate Initial Production
- DT/OA: Development Test/Operational Evaluation
- OT&E: Operational Test & Evaluation

 ARGUS activities

 AADS activities

Integrity - Service - Excellence

Semper Fidelis

4

Exhibit R-4, RDT&E Schedule Profile

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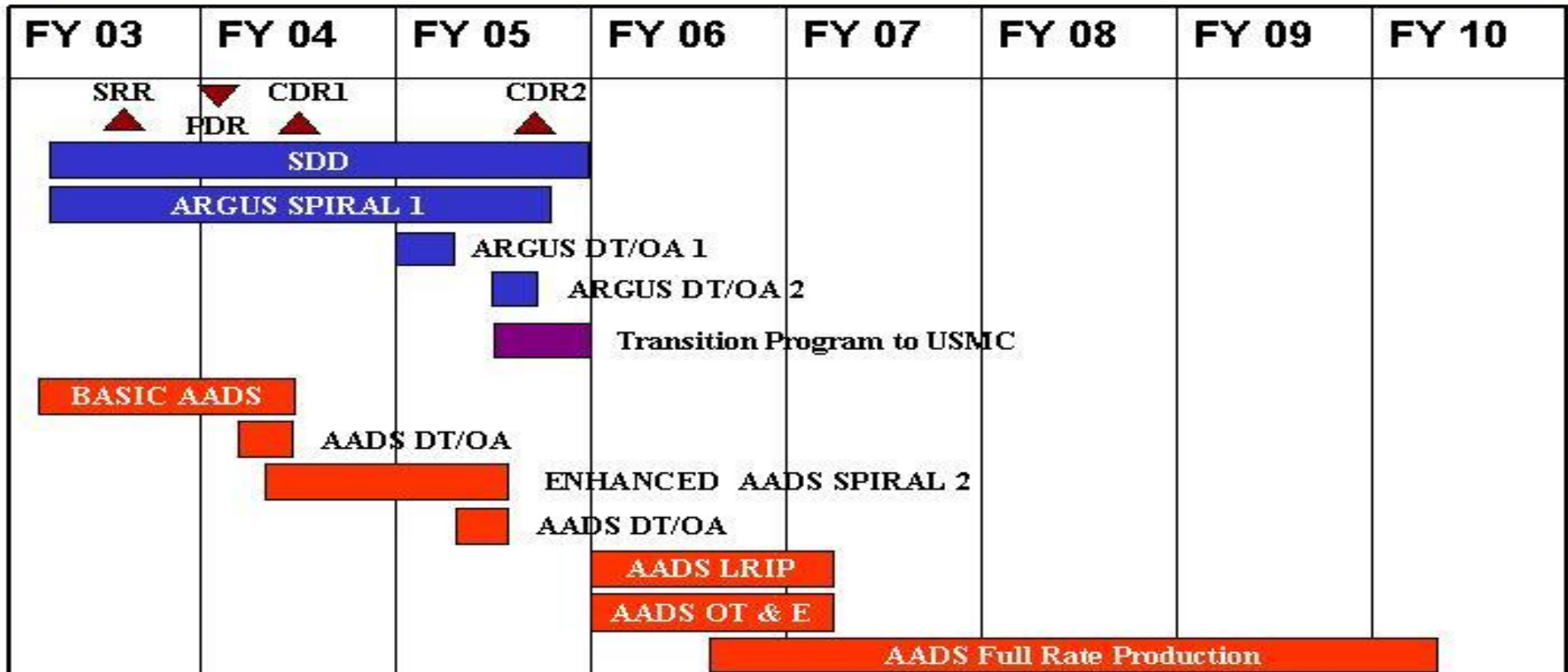
BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0305148F AF Tac Measurement &
Sign

PROJECT NUMBER AND TITLE
5053 ARGUS



ARGUS/AADS Schedule



Integrity - Service - Excellence

Semper Fidelis

Exhibit R-4a, RDT&E Schedule Detail	DATE February 2005
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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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(U) <u>Schedule Profile</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Preliminary Design Review	1Q			
(U) AADS Development Test 1, Aerobody	2Q			
(U) Critical Design Review 1	3Q			
(U) ARGUS Development Test 1, Ballistic Test		1Q		
(U) AADS Development Test 2, Aerobody		2Q		
(U) ARGUS Development Test 2, Ballistic Test		3Q		
(U) Critical Design Review 2, corrections for ballistic test and aerobody		3Q		
(U) Transition program to USMC for initial operational test and production. Terminates USAF involvement after Critical Design Review 2		4Q		

UNCLASSIFIED

PE NUMBER: 0305160F
 PE TITLE: Defense Meteorological Satellite Program

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2005
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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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	10.355	0.000	3.908	0.958	0.000	0.000	0.000	0.000	0.000	912.232
4758 DMSP Program	10.355	0.000	3.908	0.958	0.000	0.000	0.000	0.000	0.000	912.232

(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 (one in each of two orbit planes) 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 spacecraft (with legacy sensors) and was launched on a Titan-II booster in Dec 99. Premature attitude determination gyro failures on DMSP F-15 exposed a fleet-wide life-limiting problem with the attitude determination gyros that will fly on all remaining DMSP satellites. Fully redundant Mini-Inertial Measurement Units (MIMUs) are being integrated to DMSPs F-17 through F-20 to reduce risk of mission failures due to gyro problems. DMSP F-16 was launched in Oct 03 aboard the last Titan II booster and is the first 'full-up' Block 5D3 (spacecraft bus plus sensors). Operational imperatives drove a need to launch DMSP F-16 before it could be integrated with a MIMU to provide attitude determination system redundancy. DMSP F-16 flies a new series of highly capable microwave and ultraviolet sensors to perform comprehensive environmental sensing. A number of systemic problems were identified during those sensors' calibration and validation period that will be partially or fully addressed prior to the launch of all remaining satellites. DMSPs F-17 through F-20 will launch on Evolved Expendable Launch Vehicle (EELV) boosters. The Spacecraft Integration & Test (SIT) contract for spacecraft support and the Independent Verification and Validation contract for test flight software were both awarded in Jun 02. DMSP's consolidated sensors support and services follow-on contract was awarded in Nov 04. DMSP F-17 launch is planned for no earlier than 25 Nov 05.

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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	0.907	0.000	0.000	0.000
(U) Current PBR/President's Budget	10.355	0.000	3.908	0.958
(U) Total Adjustments	9.448	0.000		
(U) Congressional Program Reductions	-0.011			
Congressional Rescissions				
Congressional Increases				
Reprogrammings	9.459			
SBIR/STTR Transfer				
(U) <u>Significant Program Changes:</u>				

Exhibit R-2, RDT&E Budget Item Justification

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305160F Defense Meteorological Satellite Program

Funding: Funding added to FY04 to complete calibration and validation of DMSP F-16's Ultraviolet and Microwave sensors. Funding also added to FY04, FY06 and FY07 to complete DMSP F-18 to Atlas V EELV booster mission unique interface design.

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		
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4758 DMSP Program	10.355	0.000	3.908	0.958	0.000	0.000	0.000	0.000	0.000	912.232
Quantity of RDT&E Articles	0	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 (one in each of two orbit planes) 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 spacecraft (with legacy sensors) and was launched on a Titan-II booster in Dec 99. Premature attitude determination gyro failures on DMSP F-15 exposed a fleet-wide life-limiting problem with the attitude determination gyros that will fly on all remaining DMSP satellites. Fully redundant Mini-Inertial Measurement Units (MIMUs) are being integrated to DMSPs F-17 through F-20 to reduce risk of mission failures due to gyro problems. DMSP F-16 was launched in Oct 03 aboard the last Titan II booster and is the first 'full-up' Block 5D3 (spacecraft bus plus sensors). Operational imperatives drove a need to launch DMSP F-16 before it could be integrated with a MIMU to provide attitude determination system redundancy. DMSP F-16 flies a new series of highly capable microwave and ultraviolet sensors to perform comprehensive environmental sensing. A number of systemic problems were identified during those sensors' calibration and validation period that will be partially or fully addressed prior to the launch of all remaining satellites. DMSPs F-17 through F-20 will launch on Evolved Expendable Launch Vehicle (EELV) boosters. The Spacecraft Integration & Test (SIT) contract for spacecraft support and the Independent Verification and Validation contract for test flight software were both awarded in Jun 02. DMSP's consolidated sensors support and services follow-on contract was awarded in Nov 04. DMSP F-17 launch is planned for no earlier than 25 Nov 05.

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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Continue system integration and test, studies, and related support activities	1.243		0.650	
(U) Continue EELV interface design (transition to EELV)	5.578		3.258	0.958
(U) Complete DMSP F-16 sensor calibration and validation	3.534			
(U) Total Cost	10.355	0.000	3.908	0.958

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E										
(U) Other APPN										
(U) Missile Procurement/PE	65.455	73.531	67.175	70.500	82.541	77.792	78.400	79.449	71.043	2,832.230

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

0305160F (P-24)

Related RDT&E:

PE 0305178F, 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

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.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2005

BUDGET ACTIVITY										PE NUMBER AND TITLE		PROJECT NUMBER AND TITLE			
07 Operational System Development										0305160F Defense Meteorological Satellite Program		4758 DMSP Program			
(U) Cost Categories	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2004 Cost	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost to Complete	Total Cost	Target Value of Contract	
(U) <u>Product Development</u>															
Lockheed -Martin	SS/CPAF		3.764									0.000	3.764		
Lockheed-Martin	SS/CPAF		11.064										11.064		
Northrop-Grumman (CSS&S)	SS/CPAF		12.596	0.612									13.208		
Lockheed-Martin	C/CPAF		39.513									0.000	39.513		
Lockheed-Martin	C/CPAF		2.058	4.567				2.831	Oct-05	0.958	Oct-06		10.414		
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		5.953									0.000	5.953		
Boeing (EELV Msn Unique Studies & Services)	SS/CPAF		1.557	1.010				1.077	Oct-05			0.000	3.644		
Aerojet	SS/CPAF		2.530									0.000	2.530		
Aerojet	C/CPAF/FP		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	0.549								0.000	5.838		
NRL	MIPR/Var		14.051	1.579								0.000	15.630		
APL	MIPR/Var		3.538	0.794								0.000	4.332		
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		6.671									0.000	6.671		
Historical Satellite Blocks	Various		583.786										583.786		
NONE													0.000		
Subtotal Product Development			795.731	9.111		0.000		3.908		0.958		0.000	809.708	0.000	
Remarks:															
(U) <u>Support</u>															
FFRDC	AF 277		25.623										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		3.083	1.244								0.000	4.327		
Historical Satellite Blocks	Various		38.530									0.000	38.530		
NONE													0.000		
Subtotal Support			101.280	1.244		0.000		0.000		0.000		0.000	102.524	0.000	
Project 4758															

R-1 Shopping List - Item No. 189-5 of 189-8

Exhibit R-3 (PE 0305160F)

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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				0305160F Defense Meteorological Satellite Program			4758 DMSP Program		
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	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	897.011	10.355	0.000	3.908	0.958	0.000	912.232	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

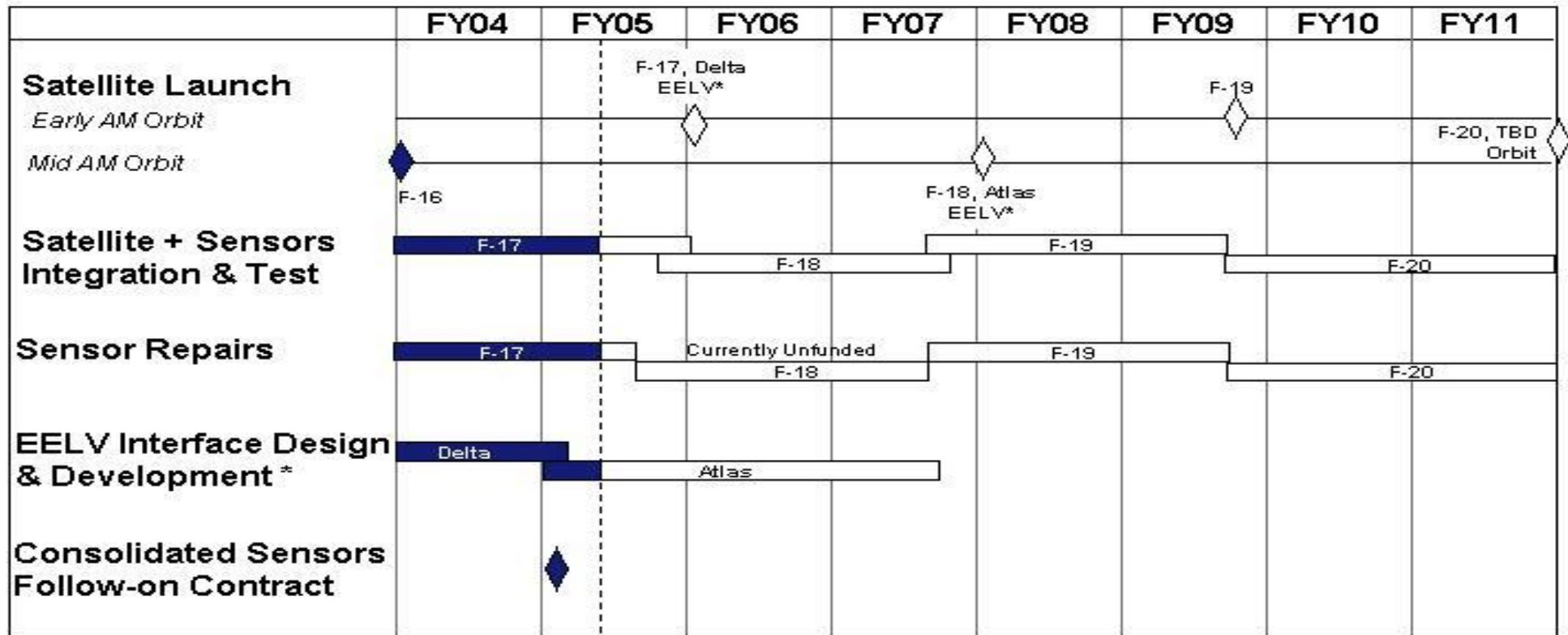
February 2005

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0305160F Defense Meteorological
Satellite Program

PROJECT NUMBER AND TITLE
4758 DMSP Program

DMSP Schedule



* EELV: Evolved Expendable Launch Vehicle

- Task scheduled
- Task completed

Exhibit R-4a, RDT&E Schedule Detail	DATE February 2005
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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>Schedule Profile</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) F-16 Satellite Launch	1Q			
(U) F-17 Satellite Launch			1Q	

UNCLASSIFIED

PE NUMBER: 0305164F

PE TITLE: NAVSTAR Global Positioning System User Equipment Space

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2005
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305164F NAVSTAR Global Positioning System User Equipment Space
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Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	92.748	102.432	125.778	107.617	97.296	73.369	76.191	77.309	Continuing	TBD
3028 Navstar GPS	92.748	102.432	125.778	107.617	97.296	73.369	76.191	77.309	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 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, the 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 supports operational systems.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	99.449	104.114	92.697	89.204
(U) Current PBR/President's Budget	92.748	102.432	125.778	107.617
(U) Total Adjustments	-6.701	-1.682		
(U) Congressional Program Reductions				
Congressional Rescissions			-1.682	
Congressional Increases				
Reprogrammings	-4.700			
SBIR/STTR Transfer	-2.001			

(U) Significant Program Changes:

Increased funding in FY06-FY07 for Y-Code, M-Code, Coarse Acquisition (CA) Code (YMCA) receiver development.

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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
3028 Navstar GPS	92.748	102.432	125.778	107.617	97.296	73.369	76.191	77.309	Continuing	TBD
Quantity of RDT&E Articles	0	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 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, the 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 supports operational systems.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Continue Advanced UE Technology efforts	17.960	19.257	15.791	13.489
(U) Continue SAASM/GRAM-SAASM development	9.235	7.952	3.405	1.449
(U) Continue Integration, Test and Evaluation	6.044	4.839	5.408	6.266
(U) Continue System Engineering and program support	24.770	33.501	31.674	31.494
(U) Continue Modernization efforts (M-Code Development)	34.739	36.883	69.500	54.919
(U) Total Cost	92.748	102.432	125.778	107.617

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

	<u>FY 2004</u> <u>Actual</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>FY 2010</u> <u>Estimate</u>	<u>FY 2011</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) Aircraft Procurement (PE	2.113	2.129	2.900	4.003	7.351	8.356	7.930	4.900	Continuing	TBD
(U) 0305164F, BA 7, Aircraft Support Equipment, BP19)	29.326	28.033	11.800	12.406	14.148	23.375	30.427	33.794	Continuing	TBD
(U) Other Procurement (PE	10.255	10.232	9.096	5.963	5.461	4.481	4.736	5.082	Continuing	TBD

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

0305164F, BP 83 -
Electronics &
Telecommunications
Equipment, WSC 836730,
P-62); BP 86 - Spares &
Repair Parts, WSC 190A,
P-62)

(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 contract will be awarded FY06 to develop an aviation and ground receiver card capable of position, velocity, and time (PVT) utilizing Y-Code/M-Code/Coarse Acquisition (YMCA).

Exhibit R-3, RDT&E Project Cost Analysis

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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) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2004 Cost	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) <u>Product Development</u> Rockwell (MAGR)	C/FPIF/FF P/ CPAF		19.293	0.000		0.000		0.000		0.000		0.000	19.293	
DOE Sandia (SAASM)	MIPR	Kirtland AFB, NM	26.873	7.605	Jan-04	7.310	Jan-05	2.793	Jan-06	0.837	Jan-07	Continuing	TBD	
NAWC (SAASM)	MIPR		0.599	0.000		0.000		0.000		0.000		0.000	0.599	
Various (SAASM)	Various	Various	28.115	0.998		0.455		0.612		0.612		Continuing	TBD	
Various (M-Code)	Various	Various	25.317	34.739		36.883		69.500		54.919		Continuing	TBD	
Alliant Techsys Inc (SAASM) & Multiple NAVWAR PRDAs Holloman AFB (Integration)	C/CPFF & C/CPAF Project Order	46th TG, Holloman AFB, NM	18.222	0.000		0.000		0.000		0.000		0.000	18.222	
			5.400	0.622	Jan-04	0.304	Jan-05	0.656	Jan-06	0.684	Jan-07	Continuing	TBD	
General Dynamics (Various)	Time and Materials		1.810	0.000		0.000		0.000		0.000		0.000	1.810	
Completed technology development efforts Allan Osborne, Alliant Tech, Rockwell Collins, and Raytheon (DAGR)	Various PRDA	Various	85.634	0.000		0.000		0.000		0.000		0.000	85.634	
			25.953	0.000		2.500		0.000		0.000		Continuing	TBD	
Various (GRAM-SAASM)	PRDA		30.494	0.632		0.187		0.000		0.000		0.000	31.313	
Advanced UE Tech Invest Receiver Technology	Various MIPR	AFRL - WPAFB, OH & KAFB, NM	4.646	0.000		0.000		0.000		0.000		0.000	4.646	
			10.213	3.667	Nov-03	2.300	Dec-04	3.875	Dec-05	3.320	Dec-06	Continuing	TBD	
Anti-jam Filter Technology	Various	Various	7.847	0.000		0.000				0.000		Continuing	TBD	
Advanced Antenna Technology	Various	Various	19.596	14.293		14.457		11.916		10.169		Continuing	TBD	
Subtotal Product Development			310.012	62.556		64.396		89.352		70.541		Continuing	TBD	0.000
Remarks:														
(U) <u>Support</u> Overlook Sys (OASD/C3I)	C/CPFF	OASD, Arlington, VA	27.073	1.000	Jan-04	1.000	Jan-05	1.000	Jan-06	1.000	Jan-07	Continuing	TBD	
Aerospace Corp (Technical Supt)	CPFF	Aerospace, Los Angeles, CA	9.486	4.982	Oct-03	4.913	Oct-04	6.419	Oct-05	6.514	Oct-06	Continuing	TBD	
PRC (Technical Supt)	Time and Materials		0.714	0.000		0.000		0.000		0.000		0.000	0.714	
Miscellaneous	Various	Various	34.572	18.788		27.588		24.255		23.980		Continuing	TBD	

Project 3028

R-1 Shopping List - Item No. 190-4 of 190-7

Exhibit R-3 (PE 0305164F)

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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				0305164F NAVSTAR Global Positioning System User Equipment Space			3028 Navstar GPS			
(Program Spt)										
Various	Various	7.883	0.000	0.000	0.000	0.000	0.000	7.883		
(Other Navwar Studies)										
Subtotal Support		79.728	24.770	33.501	31.674	31.494	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	0.000	31.987		
46th TG/UE development & production	Project Order /									
Testing	Holloman AFB, NM / Various	12.690	5.422	4.535	4.752	5.582	Continuing	TBD		
Subtotal Test & Evaluation		44.677	5.422	4.535	4.752	5.582	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	0.000
Remarks:										
(U) Total Cost		434.417	92.748	102.432	125.778	107.617	Continuing	TBD	0.000	

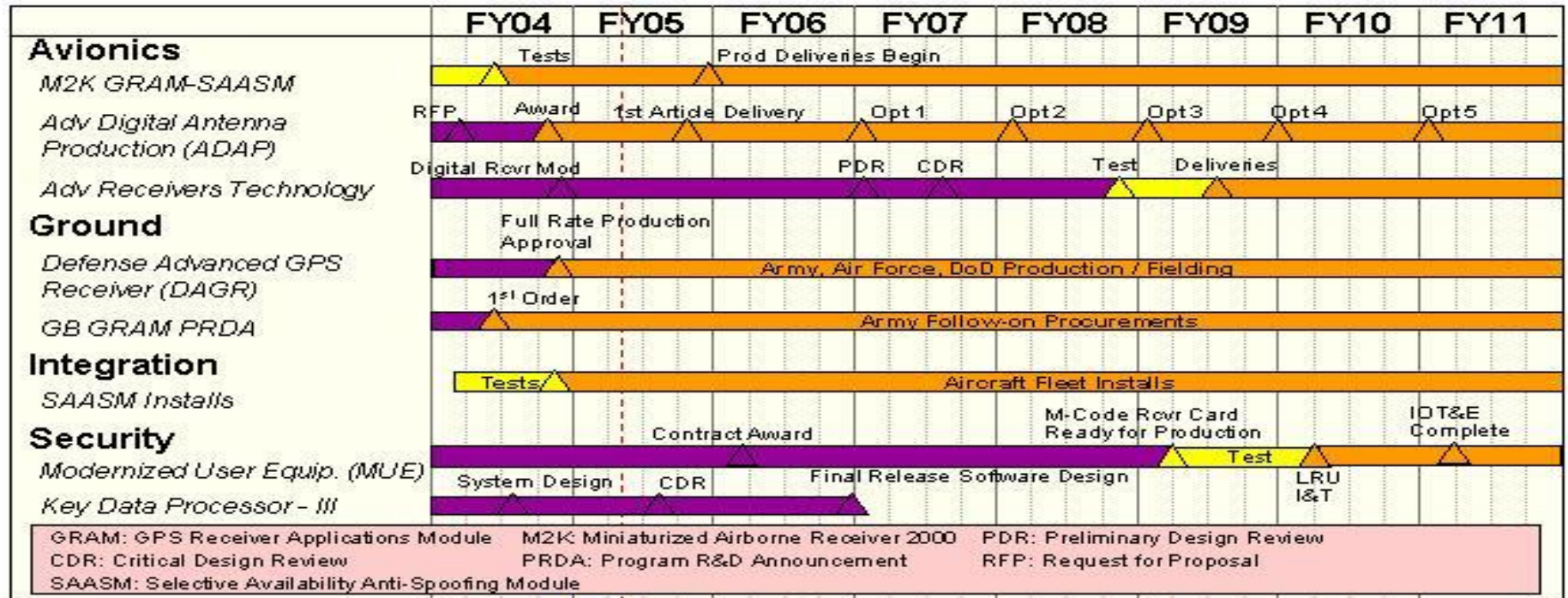
Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0305164F NAVSTAR Global
Positioning System User Equipment
Space

PROJECT NUMBER AND TITLE
3028 Navstar GPS



Time now

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

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2005
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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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(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) Key Data Processor (KDP) III System Requirements Baselined		2Q		
(U) M-Code Receiver Requirements Definition		3Q		
(U) Multi Beam Steering Antenna Electronics Requirement Dev		3Q		
(U) KDP III Operational Software Design Complete		3Q		
(U) MUE Final Interface Control Document (ICD)		3Q		
(U) Advanced Digital Antenna Production (ADAP) First Article Delivery		4Q		
(U) KDP III Application Specific Integrated Circuit (ASIC) Preliminary Design Review			1Q	
(U) KDP III System Level Critical Design Review			1Q	
(U) ADAP Government Testing			1Q	
(U) MUE Single Contractor Award (YMCA)			2Q	
(U) KDP ASIC Critical Design Review			3Q	
(U) KDP III ASIC Ready for Production				1Q
(U) Multibeam Steering AE Preliminary Design Review				1Q
(U) Multibeam Steering Adv Electronics Critical Design Review				3Q
(U) KDP III Preliminary Review by NSA Technical Review Board				4Q

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PE NUMBER: 0305165F
 PE TITLE: NAVSTAR GPS (Space)

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2005
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305165F NAVSTAR GPS (Space)
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Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	142.198	147.037	188.301	131.624	106.993	78.502	58.638	38.044	Continuing	TBD
3030 NAVSTAR GPS (Space & Control)	142.198	147.037	188.301	131.624	106.993	78.502	58.638	38.044	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

This Program Element (PE) funds Research and Development (R&D) 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 PE funds the 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.

GPS Modernization Stewardship funds efforts which are of a national scale, joint civil-military in nature, and benefit two or more agencies.

This program is in Budget Activity 7 - Operational Systems Development because it supports operational systems.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	144.790	148.344	117.813	94.558
(U) Current PBR/President's Budget	142.198	147.037	188.301	131.624
(U) Total Adjustments	-2.592	-1.307		
(U) Congressional Program Reductions		-1.307		
Congressional Rescissions				
Congressional Increases				
Reprogrammings				
SBIR/STTR Transfer	-2.592			

(U) Significant Program Changes:

Increased funding in FY06: \$27.000M for IIF parts obsolescence, \$28.586M in FY06 and \$30.442M in FY07 for Operational Control Segment (OCS); \$4.600M in FY06 and FY07 for Stewardship.

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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
3030 NAVSTAR GPS (Space & Control)	142.198	147.037	188.301	131.624	106.993	78.502	58.638	38.044	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

This Program Element (PE) funds Research and Development (R&D) 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 PE funds the 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.

GPS Modernization Stewardship funds efforts which are of a national scale, joint civil-military in nature, and benefit two or more agencies.

This program is in Budget Activity 7 - Operational Systems Development because it supports operational systems.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Continue system engineering, spectrum/frequency management and program operations	19.466	6.776	2.400	1.400
(U) Continue IIF satellite development/parts obsolescence	1.500	37.100	27.000	0.000
(U) Continue GPS Modernization for Space and enhanced anti-jam capabilities	12.771	5.353	1.000	0.500
(U) Continue Operational Control Segment (OCS) development/modernization	103.861	93.108	153.301	125.124
(U) Continue GPS Stewardship	4.600	4.700	4.600	4.600
(U) Total Cost	142.198	147.037	188.301	131.624

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E										
Related RDT&E (PE										
0603421F, BA-4/R-41,	0.000	39.913	87.364	236.635	485.892	772.513	903.394	831.076	Continuing	TBD
(U) Project 644993 - GPS Block										
III)										
(U) Other APPN										

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Exhibit R-2a, RDT&E Project Justification	DATE February 2005
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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)

Operations and Maintenance											
(U) (PE 0305165F, BA 1 - Operating Forces, SAG 13D)	50.161	62.340	70.129	81.821	85.643	86.607	91.435	101.338	Continuing	TBD	
(U) Missile Procurement (PE 0305165F, BA 5 - Space and Other Support, P-22, 23)	252.318	327.583	318.086	301.489	264.989	147.317	167.080	531.467	Continuing	TBD	
(U) Other Procurement (PE 0305165F, BP 83 - Electronics and Telecommunications Equipment, WSC 836790, P-67, and WSC 836730; BP 86 - Spares & Repair Parts, WSC 86190A, P-62)	12.495	7.774	13.637	12.275	5.650	6.232	11.005	69.017	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

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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>(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>2004</u> <u>Cost</u>	<u>FY 2004</u> <u>Cost</u>	<u>FY 2004</u> <u>Award</u> <u>Date</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</u>	<u>FY 2006</u> <u>Cost</u>	<u>FY 2006</u> <u>Award</u> <u>Date</u>	<u>FY 2007</u> <u>Cost</u>	<u>FY 2007</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total 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		0.000		0.000	3.649	
OCS Development & IIF Modernization (F0470196C0025)	FPAF/CP AF/CPFF	Boeing, Seal Beach, CA	820.325	114.511	Nov-03	97.764	Oct-04	153.320	Oct-05	125.451	Oct-06	Continuing	TBD	1,944.179
IIF Parts Obsolescence (F047019C0025)	FPAF/CP AF/CPFF	Boeing, Seal Beach, CA	0.000	0.500	Jun-04	37.000	Dec-04	27.000	Oct-05	0.000		0.000	64.500	
IIR Modernization Development (F0470100C0006)	CPIF	Lockheed Martin, King of Prussia, PA	74.786	0.000		0.000		0.000		0.000		0.000	74.786	74.786
GPS III Modernization (F0470101C0008)	FFP	Lockheed Martin, King of Prussia, PA	15.767	0.000		0.000		0.000		0.000		0.000	15.767	TBD
GPS III Modernization (F0470101C0010)	FFP	Boeing, Seal Beach, CA	16.000	0.000		0.000		0.000		0.000		0.000	16.000	
Control Segment Support	MIPR/PO	Various Gov't agencies	2.776	2.121		1.329	Dec-04	0.881	Dec-05	0.073	Dec-06	Continuing	TBD	TBD
EELV Mission Unique Svcs & Clock Development	MIPR/Other SPO Contracts	NRL & Contractors	19.617	4.785		2.075	Dec-04	0.000		0.000		Continuing	TBD	TBD
Stewardship Accuracy Improvement Initiative (AII)	MIPR FPA/CPA F/CPFF	Various Boeing, Seal Beach, CA	7.274	4.600		4.700	Dec-04	4.600	Dec-05	4.600	Dec-06	Continuing	TBD	TBD
Subtotal Product Development			970.194	126.517		142.868		185.801		130.124		Continuing	TBD	TBD
Remarks:														
<u>(U) Support</u>														
System Engineering/Support	Various	FFRDC (Aerospace/Mitre), SETA	33.776	5.500	Oct-03	2.000	Oct-04	0.400	Oct-05	0.400	Oct-06	Continuing	TBD	TBD
GPS Modernization Tech Spt			43.249	0.000		0.000		0.000		0.000		0.000	43.249	
Miscellaneous	Various	Various	3.231	0.000		0.000		0.000		0.000		0.000	3.231	
Subtotal Support			80.256	5.500		2.000		0.400		0.400		Continuing	TBD	TBD
Remarks:														
<u>(U) Test & Evaluation</u>														
Flex Power Testing (F0470100C0006)	FPAF/CP AF/CPFF	Lockheed Martin, King of Prussia, PA & various gov't	1.588	2.000	Feb-04	2.000	Feb-05	2.000	Feb-06	1.000	Feb-07	Continuing	TBD	TBD

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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				0305165F NAVSTAR GPS (Space)			3030 NAVSTAR GPS (Space & Control)			
		activities								
		Subtotal Test & Evaluation	1.588	2.000	2.000	2.000	1.000	Continuing	TBD	TBD
		Remarks:								
(U)		<u>Management</u>								
		Technical Support								
		Various								
		SETA &								
		FFRDCs	5.120	8.181	0.169	0.100	0.100	Continuing	TBD	TBD
		FFRDCs								
		& SETA								
		Subtotal Management	5.120	8.181	0.169	0.100	0.100	Continuing	TBD	TBD
		Remarks:								
(U)		Total Cost	1,057.158	142.198	147.037	188.301	131.624	Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

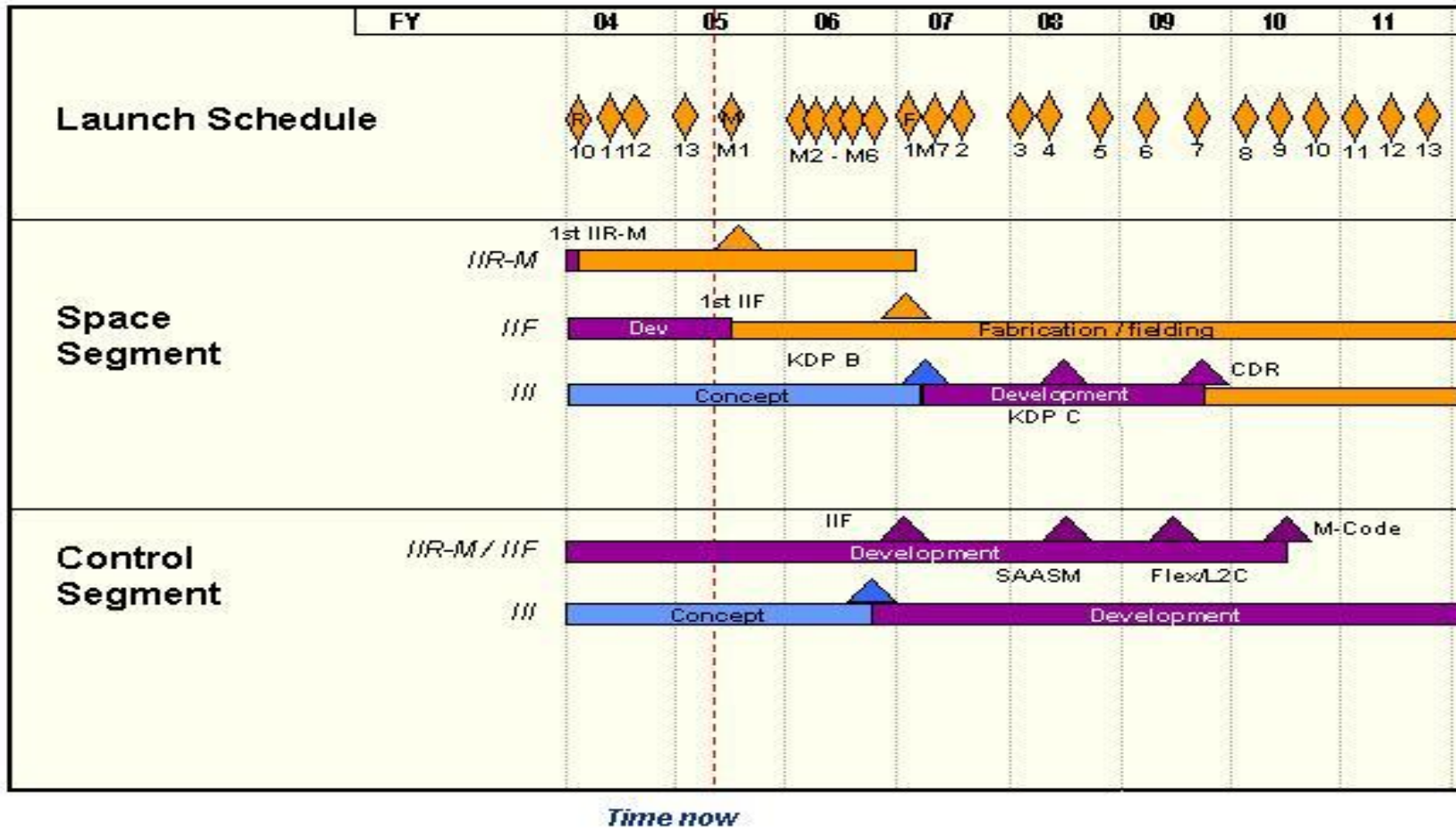
DATE

February 2005

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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Exhibit R-4a, RDT&E Schedule Detail		DATE		
BUDGET ACTIVITY 07 Operational System Development		February 2005		
PE NUMBER AND TITLE 0305165F NAVSTAR GPS (Space)		PROJECT NUMBER AND TITLE 3030 NAVSTAR GPS (Space & Control)		
(U) Schedule Profile	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Continue OCS Architectural Implementation (COTS upgrade) complete	1Q			
(U) Enhanced IIA IMOSC Development complete	4Q			
(U) IIF IMOSC Development Complete	4Q			
(U) Legacy Accuracy Improvement Initiative (AII) Capability complete		1Q		
(U) Launch, Anomaly resolution & Disposal Operations (LADO) Release 1 delivery to site		2Q		
(U) IIF flight software development delivery to site		3Q		
(U) GPS Block IIF Development Complete		4Q		
(U) M-Code development begins			1Q	
(U) LADO Release 2 Complete			1Q	
(U) SAASM development Formal Qualification Test (FQT)			2Q	
(U) IIF flight software development Complete				1Q
(U) First IIF satellite launch				1Q
(U) M-code Software Detail Design Complete				3Q

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PE NUMBER: 0305174F
 PE TITLE: SPACE WARFARE CENTER

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2005
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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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.377	0.408	0.411	0.854	2.104	3.748	3.835	3.901	Continuing	TBD
A011 Space Analysis and Application Development	0.377	0.408	0.411	0.854	2.104	3.748	3.835	3.901	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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	0.404	0.411	0.409	0.838
(U) Current PBR/President's Budget	0.377	0.408	0.411	0.854
(U) Total Adjustments	-0.027	-0.003		
(U) Congressional Program Reductions				
Congressional Rescissions	-0.003	-0.003		
Congressional Increases				
Reprogrammings				
SBIR/STTR Transfer	-0.024			
(U) <u>Significant Program Changes:</u>				

Exhibit R-2a, RDT&E Project Justification

DATE
February 2005

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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
A011 Space Analysis and Application Development	0.377	0.408	0.411	0.854	2.104	3.748	3.835	3.901	Continuing	TBD
Quantity of RDT&E Articles	0	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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Continue model modification.	0.184	0.200	0.200	0.408
(U) Continue verification of model changes.	0.081	0.088	0.087	0.179
(U) Continue validation of results.	0.112	0.120	0.124	0.267
(U) Total Cost	0.377	0.408	0.411	0.854

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E										
(U) Other APPN OPAF, Space Mods, P-67	0.194	1.493	1.523	1.575	1.604	1.637	1.677	1.705	Continuing	TBD

(U) D. Acquisition Strategy

This effort was awarded under a cost plus fixed fee contract.

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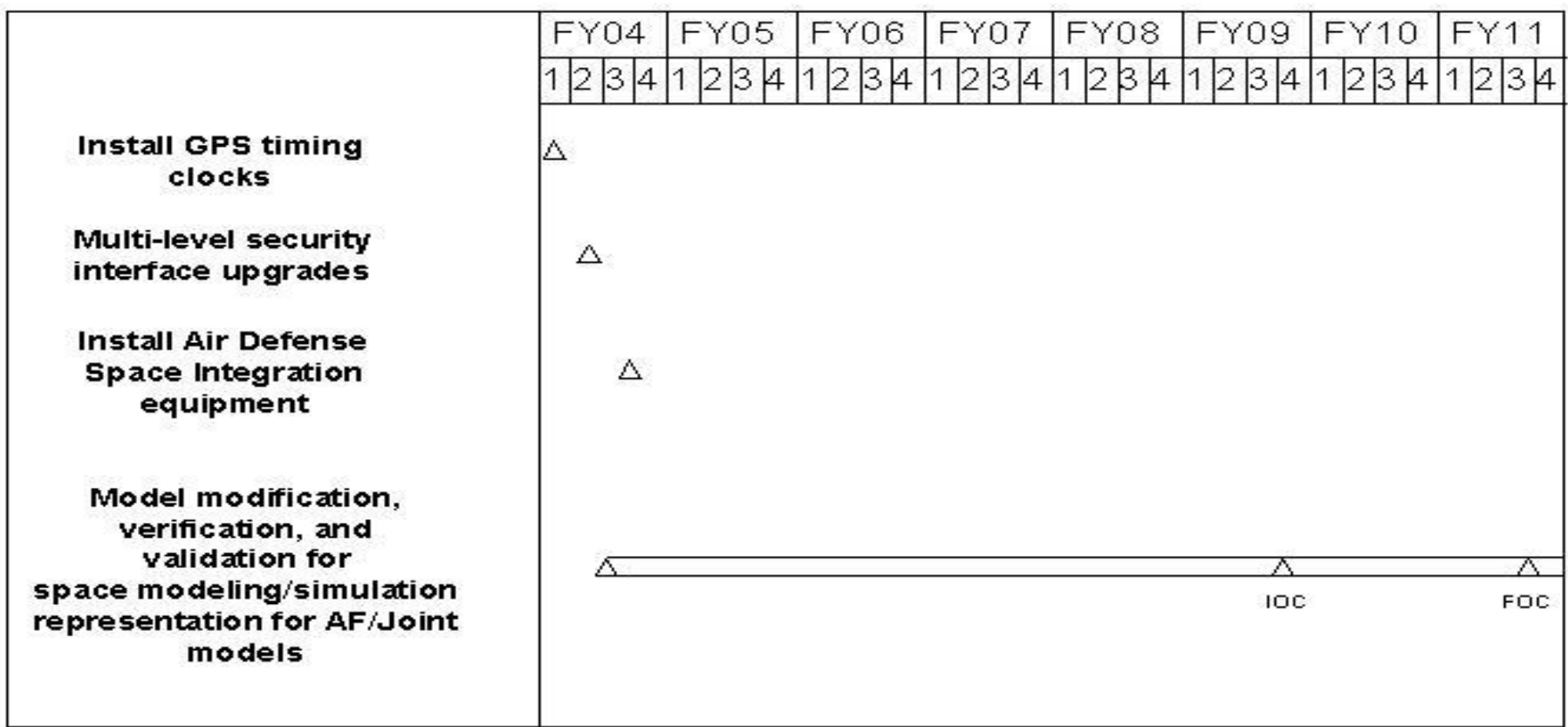
Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2005

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) 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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> Develop/modify new and current tools/models	CPFF	Sparta Corporation, Colorado Springs, CO	0.000	0.377	Mar-04	0.408	Mar-05	0.411	Mar-06	0.854	Mar-07	Continuing	TBD	
Subtotal Product Development			0.000	0.377		0.408		0.411		0.854		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	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	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	0.000
Remarks:														
(U) Total Cost			0.000	0.377		0.408		0.411		0.854		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile		DATE February 2005
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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Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2005

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305174F SPACE WARFARE CENTER

PROJECT NUMBER AND TITLE

A011 Space Analysis and Application Development

(U) Schedule Profile

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Install GPS timing clocks	1Q			
(U) Multi-level security interface upgrades	2Q			
(U) Install Air Defense Space Integration equipment	3Q			
(U) Continue model modification	2Q	1Q	1Q	1Q
(U) Continue verification	3Q	3Q	3Q	3Q
(U) Continue validation	4Q	4Q	4Q	4Q

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PE NUMBER: 0305182F
 PE TITLE: Spacelift Range System

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2005
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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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	58.944	49.314	48.854	37.513	26.738	12.257	9.964	10.020	Continuing	TBD
4137 Launch and Test Range System (LTRS) Modernization	58.944	49.314	48.854	37.513	26.738	12.257	9.964	10.020	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, communications, flight analysis, and other capabilities necessary to safely conduct: national security, 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 AF is addressing range deficiencies through two modernization contracts. First, the Range Standardization and Automation (RSA) Phase IIA contract modernizes the control/display and communications 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 submission of the FY05 President's Budget Request, the Air Force restructured the RSA IIA contract and added funding in FY06 through FY08 to complete modernization of weather, communications (voice, video, data, and timing; network management system; and digital telemetry), planning and scheduling, and flight operations and analysis systems (to include activation of the Western Range Operations Control Center).

These upgrades to fielded systems are categorized as Budget Activity 7, Operational Systems Development.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	69.908	47.253	27.099	21.582
(U) Current PBR/President's Budget	58.944	49.314	48.854	37.513
(U) Total Adjustments	-10.964	2.061		
(U) Congressional Program Reductions		-0.439		
Congressional Rescissions				
Congressional Increases		2.500		
Reprogrammings	-9.964			
SBIR/STTR Transfer	-1.000			

(U) Significant Program Changes:

FY 2004: Reduced for higher priority efforts (\$9.964M)

FY 2005: Increased by Congress for two California Space Authority projects: Reservoir Assessment, Detection, & Response (\$1.500M); and, California Space Infrastructure Program (\$1.000M)

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2005

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305182F Spacelift Range System

FY 2006/FY2007: Increased to support restructured range modernization efforts

Exhibit R-2a, RDT&E Project Justification

DATE
February 2005

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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4137 Launch and Test Range System (LTRS) Modernization	58.944	49.314	48.854	37.513	26.738	12.257	9.964	10.020	Continuing	TBD
Quantity of RDT&E Articles	0	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, communications, flight analysis, and other capabilities necessary to safely conduct: national security, 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 AF is addressing range deficiencies through two modernization contracts. First, the Range Standardization and Automation (RSA) Phase IIA contract modernizes the control/display and communications 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 submission of the FY05 President's Budget Request, the Air Force restructured the RSA IIA contract and added funding in FY06 through FY08 to complete modernization of weather, communications (voice, video, data, and timing; network management system; and digital telemetry), planning and scheduling, and flight operations and analysis systems (to include activation of the Western Range Operations Control Center).

These upgrades to fielded systems are categorized as Budget Activity 7, Operational Systems Development.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</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, and flight operations and analysis (to include activation of WR Operations Control Center). 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.	29.458	21.339	22.972	14.144
(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, to include activation of the WR Operations Control Center.	20.867	22.541	23.756	21.313
(U) Provide program support for Systems Program Office (SPO).	3.803	2.934	2.126	2.056
(U) Partner with California Space Authority (CSA) to conduct California Space Infrastructure projects using	4.816	2.500		

Exhibit R-2a, RDT&E Project Justification	DATE February 2005
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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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funds added by Congress. FY04 projects are: Very Small Aperture Terminal Water Supply Monitoring; and Quakefinder II Earthquake Detection Demonstration. FY05 projects are: Reservoir Assessment, Detection, & Response; and, California Space Infrastructure Program.

(U) Total Cost	58.944	49.314	48.854	37.513
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(U) **C. Other Program Funding Summary (\$ in Millions)**

		<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
(U) OPAF (PE 0305182F, Spacelift Range System Space P-65, BA 03)		82.239	104.051	114.189	121.863	142.534	103.588	105.608	107.110	Continuing	TBD
(U) OPAF (PE 0305182F, Initial Spares, P-103, BA 05)		0.696	1.397	2.761	2.806	2.893	2.953	2.996	3.045	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 minimal-interference basis, so the ranges can continue to operate in support of launches and tests.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2005

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) 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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> RSA Phase IIA	C/CPAF	Lockheed Martin, Santa Maria, CA	208.489	29.458	Nov-03	21.339	Nov-04	22.972	Nov-05	14.144	Nov-06	Continuing	TBD	TBD
SLRSC	C/CPAF	ITT Industries, Cape Canaveral, FL	78.995	20.867	Nov-03	22.541	Nov-04	23.756	Nov-05	21.313	Nov-06	Continuing	TBD	TBD
Subtotal Product Development			287.484	50.325		43.880		46.728		35.457		Continuing	TBD	TBD
Remarks:														
(U) <u>Support</u> SPO Program Support (FFRDC, SETA, SPO Ops)	Various	Various	24.818	3.803	Oct-03	2.934	Oct-04	2.126	Oct-05	2.056	Oct-06	Continuing	TBD	TBD
California Space Authority Studies/Projects	Various	Various	25.197	4.816	May-04	2.500	Apr-05					Continuing	TBD	TBD
Civil Reserve Space Service Initiative	Various	Various	0.925									0.000	0.925	TBD
Subtotal Support			50.940	8.619		5.434		2.126		2.056		Continuing	TBD	TBD
Remarks:														
(U) Total Cost			338.424	58.944		49.314		48.854		37.513		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

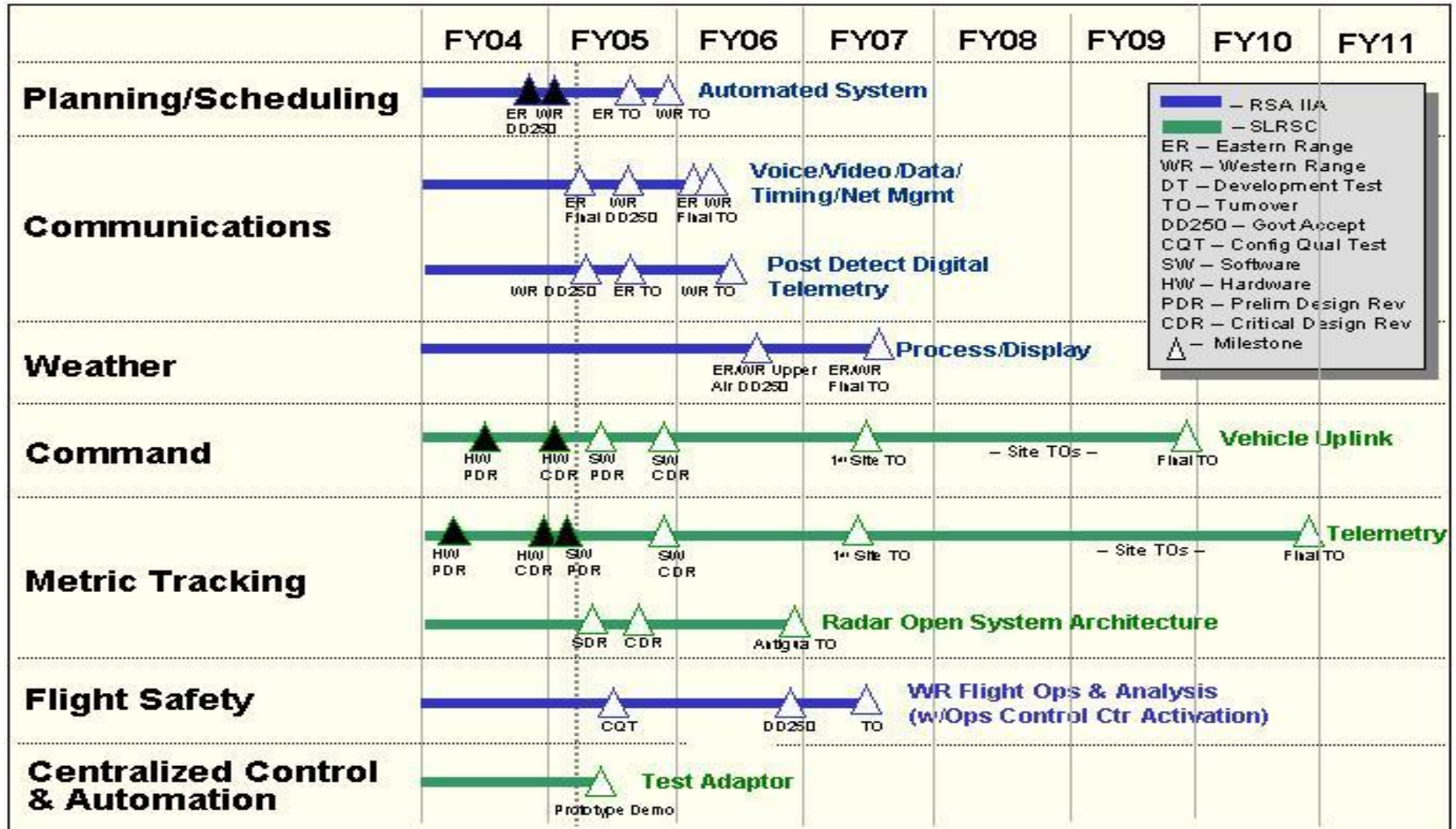
DATE

February 2005

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



Legend:

- Blue bar: - RSA IIA
- Green bar: - SLRSC
- ER - Eastern Range
- WWR - Western Range
- DT - Development Test
- TO - Turnover
- DD250 - Govt Accept
- CQT - Config Qual Test
- SW - Software
- HW - Hardware
- PDR - Prelim Design Rev
- CDR - Critical Design Rev
- △ - Milestone

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Exhibit R-4a, RDT&E Schedule Detail		DATE February 2005		
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>Schedule Profile</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) RSA Phase IIA				
(U) - Planning & Scheduling: ER/WR Operational Turnover		3-4Q		
(U) - Communications: ER Final Govt Acceptance		2Q		
(U) - Communications: ER Final Operational Turnover			1Q	
(U) - Communications: WR Final Govt Acceptance		3Q		
(U) - Communications: WR Final Operational Turnover			2Q	
(U) - Post Detect Digital Telemetry: ER Operational Turnover		3Q		
(U) - Post Detect Digital Telemetry: WR Operational Turnover			2Q	
(U) - Weather Final Govt Acceptance			3Q	
(U) - Weather Final Turnover				3Q
(U) - WR Flight Operations and Analysis Qualification Testing		3Q		
(U) - WR Flight Ops and Analysis Government Acceptance			4Q	
(U) - WR Flight Ops and Analysis Operational Turnover				2Q
(U) SLRS Contract				
(U) - Command Software Preliminary Design Review (PDR)		2Q		
(U) - Command Software Critical Design Review (CDR)		4Q		
(U) - Command 1st Site Operational Turnover				3Q
(U) - Telemetry Instrumentation Software PDR		1Q		
(U) - Telemetry Instrumentation Software CDR		4Q		
(U) - Telemetry 1st Site Operational Turnover				2Q
(U) - Radar 1st Site Operational Turnover			4Q	
(U) California Space Authority Studies/Projects				
(U) - Space-Based Water Supply Monitoring Contract Award		2Q		
(U) - Quakefinder II Earthquake Detection Demo Complete			1Q	
(U) - Reservoir Assessment, Detection, and Response Contract Award		4Q		
(U) - California Space Infrastructure Project Management Contract Award		3Q		

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Exhibit R-2, RDT&E Budget Item Justification	DATE February 2005
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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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.830	1.088	3.618	3.770	3.979	4.402	7.316	7.630	Continuing	TBD
4871 Information Operations Technology	0.830	1.088	3.618	3.770	3.979	4.402	7.316	7.630	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

This program element supports, but is not limited to, intelligence activities focused on the development, integration and assessment of systems or applications in support of non-traditional and contingency warfare. This program will also develop network-centric collaborative techniques to improve situational awareness and operational-intelligence planning efforts.

Funds the Joint Task Force - Computer Network Operations (JTF-CNO) Threat Incident Database (JTID) development. JTID fuses network incident and intelligence data analyzed within the context of operationally relevant information from affected commands (Version 3); develops appropriate response options and detailed courses-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 (Version 4); and is interoperable with law enforcement and allied communities of interest.

Also initiates the development of the Joint Integrative Analysis and Planning Capability (JIAPC). JIAPC provides focused, timely analysis, planning and targeting in support of Combatant Commanders. It will bridge the IO planner and IO focused intelligence missions to speed the IO warfighter decision-making process. JIAPC is scheduled to have a Milestone Decision Authority assigned in FY-05 with requirements definitions and work to begin in FY-06.

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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	0.830	1.088	3.597	3.698
(U) Current PBR/President's Budget	0.830	1.088	3.618	3.770
(U) Total Adjustments	0.000	0.000		
(U) Congressional Program Reductions				
Congressional Rescissions				
Congressional Increases				
Reprogrammings				
SBIR/STTR Transfer				

(U) Significant Program Changes:

Significant increase in total Program Element Costs beginning in FY06 due to JIAPC program initiation.

Exhibit R-2a, RDT&E Project Justification

DATE
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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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4871 Information Operations Technology	0.830	1.088	3.618	3.770	3.979	4.402	7.316	7.630	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

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

This program element supports, but is not limited to, intelligence activities focused on the development, integration and assessment of systems or applications in support of non-traditional and contingency warfare. This program will also develop network-centric collaborative techniques to improve situational awareness and operational-intelligence planning efforts.

Funds the Joint Task Force - Computer Network Operations (JTF-CNO) Threat Incident Database (JTID) development. JTID fuses network incident and intelligence data analyzed within the context of operationally relevant information from affected commands (Version 3); develops appropriate response options and detailed courses-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 (Version 4); and is interoperable with law enforcement and allied communities of interest.

Also initiates the development of the Joint Integrative Analysis and Planning Capability (JIAPC). JIAPC provides focused, timely analysis, planning and targeting in support of Combatant Commanders. It will bridge the IO planner and IO focused intelligence missions to speed the IO warfighter decision-making process. JIAPC is scheduled to have a Milestone Decision Authority assigned in FY-05 with requirements definitions and work to begin in FY-06.

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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Continue database modifications of limited sets of foreign CNO specific threat information to DoD's command and control infrastructure, to include intentions and capabilities (Version 3); Continue development and production of intelligence reports on computer network attacks against US systems (Version 4); Continue to develop better incident assessments and analysis modules. Researches improved means of supplying appropriate response options and detailed courses-of-action in defense of protected networks.	0.830	1.088	1.042	1.142
(U) Initiation of the JIAPC program beginning in FY-06			2.576	2.628
(U) Total Cost	0.830	1.088	3.618	3.770

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
(U) IOPC-J PE 28021			2.515	2.651	2.857	3.172	6.057	6.349		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

0305193F INTEL SPT TO INFO OPS

PROJECT NUMBER AND TITLE

**4871 Information Operations
Technology**

Contracts are awarded based on a 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			0305193F INTEL SPT TO INFO OPS								4871 Information Operations 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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>	
(U) <u>Product Development</u> JTID CNO Analyses	T&M	Northrop Grumman IT-TASC, Lorton VA		0.830	Aug-04	1.088	Apr-05	1.042	Apr-06	1.142	Apr-07	Continuing	TBD	TBD	
JIAPC Initiation/Development	TBD	TBD		0.000		0.000		2.576		2.628			5.204		
Subtotal Product Development			0.000	0.830		1.088		3.618		3.770		Continuing	TBD	TBD	
Remarks:															
(U) <u>Support</u>													0.000	TBD	
Subtotal Support			0.000	0.000		0.000		0.000		0.000		0.000	0.000	TBD	
Remarks:															
(U) <u>Test & Evaluation</u>													0.000	TBD	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000		0.000	0.000	TBD	
Remarks:															
(U) <u>Management</u>													0.000	TBD	
Subtotal Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000	TBD	
Remarks:															
(U) Total Cost			0.000	0.830		1.088		3.618		3.770		Continuing	TBD	TBD	

Exhibit R-4, RDT&E Schedule Profile

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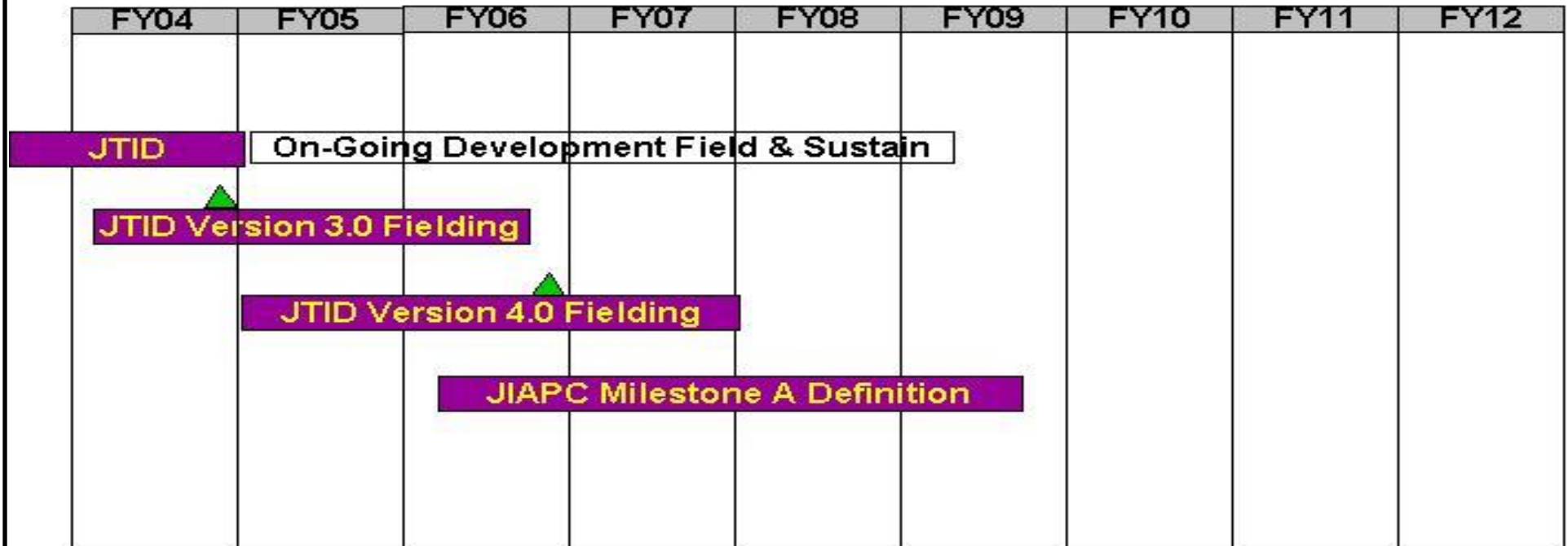
BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0305193F INTEL SPT TO INFO OPS

PROJECT NUMBER AND TITLE
4871 Information Operations
Technology



JTID/JIAPC Program Schedule



For Official Use Only

Project 4871

R-1 Shopping List - Item No. 195-6 of 195-7

Exhibit R-4 (PE 0305193F)

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Exhibit R-4a, RDT&E Schedule Detail		DATE February 2005
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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
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(U) <u>Schedule Profile</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Ongoing development of JTID functions		1-4Q	1-4Q	1-4Q
(U) Fielding of V.3	4Q			
(U) Fielding of V.4			4Q	1-4Q
(U) JIAPC Milestone A Definition			2-4Q	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 2005
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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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	51.735	86.972	10.158	8.400	1.888	2.032	0.163	0.369	Continuing	TBD
4820 Sensor Development	46.806	84.006	7.149	8.400	1.888	2.032	0.000	0.000	Continuing	TBD
4945 High Altitude Subsystems	4.929	2.966	3.009	0.000	0.000	0.000	0.163	0.369	Continuing	TBD

(U) A. Mission Description and Budget Item 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 Reconnaissance (ISR) system. The RDT&E portion of this program element funds efforts to develop enhancements and sustain the U-2 Dragon Lady ISR system. In addition to the RDT&E funding, there are procurement funds associated with these developments.

This program element will participate in the development, testing, and implementation of international standards (to include NATO standardization agreements) to ensure joint, allied, and coalition interoperability.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	46.599	87.745	64.567	9.811
(U) Current PBR/President's Budget	51.735	86.972	10.158	8.400
(U) Total Adjustments	5.136	-0.773		
(U) Congressional Program Reductions				
Congressional Rescissions	-0.648	-0.773		
Congressional Increases				
Reprogrammings	5.784			
SBIR/STTR Transfer				

(U) Significant Program Changes:

FY06
 A total of \$54.2M in U-2 Airborne Signals Intelligence Program (ASIP) funding was transferred from Project 674820 to the new Airborne SIGINT Enterprise PE 0304260F, distributed between Project 675181 and Project 675183. PE 0305202F no longer funds the ASIP development program.

FY07
 In FY07 U-2 ASIP funding transfers a total of \$1.4M from Project 674820 to the new Airborne SIGINT Enterprise PE 0304260F, between Project 675181 and Project 675183.

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				0305202F Dragon U-2 (JMIP)				4820 Sensor Development		
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4820 Sensor Development	46.806	84.006	7.149	8.400	1.888	2.032	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

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

This development project supports improvements to the U-2 sensors such as the Advanced Synthetic Aperture Radar System (ASARS-2A), advanced radar technology research such as foliage penetration, concealed target, and counter deception, the SENIOR YEAR Electro-optical Reconnaissance System (SYERS-2) Improvement Program, SIGINT programs, and the ASIP program (through FY05).

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) communications, 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 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 and a second source vendor qualified for the focal planes.

The SIGINT Program develops new sensors such as 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. The program has also examined and may modify current systems to allow them to function on Power/Electromagnetic Interference upgraded U-2s.

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 Global Hawk UAV, project 5144). 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 phase, the three DTUs will be modified to a productionized configuration for operational employment on the U-2. Beginning in FY06, U-2 ASIP funding transferred to the Airborne SIGINT Enterprise PE, 0304260F, Project 675181; \$54.2M in FY06, \$1.4M in FY07.

All U-2 sensors and datalinks are being converted to the Asynchronous Transfer Mode (ATM) standard to address vanishing vendor issues and to optimize signals intelligence bandwidth allocation. Inherent in this transition is the incorporation of suitable security/encryption capabilities.

Budget Activity Justification - This program element is categorized as Budget Activity 7 because it provides for development of technologies and capabilities in

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
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support of operational system development for the U-2 intelligence surveillance and reconnaissance (ISR) system.

(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Continue ASARS-2A IQI Software/Hardware Development Tasks and System Robustness Improvements	9.979	17.183	6.149	1.500
(U) SYERS Focal Planes				6.500
(U) Signals Intelligence (SIGINT) Sensor Development/Integration (Airborne Signals Intelligence Payload (ASIP)	34.327	63.413		
(U) Established SYERS-2 Depot Maintenance Capability	2.500			
(U) Systems Engineering, Program Management and Flight Test Support		3.410	1.000	0.400
(U) Total Cost	46.806	84.006	7.149	8.400

(U) <u>C. Other Program Funding Summary (\$ in Millions)</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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
(U) APAF, Manned Recce, 0305202F - Sensors Production	7.300	4.700	1.351	2.130	7.732	7.200	7.900	9.600	Continuing	TBD
(U) RDT&E, 0305205F - ASIP Development	62.833								0.000	127.005
(U) RDT&E, 0305220F - ASIP Development		62.767							0.000	116.367
(U) APAF, 0305220F - ASIP Production			28.400	104.600	60.800	47.400			Continuing	TBD
(U) RDT&E, 0304260F, Airborne SIGINT Development - U-2			2.000	5.200	5.305	5.424	5.544	5.632	Continuing	TBD

(U) **D. Acquisition Strategy**
 Modify existing platform and associated ground control equipment to upgrade and sustain airborne collection capability, while developing and testing new technology line replaceable units (LRUs) for all U-2 sensors.

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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) 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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>					
(U) <u>Product Development</u>																			
ASARS-2A Way Ahead Phase 2	SS/CPIF	Raytheon, El Segundo	0.000	9.979	May-04	17.183	Jan-05	6.149		1.500	Dec-06	Continuing	TBD	TBD					
SYERS-2 Depot Testbed	SS/CPFF	BF Goodrich, Boston	0.000	2.500	Jul-04							0.000	2.500	TBD					
SYERS Focal Planes	SS/CPIF	BF Goodrich, Boston								6.500	Apr-07	0.000	6.500	TBD					
(Collaborative SIGINT Sensor) ASIP	SS/CPAF	Northrop Grumman Los Angeles	5.686	31.238	Mar-04	58.711	Feb-05					Continuing	TBD	TBD					
U-2 ASIP Integration	SS/CPIF	LM Aero Palmdale	0.500	0.986	Jun-04	4.101	Feb-05					Continuing	TBD	TBD					
U-2 ASIP Integration	SS/CPIF	L3-Comm Garland, TX	0.100	0.045	Jun-04	0.200	Feb-05					Continuing	TBD	TBD					
Subtotal Product Development			6.286	44.748		80.195		6.149		8.000		Continuing	TBD	TBD					
Remarks:																			
(U) <u>Test & Evaluation</u>																			
Flight Test				1.573	Apr-04	2.990	Mar-05						4.563	TBD					
Subtotal Test & Evaluation			0.000	1.573		2.990		0.000		0.000		0.000	4.563	TBD					
Remarks:																			
(U) <u>Management</u>																			
ASC/RA	C/FFP	Various		0.485	Apr-04	0.821	Jan-05	1.000	Jan-06	0.400	Jan-07		2.706	TBD					
Subtotal Management			0.000	0.485		0.821		1.000		0.400		0.000	2.706	TBD					
Remarks:																			
(U) Total Cost			6.286	46.806		84.006		7.149		8.400		Continuing	TBD	TBD					

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



U.S. AIR FORCE

U-2

OUTYEARS

Niledrive / Quicknotch



ASARS-2A



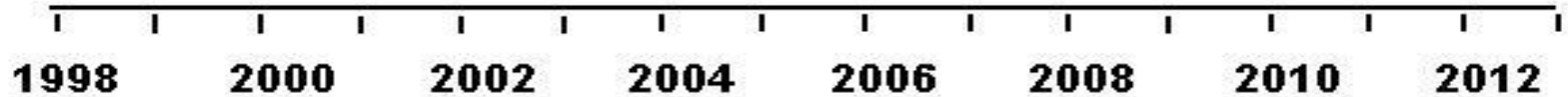
SYERS-2



SYERS Depot



ASIP



Development

Production

Fielding

Integrity - Service - Excellence

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Exhibit R-4a, RDT&E Schedule Detail		DATE February 2005		
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE		
07 Operational System Development	0305202F Dragon U-2 (JMIP)	4820 Sensor Development		
(U) Schedule Profile	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) ASARS-2A- Continue Image Quality Improvement Activities	1Q	1Q	1Q	1Q
(U) ASARS-2A Phase 2 Way Ahead	3Q			
(U) ASARS-2A S/W Interim Delivery		3Q		
(U) ASARS-2A H/W First Article		3Q		
(U) ASARS-2A H/W Last Article			3Q	
(U) ASIP Development				1Q
(U) ASIP Development - CDR		2Q		
(U) ASIP Development - FAT			3Q	
(U) ASIP Development - Capability Delivery				3Q
(U) Quicknotch - Flight Test Complete	1Q			
(U) Quicknotch - Field Test Complete	4Q			
(U) Niledrive - Flight Test Complete	1Q	3Q		
(U) Niledrive - Fielding Complete			3Q	
(U) SYERS-2 Depot Contract Award	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				0305202F Dragon U-2 (JMIP)				4945 High Altitude Subsystems		
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4945 High Altitude Subsystems	4.929	2.966	3.009	0.000	0.000	0.000	0.163	0.369	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(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 communications, navigation, surveillance/air traffic management CNS/ATM 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 encrypt and 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.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) ADS	0.100			
(U) LINK-16 Integration for AF/DCGS	0.000	0.000	2.009	
(U) Electro-Optical View Sight (EOVS) development and test	1.239	2.000		
(U) Dual Data Link - II (DDL-II) development and test	0.100			
(U) JP-8 Fuels Conversion	0.016			
(U) Program management, systems engineering, and test	3.474	0.966	1.000	
(U) Total Cost	4.929	2.966	3.009	0.000

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>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
(U) APAF - 0305202F - Data Links	17.877	19.057	17.519	16.602	6.895	10.743			Continuing	TBD
(U) APAF - 0305202F -ViewSight (EOVS)	0.000	0.690	4.780	3.690	1.400	0.000	0.000	0.000	0.000	10.560
(U) APAF - 0305202F -ADS	24.400	8.600	3.300	2.800	10.200	14.565	6.000	29.600	Continuing	TBD

(U) **D. Acquisition Strategy**

Utilize mix of sole source and open competition as appropriate for the U-2 program to sustain, update, and modernize platform sub-systems, in order to enhance operational employment and aircraft survivability.

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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) 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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>	
(U) <u>Product Development</u>															
ADS Ctr	SS/CPIF	Lockheed, Palmdale and BAE, Nashua NH	16.073	0.100	Apr-04							0.000	16.173	TBD	
Fuels Conversion	SS/FFP	Air Force Research Lab, WPAFB OH		0.016	Feb-04							0.000	0.016	TBD	
Electro-optical View Sight (EOVS)	SS/FFP	LM Aero, Palmdale, CA	1.061	1.239	Jun-04	1.750			Nov-05			0.000	4.050	TBD	
DDL-II Dev and Test	SS/CPIF	L3 Comm, Salt Lake City	4.582	0.100	Jun-04							0.000	4.682	TBD	
LINK-16 Integration	SS/CPIF	L3 Comm, Salt Lake City						2.009	Feb-06			0.000	2.009	TBD	
Subtotal Product Development Remarks:			21.716	1.455		1.750		2.009		0.000		0.000	26.930	TBD	
(U) <u>Test & Evaluation</u>															
Flight Test				1.035		0.250							1.285	TBD	
Subtotal Test & Evaluation Remarks:			0.000	1.035		0.250		0.000		0.000		0.000	1.285	TBD	
(U) <u>Management</u>															
ASC/RA	C/FFP	H.J. Ford WPAFB, OH		2.439	Nov-04	0.966	Dec-04	1.000					4.405	TBD	
Subtotal Management Remarks:			0.000	2.439		0.966		1.000		0.000		0.000	4.405	TBD	
(U) Total Cost			21.716	4.929		2.966		3.009		0.000		0.000	32.620	TBD	

Exhibit R-4, RDT&E Schedule Profile

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February 2005

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0305202F Dragon U-2 (JMIP)

PROJECT NUMBER AND TITLE
4945 High Altitude Subsystems



U.S. AIR FORCE

U-2

OUTYEARS

Electro-Optical View Sight (EOVS)



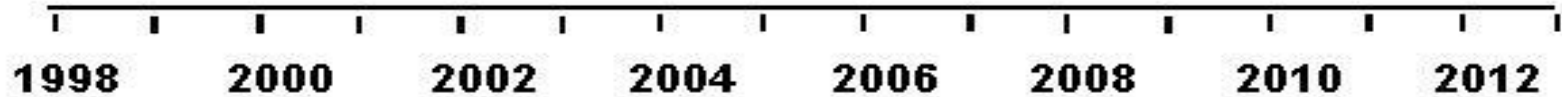
Dual Datalink (DDL-II)



Adv Def Sys (AN/ALQ-221)



U-2 Link 16 Demo



Development

Production



Fielding

Integrity - Service - Excellence

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2005
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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>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Schedule Profile				
(U) DDL-II DT Testing Complete	1Q			
(U) DDL-II First Article Delivery		2Q		
(U) DDL-II Full Rate Production Contract Award		2Q		
(U) DDL-II P3I Contract Award	3Q			
(U) ADS - Fielding Begins		2Q		
(U) EOVS - Development Contract Award	3Q			
(U) EOVS - Fielding Complete				4Q
(U) Link-16 Incremental Funding Contract Award			2Q	

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Exhibit R-2, RDT&E Budget Item Justification	DATE February 2005
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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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	385.890	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1,097.486
4755 Predator	40.162	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	69.992
4799 Global Hawk	345.728	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1,027.494

Global Hawk and Predator no longer share the same Program Element (PE). Effective FY05, Global Hawk funding will be in PE 0305220F, project 675144. The new PE was named GLOBAL HAWK DEVELOPMENT/FIELDING. Predator funding moved to PE 0305219F, project 675143. This PE was named PREDATOR DEVELOPMENT/FIELDING.

(U) A. Mission Description and Budget Item Justification

This program is budget activity 7, Operational Systems Development, because it involves Air Force R&D to develop a highly capable operational system.

Endurance Unmanned Aerial Vehicles (UAVs) are a family of remotely piloted aircraft (RPAs) 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 provides high altitude, deep look, long endurance intelligence, surveillance, and reconnaissance (ISR) capability that complements space and other airborne collectors during peacetime, crisis, and war-fighting scenarios.

The Global Hawk System is comprised of an aircraft, a ground segment, and a support segment. The aircraft is a fully autonomous, high altitude, long endurance remotely piloted aircraft (RPA). The RQ-4A is an imagery intelligence-collecting RPA designed to carry 2,000 pounds of payload. The RQ-4B is a multi-intelligence collecting RPA designed to carry a 3,000-pound payload. Payload designs include a Synthetic Aperture Radar (SAR) with Ground Moving Target Indicator (GMTI)

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

capability, an Electro-Optical (EO)/Infrared (IR) camera, Signals Intelligence (SIGINT), and the Multi-Platform Radar Technology Insertion Program (MP-RTIP). The user will determine the optimal payload configuration and quantity for each aircraft based on current operational requirements. The Ground Station (GS) includes the Mission Control Element (MCE) and the Launch and Recovery Element (LRE). The support segment includes aerospace ground equipment, tech orders, spares, support equipment, and training, etc. to enable the Global Hawk System.

This program will participate in the development, testing and implementation of international standards (to include NATO standardization agreements) to ensure joint, allied and coalition interoperability.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	393.968			
(U) Current PBR/President's Budget	385.890	0.000		
(U) Total Adjustments	-8.078	0.000		
(U) Congressional Program Reductions				
Congressional Rescissions	-8.078			
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 0305205F Endurance Unmanned Aerial Vehicles			PROJECT NUMBER AND TITLE 4755 Predator		
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4755 Predator	40.162	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	69.992
Quantity of RDT&E Articles	0	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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Accomplishments/Planned Program	0.000			
(U) Pre-planned Product Improvement (To include: Advanced capabilities, sensor integration, quick reaction capabilities, payload development/integration, weaponization and experimentation)				
(U) MQ-9 Spiral development (aircraft improvements, development and integration of follow-on sensors, weapons and payloads, and associated communications equipment)				
(U) Predator View situational awareness/mission planning system				
(U) System concept studies	1.000			
(U) Rectify identified air vehicle and ground station deficiencies to improve reliability and maintainability				
(U) Development and Operational Test				

Exhibit R-2a, RDT&E Project Justification	DATE February 2005
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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) Field support	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 TCDL 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)	27.145			
(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	40.162	0.000	0.000	0.000

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	<u>Total Cost</u>
(U) Other APPN										
(U) Aircraft Procurement, AF (PE 35205F), Predator	196.369									
(U) Aircraft Modification, AF (PE 35205F)	14.178									
(U) Aircraft Initial Spares, AF (PE 35205F)	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

DATE

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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) 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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>														
General Atomics Aeronautical Systems Incorporated (GA-ASI)	SS/CPFF	GA-ASI Rancho Bernardo CA		36.891	Feb-04							Continuing	TBD	
Subtotal Product Development			0.000	36.891		0.000		0.000		0.000		Continuing	TBD	0.000
Remarks:														
(U) <u>Support</u>														
ASC	SS/T&M	Wright-Patterson AFB OH		0.750	Feb-04							Continuing	TBD	
Subtotal Support			0.000	0.750		0.000		0.000		0.000		Continuing	TBD	0.000
Remarks:														
(U) <u>Test & Evaluation</u>														
AFOTEC	MIPR	Kirtland AFB NM		1.000	Feb-04							Continuing	TBD	
Misc	Various	Various		1.700	Feb-04							Continuing	TBD	
Subtotal Test & Evaluation			0.000	2.700		0.000		0.000		0.000		Continuing	TBD	0.000
Remarks:														
(U) Total Cost			0.000	40.341		0.000		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

**0305205F Endurance Unmanned
Aerial Vehicles**

PROJECT NUMBER AND TITLE

4755 Predator

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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

0305205F Endurance Unmanned
Aerial Vehicles

PROJECT NUMBER AND TITLE

4755 Predator

(U) **Schedule Profile**

FY 2004

FY 2005

FY 2006

FY 2007

(U) MQ-9 Spiral 0 Complete

4Q

(U) MQ-9 Spiral 1 Demonstration

4Q

Exhibit R-2a, RDT&E Project Justification

DATE
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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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4799	Global Hawk	345.728	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1,027.494
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

Global Hawk and Predator no longer share the same Program Element (PE). Effective FY05, Global Hawk funding will be in PE 0305220F, project 675144. The new PE was named GLOBAL HAWK DEVELOPMENT/FIELDING. Predator funding moved to PE 0305219F, project 675143. This PE was named PREDATOR DEVELOPMENT/FIELDING.

(U) A. Mission Description and Budget Item Justification

This program is budget activity 7, Operational Systems Development, because it utilizes Air Force R&D to develop a highly capable operational system.

The Global Hawk System provides high altitude, deep look, long endurance intelligence, surveillance, and reconnaissance (ISR) capability that complements space and other airborne collectors during peacetime, crisis, and war-fighting scenarios.

The Global Hawk System is comprised of an aircraft, a ground segment, and a support segment. The aircraft is a fully autonomous, high altitude, long endurance remotely piloted aircraft (RPA). The RQ-4A is an imagery intelligence-collecting RPA designed to carry 2,000 pounds of payload. The RQ-4B is a multi-intelligence collecting RPA designed to carry a 3,000-pound payload. Payload designs include a Synthetic Aperture Radar (SAR) with Ground Moving Target Indicator (GMTI) capability, an Electro-Optical (EO)/Infrared (IR) camera, Signals Intelligence (SIGINT), and the Multi-Platform Radar Technology Insertion Program (MP-RTIP). The user will determine the optimal payload configuration and quantity for each aircraft based on current operational requirements. The Ground Station (GS) includes the Mission Control Element (MCE) and the Launch and Recovery Element (LRE). The support segment includes aerospace ground equipment, tech orders, spares, support equipment, and training, etc. to enable the Global Hawk System.

This program will participate in the development, testing and implementation of international standards (to include NATO standardization agreements) to ensure joint, allied and coalition interoperability.

(U) B. Accomplishments/Planned Program (\$ in Millions)	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) ACCOMPLISHMENTS / PLANNED PROGRAM	0.000			
(U) Continue spiral development and related tasks, including aircraft (\$92.5M), payloads (\$30.9M), ground stations (\$10.1M), support segment (\$21.4M), systems engineering (\$26.2M), program management (\$31.3M), and test (\$16.6M) to satisfy ORD requirements.	229.108			
(U) Provide government test and evaluation support at Edwards AFB	8.200			
(U) Provide government program management, mission support, and other related costs.				
(U) Demonstrations and exercises		0.363		
(U) Provide government program management, mission support, and other related costs.		8.862		
(U) MP-RTIP sensor adaptation		30.062		
(U) Continue advanced Airborne Signals Intelligence Payload (ASIP) modernization for Global Hawk and		62.833		

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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U-2.* (U) Congressional Plus Up for Advanced Imagery Architecture and Lithium Batteries	6.300			
(U) Total Cost	345.728	0.000	0.000	0.000

*ASIP platform integration for Global Hawk is in the spiral development line and for the U-2 it is in PE 0305202F.

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

	<u>FY 2004</u> <u>Actual</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>FY 2010</u> <u>Estimate</u>	<u>FY 2011</u> <u>Estimate</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) AF RDT&E	345.728									TBD
(U) Other APPN										TBD
(U) AF MILCON	22.300									TBD
(U) AF O&M	35.500									TBD
(U) AF MILPERS	11.200									TBD
(U) Aircraft Procurement, APPN										TBD
10 AF (HAE UAV)	246.752									TBD
(U) Aircraft Procurement APPN										TBD
11 AF (HAE UAV)										TBD
(U) Other Procurement, 3080										TBD
(HAE UAV)	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

The Global Hawk program uses Spiral Development to provide the warfighter with a near-term, combat capability with increased, time-phased capability improvements as soon as technology and risk achieve satisfactory levels.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2005

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 (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>														
NGIS	SS CPAF	San Diego CA	690.126	229.491	Feb-04							Continuing	TBD	
NG-ESL	SS: CPAF	San Jose CA	73.681	49.197	Feb-04							Continuing	TBD	
Raytheon	SS: CPAF	Falls Church VA		4.235	Feb-04							Continuing	TBD	
L-3	SS: CPAF	Garland, TX		6.600	Feb-04							Continuing	TBD	
NG	SS: CPAF	Melbourne FL	10.960	30.062	Mar-04							Continuing	TBD	
Subtotal Product Development			774.767	319.585		0.000		0.000		0.000		Continuing	TBD	0.000
Remarks:														
(U) <u>Support</u>														
NGIS	SS/CP	San Diego CA	6.797	3.352	Jan-04							Continuing	TBD	
Other Govt Orgs	Various			3.162	Dec-03							Continuing	TBD	
Subtotal Support			6.797	6.514		0.000		0.000		0.000		Continuing	TBD	0.000
Remarks:														
(U) <u>Test & Evaluation</u>														
AFFTC	PO	Edwards AFB	33.890	8.200	Apr-04							Continuing	TBD	
Demos and Exercise support	PO	Various		0.363	Feb-04							Continuing	TBD	
Subtotal Test & Evaluation			33.890	8.563		0.000		0.000		0.000		Continuing	TBD	0.000
Remarks:														
(U) <u>Management</u>														
A&AS	PR	Dayton, OH	43.094	11.066	Mar-04							Continuing	TBD	
Other Govt Orgs	PR	Various										Continuing	TBD	
Subtotal Management			43.094	11.066		0.000		0.000		0.000		Continuing	TBD	0.000
Remarks:														
(U) Total Cost			858.548	345.728		0.000		0.000		0.000		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile





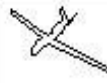













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BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0305205F Endurance Unmanned
Aerial Vehicles

PROJECT NUMBER AND TITLE
4799 Global Hawk

	FY00	FY01	FY02	FY03	FY04	FY05	FY06	FY07	FY08	FY09	FY10	F11	
Milestones	MS III/LRIP	★	IPR ★	★ IPR	OA	★ IPR		IOT&E ★	FRP DR	FOT&E	IOT&E2		
Spiral Development	ACTD	Spiral Developments											
<div style="border: 1px solid black; padding: 5px; width: fit-content;"> <u>ACTD Assets</u> 7 AVs 2 MCEs 3 LREs </div>	Spiral 1 – Basic Infrastructure		Spiral 2 – Inc. payload, OSA & SAR-EQ/IR		Spiral 3 – SIGINT & GATM		Spiral 4 – MP-RTIP & Comms		Spiral 5 – COMM & Other Upgrades		Spiral 6 – FAB-T		Spiral 7 & Future
	} Authorized Development Spirals												
	LRIP						Full Rate Production						
				Lot 1	Lot 2	Lot 3	Lot 4	Lot 5	Lot 6	Lot 7	Lot 8	Lot 9	Lot 10
	Air Vehicle Buy Year	RQ-4A RQ-4B		 2	 4+2N	 1 3	 4	 5	 6	 7	 6	 6	 6
	Ground Station Buy Year			 MCE	 LRE-AF MCE-N LRE-2N	 GH-GS	 GH-GS	 GH-GS	 GH-GS 3 ea	 GH-GS	 GH-GS 2 ea		

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2005
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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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Complete Global Hawk/German ELINT Flight Demonstration	1Q			
(U) Delivery of AF2	2Q			
(U) Award EMD Spiral 4A UCA contract	1Q			

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PE NUMBER: 0305206F
 PE TITLE: Airborne Reconnaissance Systems

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2005
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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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	71.281	60.921	51.769	52.659	54.658	56.730	58.305	59.227	Continuing	TBD
4818 Imaging and Targeting Support	11.199	12.489	14.677	15.616	16.657	17.126	17.870	18.176	Continuing	TBD
4819 Common Data Link (CDL)	42.178	36.295	34.350	35.563	36.289	37.980	38.873	39.541	Continuing	TBD
4882 Compass Bright	4.796	2.105	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5038 Network Centric Collaborative Targeting	11.229	8.101	0.966	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5092 JTC/SIL MUSE	1.879	1.931	1.776	1.480	1.712	1.624	1.562	1.510	Continuing	TBD

- In FY 2005, Project Number 674819, Common Data Link, \$6.1M congressional plus-up to support Software Communications Architecture (SCA) compliance.
- In FY 2006- 2009, Project Number 674882, Compass Bright, efforts will be transferred from PE0305206F, Airborne Reconnaissance Systems, to PE 0304260F, Airborne SIGINT Enterprise, Project 675185, in order to consolidate this SIGINT development effort with other AF SIGINT development efforts.
- In FY 2006, Project Number 675038, Network Centric Collaborative Targeting ACTD completes.

(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.

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2005

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305206F Airborne Reconnaissance Systems

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	77.930	55.464	58.581	59.394
(U) Current PBR/President's Budget	71.281	60.921	51.769	52.659
(U) Total Adjustments	-6.649	5.457		
(U) Congressional Program Reductions				
Congressional Rescissions	-0.893	-0.382		
Congressional Increases		6.100		
Reprogrammings	-5.756	-0.261		
SBIR/STTR Transfer				

(U) **Significant Program Changes:**

In FY06, \$5.254M was moved from Project 674882 (Compass Bright) to the PE 0304260F, Airborne SIGINT Enterprise.

In FY07, \$5.608M was moved from Project 674882 (Compass Bright) to the PE 0304260F, Airborne SIGINT Enterprise.

Exhibit R-2a, RDT&E Project Justification

DATE

February 2005

BUDGET ACTIVITY 07 Operational System Development							PE NUMBER AND TITLE 0305206F Airborne Reconnaissance Systems		PROJECT NUMBER AND TITLE 4818 Imaging and Targeting Support	
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4818 Imaging and Targeting Support	11.199	12.489	14.677	15.616	16.657	17.126	17.870	18.176	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The purpose of the Imaging and Targeting Support (I&TS) 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], 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. I&TS will increase interoperability amongst developed systems by developing common standards and tools. I&TS focuses on the following thrust areas:

Development and integration of common radar and electro-optical sensors (e.g., Synthetic Aperture Radar [SAR], Electro-Optical [EO], Infrared [IR], Hyperspectral [HSI], Laser Radar [LADAR]) 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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Mission Support	1.211	1.211	1.322	1.368
(U) Continue efforts to transition HSI technology, such as the Spectral Infrared Imaging Technology Testbed (SPIRITT) sensor, into airborne reconnaissance platforms	6.638	6.618	8.205	7.310
(U) Continue image quality baselining and assessment efforts for airborne reconnaissance sensors.	1.600	1.500	2.150	3.250
(U) Continue development and delivery of tactical sensor models	1.500	2.160	3.000	3.188
(U) Continue develop and integrate complex Synthetic Aperture Radar (SAR) compression techniques	0.250	1.000	0.000	0.000
(U) Study to transition Automated Precise Positioning to airborne platforms	0.000	0.000	0.000	0.500

Project 4818

R-1 Shopping List - Item No. 198-3 of 198-26

Exhibit R-2a (PE 0305206F)

Exhibit R-2a, RDT&E Project Justification

DATE

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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) Total Cost	11.199	12.489	14.677	15.616
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(U) **C. Other Program Funding Summary (\$ in Millions)**

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
(U) AF RDT & E (PE 63203F, AFRL)	3.360	2.966	0.200	0.558	0.000	0.000	0.000	0.000	0.000	7.084

-Air Force Research Lab is contributing to the SPIRITT HSI sensor development.

(U) **D. Acquisition Strategy**

Acquisition strategy is to maximize commercial and national development efforts and investment through multiple contracting methods; including the use of Engineering Change Proposals (ECP) to modify existing contracts and new contracts that were awarded both competitively or on a sole source basis.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2005

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) 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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u>														
BAE Systems (SPIRITT)	C/CPFF	Greenlawn, NY	6.900	6.600	Apr-04	6.146	Nov-04	8.205	Nov-05	6.300	Nov-06	Continuing	TBD	34.151
ITT Space Systems (Complex SAR Compression)	SS/CPFF	Linthicum Heights, MD	1.557	0.250	Aug-04	1.000	Dec-04	0.000		0.000		0.000	2.807	2.807
Eastman Kodak (Image Quality)	SS/CPFF	Rochester, NY	1.250	0.850	Apr-04	0.750	Nov-04	1.075	Nov-05	1.500	Nov-06	Continuing	TBD	8.175
General Dynamics (Image Quality)	SS/CPFF	Ann Arbor, MI	1.250	0.600	Apr-04	0.750	Nov-04	1.075	Nov-05	1.750	Nov-06	Continuing	TBD	8.175
General Dynamics (API/TRD)	SS/CPFF	Dayton, OH	0.670	1.030	Jan-04	0.965	Nov-04	1.000	Nov-05	1.000	Nov-06	0.000	4.665	4.500
Others	Various	Various		0.508		1.667	Feb-05	2.000		3.698		Continuing	TBD	10.842
Subtotal Product Development			11.627	9.838		11.278		13.355		14.248		Continuing	TBD	68.650
Remarks:														
<u>(U) Support</u>														
Other Gov't Orgs	Various	Various	Sep04	0.150	Sep-04							0.000	0.000	2.207
Subtotal Support			0.000	0.150		0.000		0.000		0.000		0.000	0.000	2.207
Remarks:														
<u>(U) Test & Evaluation</u>														
Prior	Various	Various	0.683									0.000	0.683	0.638
Subtotal Test & Evaluation			0.683	0.000		0.000		0.000		0.000		0.000	0.683	0.638
Remarks:														
<u>(U) Management</u>														
ASC (ITS)	Various	Wright Patterson, AFB	Oct03	1.211	Oct-03	1.211	Oct-04	1.322	Oct-05	1.368	Oct-06	Continuing	TBD	TBD
Subtotal Management			0.000	1.211		1.211		1.322		1.368		Continuing	TBD	TBD
Remarks:														
<u>(U) Total Cost</u>			12.310	11.199		12.489		14.677		15.616		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE
February 2005

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0305206F Airborne Reconnaissance Systems

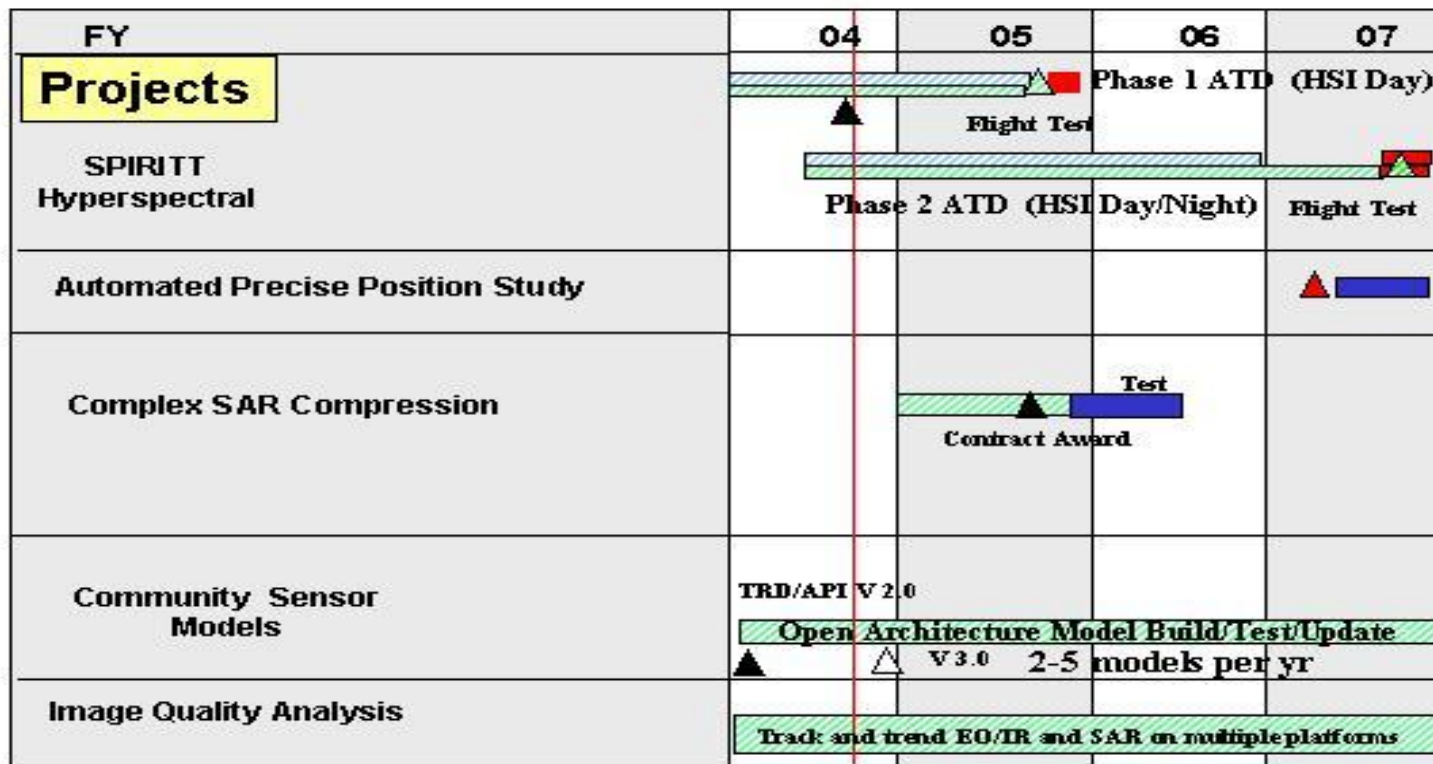
PROJECT NUMBER AND TITLE
4818 Imaging and Targeting Support



I&TS Integrated Schedule

U.S. AIR FORCE

Rapidly delivering war-winning capability



■ Funded by Other PE

■ Funded by ITS Program

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2005
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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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) ITS: SPIRITT Enhanced ATD Contract Award	3Q			
(U) ITS: SPIRITT ATD Phase I Flight Test		4Q		
(U) ITS: SPIRITT ATD Phase II Flight Test				3Q
(U) ITS: Tactical Sensor Model Contract Award	3Q	1Q	1Q	1Q
(U) ITS: Tactical Sensor Model Deliveries		1-4Q	4Q	4Q
(U) ITS: Image Quality Contract Award	3Q			
(U) ITS: Image Quality Baseline for Global Hawk complete		3Q		
(U) ITS: Image Quality Baseline for Predator complete			3Q	
(U) ITS: Image Quality Baseline for TARS SAR complete				3Q
(U) ITS: Complex SAR Compression Contract Award		3Q		
(U) ITS: Complex SAR Compression Integration Test			2Q	
(U) ITS: Automated Precise Positioning Airborne Study Contact				1Q

Exhibit R-2a, RDT&E Project Justification

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)		
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4819 Common Data Link (CDL)	42.178	36.295	34.350	35.563	36.289	37.980	38.873	39.541	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

- FY05 \$6.1M Congressional Plus-up to support Software Communications Architecture (SCA) compliance.

(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. As the Executive Agent, the Air Force will oversee joint development of CDL systems and specifications. CDL will achieve interoperable communications by employing a Joint Tactical Radio System (JTRS) Software Communications Architecture (SCA) architecture based on previously and newly developed hardware, software, and waveforms that promote commonality among the services, NATO, and allies. As the CDL executive agent, the Air Force is responsible for managing these multi-service funds, 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 point-to-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. The effort will integrate commercial and other classified 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 development, technology development, system development and demonstration efforts support continuous improvements and implementation of line-of-sight and network Command and Control, Intelligence Surveillance and Reconnaissance (C2ISR) capabilities and the migration to software re-programmable cryptographic (COMSEC) equipment 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 lifecycle costs to the user. Interoperability provides for the exchange of data across service and agency boundaries. (Note: the term A-series refers to full rate/capability CDL systems and T-Series refers to Tactical Common Data Link (TCDL).

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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(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.	14.649	16.720	19.949	22.581
(U) Continued 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.	4.448	0.178	0.111	0.000
(U) Continued configuration control of CDL architecture, standards, specification, and modules; provide for Joint-Service interoperability certification and spectrum management.	2.582	2.609	2.830	3.035
(U) Continued current development phase of COMSEC replacement and CDL transition to development of reprogrammable COMSEC.	0.145	0.270	0.295	3.540

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	4819 Common Data Link (CDL)			
(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 to include OSD mandates.	5.114	2.918	5.123	3.781	
(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), network centric communications, and Software Communications Architecture (SCA) development.	11.965	10.988	3.077	0.542	
(U) Continued NCCT ACTD wideband integrated common data link development.	0.500	1.000	1.000	0.000	
(U) Continued Ultra-wideband Airborne Laser Communications development. This is an FY04 Congressional Plus-up.	1.000	0.000	0.000	0.000	
(U) Provide CDL technical and engineering support.	1.775	1.612	1.965	2.084	
(U) Total Cost	42.178	36.295	34.350	35.563	

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	

(U) None

(U) D. Acquisition Strategy

CDL funds are managed by various government laboratories and program offices to support new and on-going contracted development efforts in support of providing a common, interoperable wideband data link as mandated by ASD(NII) policy. CDL contracts are/were awarded under full and open competition.

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Exhibit R-3, RDT&E Project Cost Analysis												DATE February 2005		
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 Prior to FY 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> L-3 Communications	C & S; CPAF, CPFF, CPIF	Salt Lake City, UT	91.098	25.136	Oct-03	22.824	Nov-04	17.655	Nov-05	13.420	Nov-06	Continuing	TBD	TBD
Harris Corp	C & S; CPFF	Melbourne, FL	4.440	0.860	Mar-04	1.295	Nov-04	1.288	Nov-05	1.000	Nov-06	0.500	9.383	9.383
Trex	C; CPIF	San Diego, CA	6.400										6.400	6.400
SATCOM Interop/Global Grid/Other Govt Orgs	S; MIPR, CPIF	Multiple	7.992	0.070	May-04	0.015		0.000		3.000	Jan-07	7.283	18.360	18.345
L-3 COMCEPT	C; CPFF	Rockwall, TX	19.619	0.500	Sep-04	1.000	Jun-05	1.000	Jun-06				22.119	22.119
ITT	C; IDIQ	Beavercreek, OH	1.700	1.000	Mar-04								2.700	2.700
Cubic	C, CPFF	San Diego, CA	2.165	2.960	Dec-03	3.295	Nov-04	3.083	Nov-05	5.841	Nov-06	0.500	17.844	17.844
Other	S; MIPR, CPFF	Multiple	1.833	1.017	Nov-03								2.850	2.850
Subtotal Product Development			135.247	31.543		28.429		23.026		23.261		Continuing	TBD	TBD
Remarks:														
(U) <u>Support</u> Various	C & S; CPFF, MIPR	Multiple	15.329	7.779	Oct-03	5.181	Nov-04	5.925	Nov-05	7.071	Nov-06	Continuing	TBD	TBD
Subtotal Support			15.329	7.779		5.181		5.925		7.071		Continuing	TBD	TBD
Remarks:														
(U) <u>Test & Evaluation</u> JITC	MIPR	Fort Huachuca, AZ	2.242	1.281	Oct-03	0.500	Nov-04	1.160	Nov-05	0.910	Nov-06	Continuing	TBD	TBD
SATCOM	S; FFP	San Diego, CA	21.105										21.105	21.105
Subtotal Test & Evaluation			23.347	1.281		0.500		1.160		0.910		Continuing	TBD	TBD
Remarks:														
(U) <u>Management</u> Various	MIPR	Multiple	4.590	1.575	Oct-03	2.185	Oct-04	4.239	Oct-05	4.321	Oct-06	Continuing	TBD	TBD
Subtotal Management			4.590	1.575		2.185		4.239		4.321		Continuing	TBD	TBD
Remarks:														
(U) Total Cost			178.513	42.178		36.295		34.350		35.563		Continuing	TBD	TBD
Project 4819						R-1 Shopping List - Item No. 198-10 of 198-26								Exhibit R-3 (PE 0305206F)

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005






BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0305206F Airborne Reconnaissance Systems

PROJECT NUMBER AND TITLE
4819 Common Data Link (CDL)

EXHIBIT R--2A (PE 0305206F)

Fiscal Year	FY04				FY05				FY06				FY07			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
High Rate Laser Communications Development	█															
CDL Gold Standard Test System	█				█											
ABIT TARS Systems Development/Test	█				█											
Ultra-wideband Airborne Laser Communications Development	█				█											
MR-TCDL for Army Development	█				█											
MP-CDL Development and Platform(s) Integration	█				█											
Begin TIGDL II Prototype Build					█											
SCAMPv6 Compliance Development					█				█				█			
TIGDL II Phase I Test									█							
Manpack CDL Test and Demo									█							
ABIT TARS MS C													☆			
MR-TCDL for Army Test and Demo									█							
MP-CDL Demo									▲							
274 Mb STD-CDL Test and Demo													█			

- 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 2005
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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) <u>Schedule Profile</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) High Data Rate Laser Communications Development	1-4Q	1-4Q		
(U) CDL Gold Stand Test System	1-4Q	1-4Q	1-4Q	
(U) ABIT TARS Systems Development/Test	1-4Q	1-4Q	1Q	
(U) Ultra-wideband Airborne Laser Communications Development	1-4Q	1-3Q		
(U) MR-TCDL for Army Development	1-4Q	1-4Q	1Q	
(U) MP-CDL Development and Platform(s) Integration	1-4Q	1-4Q		
(U) Begin TIGDL II Prototype Build	2-4Q	1-2Q		
(U) SCA/IPv6 Compliance Development (A and T Series)		1-4Q	1-4Q	1-4Q
(U) TIGDL-II Phase I Test		3Q		
(U) Manpack CDL Test & Demo		3-4Q	1Q	
(U) ABIT TARS Milestone C		3Q		
(U) MR-TCDL for Army Test and Demo		4Q	1-4Q	
(U) MP-CDL Demo		4Q		
(U) 274 MB STD-CDL Test & Demo			2-4Q	1-2Q

Exhibit R-2a, RDT&E Project Justification

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February 2005

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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4882 Compass Bright	4.796	2.105	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	0		

(U) Beginning in FY06, all funding for Compass Bright is transferred from PE 0305206F, Project 674882, to the new PE 0304260F Airborne SIGINT Enterprise

(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.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Continue Compass Bright development projects in the signal intelligence (SIGINT) and radio frequency (RF) and measurement and signature intelligence (MASINT) areas	4.326	1.822		
(U) Mission Support, Program Management Activities	0.470	0.283		
(U) Total Cost	4.796	2.105	0.000	0.000

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

	<u>FY 2004</u> <u>Actual</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>FY 2010</u> <u>Estimate</u>	<u>FY 2011</u> <u>Estimate</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) PE 0304260F, Project 5185 - Compass Bright Airborne SIGINT Development			0.392	8.157	8.366	8.596	8.829	9.011	Continuing	TBD

(U) Beginning in FY06, all funding for Compass Bright is transferred from PE 0305206F, Project 674882, to the new PE 0304260F Airborne SIGINT Enterprise

(U) **D. Acquisition Strategy**

On-going Compass Bright technology development and demonstration contracts will continue through existing laboratory relationships and other existing contractual vehicles with future development projects emphasizing 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 4882 Compass Bright
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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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>														
Various	TBD	AFRL	9.873	4.326	Jan-04	1.822							16.021	
Subtotal Product Development			9.873	4.326		1.822		0.000		0.000		0.000	16.021	0.000
Remarks:														
(U) <u>Management</u>														
ASC/RAJ				0.470		0.283							0.753	
Subtotal Management			0.000	0.470		0.283		0.000		0.000		0.000	0.753	0.000
Remarks:														
(U) Total Cost			9.873	4.796		2.105		0.000		0.000		0.000	16.774	0.000

Exhibit R-4, RDT&E Schedule Profile

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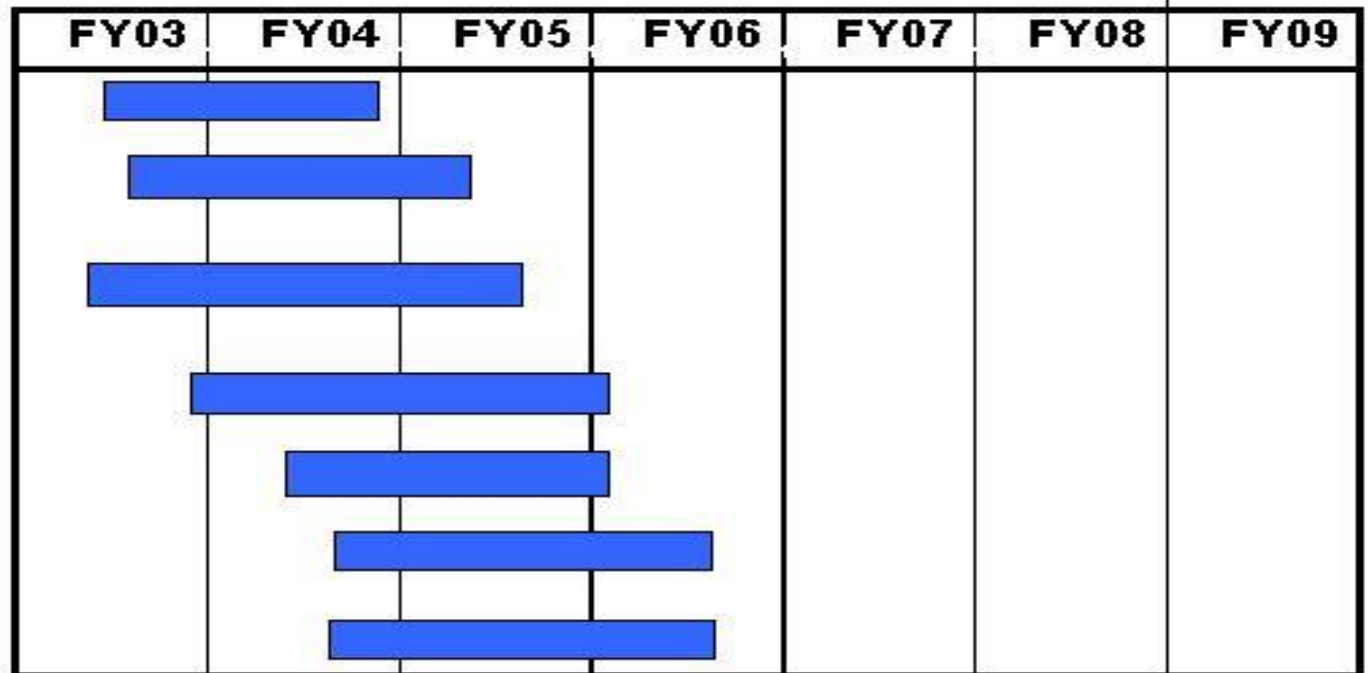
BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0305206F Airborne Reconnaissance Systems

PROJECT NUMBER AND TITLE
4882 Compass Bright



COMPASS BRIGHT Project Schedules



Note1: COMPASS BRIGHT Projects are 1-2 years in duration, thus no outyear projects are shown

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 4882 Compass Bright
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(U) Schedule Profile	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(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 Proposal Call		3Q		
(U) SUAVE-A Demo		4Q		
(U) Superwide Band Compressive Receiver Flt Test		3Q		
(U) Beamformer Flt Test		3Q		
(U) Multi-User Detection Demo			2Q	
(U) Multi-Protocol Wireless Architecture Demo			2Q	
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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
5038 Network Centric Collaborative Targeting	11.229	8.101	0.966	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(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 were installed on AF platforms and system (RJ, JSTARS, and DCGS/U2) for demonstration during CY04 and CY05.

Based on the success of NCCT at JEFX04 and the positive Interim Military Utility Assessment conducted by AFOTEC, The Air Force is committed to execute FY05/06 funds to initiate fielding of NCCT. The FY05/06 desired funds accomplish tasks over and above those currently covered by NCCT funding across the FYDP. This decision has been endorsed by the CENTCOM/DJ3. NCCT and participating platforms (DCGS, Joint STARS, Rivet Joint and AOC) will receive additional funds to accomplish non-recurring engineering, prototype kits and installation to achieve initial fielding by FY06.

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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Complete development of NCCT core technology such as NCCT Network Controller, NCCT Communications Equipment, and NCCT Operations Interface for the ACTD.	6.588	4.551	0.966	
(U) Platform Integration Costs	3.791	2.600	0.000	
(U) Indirect Engineering Support	0.250	0.250	0.000	
(U) Test and Evaluation	0.100	0.200	0.000	
(U) Management	0.500	0.500	0.000	
(U) Total Cost	11.229	8.101	0.966	0.000

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E										
(U) E-3 AWACS PE 0207417F	0.500								0.000	0.500

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Exhibit R-2a, RDT&E Project Justification		DATE February 2005
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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) E-8 JSTARS PE 0207581F	0.500			0.000	0.500
(U) RC-135 PE 0305207F	1.000	1.000	0.100	0.000	2.100
(U) DCGS PE 0305208F					
(U) CDL PE 0305206F (Project 4819)	0.000	1.000	1.000	0.000	2.000
(U) OSD PE 0603750D	5.000	1.000	1.000	0.000	7.000
(U) Army Guardrail PE 0203744A	1.000	1.000	1.000	0.000	3.000

(U) Other APPN

The ACTD includes participating platforms as shown above. United Kingdom Nimrod is also participating in the ACTD with their own funds.

(U) **D. Acquisition Strategy**

ASC/RAB, Big Safari at Wright Patterson AFB, manages the Cost Plus Fixed Fee contract used to develop NCCT core technology and oversee system demonstration while individual platform program offices (Rivet Joint, Joint STARS, AWACS, Air Force DCGS, Airborne Overhead Interoperability Office, and Army Guardrail) manage and contract directly for Platform Interface Module development and integration on their platforms.

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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) 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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> L-3 ComCept, Inc.	CPFF	Prime Contractor/Rockwall, TX		6.588	Oct-03	4.551	Oct-04	0.966	Oct-05			Continuing	TBD	11.994
Platform Specific Contractors	Various	Platform Integration/ Various		3.791	Oct-03	2.600	Oct-04	0.000					6.391	6.391
Subtotal Product Development			0.000	10.379		7.151		0.966		0.000		Continuing	TBD	18.385
Remarks:														
(U) <u>Support</u> Various Contractors	Various	Indirect engineering support to ACTD/Various locations		0.250	Oct-03	0.250	Oct-04	0.000					0.500	0.500
Subtotal Support			0.000	0.250		0.250		0.000		0.000		0.000	0.500	0.500
Remarks:														
(U) <u>Test & Evaluation</u> Various	Various	Military Utility Assessment/ Various locations		0.100		0.200		0.000					0.300	0.300
Subtotal Test & Evaluation			0.000	0.100		0.200		0.000		0.000		0.000	0.300	0.300
Remarks:														
(U) <u>Management</u> ASC/RAB		System Program Office/Dayton, OH		0.500		0.500		0.000					1.000	1.200
Subtotal Management			0.000	0.500		0.500		0.000		0.000		0.000	1.000	1.200
Remarks:														
(U) Total Cost			0.000	11.229		8.101		0.966		0.000		Continuing	TBD	20.385

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	2004				2005				2006			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
1	Continued Core Technology Development	█	█	█		█	█	█	█	█	█		
2	Development of Platform Interface Module (PIM)	█	█	█		█	█	█	█	█			
3	PIM Installation and Testing Complete			█		█	█	█	█	█			
4	NCCT Military Utility Assessment				█				█	█			
5	CY05 Prep & Live Fly - Targeting Trident Warrior 05								█	█			

Exhibit R-4a, RDT&E Schedule Detail	DATE February 2005
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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) <u>Schedule Profile</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Continued Core Technology Development *	1-3Q	1-4Q	1-2Q	
(U) Development of PIM *	1-3Q	1-4Q	1Q	
(U) PIM Installation and Testing Complete	3Q	1-4Q	1Q	
(U) NCCT Military Utility Assessment	4Q	4Q	1-2Q	
(U) CY05 Prep & Live Fly - Targeting Trident Warrior		4Q	1Q	

* - Development efforts suspended during JEFX04/MUA (4Q FY04) and FY05 Exercise (4QFY05) while technology is being tested/demonstrated.

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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
5092 JTC/SIL MUSE	1.879	1.931	1.776	1.480	1.712	1.624	1.562	1.510	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The Joint Technology Center/Systems Integration Laboratory (JTC/SIL) Multiple Unified Simulation Environment (MUSE) is a center of technical excellence to support all UAV programs within the services. The mission includes Service-specific and Joint ISR programs throughout DoD. The JTC/SIL provides a Government test bed for rapid prototyping, technology insertion and transition, systems engineering, modeling/simulation, training and C4I optimization. The cornerstone of its diverse tool set is the MUSE, which is the Departments' simulation/training system of choice for ISR systems, sensors, and platforms.

The Services and Warfighting Commanders have a requirement for the capability to train with a system that provides a real-time simulation environment containing multiple intelligence systems that can be integrated with larger force-on-force simulations. The MUSE creates a realistic operational environment which supports the ability to assess military utility, architecture and CONOPS development, Tactics, Techniques, and Procedures (TTP) development and refinement, to conduct emerging concepts experimentation and C4I optimization within warfighting exercises and experiments.

The MUSE also creates a realistic operational environment that supports an embedded training capability for multiple Program Managers. These tools help to minimize acquisition and life cycle cost and schedule impacts. The MUSE provides the ability to conduct emerging concepts experimentation, future systems exploration, systems integration and technology insertion. The MUSE also has applications for Joint and Service-specific warfighter exercises and C4I optimization.

The MUSE is currently in use within all services and unified commands simulating PREDATOR, GLOBAL HAWK, HUNTER, Shadow 200 and PIONEER UAVs, national and commercial satellite collectors, P-3 and the U-2. During warfighting exercises, the JTC/SIL integrates realistic high-fidelity imagery simulations, emulating the C4I construct. For those assets normally not available for training, the JTC/SIL provides surrogate systems and interfaces. Distributed training environments, virtually linking participants from various locations worldwide, are routinely supported within the MUSE architecture.

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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Laboratory sustainment	0.367	0.367	0.367	0.367
(U) Air Force Synthetic Environment for Reconnaissance and Surveillance (AFSERS) development	1.012	1.064	0.909	0.613
(U) Maintenance, Licenses and equipment purchases	0.500	0.500	0.500	0.500
(U) Total Cost	1.879	1.931	1.776	1.480

Exhibit R-2a, RDT&E Project Justification

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February 2005

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305206F Airborne Reconnaissance Systems

PROJECT NUMBER AND TITLE

5092 JTC/SIL MUSE

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	

(U) Other

The program receives approximately \$2.3 per year from the Army (PE 0305204A) and \$1.7M per year from the Navy (PE P0305204N) thru FY2009.

(U) **D. Acquisition Strategy**

All contracts are awarded after full and open competition and when situations dictate, via sole source.

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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 Prior to FY 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> JTC/SIL	MIPR	Redstone Arsenal, Huntsville, AL	1.879	1.879	May-04	1.931	Nov-04	1.776	Nov-05	1.480	Nov-06	Continuing	TBD	TBD
Subtotal Product Development			1.879	1.879		1.931		1.776		1.480		Continuing	TBD	TBD
Remarks:														
(U) Total Cost			1.879	1.879		1.931		1.776		1.480		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

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February 2005

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0305206F Airborne Reconnaissance Systems

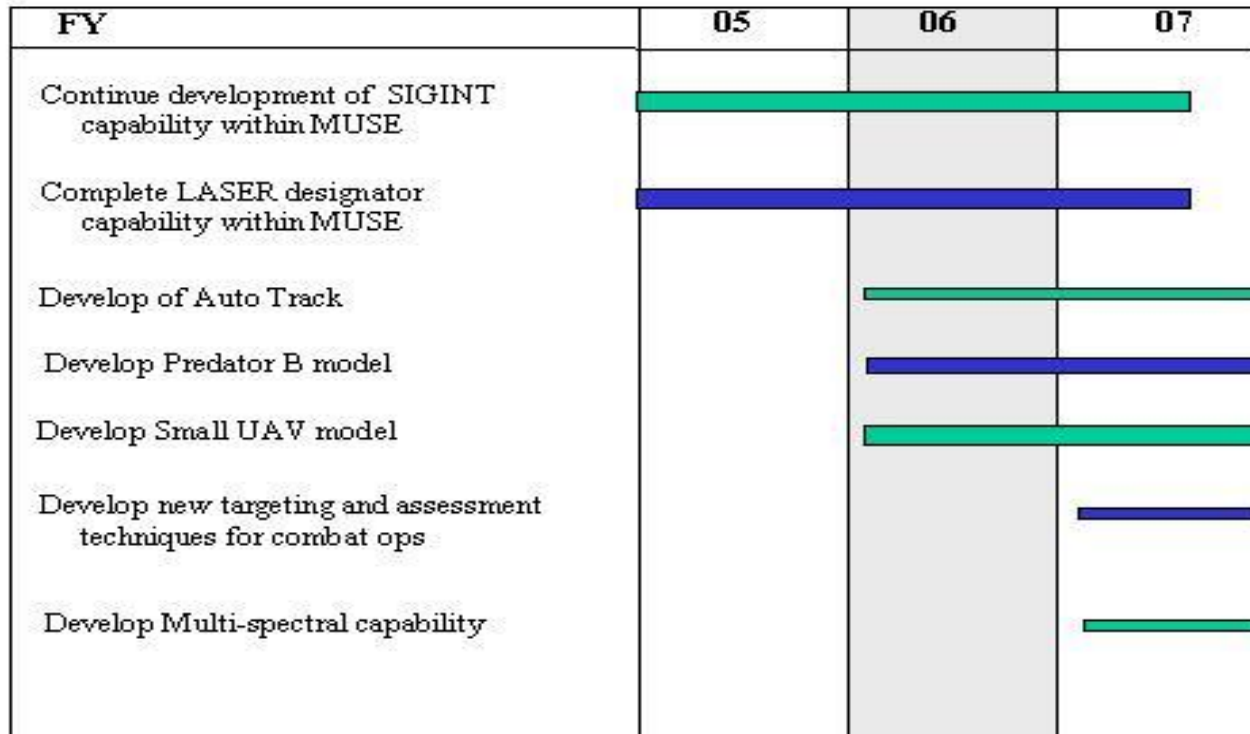
PROJECT NUMBER AND TITLE
5092 JTC/SIL MUSE



JTC/SIL Integrated Schedule

U.S. AIR FORCE

Rapidly delivering war-winning capability



Air Force dollars contribute to these Joint projects.

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2005
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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>Schedule Profile</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) MIPR dollars to Redstone Arsenal	3Q	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 2005
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305207F Manned Reconnaissance System
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Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	15.391	21.591	8.101	10.023	12.680	12.906	13.211	13.432	Continuing	TBD
4754 COBRA BALL	15.391	21.591	8.101	10.023	12.680	12.906	13.211	13.432	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

(U) The RC-135 Operational Systems Development and enhancement activities 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. Extensive utilization of commercial-off the-shelf (COTS) based solutions allows rapid fielding of needed capabilities through continuous technology refresh cycles and vanishing-vendor logistics mitigation efforts.

(U) The results of these efforts provide for preliminary assessments of technical feasibility, operability, or military utility as well as specific engineering implementations integrated into the various systems baseline configurations.

(U) These 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 FY06-FY11 include 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.

(U) The world-wide challenge of keeping pace against technologically agile targets used by both nation and non-nation-state participants and driven by time-to-market forces of COTS technologies, demands a responsive and adaptive acquisition strategy for fielding 'baseline capabilities' that are logistically supportable at all locations. The BIG SAFARI program office uses an incrementally acquired 'baseline' strategy to mitigate risk and find affordable solutions.

This program will participate in the development, testing, and implementation of international standards (to include NATO standardization agreements) to ensure joint, allied, and coalition interoperability.

(U) Budget Activity Justification

This program effort is equivalent to RDT&E budget activity 7, Operational Systems Development, because it involves Air Force R&D necessary to field 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

0305207F Manned Reconnaissance System

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	14.726	13.283	16.570	12.379
(U) Current PBR/President's Budget	15.391	21.591	8.101	10.023
(U) Total Adjustments	0.665	8.308		
(U) Congressional Program Reductions	-0.010			
Congressional Rescissions	-0.134	-0.192		
Congressional Increases	1.100	8.500		
Reprogrammings	-0.291			
SBIR/STTR Transfer				

(U) **Significant Program Changes:**

FY05 Congressional Adds include: \$2M for a Light Weight SIGINT System (LITES) technology demonstration; \$1M for a Combat Sent Tactical ELINT System Modernization improvement risk reduction study; \$2.1M for Cobra Ball Long Wave Infrared Mid-Course Data Collection Capability study; \$1.1M for a Cobra Ball Hi-Res E/O Signature Analysis study; and \$2.3M for Collaborative Information Operations technology demonstration.

In FY06, \$8.4M was transferred from PE 0305207F, Project 4754 (Cobra Ball) to PE 0303601F (MILSATCOM terminals), Project 2487 (MILSATCOM terminals) for RC-135 communications terminal development for FAB-T (long-haul communications).

In FY07 \$2.4M was transferred from PE 0305207F, Project 4754 (Cobra Ball) for the same purposes as in FY06.

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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4754 COBRA BALL	15.391	21.591	8.101	10.023	12.680	12.906	13.211	13.432	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

(U) The RC-135 Operational Systems Development and enhancement activities 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. Extensive utilization of commercial-off the-shelf (COTS) based solutions allows rapid fielding of needed capabilities through continuous technology refresh cycles and vanishing-vendor logistics mitigation efforts.

(U) The results of these efforts provide for preliminary assessments of technical feasibility, operability, or military utility as well as specific engineering implementations integrated into the various systems baseline configurations.

(U) These 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 FY06-FY11 include 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.

(U) The world-wide challenge of keeping pace against technologically agile targets used by both nation and non-nation-state participants and driven by time-to-market forces of COTS technologies, demands a responsive and adaptive acquisition strategy for fielding 'baseline capabilities' that are logistically supportable at all locations. The BIG SAFARI program office uses an incrementally acquired 'baseline' strategy to mitigate risk and find affordable solutions.

This program will participate in the development, testing, and implementation of international standards (to include NATO standardization agreements) to ensure joint, allied, and coalition interoperability.

(U) Budget Activity Justification

This program effort is equivalent to RDT&E 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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Continues Non-Recurring Engineering (NRE) for the Airborne Extremely High Frequency Communications system to be added to the RC-135 fleet.	3.730	5.000		
(U) Continues Non-Recurring Engineering (NRE) for the development and installation of improved mission sensor elements - see classified submission.	10.561	8.091	8.101	10.023
(U) Congressional Add: Cobra Ball Advanced Airborne Sensor (AAS) - \$1.1M	1.100			

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
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(U) Congressional Add: Lightweight SIGINT System demonstration	2.000			
(U) Congressional Add: COMBAT SENT Tactical ELINT System modernization study	1.000			
(U) Congressional Add: COBRA BALL Long Wave IR Mid-course data collection capability study	2.100			
(U) Congressional Add: COBRA BALL Hi-res E/O signature analysis study	1.100			
(U) Congressional Add: Collaborative information operations technology demonstration	2.300			
(U) Total Cost	15.391	21.591	8.101	10.023

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
(U) PE 0305207F, APAF	129.380	120.544	121.692	130.603	146.033	150.559	154.236	156.020	Continuing	TBD
(U) PE 0305207F, OPAF	16.651	18.653	21.507	22.007	22.518	23.070	23.650	24.029	Continuing	TBD
(U) PE 0305207F, O&M	315.511	204.977	234.157	239.941	246.936	252.335	256.055	262.081	Continuing	TBD

(U) D. Acquisition Strategy

The RC-135 Rivet Joint, Cobra Ball and Combat Sent aircraft are maintained and upgraded by the BIG SAFARI Program Office through an evolutionary acquisition strategy.

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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 0305207F Manned Reconnaissance System	PROJECT NUMBER AND TITLE 4754 COBRA BALL
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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 2004</u> <u>Cost</u>	<u>FY 2004</u> <u>Cost</u>	<u>FY 2004</u> <u>Award</u> <u>Date</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</u>	<u>FY 2006</u> <u>Cost</u>	<u>FY 2006</u> <u>Award</u> <u>Date</u>	<u>FY 2007</u> <u>Cost</u>	<u>FY 2007</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
(U) <u>Product Development</u> L-3 COMM	CPFF/CPI F/FFP	L-3 COMM Greenville TX	15.372	15.391	Mar-04	21.591	Nov-05	8.101	Nov-06	10.023	Nov-07	Continuing	TBD	TBD
Subtotal Product Development			15.372	15.391		21.591		8.101		10.023		Continuing	TBD	TBD
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) Total Cost			15.372	15.391		21.591		8.101		10.023		Continuing	TBD	TBD

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: 18 Jan 05

	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11
	* Cobra Ball AAS	* Cobra Ball HI Res EO * COBRA BALL UAIR * Combat SenITAC ELINT * Collaborative INFO OPS						
	AEHF NRE	AEHF NRE						
**	Mission Sensors	Mission Sensors	Mission Sensors	Mission Support Systems	Mission Support Systems	Mission Support Systems	Mission Support Systems	Mission Support Systems
	\$15.682M	\$21.591M	\$8.101M	\$10.023M	\$12.680M	\$12.906M	\$13.211M	\$13.432M

* Congressional Adds

** See CLASSIFIED Submission for detailed breakout (mission sensors transition to PE 0304260F starting in FY07)



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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2005
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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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Initiate Cobra Ball Hi Res E/O		1Q		
(U) Complete Cobra Ball Hi Res E/O			4Q	
(U) Initiate Cobra Ball LWIR Study		1Q		
(U) Complete Initiate Cobra Ball LWIR Study			4Q	
(U) Initiate Combat Sent TAC ELINT improvement study		1Q		
(U) Complete Combat Sent TAC ELINT improvement study			4Q	
(U) Initiate Collaborative INFO Operations		1Q		
(U) Complete the Collaborative INFO study effort			4Q	
(U) Initiate AEHF FAB-T terminal NRE development	1Q			
(U) Transfer AEHF FAB-T terminal development effort to ESC		4Q		
(U) Transfer all mission sensor efforts* to PE-0304260			4Q	
(U) Initiate mission support systems efforts				1Q
(U) Initiate Cobra Ball Advanced Airborne Sensor (AAS)	1Q			
(U) Complete the AAS study efforts		4Q		
* SEE Classified Budget Submission				

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PE NUMBER: 0305208F
 PE TITLE: Distributed Common Ground Systems

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2005
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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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	26.741	21.977	40.402	103.516	97.264	109.843	114.748	38.032	Continuing	TBD
4826 Common Imagery Ground / Surface Systems	26.741	21.977	40.402	103.516	97.264	109.843	114.748	38.032	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 National Agencies to provide world-wide ground/surface 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 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 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 all the Services to provide interoperability at the data services level.

AF DCGS provides ground/surface systems capable of tasking intelligence sensors, and receiving, processing, exploiting, and disseminating 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 five core locations: two CONUS based and three 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 capable of reachback operations via data link relay and 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 system integration to the AOC and its decision tools. Intelligence, surveillance, and reconnaissance (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 and reduce timelines.

AF DCGS is also being integrated into the Network Centric Collaborative Targeting (NCCT) network.

AF DCGS modernization will transform AF DCGS from its existing architecture based on proprietary and legacy systems to an open, web-based, net centric 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-Imagery (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.

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

Baseline capability includes Global Hawk, 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 which is 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.

This program will participate in the development, testing, and implementation of international standards (to include NATO standardization agreements) to ensure joint, Allied, and coalition interoperability.

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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	27.772	21.232	47.290	169.423
(U) Current PBR/President's Budget	26.741	21.977	40.402	103.516
(U) Total Adjustments	-1.031	0.745		
(U) Congressional Program Reductions	0.000	0.000		
Congressional Rescissions	0.000	-0.255		
Congressional Increases	0.000	1.000		
Reprogrammings	-1.031			
SBIR/STTR Transfer	0.000			

(U) Significant Program Changes:

- Funding decreases between PB and current PBR in FY 06 and FY 07 are for higher Air Force needs.

- AF DCGS has a funding ramp from FY 05 to FY 06 and from FY 06 to FY 07 to support AF DCGS modernization. These funds will transform AF DCGS and related technologies from an existing architecture based on proprietary and legacy systems to an open, web-based, net-centric architecture integrated into the Network Centric Warfare environment.

- In FY 05, AF DCGS received a Congressional increase of \$1M for Battle Damage Assessment Process Analysis.

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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4826 Common Imagery Ground / Surface Systems	26.741	21.977	40.402	103.516	97.264	109.843	114.748	38.032	Continuing	TBD
Quantity of RDT&E Articles	0	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 National Agencies to provide world-wide ground/surface 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 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 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 all the Services to provide interoperability at the data services level.

AF DCGS provides ground/surface systems capable of tasking intelligence sensors, and receiving, processing, exploiting, and disseminating 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 five core locations: two CONUS based and three 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 capable of reachback operations via data link relay and satellite.

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- 1) Dynamically visualize and command ISR assets and the information in the AOC
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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 0305208F Distributed Common Ground Systems	PROJECT NUMBER AND TITLE 4826 Common Imagery Ground / Surface Systems
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Also included in this project is a mobile DCGS-I testbed which is 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.

This program will participate in the development, testing, and implementation of international standards (to include NATO standardization agreements) to ensure joint, Allied, and coalition interoperability.

This program is categorized as 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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</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)	1.330	1.602	1.726	1.700
(U) Continue DCGS-I testbed development.	1.257	1.375	1.500	1.550
(U) Continue evolving CIP and its associated architecture to keep pace with growing sensor baseline of new and upgraded sensors. Continue investigation and implementation of advanced processing tools.	7.843	7.199	9.603	10.172
(U) Continue the Adaptive Link Formatter (ALF) development and related sensor modifications to the ground station.	2.000	2.100		
(U) Continue commercial imagery integration.	1.054	0.745	2.600	2.700
(U) Continue DCGS block upgrades. Continue development of the DCGS Integrated Backbone (DIB) and Block 10.2 to enhance DCGS support to the commander, improve integration with the AOC, and to increase time critical targeting effectiveness.	9.429	5.056	9.973	42.033
(U) Begin development efforts for Block 20, the next AF DCGS increment upgrade.	0.000	0.000	0.000	9.361
(U) Continue integration of MASINT and Multiple Intelligence (Multi-INT) exploitation technology capabilities into DCGS.	2.840	2.900	5.000	5.000
(U) Initiate communications architecture upgrade effort.			10.000	31.000
(U) Incorporate C2 Integration for Joint Dynamic Targeting capability	0.988			
(U) Conduct Battle Damage Assessment Process Analysis study.		1.000		
(U) Total Cost	26.741	21.977	40.402	103.516

(U) <u>C. Other Program Funding Summary (\$ in Millions)</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>FY 2010</u>	<u>FY 2011</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>Estimate</u>		
(U) OPAF (PE 0305208F)	99.147	119.477	147.952	197.550	172.152	219.052	146.807	163.705		TBD

(U) **D. Acquisition Strategy**
 The Air Force uses an evolutionary acquisition approach with blocks (increments) and spirals to develop, field, and upgrade the DCGS weapon system and contracts for the

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**

improved capabilities through full and open competition to the maximum extent possible.

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Exhibit R-3, RDT&E Project Cost Analysis												DATE February 2005		
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) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2004 Cost	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) <u>Product Development</u>														
Block 10.2/Spirals	Multiple	Raytheon, Garland, TX	3.318	5.541	Dec-03	3.076	Dec-04	8.870	Dec-05	42.033	Dec-06	Continuing	TBD	TBD
Block 20 Upgrade	TBD	TBD								9.361	Feb-07	Continuing	TBD	TBD
NCCT/Platform Interface Module for DGIF	Multiple	Raytheon, Falls Church, VA		2.000	Apr-04	3.000	Jan-05						5.000	
Communications Capability Upgrade	TBD	TBD						10.000	Jan-06	31.000	Jan-07	Continuing	TBD	TBD
Common Imagery Processor Software Development	C/CPFF	Northrup Grumman, Baltimore, MD	17.279	6.147	Dec-03	6.709	Dec-04	9.603	Dec-05	10.172	Dec-06	Continuing	TBD	TBD
NCCT GCP development	Multiple	Lockheed Martin, San Jose, CA	1.550	1.049	Dec-03								2.599	
NCCT GCP Integration	C/CPAF	General Dynamics, Concord, MA	0.210	1.508	Dec-03								1.718	
MASINT capabilities into DCGS	Multiple	Riverside Research Institute, Fairfax, VA		2.840	Feb-04	2.900	Feb-05	5.000	Jan-06	5.000	Jan-07	Continuing	TBD	TBD
Commercial Imagery Integration	Multiple	Par Gov't Systems, Rome NY		1.054	Mar-04	0.745	Jan-05	2.600	Jan-06	2.700	Jan-07	Continuing	TBD	TBD
Congress Plus Up C2 Integration for Joint Dynamic Targeting	Multiple	ASI, Alexandria, VA		0.988	Feb-04								0.988	
Subtotal Product Development			22.357	21.127		16.430		36.073		100.266		Continuing	TBD	TBD
Remarks:														
(U) <u>Support</u>														
Other Non-Prime Gov't Contracts				0.604	Nov-03	0.375	Feb-05	0.229	Feb-06	0.300	Feb-07	Continuing	TBD	TBD
SAIC	SS/ IDIQ	McLean, VA	2.400	1.944	Oct-03	2.028	Jan-05	2.100	Mar-06	1.300	Mar-07	Continuing	TBD	TBD
Various			12.352	3.066	Mar-04	3.144	Oct-04	2.000	Oct-05	1.650	Oct-06	Continuing	TBD	TBD
Subtotal Support			14.752	5.614		5.547		4.329		3.250		Continuing	TBD	TBD
Remarks:														
(U) <u>Management</u>														
Subtotal Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
Project 4826						R-1 Shopping List - Item No. 200-7 of 200-10								Exhibit R-3 (PE 0305208F)

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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

**0305208F Distributed Common
Ground Systems**

PROJECT NUMBER AND TITLE

**4826 Common Imagery Ground /
Surface Systems**

(U) Total Cost	37.109	26.741	21.977	40.402	103.516	Continuing	TBD	TBD
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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
0305208F Distributed Common
Ground Systems

PROJECT NUMBER AND TITLE
4826 Common Imagery Ground /
Surface Systems



AF DCGS Schedule



	04	FY 2005				FY 2006				FY 2007			
	J-S	O-D	J-M	A-J	J-S	O-D	J-M	A-J	J-S	O-D	J-M	A-J	J-S
Block 10.2													
Build 1 Devel, Integ & Test		I&T 8/20-10/8											
Build 2 Devel, Integ & Test		I&T 10/7-12/20											
Build 1 & 2 S/W Integ		S/W Integ											
Spiral 10.2.3						Jan	06 Spiral						
Spiral 10.2.4										Jan	07 Spiral		
Block 20 AoA & M&S										Mar	Block 20		
Testbed Upgrades				D5 Upgrade				D6 Upgrade				D7 Upgrade	
CIP Releases			6.7 2/17		7/31		1/31		7/31		1/31		7/31

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2005
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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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(U) <u>Schedule Profile</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Block 10.2 Builds 1 & 2	4Q	1-2Q		
(U) Block 10.2 Spiral 10.2.3			2-4Q	1Q
(U) Block 10.2 Spiral 10.2.4				2-4Q
(U) Begin Development Efforts for Block 20				2-4Q
(U) DCGS-I Testbed Upgrades	4Q	3-4Q	3-4Q	3-4Q
(U) CIP Version 6.7 Release		2Q		

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Exhibit R-2, RDT&E Budget Item Justification	DATE February 2005
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305219F PREDATOR DEVELOPMENT/FIELDING
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Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	83.207	61.007	32.125	27.705	24.651	25.222	25.658	Continuing	TBD
5143 Predator	0.000	83.207	61.007	32.125	27.705	24.651	25.222	25.658	Continuing	TBD

In FY2005 this was a new PE. Project 5143, Predator, was transferred from PE 0305205F, Unmanned Aerial Vehicles, Project 4755, 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. This program will continue to evolve and upgrade MQ-1 capabilities to meet emerging requirements and address reliability and maintainability (R&M) issues.

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 is being 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. The next step will be to develop and test a "baseline" capable system. The "baseline" development includes both a risk reduction phase, FY04 & FY05 Quick Reaction Capabilities, and a System Development & Demonstration (SDD) phase. Risk reduction started in FY03 and includes system design, drawings, specifications, and initial standardized (MIL-STD-1760) advanced weapons data bus efforts. The SDD effort began in FY05 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, 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 meet new requirements and address R&M issues.

Approximately 20 Predator B aircraft will be purchased prior to completion of SDD largely through Congressional and OSD funding adds. To maintain a basic

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

operational capability, these aircraft will require reliability/maintainability development to keep them viable for SDD and/or to provide an interim operational combat capability.

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 will participate in the development, testing, and implementation of international standards (to include NATO standardization agreements) to ensure joint, Allied, and coalition interoperability.

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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget		81.346	66.466	26.783
(U) Current PBR/President's Budget	0.000	83.207	61.007	32.125
(U) Total Adjustments	0.000	1.861		
(U) Congressional Program Reductions				
Congressional Rescissions		-0.739		
Congressional Increases		2.600		
Reprogrammings				
SBIR/STTR Transfer				
(U) <u>Significant Program Changes:</u>				
Funding ramps down from FY05 to FY07 as MQ-9 SDD nears completion.				

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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
5143 Predator	0.000	83.207	61.007	32.125	27.705	24.651	25.222	25.658	Continuing	TBD
Quantity of RDT&E Articles	0	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.

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. This program will continue to evolve and upgrade MQ-1 capabilities to meet emerging requirements and address reliability and maintainability (R&M) issues.

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 is being 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. The next step will be to develop and test a "baseline" capable system. The "baseline" development includes both a risk reduction phase, FY04 & FY05 Quick Reaction Capabilities, and a System Development & Demonstration (SDD) phase. Risk reduction started in FY03 and includes system design, drawings, specifications, and initial standardized (MIL-STD-1760) advanced weapons data bus efforts. The SDD effort began in FY05 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, 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 meet new requirements and address R&M issues.

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

Approximately 20 Predator B aircraft will be purchased prior to completion of SDD largely through Congressional and OSD funding adds. To maintain a basic operational capability, these aircraft will require reliability/maintainability development to keep them viable for SDD and/or to provide an interim operational combat capability.

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 will participate in the development, testing, and implementation of international standards (to include NATO standardization agreements) to ensure joint, Allied, and coalition interoperability.

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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) MQ-9 Risk Reduction & Quick Reaction Capability. Includes initial integration of weapons, engine, power upgrades, and tech data.		34.846		
(U) MQ-1/MQ-9 Pre-planned Product Improvement. Includes advanced capabilities (including multiple aircraft control/operations), sensor integration, quick reaction capabilities, payload development/integration, weaponization and experimentation, data link upgrades (including encryption and tactical common data link (TCDL)), mission planning capability, simulator/training devices, and associated ground station and communication equipment development/upgrades.		18.900	2.300	6.300
(U) MQ-9 System Development and Demonstration (SDD). Includes aircraft/GCS/Communication system improvements, development and integration of follow-on sensors, weapon and payload integration, test and training capability, technical data.		15.621	40.169	14.733
(U) Continue reliability and maintainability efforts to ensure the continued viability of the MQ-1/MQ-9 aircraft, GCS, and associated communications equipment.		0.500	0.500	0.500
(U) System Concept Studies		1.500	1.500	1.500
(U) Developmental and Operational Test support. Includes SATCOM leases		5.400	5.038	2.792
(U) Simulator/training device		5.000	10.000	5.000

Exhibit R-2a, RDT&E Project Justification								DATE February 2005			
BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0305219F PREDATOR DEVELOPMENT/FIELDING				PROJECT NUMBER AND TITLE 5143 Predator			
(U)	Field support							1.440	1.500	1.300	
(U)	Total Cost				0.000			83.207	61.007	32.125	
(U)	C. Other Program Funding Summary (\$ in Millions)										
		<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
(U)	Other APPN RDT&E, AF (PE 0305205F/Project 4755), Predator	40.162									
(U)	Aircraft Procurement, AF (PE 0305205F), Predator	202.000									
(U)	Aircraft Procurement, AF (PE 0305219F)		173.906	125.566	77.166	94.643	172.245	176.627	178.666	Continuing	TBD
(U)	Aircraft Modification, AF (PE 0305205F), Predator	13.704									
(U)	Aircraft Modification, AF (PE 0305219F)		31.387	30.286	22.101	20.897	21.710	22.255	22.517	Continuing	TBD
(U)	Aircraft Initial Spares, AF (PE 0305205F), Predator	0.377									
(U)	Missile Procurement, AF (PE 0305205F), Predator	14.589									
(U)	Missile Procurement, AF (PE 0305219F)		19.940	38.135	37.687	21.401	21.980	22.493	22.889	Continuing	TBD
(U)	D. Acquisition Strategy										
	Both the MQ-1 Predator and MQ-9 Predator B systems will be acquired sole-source through the BIG SAFARI Program Office with General Atomics-ASI as the prime contractor.										

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2005

BUDGET ACTIVITY				PE NUMBER AND TITLE							PROJECT NUMBER AND TITLE			
07 Operational System Development				0305219F PREDATOR DEVELOPMENT/FIELDING							5143 Predator			
(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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>														
General Atomics ASI (GA-ASI)	SS/CPIF/CPFF	GA-ASI Rancho Bernardo CA				71.097	Feb-05	42.899	Feb-06	23.375	Feb-07	Continuing	TBD	
Navy Crane	MIPR	Raytheon McKinney TX				1.250	Feb-05	1.250	Feb-06	1.250	Feb-07	Continuing	TBD	
ASC/YW	CPFF	Wright-Patterson AFB OH				5.000	Feb-05	10.000	Feb-06	5.000	Feb-07	0.000	20.000	
Subtotal Product Development			0.000	0.000		77.347		54.149		29.625		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	1.500	Feb-06	1.500	Feb-07	Continuing	TBD	
Subtotal Support			0.000	0.000		1.500		1.500		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				4.360	Feb-05	5.358	Feb-06	1.000	Feb-07	Continuing	TBD	
Subtotal Test & Evaluation			0.000	0.000		4.360		5.358		1.000		Continuing	TBD	0.000
Remarks:	FY04 and prior reported in PE 0305205F													
(U) Total Cost			0.000	0.000		83.207		61.007		32.125		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
**0305219F PREDATOR
DEVELOPMENT/FIELDING**

PROJECT NUMBER AND TITLE
5143 Predator



For Official Use Only

MQ-9 Program Plan



U.S. AIR FORCE

Rapidly delivering war-winning capability

Fiscal Year	2004				2005				2006				2007				2008				2009				2010			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
2005 Interim Capability																												
P&W																												
05 QRC																												
05 QRC Retrofit - 4 A/C																												
Sys Dev & Demo																												
Simulator																												

MQ-9 Development

On Contract
Awaiting Contract

Current As of: 13 Jan 05

Exhibit R-4, RDT&E Schedule Profile

DATE

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BUDGET ACTIVITY
07 Operational System Development

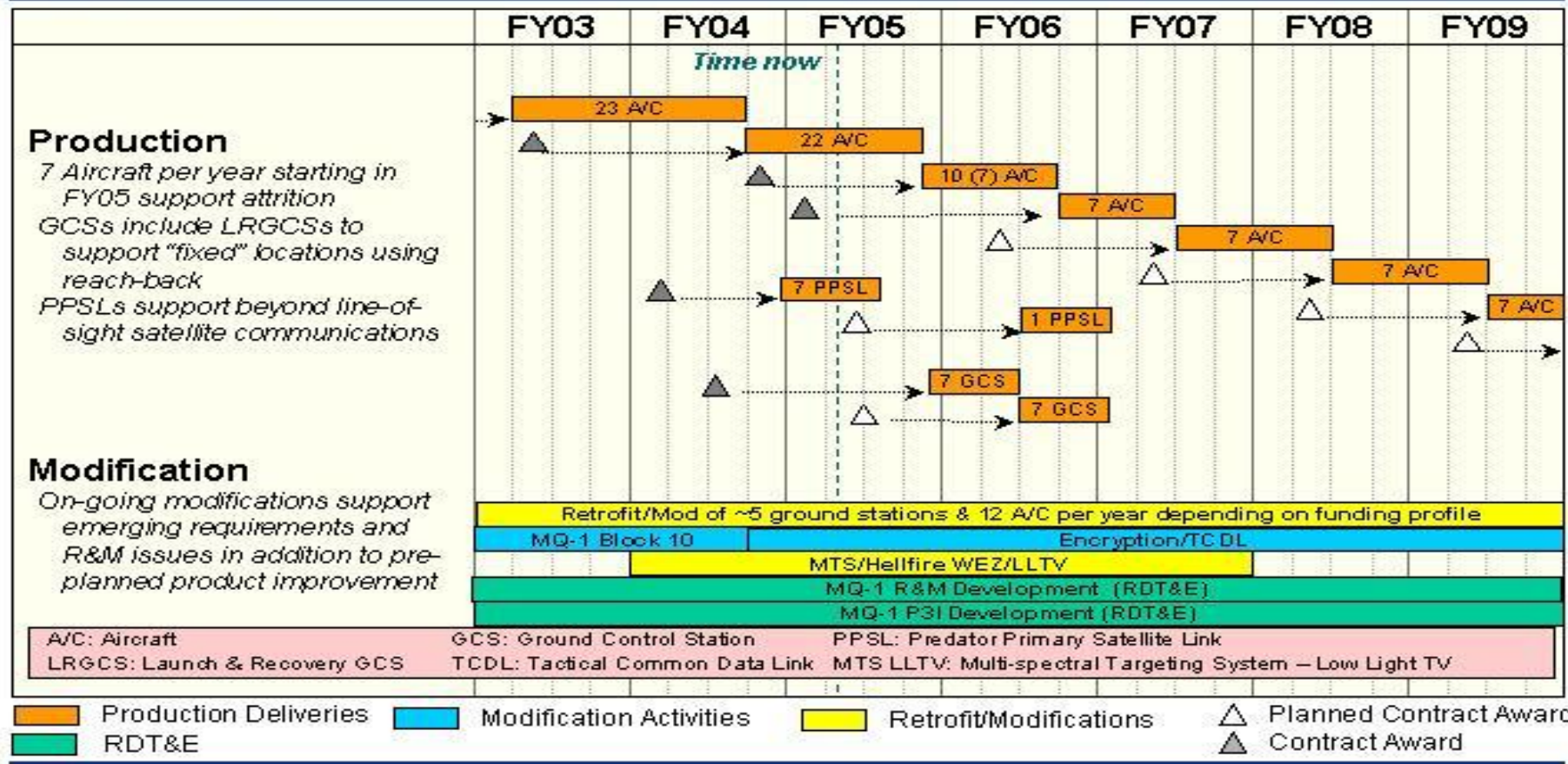
PE NUMBER AND TITLE
0305219F PREDATOR
DEVELOPMENT/FIELDING

PROJECT NUMBER AND TITLE
5143 Predator



MQ-1 Program Plan

U.S. AIR FORCE



As of: 12 Jan 05

Exhibit R-4a, RDT&E Schedule Detail

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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) **Schedule Profile**

(U) MQ-9 Risk Reduction Complete

(U) MQ-9 SDD Start

(U) MQ-9 05 Quick Reaction Capability Start

(U) MQ-9 05 Quick Reaction Capability Complete

(U) MQ-9 IOT&E Start

FY 2004

FY 2005

FY 2006

FY 2007

2Q

2Q

3Q

2Q

4Q

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Exhibit R-2, RDT&E Budget Item Justification	DATE February 2005
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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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	333.167	308.533	208.729	133.258	132.663	145.991	109.284	Continuing	TBD
5144 Global Hawk	0.000	333.167	308.533	208.729	133.258	132.663	145.991	109.284	Continuing	TBD

Global Hawk and Predator no longer share the same Program Element (PE). Effective FY05, Global Hawk funding will be in PE 0305220F, project 675144. The new PE was named GLOBAL HAWK DEVELOPMENT/FIELDING. Predator funding moved to PE 0305219F, project 675143. This PE was named PREDATOR DEVELOPMENT/FIELDING. Beginning in FY06, Signals Intelligence (SIGINT) development and integration funding for all platforms, including Global Hawk, transfers to the Airborne SIGINT Enterprise PE 0304260F.

(U) A. Mission Description and Budget Item Justification

This program is budget activity 7, Operational Systems Development, because it utilizes Air Force R&D to develop a highly capable operational system.

The Global Hawk System provides high altitude, deep look, long endurance intelligence, surveillance, and reconnaissance (ISR) capability that complements space and other airborne collectors during peacetime, crisis, and war-fighting scenarios.

This funding is developing the highly capable Global Hawk System, which is comprised of an aircraft, a ground segment, and a support segment. The aircraft is a fully autonomous, high altitude, long endurance remotely piloted aircraft (RPA). The RQ-4A is an imagery intelligence-collecting RPA designed to carry 2,000 pounds of payload. The RQ-4B is a multi-intelligence collecting RPA designed to carry a 3,000-pound payload. Funds will also enable development of improved payload designs, including a Synthetic Aperture Radar (SAR) with Ground Moving Target Indicator (GMTI) capability, an Electro-Optical (EO)/Infrared (IR) camera, Signals Intelligence (SIGINT), and the Multi-Platform Radar Technology Insertion Program (MP-RTIP). The user will determine the optimal payload configuration and quantity for each aircraft based on current operational requirements. The Ground Station (GS) includes the Mission Control Element (MCE) and the Launch and Recovery Element (LRE). The support segment includes aerospace ground equipment, tech orders, spares, support equipment, and training, etc. to enable the Global Hawk System.

This program will participate in the development, testing and implementation of international standards (to include NATO standardization agreements) to ensure joint, allied and coalition interoperability.

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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget		336.159	226.579	226.502
(U) Current PBR/President's Budget	0.000	333.167	308.533	208.729
(U) Total Adjustments	0.000	-2.992		
(U) Congressional Program Reductions				
Congressional Rescissions		-2.992		
Congressional Increases				
Reprogrammings				
SBIR/STTR Transfer				

(U) Significant Program Changes:

In FY06, \$27M in Global Hawk SIGINT funding was transferred from PE 0305220F, project number 675144, Global Hawk, to the new Airborne SIGINT Enterprise PE 0304260F, project numbers 675183 (common development) and 675184 (Global Hawk).

In FY07, \$107.92M in Global Hawk SIGINT funding was transferred from PE 0305220F project number 675144, Global Hawk, to the new Airborne SIGINT Enterprise PE 0304260F, project numbers 675183 (common development) and 675184 (Global Hawk).

In FY06 (\$109M) and FY07 (\$90.1M) was added by the Air Force to facilitate a Global Hawk program realignment to meet operational readiness and development requirements.

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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
5144 Global Hawk	0.000	333.167	308.533	208.729	133.258	132.663	145.991	109.284	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

Global Hawk and Predator no longer share the same Program Element (PE). Effective FY05, Global Hawk funding will be in PE 0305220F, project 675144. The new PE was named GLOBAL HAWK DEVELOPMENT/FIELDING. Predator funding moved to PE 0305219F, project 675143. This PE was named PREDATOR DEVELOPMENT/FIELDING. Beginning in FY06, Signals Intelligence (SIGINT) development and integration funding for all platforms, including Global Hawk, was transferred to the Airborne SIGINT Enterprise PE 0304260F.

(U) A. Mission Description and Budget Item Justification

This program is budget activity 7, Operational Systems Development, because it utilizes Air Force R&D to develop a highly capable operational system.

The Global Hawk System provides high altitude, deep look, long endurance intelligence, surveillance, and reconnaissance (ISR) capability that complements space and other airborne collectors during peacetime, crisis, and war-fighting scenarios.

This funding is developing the highly capable Global Hawk System, which is comprised of an aircraft, a ground segment, and a support segment. The aircraft is a fully autonomous, high altitude, long endurance remotely piloted aircraft (RPA). The RQ-4A is an imagery intelligence-collecting RPA designed to carry 2,000 pounds of payload. The RQ-4B is a multi-intelligence collecting RPA designed to carry a 3,000-pound payload. Funds will also enable development of improved payload designs, including a Synthetic Aperture Radar (SAR) with Ground Moving Target Indicator (GMTI) capability, an Electro-Optical (EO)/Infrared (IR) camera, Signals Intelligence (SIGINT), and the Multi-Platform Radar Technology Insertion Program (MP-RTIP). The user will determine the optimal payload configuration and quantity for each aircraft based on current operational requirements. The Ground Station (GS) includes the Mission Control Element (MCE) and the Launch and Recovery Element (LRE). The support segment includes aerospace ground equipment, tech orders, spares, support equipment, and training, etc. to enable the Global Hawk System.

This program will participate in the development, testing and implementation of international standards (to include NATO standardization agreements) to ensure joint, allied and coalition interoperability.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Continue spiral development and related tasks, to satisfy ORD requirements.				
(U) Aircraft		89.292	113.905	57.442
(U) Payloads		32.700	65.100	38.000
(U) Ground Stations		16.800	16.600	
(U) Support Segment		10.300	23.800	42.800
(U) Program Management		26.300	5.800	5.600
(U) Systems Engineering		16.800	16.300	16.700
(U) Test		22.200	30.000	23.200

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Exhibit R-2a, RDT&E Project Justification	DATE February 2005
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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) Provide government test and evaluation support at Edwards AFB	9.500	9.751	7.611
(U) Provide government mission support, and other related costs.	9.214	9.664	9.692
(U) Demonstrations and exercises	3.700		
(U) Multi-Platform Radar Technology Improvement Program (MP-RTIP) sensor adaptation	33.594	17.613	7.684
(U) Continue advanced Airborne Signals Intelligence Program (ASIP) payload modernization for Global Hawk and U-2.*	62.767		
(U) Total Cost	0.000	333.167	308.533
* ASIP platform integration for Global Hawk is in the spiral development line and for the U-2 it is in PE 0305202F, project 674820.			

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>		
(U) AF RDT&E (PE 35205F)	315.728									
(U) AF RDT&E (PE 34260F)			5.029	5.200	5.305	5.424	5.544	5.632	Continuing	TBD
(U) AF RDT&E (PE 27423F)			5.429	15.998	11.099	15.625	19.875	23.669	Continuing	TBD
(U) Other APPN										
(U) AF MILCON		10.186	14.200	82.100						
(U) AF O&M		19.963	19.489	68.738	71.340	94.259	108.488	113.449	Continuing	TBD
(U) AF MILPERS		17.777	24.308	29.471	39.065	49.562	55.254	57.018	Continuing	TBD
(U) Aircraft Procurement, APPN 10 AF (HAE UAV)		354.127	397.652	493.218	536.821	509.214	479.579	469.110	Continuing	TBD
(U) Aircraft Procurement, APPN 11 AF (HAE UAV)				17.124	75.243	120.969	56.411	96.091	Continuing	TBD
(U) Other Procurement, 3080 (HAE UAV)		0.263	0.287		0.816					

(U) D. Acquisition Strategy

The Global Hawk program uses a Spiral Development strategy to provide the warfighter with a near-term, combat capability with increased, time-phased capability improvements as technology and risk achieve satisfactory levels.

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Exhibit R-3, RDT&E Project Cost Analysis											DATE February 2005			
BUDGET ACTIVITY 07 Operational System Development						PE NUMBER AND TITLE 0305220F GLOBAL HAWK DEVELOPMENT/FIELDING					PROJECT NUMBER AND TITLE 5144 Global Hawk			
(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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> Spiral development	SS/CPAF	Northrop Grumman Information Systems, San Diego CA				210.346	Feb-05	268.454	Feb-06	180.682	Feb-07	Continuing	TBD	
SIGINT sensor development	SS CPAF	Northrop Grumman Electronic Systems Laboratory, San Diego CA				45.228	Feb-05						45.228	
Ground station development	SS CPAF	Raytheon, Falls Church, VA				12.377	Feb-05						12.377	
Communications systems development	SS CPAF	L-3, Garland, TX				3.300	Mar-05						3.300	
MP-RTIP adaptation	SS CPAF	Northrop Grumman, Melbourne FL				33.594	Feb-05	17.613	Feb-06	7.684	Feb-07	Continuing	TBD	
Subtotal Product Development Remarks:			0.000	0.000		304.845		286.067		188.366		Continuing	TBD	0.000
(U) <u>Support</u> Contractor Program support	SS/CPFF	Northrop Grumman Information Systems, San Diego CA				1.433	Jan-05						1.433	
Govt. Program supprt	MIPR	Various Govt Orgs				2.878	Dec-04	3.051	Dec-05	3.060	Dec-06	Continuing	TBD	
Subtotal Support Remarks:			0.000	0.000		4.311		3.051		3.060		Continuing	TBD	0.000
(U) <u>Test & Evaluation</u> Flight test and Evaluation	PO	AFFTC, Edwards AFB				9.500	Jan-05	9.751	Jan-06	7.611	Jan-07	Continuing	TBD	
Demo & Exercise Support	MIPR / CPFF	Various contractor				3.700	May-05						3.700	

Project 5144

R-1 Shopping List - Item No. 202-6 of 202-9

Exhibit R-3 (PE 0305220F)

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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				0305220F GLOBAL HAWK DEVELOPMENT/FIELDING				5144 Global Hawk				
Subtotal Test & Evaluation		and govt orgs	0.000	0.000	13.200	9.751	7.611	Continuing	TBD	0.000		
Remarks:												
(U) <u>Management</u>												
A&AS	PR	Dayton, OH			9.871	Mar-05	8.724	Mar-06	8.752	Mar-07	Continuing	TBD
Other Govt Orgs	Various	Dayton OH			0.940		0.940		0.940		Continuing	TBD
Subtotal Management			0.000	0.000	10.811		9.664		9.692		Continuing	TBD
Remarks:												
(U) Total Cost			0.000	0.000	333.167		308.533		208.729		Continuing	TBD

Exhibit R-4, RDT&E Schedule Profile

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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

	FY00	FY01	FY02	FY03	FY04	FY05	FY06	FY07	FY08	FY09	FY10	F11	
Milestones	MS III/LRIP	★	IPR ★	★ IPR	OA	★ IPR		IOT&E ★	FRP DR	FOT&E	IOT&E2		
Spiral Development	ACTD	Spiral Developments											
<div style="border: 1px solid black; padding: 5px; width: fit-content;"> <u>ACTD Assets</u> 7 AVs 2 MCEs 3 LREs </div>	Spiral 1 – Basic Infrastructure		Spiral 2 – Inc. payload, OSA & SAR-EQ/IR		Spiral 3 – SIGINT & GATM		Spiral 4 – MP-RTIP & Comms		Spiral 5 – COMM & Other Upgrades		Spiral 6 – FAB-T		Spiral 7 & Future
	} Authorized Development Spirals												
	LRIP						Full Rate Production						
			Lot 1	Lot 2	Lot 3	Lot 4	Lot 5	Lot 6	Lot 7	Lot 8	Lot 9	Lot 10	
	Air Vehicle Buy Year		RQ-4A RQ-4B	✈ 2	✈ 4+2N	✈ 1 3	✈ 4	✈ 5	✈ 6	✈ 7	✈ 6	✈ 6	✈ 6
	Ground Station Buy Year			MCE	LRE-AF MCE-N LRE-2N	GH-GS	GH-GS	GH-GS	GH-GS 3 ea	GH-GS	GH-GS 2 ea		

Exhibit R-4a, RDT&E Schedule Detail

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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) Schedule Profile	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Spiral 4 contract definitization award		2Q		
(U) SOUTHCOM Demo Initiation		2Q		
(U) SIGINT High Band Subsystem (HBS Demonstration)		4Q		
(U) Operational Assessment (FOL Fielding Strategy)		3Q		
(U) Fuselage Ultimate Load Test (V-tail, composite AFT, metallic fuselage)		4Q		
(U) MP-RTIP Integration CDR			1Q	
(U) Award Spiral 5 Contract			2Q	
(U) Wing Ultimate Load Test			3Q	
(U) RQ-4B first flight			3Q	
(U) Canadian Demo			4Q	

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PE NUMBER: 0305221F
 PE TITLE: Network Centric Collaborative Targeting

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2005
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305221F Network Centric Collaborative Targeting
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Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	0.000	8.647	8.464	8.681	8.908	8.818	9.091	Continuing	TBD
5197 Core Technology	0.000	0.000	8.647	8.464	8.681	8.908	8.818	9.091	Continuing	TBD

In FY 2006, Proj 675197, Network Centric Collaborative Targeting (NCCT) (TIARA), efforts were transferred from PE 0305206F, Airborne Reconnaissance Systems, Proj 675038, NCCT in order to transition NCCT capabilities from an Advanced Concept & Technology Demonstration to operational system fielding.

(U) A. Mission Description and Budget Item Justification

Network Centric Collaborative Targeting (NCCT) uses machine-to-machine interfaces and Internet Protocol connectivity to horizontally integrate Intelligence, Surveillance, and Reconnaissance (ISR) platforms and provide timely detection, identification, and geo-location of high priority targets to combatant commanders and their forces. NCCT will develop and deploy the capability to share data, coordinate sensor activity, and provide rapidly correlated results between dissimilar collection platforms and decision-making nodes. NCCT will develop and refresh core technology required for network-centric interactions, develop platform interfaces system program offices, and field NCCT functionality.

NCCT Core Technology develops machine-to-machine technology to horizontally integrate dissimilar ISR assets to include, but not limited to, Rivet Joint, Joint Surveillance & Target Attack Radar System (J-STARS), Airborne Warning and Control System (AWACS), Deployable Common Ground Station (DCGS)/U2, national systems and Army Guardrail. NCCT Core Technology include, but are not limited to, network messages and formats, correlation software and data rules of interaction, and platform specific Platform Interface Modules (PIMs). Core technology also supports the Systems Integration Lab used to test NCCT network centric performance.

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

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget				
(U) Current PBR/President's Budget	0.000	0.000	8.647	8.464
(U) Total Adjustments	0.000	0.000		
(U) Congressional Program Reductions				
Congressional Rescissions				
Congressional Increases				
Reprogrammings				
SBIR/STTR Transfer				

(U) Significant Program Changes:

In FY 2006, Proj 675197, Network Centric Collaborative Targeting (NCCT) (TIARA), efforts were transferred from PE 0305206F, Airborne Reconnaissance Systems, Proj 675038, NCCT in order to transition NCCT capabilities from an Advanced Concept & Technology Demonstration to operational system fielding.

Exhibit R-2, RDT&E Budget Item Justification

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305221F Network Centric Collaborative Targeting

Based on the success of NCCT at JEFX04 and the positive Interim Military Utility Assessment conducted by AFOTEC, the Air Force is committed to execute FY05/06 funds to initiate fielding of NCCT. The FY05/06 desired funds accomplish tasks over and above those currently covered by NCCT funding across the FYDP. This decision has been endorsed by the CENTCOM/DJ3. NCCT and participating platforms (DCGS, Joint STARS, Rivet Joint and AOC) will receive additional funds to accomplish non-recurring engineering, prototype kits and installation to achieve initial fielding by FY06.

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development					PE NUMBER AND TITLE 0305221F Network Centric Collaborative Targeting			PROJECT NUMBER AND TITLE 5197 Core Technology		
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
5197 Core Technology	0.000	0.000	8.647	8.464	8.681	8.908	8.818	9.091	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

This PE has been established to transition NCCT capabilities from ACTD to operational system fielding.

(U) A. Mission Description and Budget Item Justification

Network Centric Collaborative Targeting (NCCT) uses machine-to-machine interfaces and Internet Protocol connectivity to horizontally integrate Intelligence, Surveillance, and Reconnaissance (ISR) platforms and provide timely detection, identification, and geo-location of high priority targets to combatant commanders and their forces. NCCT will develop and deploy the capability to share data, coordinate sensor activity, and provide rapidly correlated results between dissimilar collection platforms and decision-making nodes. NCCT will develop and refresh core technology required for network-centric interactions, develop platform interfaces system program offices, and field NCCT functionality.

NCCT Core Technology develops machine-to-machine technology to horizontally integrate dissimilar ISR assets to include, but not limited to, Rivet Joint, Joint Surveillance & Target Attack Radar System (J-STARS), Airborne Warning and Control System (AWACS), Deployable Common Ground Station (DCGS)/U2, national systems and Army Guardrail. NCCT Core Technology include, but are not limited to, network messages and formats, correlation software and data rules of interaction, and platform specific Platform Interface Modules (PIMs). Core technology also supports the Systems Integration Lab used to test NCCT network centric performance.

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

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) NCCT Core Technology Development and Refresh	0.000	0.000	8.147	7.964
(U) Management	0.000	0.000	0.500	0.500
(U)				
(U) Total Cost	0.000	0.000	8.647	8.464

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>		
(U) PE35206F BPAC 675038	11.229	8.101	0.966							

(U) D. Acquisition Strategy

Award the Sole Source, Cost Plus Fixed Fee contract to incrementally develop and refine NCCT core technology.

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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			0305221F Network Centric Collaborative Targeting							5197 Core 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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> Core Technology Development	CPFF	L3 ComCept / Rockwall, TX						8.147	Oct-05	7.964	Oct-06	Continuing	TBD	TBD
Subtotal Product Development			0.000	0.000		0.000		8.147		7.964		Continuing	TBD	TBD
Remarks:														
(U) <u>Support</u>													0.000	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>													0.000	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> Program Management	Multiple	ASC/RAB / Dayton, OH						0.500		0.500		Continuing	TBD	
Subtotal Management			0.000	0.000		0.000		0.500		0.500		Continuing	TBD	0.000
Remarks:														
(U) Total Cost			0.000	0.000		0.000		8.647		8.464		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0305221F Network Centric
Collaborative Targeting

PROJECT NUMBER AND TITLE
5197 Core Technology

	Task Name	2006				2007			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
1	Core Technology Development								
2	System Integration Lab Operation								
3	NCCT Interface Control Document Update								
4	NCCT Network Controller Software Release								
5	NCCT Operations Interface Upgrade								

Exhibit R-4a, RDT&E Schedule Detail

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305221F Network Centric Collaborative Targeting

PROJECT NUMBER AND TITLE

5197 Core Technology

(U) Schedule Profile

- (U) Continued Core Technology Development and Refresh
- (U) NCCT Systems Integration Lab operation
- (U) NCCT Interface Control Document Update
- (U) NCCT Network Controller Software Release
- (U) NCCT Operations Interface Upgrade

FY 2004

FY 2005

FY 2006

FY 2007

1-4Q

1-4Q

1-4Q

1-4Q

4Q

3Q

2Q

1Q

3Q

2Q

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PE NUMBER: 0305887F

PE TITLE: Electronic Combat Intelligence Support

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2005
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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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	0.951	0.978	1.007	1.041	1.061	1.086	1.104	Continuing	TBD
0374 Electronic Combat Spt, C3 Protection/Multi-Mission, Technology and Spt	0.000	0.951	0.978	1.007	1.041	1.061	1.086	1.104	Continuing	TBD

FY04: Program content and funding transferred from PE 33140F-INFOSEC project 4871-Information Operations Technology, into PE 35887F-Electronic Combat Intel Support project 710T-Information Operations technology. This alignment better supports the RDT&E effort for information operations.

FY05: Under PE 35887F, the funding and content contained in project, 710T-Information Operations Technology, transferred to project 0374-Electronic Combat Intel Support, C3 Protection/Multi-Mission, Technology and Support. Project 710T will be closed.

(U) A. Mission Description and Budget Item Justification

(U) This program expedites Information Superiority (IS) Technology transition from laboratory, industry, and academia to operational platforms via studies, rapid prototyping, technology demonstrations and other RDT&E efforts. Program efforts directly support the AF Information Operations Capabilities Plan (IOCP) and the DoD Information Operations (IO) Roadmap.

(U) The program office investigates and selects the highest potential Information Operations 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. IS core capability areas to be considered are Computer Network Defense (CND), Electronic Warfare (EW), Psychological Operations (PSYOP), Operational Security (OPSEC), and Military Deception.

(U) Planned areas of study, prototyping, and demonstration, include but are not limited to, techniques and technologies for defending systems against sophisticated Information Superiority (IS) and computer network attacks. This will be done by exploiting Integrated Air Defense Systems (IADS), Command and Control Systems, and applying the latest advancements in emerging physics, communications, directed energy, electronic sensors, and intelligence to IS.

(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 Operations Capabilities Team (IOCT) in support of the Air Force IOCP and other applicable requirements documents.

(U) This program funds studies to leverage current DoD lab efforts. Studies will be deconflicted with and will complement PE's 0208021 Information Warfare Support and 0307293 Information Operations Systems and Support. Some aspects of this program will be protected under the PANTHER DEN Special Access Program. Data available upon request.

(U) This program is Budget Activity 7, Operational System Development, because it studies, develops, and fields IO technologies.

Exhibit R-2, RDT&E Budget Item Justification

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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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget		0.951	0.972	0.989
(U) Current PBR/President's Budget	0.000	0.951	0.978	1.007
(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		PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE		
07 Operational System Development		0305887F Electronic Combat Intelligence Support						0374 Electronic Combat Spt, C3 Protection/Multi-Mission, Technology and Spt		
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
0374 Electronic Combat Spt, C3 Protection/Multi-Mission, Technology and Spt	0.000	0.951	0.978	1.007	1.041	1.061	1.086	1.104	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

FY04: Program content and funding transferred from PE 33140F-INFOSEC project 4871-Information Operations Technology, into PE 35887F-Electronic Combat Intel Support project 710T-Information Operations technology. This alignment better supports the RDT&E effort for information operations.

FY05: Under PE 35887F, the funding and content contained in project, 710T-Information Operations Technology, has transferred to project 0374-Electronic Combat Intel Support, C3 Protection/Multi-Mission, Technology and Support. Project 710T will be closed.

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

(U) This program expedites Information Superiority (IS) Technology transition from laboratory, industry, and academia to operational platforms via studies, rapid prototyping, technology demonstrations and other RDT&E efforts. Program efforts directly support the AF Information Operations Capabilities Plan (IOCP) and the DoD Information Operations (IO) Roadmap.

(U) The program office investigates and selects the highest potential Information Operations 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. IS core capability areas to be considered are Computer Network Defense (CND), Electronic Warfare (EW), Psychological Operations (PSYOP), Operational Security (OPSEC), and Military Deception.

(U) Planned areas of study, prototyping, and demonstration, include but are not limited to, techniques and technologies for defending systems against sophisticated Information Superiority (IS) and computer network attacks. This will be done by exploiting Integrated Air Defense Systems (IADS), Command and Control Systems, and applying the latest advancements in emerging physics, communications, directed energy, electronic sensors, and intelligence to IS.

(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 Operations Capabilities Team (IOCT) in support of the Air Force IOCP and other applicable requirements documents.

(U) This program funds studies to leverage current DoD lab efforts. Studies will be deconflicted with and will complement PE's 0208021 Information Warfare Support and 0307293 Information Operations Systems and Support. Some aspects of this program will be protected under the PANTHER DEN Special Access Program. Data available upon request.

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Exhibit R-2a, RDT&E Project Justification	DATE February 2005
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305887F Electronic Combat Intelligence Support	PROJECT NUMBER AND TITLE 0374 Electronic Combat Spt, C3 Protection/Multi-Mission, Technology and Spt
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(U) Total Cost	0.000	0.951	0.978	1.007
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(U) **C. Other Program Funding Summary (\$ in Millions)**

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>		
PE 28021 Information										
(U) Warfare Support and (future PE) 37293	13.038	7.147	15.204	15.191	16.416	16.677	17.456	17.771	Continuing	TBD

(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

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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305887F Electronic Combat Intelligence 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 Prior to FY 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> Security Systems Engineering	CPFF	Lockheed Martin, Hanscom AFB MA				0.050	Jun-05	0.050	Jun-06	0.050	Jun-07	Continuing	TBD	TBD
Subtotal Product Development			0.000	0.000		0.050		0.050		0.050		Continuing	TBD	TBD
Remarks:														
(U) <u>Support</u> Security Support	JTSP	Various, Hanscom AFB MA				0.400	Jan-05	0.420	Jan-06	0.458	Jan-07	Continuing	TBD	TBD
Engineering Support	FFRDC	MITRE, Bedford MA				0.175	Oct-04	0.185	Oct-05	0.195	Oct-06	Continuing	TBD	TBD
Subtotal Support			0.000	0.000		0.575		0.605		0.653		Continuing	TBD	TBD
Remarks:														
(U) <u>Test & Evaluation</u> Funded Via Platform SPOs													0.000	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> Operating Costs		ESC/SRNW, Hanscom AFB MA				0.326	N/A	0.323	N/A	0.304	N/A	Continuing	TBD	TBD
Subtotal Management			0.000	0.000		0.326		0.323		0.304		Continuing	TBD	TBD
Remarks:														
(U) Total Cost			0.000	0.000		0.951		0.978		1.007		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0305887F Electronic Combat
Intelligence Support

PROJECT NUMBER AND TITLE
0374 Electronic Combat Spt, C3
Protection/Multi-Mission, Technology
and Spt



PANTHER DEN Schedule

FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11
<p>THIS PROGRAM'S SCHEDULE IS PROTECTED UNDER A SPECIAL ACCESS PROGRAM CLASSIFICATION</p>							

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Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2005

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305887F Electronic Combat
Intelligence Support

PROJECT NUMBER AND TITLE

0374 Electronic Combat Spt, C3
Protection/Multi-Mission, Technology
and Spt

(U) Schedule Profile

FY 2004

FY 2005

FY 2006

FY 2007

(U) Program schedules are classified under Special Access Program caveats

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PE NUMBER: 0305906F
 PE TITLE: NCMC - TW/AA System

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2005
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305906F NCMC - TW/AA System
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Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	53.754	64.036	85.222	67.316	40.225	33.447	35.293	34.808	Continuing	TBD
4806 Combatant Commanders' Integrated Command and Control System (CCIC2S)	53.754	64.036	85.222	67.316	40.225	33.447	35.293	34.808	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

Combatant Commanders' Integrated Command and Control System (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, Joint Technical Architecture 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 and selected USSTRATCOM missions including the Integrated Tactical Warning/Attack Assessment of missile, space, and air threats, and Space Battle Management. CCIC2S will provide NORAD Commander and Combatant Commander USSTRATCOM a C2 system that is interoperable with the NORAD/USSTRATCOM warfighting functions and supporting/supported Combatant Commanders. CCIC2S has the flexibility to enable it to extend to meet evolving mission needs (e.g., Space-Based Infrared System, Command and Control Battle Management and Communications, Offensive Counterspace, Airborne Laser, Space-Based Radar, Computer Network Defense and Information Operations). The CCIC2S operational architecture will allow Combatant Commanders to better monitor world situations, make threat assessments, formulate Courses of Action, and develop force direction for synchronized warfighter operations.

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. Program Change Summary (\$ in Millions)

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	57.107	64.822	68.416	54.106
(U) Current PBR/President's Budget	53.754	64.036	85.222	67.316
(U) Total Adjustments	-3.353	-0.786		
(U) Congressional Program Reductions				
Congressional Rescissions		-0.786		
Congressional Increases				
Reprogrammings	-1.148			
SBIR/STTR Transfer	-2.205			

(U) Significant Program Changes:

In FY06 the Air Force provided funding to CCIC2S to include study, research and development of the Single Integrated Space Picture (SISP).

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 Combatant Commanders' Integrated Command and Control System (CCIC2S)		
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4806 Combatant Commanders' Integrated Command and Control System (CCIC2S)	53.754	64.036	85.222	67.316	40.225	33.447	35.293	34.808	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

Combatant Commanders' Integrated Command and Control System (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, Joint Technical Architecture 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 and selected USSTRATCOM missions including the Integrated Tactical Warning/Attack Assessment of missile, space, and air threats, and Space Battle Management. CCIC2S will provide NORAD Commander and Combatant Commander USSTRATCOM a C2 system that is interoperable with the NORAD/USSTRATCOM warfighting functions and supporting/supported Combatant Commanders. CCIC2S has the flexibility to enable it to extend to meet evolving mission needs (e.g., Space-Based Infrared System, Command and Control Battle Management and Communications, Offensive Counterspace, Airborne Laser, Space-Based Radar, Computer Network Defense and Information Operations). The CCIC2S operational architecture will allow Combatant Commanders to better monitor world situations, make threat assessments, formulate Courses of Action, and develop force direction for synchronized warfighter operations.

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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Core C2 services: Continue Enterprise network infrastructure (Core C2) development to support Air, Missile, and Space mission elements.	33.335	29.307	28.278	17.470
(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)/Global Command and Control System (GCCS) integration.	1.119	1.253	0.011	0.000
(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 development and delivery of missile monitoring and status tools, theater event displays, and simulated threat environments for improved training capability in Missile Warning 2. Includes software development engineering, and test.	9.493	21.061	13.235	2.564
(U) Space Command and Control (C2) Applications; This effort provides Combatant Commander's staff a	9.807	12.415	28.898	32.894

Exhibit R-2a, RDT&E Project Justification		DATE February 2005
BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305906F NCMC - TW/AA System	PROJECT NUMBER AND TITLE 4806 Combatant Commanders' Integrated Command and Control System (CCIC2S)

single set of Space C2 applications to better leverage space operations. It enables and enhances the monitoring of resident objects as well as space capabilities and status. Enables integrated assessment, planning and execution through specific applications made available to Combatant Commanders. Continues Mission Development/Test to provide improved object tracking and cataloging, and collision avoidance planning of current and future space platforms. Perform detailed design, development and test enhanced capabilities for orbital safety supporting manned spaceflight and methods to improve Space Surveillance Network tasking efficiency. Includes delivery of data to Space Surveillance users, detection and processing of space related events. Provides enhanced and tailorable operational space protection picture and directed energy and electromagnetic interference threat analysis capabilities.

(U) Single Integrated Space Picture: Performs detailed net-centric design and development to deliver capabilities to monitor the status and employment of space forces, process multi-sensor information and task space force elements to support and execute joint military operations. Includes software development, engineering, and test.	14.800	14.388
(U) Total Cost	53.754	64.036
	85.222	67.316

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
(U) Other APPN										
OPAF (PE 0305906F,										
(U) Cheyenne Mountain	20.460	15.592	18.840	14.898	14.260	18.353	18.811	19.104	Continuing	TBD
Complex, P-1 Line Item #42,										
BA 3)										
(U) OPAF (PE 0305906F, Spares										
and Repair Parts, P-1 Line	0.646	0.649	0.679	0.704	0.722	0.739	0.752	0.762	Continuing	TBD
Item #104, BA 5)										

(U) **D. Acquisition Strategy**

Projects are awarded following full and open competition and will use an evolutionary acquisition strategy based on spiral development.

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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 0305906F NCMC - TW/AA System	PROJECT NUMBER AND TITLE 4806 Combatant Commanders' Integrated Command and Control System (CCIC2S)
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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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u> Lockheed Martin	CP/AF	Colorado Springs, CO	39.456	49.423	Oct-03	58.556	Oct-04	79.556	Oct-05	61.457	Oct-06	Continuing	TBD	TBD
Systems Engineering Development & Integration (SEDI)	MIPR	Lockheed Martin (Denver, CO)	5.631									0.000	5.631	
Subtotal Product Development			45.087	49.423		58.556		79.556		61.457		Continuing	TBD	TBD
Remarks:														
<u>(U) Support</u> MITRE	CP/FF	Colorado Springs, CO	5.592	3.150	Nov-03	3.794	Nov-04	3.946	Nov-05	4.104	Nov-06	Continuing	TBD	TBD
A&AS	CP/FF	various, Colorado Springs, CO	1.665	0.716	Apr-04	0.917	Apr-05	0.945	Apr-06	0.973	Apr-07	Continuing	TBD	TBD
Program Support	Various	various, Colorado Springs, CO	0.816	0.465	Oct-03	0.769	Nov-04	0.775	Nov-05	0.782	Nov-06	Continuing	TBD	TBD
Subtotal Support			8.073	4.331		5.480		5.666		5.859		Continuing	TBD	TBD
Remarks:														
<u>(U) Total Cost</u>			53.160	53.754		64.036		85.222		67.316		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

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February 2005

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0305906F NCMC - TW/AA System

PROJECT NUMBER AND TITLE
4806 Combatant Commanders' Integrated Command and Control System (CCIC2S)



Exhibit R-4 CCIC2S

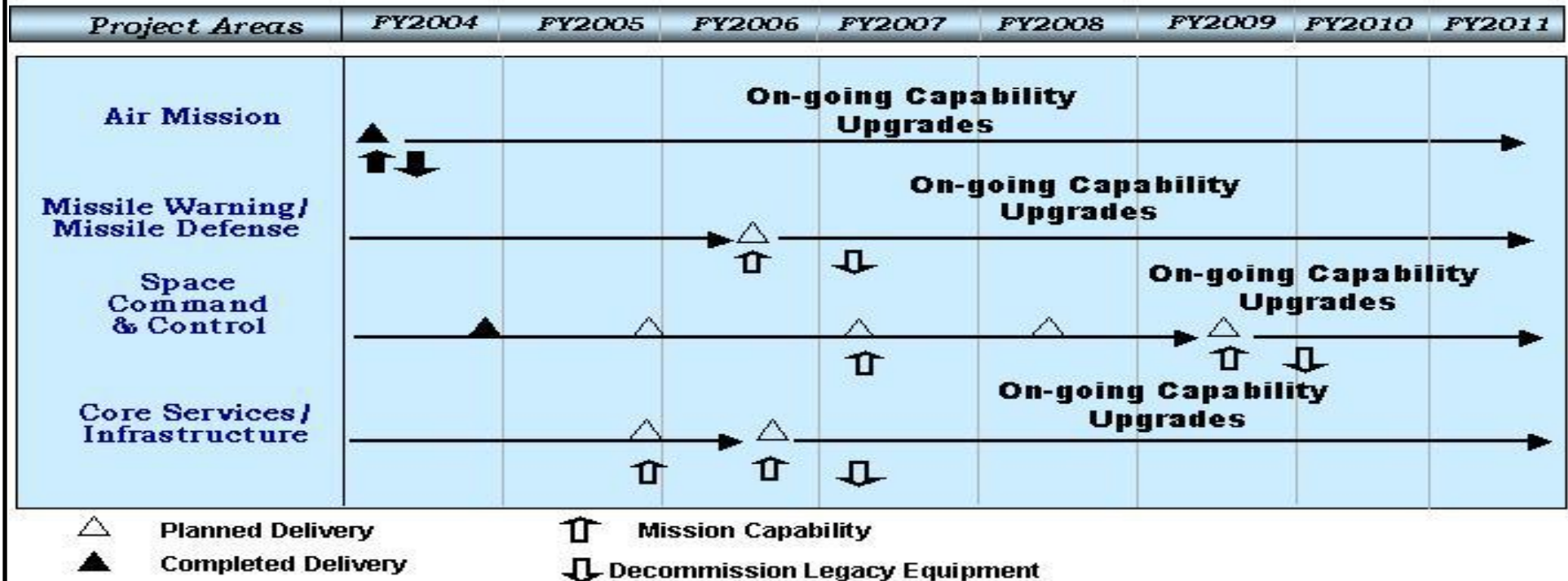


Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2005

BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305906F NCMC - TW/AA System	PROJECT NUMBER AND TITLE 4806 Combatant Commanders' Integrated Command and Control System (CCIC2S)
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(U) Schedule Profile	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Air Mission Deliveries	2Q	1-4Q	1-4Q	1-4Q
(U) Missile Warning/Missile Defense Deliveries			2-4Q	1-4Q
(U) Space Command and Control Deliveries		4Q		1Q
(U) Core Services/Infrastructure Deliveries		4Q	4Q	1-4Q

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PE NUMBER: 0305910F
 PE TITLE: SPACETRACK

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2005
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305910F SPACETRACK
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Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	90.785	139.003	151.102	210.563	354.643	431.645	598.592	593.340	Continuing	TBD
4930 Space Based Space Surveillance	57.387	81.508	84.242	109.933	192.877	201.421	292.145	206.116	Continuing	TBD
5011 Space Situational Awareness Initiatives	11.932	11.980	16.309	11.124	9.478	8.085	8.468	8.642	Continuing	TBD
A008 Sensor Service Life Extension Programs (Sensor SLEPs)	17.812	36.752	25.485	31.066	10.660	0.529	0.260	0.232	Continuing	TBD
A009 Orbital Deep Space Imager (ODSI)	3.654	8.763	25.066	58.440	141.628	221.610	297.719	378.350	Continuing	TBD

(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, integrating SSN and other data 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 situation 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 program is a linked suite of development efforts in intelligence, surveillance, reconnaissance, and space environment analysis and integration that accelerates the transition from traditional space surveillance to comprehensive space situation awareness. The SSA initiatives are key to providing the data needed to produce the Single Integrated Space Picture (SISP) for 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 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 Space Fence will be a dedicated sensor that provides uncued detection and tracking of small earth orbiting objects.

The Orbital Deep Space Imager (ODSI) provides imagery of deep space objects for satellite characterization in support of overall battle space awareness.

The Spacetrack Sensor SLEPs are Budget Activity 7, Operational Systems Development, because they involve development of or modifications to operational sensor

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2005

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305910F SPACETRACK

network sites.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	104.694	161.838	150.837	213.575
(U) Current PBR/President's Budget	90.785	139.003	151.102	210.563
(U) Total Adjustments	-13.909	-22.835		
(U) Congressional Program Reductions		-28.235		
Congressional Rescissions				
Congressional Increases		5.400		
Reprogrammings	-9.900			
SBIR/STTR Transfer	-4.009			
(U) <u>Significant Program Changes:</u>				
1. FY04: Small Business Innovative Research and Air Force higher priorities				
2. FY05: Congressional reduction of \$-27M for SBSS and increase of \$5.4M for Air Force Space Surveillance System (AFSSS) Fence, congressional reductions.				

Exhibit R-2a, RDT&E Project Justification

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February 2005

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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4930 Space Based Space Surveillance	57.387	81.508	84.242	109.933	192.877	201.421	292.145	206.116	Continuing	TBD
Quantity of RDT&E Articles	0	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 space resident 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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Conducted concept definition studies & technology development (Block 10)	1.598	0.000	0.000	0.000
(U) Continue program operations	10.279	11.071	10.918	11.527
(U) Continue Block 10 design, development, and risk reduction	44.560	66.792	65.329	79.197
(U) Minotaur IV - Block 10 launch vehicle	0.950	3.645	5.995	10.113
(U) Block 20 concept development	0.000	0.000	2.000	0.000
(U) Block 20 design, development & risk reduction	0.000	0.000	0.000	9.096
(U) Total Cost	57.387	81.508	84.242	109.933

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
(U) MPAF (PE 305910F, Spacetrack)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	30.754	0.000	30.754

(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/Block 20 constellation will include four satellites when fully populated.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2005

BUDGET ACTIVITY				PE NUMBER AND TITLE								PROJECT NUMBER AND TITLE			
07 Operational System Development				0305910F SPACETRACK								4930 Space Based Space Surveillance			
(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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>	
(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	Northrop Grumman, Redondo Beach, CA	9.933	46.158	Mar-04	66.792	Oct-04	65.329	Nov-05	79.197	Nov-06	Continuing	TBD		
Concept definition studies for Block 20 Risk Reduction	TBD MIPR	TBD MIT/LL, Boston, MA	0.000 0.500	0.000 0.600	Dec-04	0.000 0.600	Jan-05	2.000 0.600	Jan-06 Jan-06	0.000 0.500	Jan-07	0.000 Continuing	2.000 TBD		
Orbital Support Program - Space Launch Vehicle	Various	AFRL/Det 12, Kirtland, AFB, NM	0.000	0.950	Apr-04	3.645	Nov-04	5.995	Nov-05	10.113	Nov-06	Continuing	TBD		
Block 20 Systems Development	TBD	TBD		0.000		0.000		0.000		9.096		Continuing	TBD		
Subtotal Product Development			10.433	47.708		71.037		73.924		98.906		Continuing	TBD	0.000	
Remarks:															
(U) <u>Support</u>															
Program operations	Various	SMC, El Segundo, CA	1.775	9.679	Oct-04	10.471	Oct-04	10.318	Oct-05	11.027	Oct-06	Continuing	TBD		
Subtotal Support			1.775	9.679		10.471		10.318		11.027		Continuing	TBD	0.000	
Remarks:															
(U) <u>Test & Evaluation</u>															
None				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	0.000	
Remarks:															
(U) <u>Management</u>															
None				0.000		0.000						0.000	0.000		
Subtotal Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000	
Remarks:															
(U) Total Cost			12.208	57.387		81.508		84.242		109.933		Continuing	TBD	0.000	

Exhibit R-4, RDT&E Schedule Profile

DATE

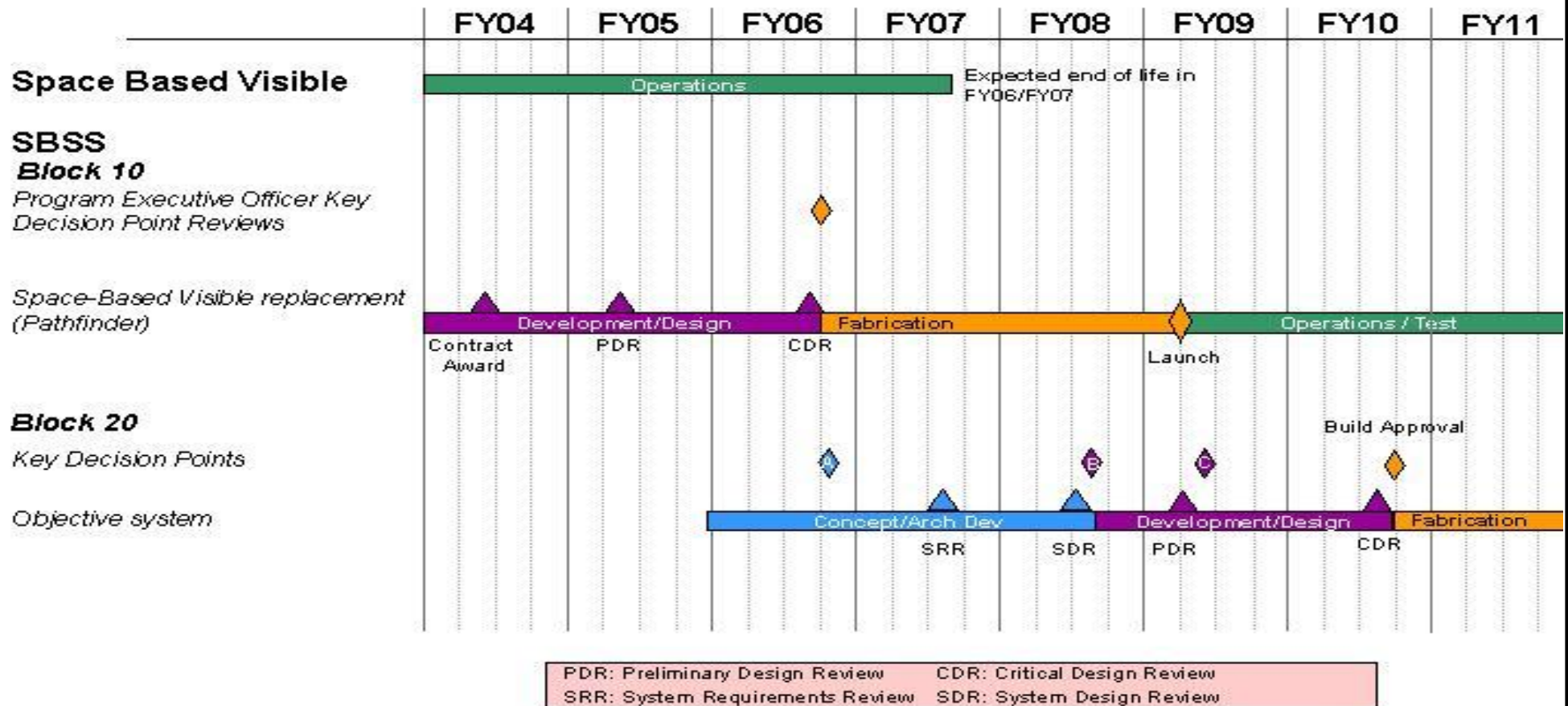
February 2005

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	DATE February 2005
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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
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(U) <u>Schedule Profile</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Block 10 development contract award	2Q			
(U) Block 10 Preliminary Design Review		2Q		
(U) Block 10 Critical Design Review			3Q	
(U) Block 10 Program Review			4Q	
(U) Block 20 pre-acquisition activities			1Q	
(U) Block 20 KDP A			4Q	
(U) Block 20 Systems Requirements Review (SRR)				3Q

Exhibit R-2a, RDT&E Project Justification

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February 2005

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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
5011 Space Situational Awareness Initiatives	11.932	11.980	16.309	11.124	9.478	8.085	8.468	8.642	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

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

Space Situation Awareness (SSA) Initiatives transitions traditional space surveillance to full-spectrum real-time intelligence, surveillance, reconnaissance, and environment (ISRE) space situation awareness.

Space Situation Awareness Command and Control (SSA C2) is a suite of enabling technologies to provide fused data and information to the Single Integrated Space Picture (SISP). SSA C2 technologies collect and fuse 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 Combatant Commanders Integrated Command and Control System (CCIC2S) and SISP applications. The FY06 activities include development of ISRE applications and data analysis/data fusion essential to SSA tasks in support of space C2 operations and an Extended Space Sensor Architecture (ESSA) Advanced Concept Technology Demonstration (ACTD) to combine applicable technologies to broaden the entire Space Control mission area (a joint service ACTD with the Army - PE 0603006A and OSD). A key part of the FY06 objectives is to upgrade the SSA C2 Data Fusion Test Bed (SSA TB) to evaluate operational utility, integrate enhanced applications, and fuse ISRE information for the warfighter's use. The SSA initiatives are key to generating the Space User Defined Operational Picture (UDOP) for the warfighter.

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.

All of these projects are Budget Activity 7, Operational System Development, because they involve development of or modification to operational sensor network sites.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Continue SSA C2: Provide improved surveillance & reconnaissance information to SSA	6.495	6.380	7.577	5.633
(U) Continue SSA C2: Provide intelligence data to SSA	0.678	1.000	1.800	0.800
(U) Continue SSA C2: Provide space environmental data to SSA	1.303	1.340	2.093	1.000
(U) Continue SSA C2: Technical support and requirements development	1.956	1.760	1.839	1.191
(U) Continue SSAIO: Deliver SSA Architectures to support investment planning	1.500	1.500	1.500	1.000
(U) Begin SSA C2 Extended Space Sensor Architecture (ESSA) Advanced Concept Technology	0.000	0.000	1.500	1.500

Exhibit R-2a, RDT&E Project Justification	DATE February 2005
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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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Demonstration (ACTD)				
(U) Total Cost	11.932	11.980	16.309	11.124

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
(U) None										

(U) **D. Acquisition Strategy**

SSA C2: Acquire tools as necessary to optimize use of existing SSN and other sensors' connectivity to collect data. Develop test bed to fuse data and check out in a CCIC2S environment prior to integration into SISF.

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

DATE

February 2005

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 Prior to FY 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>														
Provide improved surveillance & reconnaissance information to SSA	Various	Various	5.763	6.495	Dec-03	6.380	Dec-04	7.577	Dec-05	5.633	Dec-06	Continuing	TBD	
Provide intelligence data to SSA	Various	Various	0.000	0.678		1.000	Dec-04	1.800	Dec-05	0.800	Dec-06	Continuing	TBD	
Provide space environmental data to SSA	Various	Various	2.505	1.303		1.340	Mar-05	2.093	Nov-05	1.000	Nov-06	Continuing	TBD	
Deliver SSA Architectures to support investment planning	Various	Various	1.486	1.500		1.500	Dec-04	1.500	Dec-05	1.000	Dec-06	Continuing	TBD	
ESSA ACTD	MIPR	MIT Lincoln Labs	0.000	0.000		0.000		1.500	Dec-05	1.500	Dec-06	Continuing	TBD	
Subtotal Product Development			9.754	9.976		10.220		14.470		9.933		Continuing	TBD	0.000
Remarks:	The SSA projects are placed on various contracts. Most tasks are targeted for a December award. Some variation will occur.													
(U) <u>Support</u>														
SSA C2 Technical support and requirements development	Various	ESC (Peterson AFB, CO, Hanscom AFB, MA)	0.499	1.956		1.760		1.839		1.191		Continuing	TBD	
Subtotal Support			0.499	1.956		1.760		1.839		1.191		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	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			10.253	11.932		11.980		16.309		11.124		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

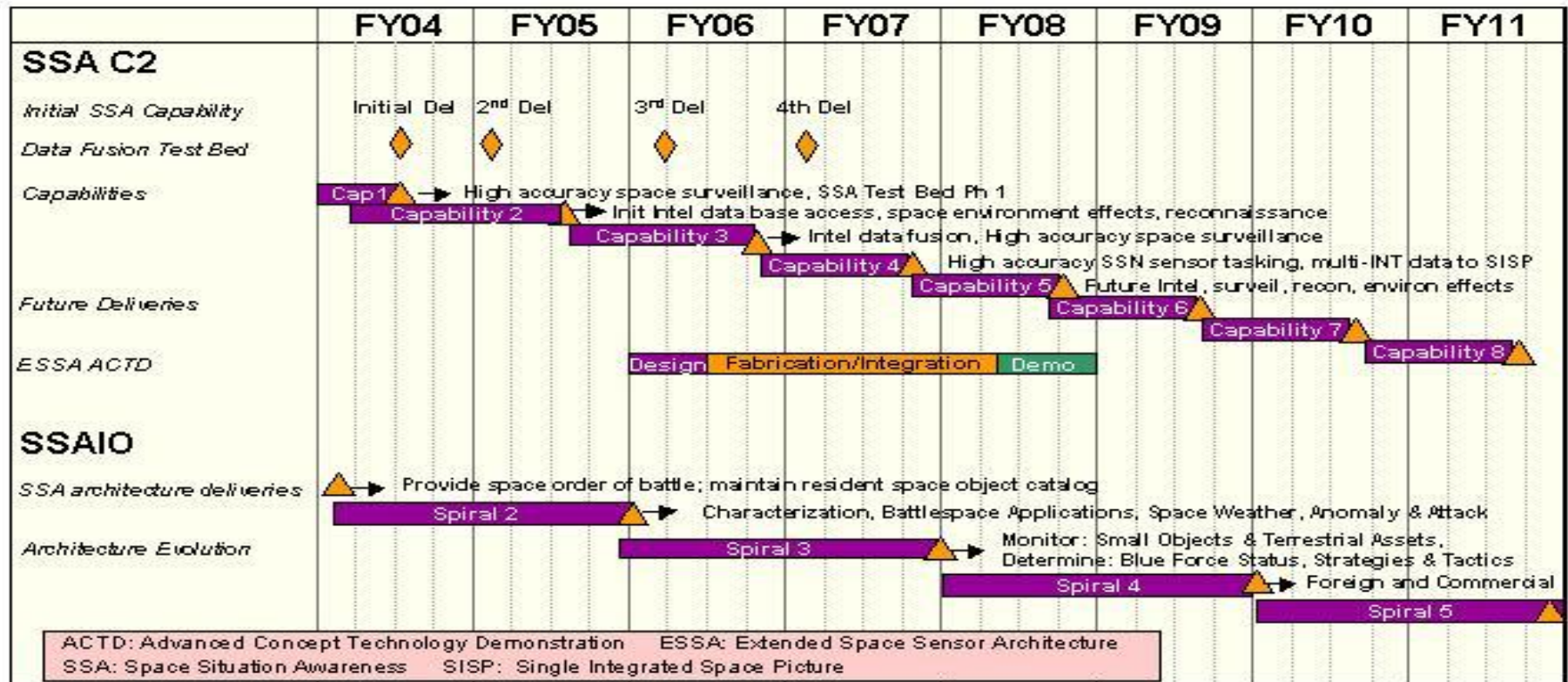
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BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0305910F SPACETRACK

PROJECT NUMBER AND TITLE
5011 Space Situational Awareness Initiatives

Space Situation Awareness Initiatives



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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2005
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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>Schedule Profile</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) High accuracy space surveillance delivery (Capability 1)	3Q			
(U) SSA C2 Fusion Test Bed Initial Delivery	3Q			
(U) SSA C2 Fusion Test Bed Updates		1Q	1Q	1Q
(U) Initial intelligence database access, space environment effects, reconnaissance (Capability 2)		3Q		
(U) Intelligence data fusion (Capability 3)			4Q	
(U) High accuracy SSN sensor tasking, multi-INT data to the Single Integrated Space Picture (SISP) (Capability 4)				4Q
(U) High accuracy SSN sensor tasking, multi-INT data to the Single Integrated Space Picture (SISP) (Capability 4)	1Q		1Q	

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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 0305910F SPACETRACK			PROJECT NUMBER AND TITLE A008 Sensor Service Life Extension Programs (Sensor SLEPs)		
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
A008 Sensor Service Life Extension Programs (Sensor SLEPs)	17.812	36.752	25.485	31.066	10.660	0.529	0.260	0.232	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(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 unsupported 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-wideband Satellite Imaging Radar (HUSIR) is an upgrade to the 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, as well as replace existing antenna with modern design and applicable hardware better suited for W-band operations. This upgrade is required to help achieve the CRD objectives.

The Space Fence will replace the aging Air Force Space Surveillance System (AFSSS) very high frequency (VHF) "Fence" radar that currently performs detection and tracking of orbiting space objects. The Space Fence will provide a radar system with a modern architecture that is capable of detecting more (100,000 objects vs 10,000 objects currently) and much smaller objects (approx. 5 cm in the future vs. 30 cm currently). Space Fence FY05 funding is in this PE0305910F, Spacetrack, Project 67A008, Sensor SLEPs. Follow-on funding was transferred to Project 67A015, Space Fence, within this PE in order to better track the funding of this major program.

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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Continue Eglin SLEP engineering design, risk mitigation, project development and other program support	10.537	17.719	16.375	24.657
(U) Continue HUSIR engineering design, risk mitigation, project management and other program support	7.275	13.959	9.110	6.409
(U) Space Fence engineering design, risk mitigation, project management and other program support		5.074		
(U) Total Cost	17.812	36.752	25.485	31.066

FY05 Space Fence funding is in this BPAC. FY08 and beyond funding moved to BPAC 67A015 in this PE.

Exhibit R-2a, RDT&E Project Justification	DATE February 2005
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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) **C. Other Program Funding Summary (\$ in Millions)**

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
(U) OPAF (PE 0305910F, Spacetrack)	10.389	5.086	0.000	0.000	0.000	0.000	0.000	0.000		

OPAF funding is for current VHF fence sustainment. FY06-FY11 OPAF funding for sustainment of current VHF fence moved to BPAC A015.

(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.

The HUSIR program is using MIT/LL to perform 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.

Space Fence acquisition strategy and implementation currently being evaluated.

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Exhibit R-3, RDT&E Project Cost Analysis												DATE February 2005		
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> (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>2004</u> <u>Cost</u>	<u>FY 2004</u> <u>Cost</u>	<u>FY 2004</u> <u>Award</u> <u>Date</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</u>	<u>FY 2006</u> <u>Cost</u>	<u>FY 2006</u> <u>Award</u> <u>Date</u>	<u>FY 2007</u> <u>Cost</u>	<u>FY 2007</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
(U) <u>Product Development</u>														
Eglin SLEP: Develop open system architecture & extend system life through 2025.	PR/CPAF	ITT/Colorado	1.600	7.259	Dec-03	13.052	Dec-04	12.987	Nov-05	21.200	Nov-06	6.121	62.219	
HUSIR: Build a W-band high-power transmitter & antenna for W-band operation.	PR/FP-LO E	Lincoln Lab/MA.	2.012	6.786	Nov-03	13.377	Nov-04	8.950	Nov-05	6.586	Nov-06	1.378	39.089	
EGLIN: Evaluate design of development effort.	PR/FP-LO E	Lincoln Lab/MA.	0.000	1.500	Nov-03	0.700	Nov-04	0.000		0.000		0.000	2.200	
EGLIN: Evaluate design of development effort.	PR/FP-LO E	MITRE/MA.	0.000	0.000		0.628	Nov-04	0.000		0.000		0.000	0.628	
EGLIN: Evaluate design of development effort.	PR/FP-LO E	Titan/MA.	0.000	0.885	Oct-03	0.864	Nov-04	0.849	Nov-05	0.789	Nov-06	0.789	4.176	
HUSIR: Build a W-band high-power transmitter & antenna for W-band operation.	PR/FP-LO E	Titan/MA.	0.000	0.276	Oct-03	0.185	Nov-04	0.177	Nov-05	0.177	Nov-06	0.182	0.997	
HUSIR: Evaluate design of development effort.	Various	Various	0.000	0.140	Apr-04	0.140		0.000		0.000		0.000	0.280	
Space Fence requirements development, trade studies on siting/design alternatives, risk mitigation, system design, and prototyping.	Various	Various	0.000	0.000	Jun-05	5.074	Jun-05						5.074	
Subtotal Product Development			3.612	16.846		34.020		22.963		28.752		8.470	114.663	0.000
Remarks:	FY04 realignment of funds from Eglin to HUSIR within BPAC to best serve the objectives of both programs													
(U) <u>Support</u>														
Review & management of design/development efforts.	PR/FP-LO E	Titan/MA.	0.000	0.791	Oct-03	1.431	Nov-04	1.490	Nov-05	1.128	Nov-06	0.472	5.312	
Review & management of design/development efforts.	Various	SPO/Various	0.000	0.175	Sep-04	0.975	Nov-04	1.032	Nov-05	1.186	Nov-06	0.751	4.119	
Review & mgmt of design/development efforts for the Space Fence.	Various	SPO/Various	0.000	0.000		0.326		0.000	Nov-05	0.000	Nov-06	Continuing	TBD	
Subtotal Support			0.000	0.966		2.732		2.522		2.314		Continuing	TBD	0.000
Remarks:	FY04 realignment of funds from Eglin to HUSIR within BPAC to best serve the objectives of both programs													
(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) Total Cost			3.612	17.812		36.752		25.485		31.066		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0305910F SPACETRACK

PROJECT NUMBER AND TITLE
A008 Sensor Service Life Extension Programs (Sensor SLEPs)

HUSIR Radar Upgrade

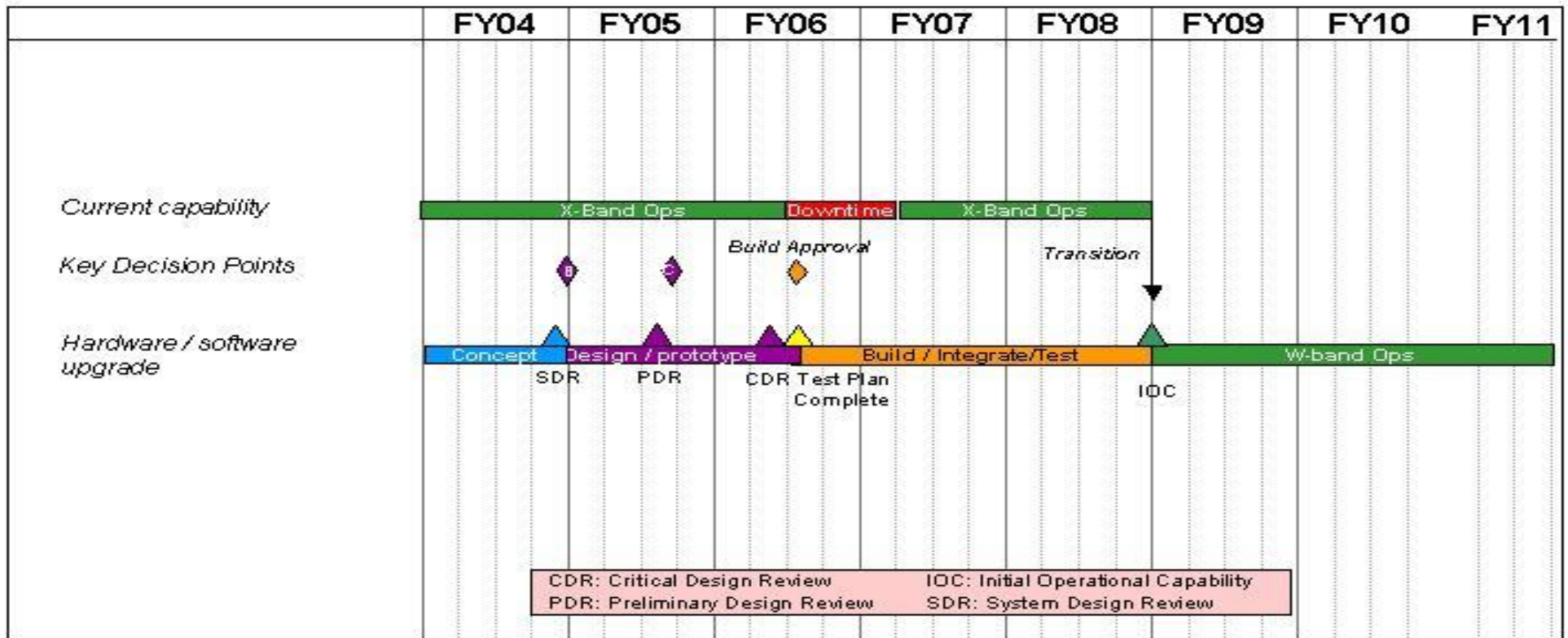


Exhibit R-4, RDT&E Schedule Profile

DATE

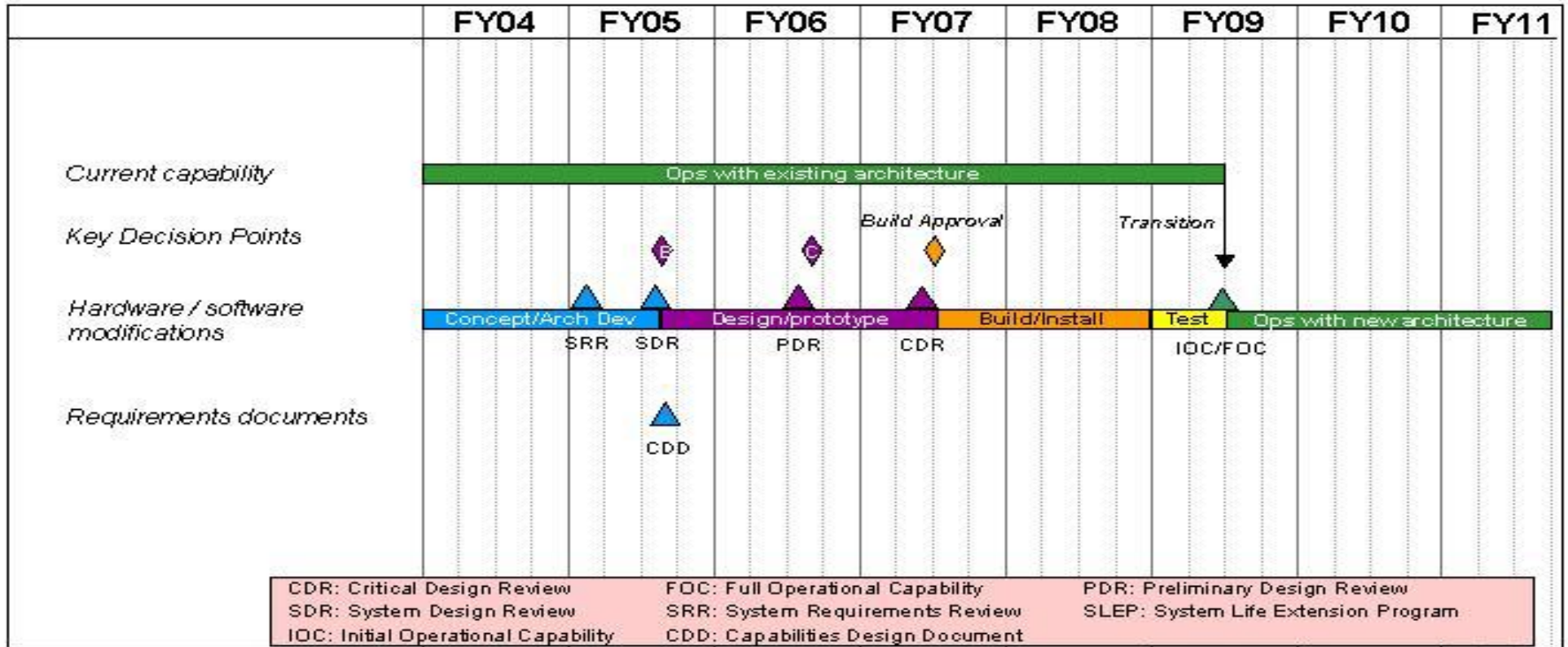
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BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0305910F SPACETRACK

PROJECT NUMBER AND TITLE
A008 Sensor Service Life Extension Programs (Sensor SLEPs)

Eglin Radar SLEP



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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2005
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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) <u>Schedule Profile</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Eglin System Req Review		1Q		
(U) Eglin Phase-B Decision		3Q		
(U) Eglin System Design Review (SDR)		3Q		
(U) Eglin Final Preliminary Design Review (PDR)			3Q	
(U) Eglin Phase-C Decision			3Q	
(U) Eglin Capability Production Document (CPD)				2Q
(U) Eglin Critical Design Review (CDR)				2Q
(U) Eglin Build Approval Decision				3Q
(U) HUSIR Approved AF1067	2Q			
(U) HUSIR SDR	3Q			
(U) HUSIR KDP-B	3Q			
(U) HUSIR PDR		3Q		
(U) HUSIR KDP-C		3Q		
(U) HUSIR CDR			2Q	
(U) HUSIR Build Approval Decision			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 A009 Orbital Deep Space Imager (ODSI)		
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
A009 Orbital Deep Space Imager (ODSI)	3.654	8.763	25.066	58.440	141.628	221.610	297.719	378.350	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Conduct concept definition studies	0.000	3.000	0.000	0.000
(U) Continue architecture development	0.696	0.374	1.409	4.022
(U) Continue to conduct Pre-Phase A Activities	1.885	3.500	0.000	0.000
(U) Continue system development	0.000	0.000	17.400	45.900
(U) Continue program operations	1.073	1.889	6.257	8.518
(U) Total Cost	3.654	8.763	25.066	58.440

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
(U) None										

(U) D. Acquisition Strategy

The project started with the Concept Decision Meeting (CDM) in Jun 04. Concept definition activities will continue through FY06 and FY07 to include a System Requirements Review. Subsequent 1Qtr FY08 contract will follow: A single contractor will be selected in FY08 to complete system design and develop the system. Build approval will be in FY10 followed by production start. First launch is planned for FY13.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2005

BUDGET ACTIVITY				PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE					
07 Operational System Development				0305910F SPACETRACK						A009 Orbital Deep Space Imager (ODSI)					
(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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>	
(U) <u>Product Development</u>															
Conduct Pre-phase A Activities and Architecture Development	MAPIC CPAF	Northrop Grumman, Redondo Beach, CA	0.000	2.735	Feb-04	3.874	Nov-04	1.409	Nov-05	4.022	Nov-06	Continuing	TBD		
Concept Definition Studies	FFP	TBD	0.000	0.000		3.000	Jan-05	0.000		0.000		0.000	3.000		
System Development	TBD	TBD	0.000	0.000		0.000		17.400	Jan-06	45.900	Nov-06	Continuing	TBD		
Subtotal Product Development			0.000	2.735		6.874		18.809		49.922		Continuing	TBD	0.000	
Remarks:															
(U) <u>Support</u>															
Program Operations	Various	SMC, El Segundo, CA	0.000	0.919	Feb-04	1.889	Oct-04	6.257	Nov-05	8.518	Nov-06	Continuing	TBD		
Subtotal Support			0.000	0.919		1.889		6.257		8.518		Continuing	TBD	0.000	
Remarks:															
(U) <u>Test & Evaluation</u>															
None			0.000	0.000		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	0.000	
Remarks:															
(U) <u>Management</u>															
None			0.000	0.000		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	0.000	
Remarks:															
(U) Total Cost			0.000	3.654		8.763		25.066		58.440		Continuing	TBD	0.000	

Exhibit R-4, RDT&E Schedule Profile

DATE

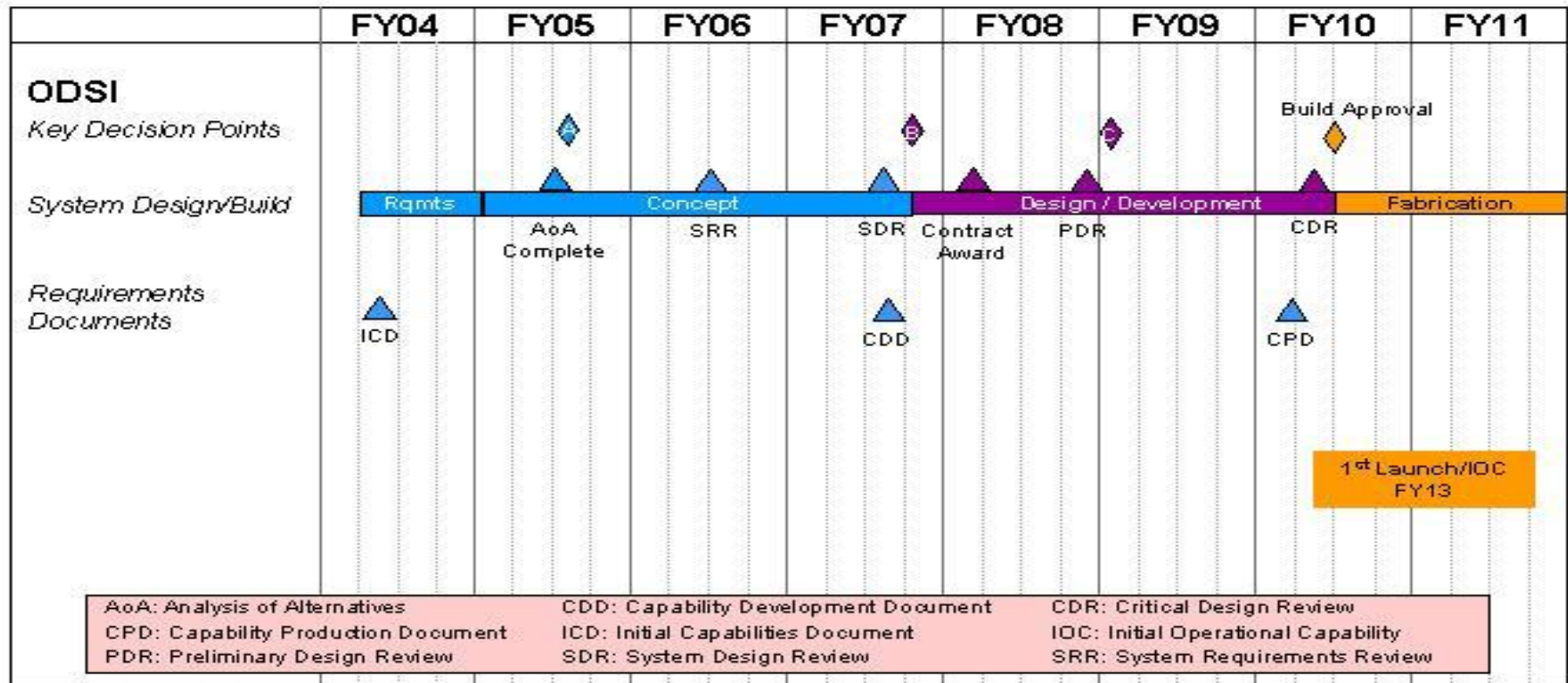
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BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0305910F SPACETRACK

PROJECT NUMBER AND TITLE
A009 Orbital Deep Space Imager (ODSI)

ODSI Development



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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2005
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305910F SPACETRACK	PROJECT NUMBER AND TITLE A009 Orbital Deep Space Imager (ODSI)
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<u>(U) Schedule Profile</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Pre-Phase A activities	2-4Q			
(U) Begin concept definition studies		1Q		
(U) KDP A		3Q		
(U) System Requirements Review			3Q	
(U) SDR				3Q
(U) Conduct Phase B independent program assessment				1-3Q
(U) KDP B				3Q

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PE NUMBER: 0305913F
 PE TITLE: NUDET Detection System (Space)

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2005
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305913F NUDET Detection System (Space)
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Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	33.816	34.826	32.783	60.494	39.046	42.087	40.083	39.638	Continuing	TBD
2808 Nuc Detonation Det Sys (sensors)	33.816	34.826	32.783	60.494	39.046	42.087	40.083	39.638	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, Defense Support Program (DSP) satellites (optical, x-rays, and neutron and gamma rays), and Space Based Infrared Systems (SBIRS) satellites. 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, the Space and Atmospheric Burst Reporting System (SABRS), and NDS Analysis Payload (NAP). ICADS provides a fixed ground receiving station. GNT provides a survivable ground receiving station. SABRS is the future neutron/gamma sensor payload on SBIRS satellites to replace the USNDS sensor payload on DSP satellites. NAP improves existing NDS capability and is 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 Block IIF satellites with ground segment development remaining in the NDS PE.

This program is in Budget Activity 7 - Operational System Development because it supports operational systems.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	35.428	35.398	32.607	28.011
(U) Current PBR/President's Budget	33.816	34.826	32.783	60.494
(U) Total Adjustments	-1.612	-0.572		
(U) Congressional Program Reductions		-0.572		
Congressional Rescissions				
Congressional Increases				
Reprogrammings	-1.612			
SBIR/STTR Transfer				

(U) Significant Program Changes:

Increased funding in FY07 for Space and Atmospheric Burst Reporting System (SABRS) on Space Based Infrared Systems (SBIRS) development.

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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
2808 Nuc Detonation Det Sys (sensors)	33.816	34.826	32.783	60.494	39.046	42.087	40.083	39.638	Continuing	TBD
Quantity of RDT&E Articles	0	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, Defense Support Program (DSP) satellites (optical, x-rays, and neutron and gamma rays), and Space Based Infrared Systems (SBIRS) satellites. 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, the Space and Atmospheric Burst Reporting System (SABRS), and NDS Analysis Payload (NAP). ICADS provides a fixed ground receiving station. GNT provides a survivable ground receiving station. SABRS is the future neutron/gamma sensor payload on SBIRS satellites to replace the USNDS sensor payload on DSP satellites. NAP improves existing NDS capability and is 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 Block IIF satellites with ground segment development remaining in the NDS PE.

This program is in Budget Activity 7 - Operational System Development because it supports operational systems.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Continue ICADS and GNT development	26.274	24.392	23.082	17.654
(U) Continue NDS sensor on-orbit qualification	2.494	3.050	3.463	3.531
(U) Continue Mission and Program support and system studies	1.409	3.625	2.386	3.789
(U) Continue Technical Support	3.639	3.759	3.852	3.970
(U) SABRS on SBIRS development	0.000	0.000	0.000	31.550
(U) Total Cost	33.816	34.826	32.783	60.494

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>		
(U) AF RDT&E										
(U) Other APPN										
(U) Operations & Maintenance, (PE 0305913F, BA 1,	7.516	8.378	9.839	10.373	10.376	10.564	10.666	10.872	Continuing	TBD

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

Operating Forces)										
Other Procurement, (PE										
(U) 0305913F, BA 3 - Electronics and Telecom Equipment, P-63)	10.706	7.525	9.396	13.450	16.449	27.802	21.924	10.527	Continuing	TBD
Missile Procurement, (PE										
(U) 0305913F, BA 5 - Space & Other support, P-23)	0.000	0.000	0.000	0.000	0.000	1.229	3.494	4.244	Continuing	TBD
(U) Related RDT&E:										
(U) PE 0305165F, NAVSTAR										
(U) 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 2005

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)		
(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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> ICADS and GNT	MIPR	Department of Energy; Sandia National Laboratory, Albuquerque NM	83.657	26.274	Nov-03	24.392	Dec-04	23.082	Nov-05	17.654	Nov-06	Continuing	TBD	
GNT: Intermetrics	CPFF		1.262	0.000		0.000		0.000		0.000		0.000	1.262	
SAIC (Intg/Grd Supt)	Time/Matls		4.787	0.000		0.000		0.000		0.000		0.000	4.787	
Combined GOSC/NAP: Lockheed Martin	FFP		6.166	0.000		0.000		0.000		0.000		0.000	6.166	
SAIC	Time/Matls		0.432	0.000		0.000		0.000		0.000		0.000	0.432	
W-Sensor: SRI (Stanford Rsch Inst.)	CPFF		0.415	0.000		0.000		0.000		0.000		0.000	0.415	
On-orbit sensor testing	MIPR	Department of Energy; Los Alamos National Laboratory, Los Alamos NM, Sandia National Laboratory, Albuquerque NM	7.819	2.494	Oct-03	3.050	Nov-04	3.463	Nov-05	3.531	Nov-06	Continuing	TBD	
SABRS on SBIRS	MIPR	Department of Energy; Los Alamos National Laboratory, Los Alamos NM, Sandia National Laboratory, Albuquerque NM	0.000	0.000		0.000		0.000		31.550	Nov-06	Continuing	TBD	
Subtotal Product Development			104.538	28.768		27.442		26.545		52.735		Continuing	TBD	0.000
Remarks:														
(U) <u>Support</u> Mission Support	Various		5.922	1.352		3.570		2.327		3.728		Continuing	TBD	
Project 2808														

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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		0305913F NUDET Detection System (Space)						2808 Nuc Detonation Det Sys (sensors)					
Prog Contractual Spt.	Various	5.185	0.000		0.000	0.000		0.000	0.000	5.185			
Technical Support	Various	7.825	3.639		3.759	3.852		3.970	Continuing	TBD			
Subtotal Support		18.932	4.991		7.329	6.179		7.698	Continuing	TBD		0.000	
Remarks:													
(U) <u>Test & Evaluation</u>													
17th TS, Schriever AFB CO	Various	0.243	0.057	Mar-04	0.055	Jan-05	0.059	Dec-05	0.061	Dec-06	Continuing	TBD	
Subtotal Test & Evaluation		0.243	0.057		0.055	0.059		0.061	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		123.713	33.816		34.826	32.783		60.494	Continuing	TBD		0.000	

Exhibit R-4, RDT&E Schedule Profile

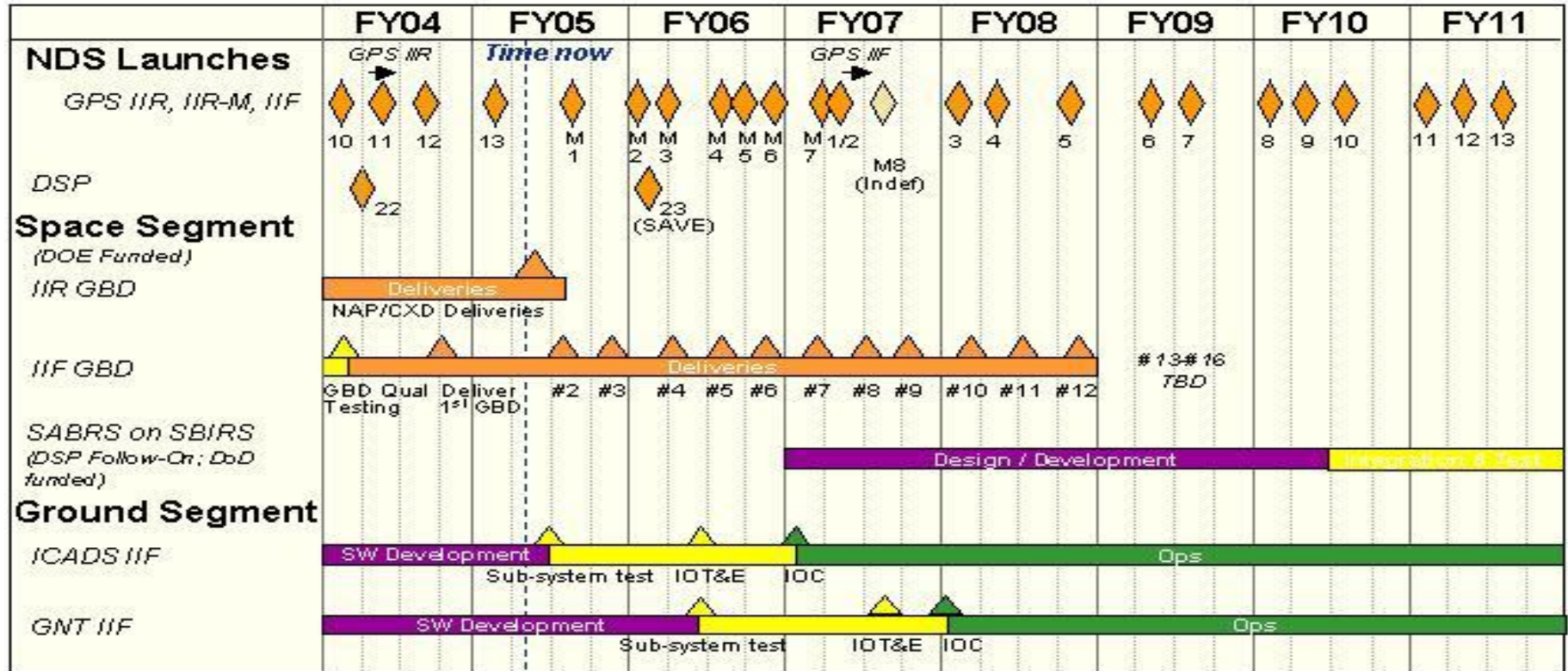
DATE

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BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0305913F NUDET Detection System
(Space)

PROJECT NUMBER AND TITLE
2808 Nuc Detonation Det Sys
(sensors)



CXD: Combined X-Ray Dosimeter DSP: Defense Support Program GBD: Global Burst Detector
 GNT: Ground NDS Terminal ICADS: Integrated Correlation & Display System IOC: Initial Operational Capability
 IOT&E: Initial Operational Test & Evaluation SAVE: Space & Atmospheric Burst Reporting System (SABRS) Validation Experiment

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2005
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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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) GPS IIF System Specification Review		3Q		
(U) Space & Atmospheric Burst Reporting System (SABRS) Validation Experiment (SAVE) DSP Qual unit delivery	2Q			
(U) Enhanced Radiometer (EnRad)* launch	3Q			
(U) IIF-1 Global Burst Detector (GBD)* delivery	4Q			
(U) GPS IIF Phase Review	1Q	1Q	1Q	1Q
(U) GPS IIF Phase Review	3Q	3Q	3Q	3Q
(U) ICADS IIF Testing		2Q		
(U) GNT IIF Testing			2Q	
(U) SABRS on SBIRS Design/Development				1Q

*Note: 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 2005
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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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	11.480	12.744	12.878	13.285	14.080	14.208	14.537	14.785	Continuing	TBD
4746 Space Architect	11.480	12.744	12.878	13.285	14.080	14.208	14.537	14.785	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

The National Security Space Architect (NSSA) has combined with the National Security Space Integration (NSSI) directorate and the Transformational Communications Office (TCO) to become the National Security Space Office (NSSO) with expanded roles and responsibilities.

The National Security Space Office is an independent, joint Department of Defense (DoD) and Intelligence Community (IC) organization providing strategic focus and unity of effort to the National Security Space Community.

NSSO 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. NSSO also assesses the consistency of the defense and intelligence space programs with national security space policy and planning guidance, and architectural decisions. They also assess trades between space and non-space solutions to meet DoD, IC, and other user requirements, a well as appropriate integration of space with land, sea, and air components in support of the Under Secretary of Defense for Acquisition, Technology, and Logistics (USD(AT&L)); the DDCI/CM; the Secretaries of the Military Departments; and the Assistant Secretary of Defense for Networks and Information Integration (ASD(NII)).

The NSSO obtains technical analysis 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 fifty percent of the total funding. Intelligence Community requirements and funding to support the NSSO 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. Program Change Summary (\$ in Millions)

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	12.446	12.907	12.808	13.038
(U) Current PBR/President's Budget	11.480	12.744	12.878	13.285
(U) Total Adjustments	-0.966	-0.163		
(U) Congressional Program Reductions		-0.163		
Congressional Rescissions				
Congressional Increases				
Reprogrammings	-0.667			
SBIR/STTR Transfer	-0.299			

(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 0305917F Space Architect			PROJECT NUMBER AND TITLE 4746 Space Architect		
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4746 Space Architect	11.480	12.744	12.878	13.285	14.080	14.208	14.537	14.785	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The National Security Space Architect (NSSA) has combined with the National Security Space Integration (NSSI) directorate and the Transformational Communications Office (TCO) to become the National Security Space Office (NSSO) with expanded roles and responsibilities.

The National Security Space Office is an independent, joint Department of Defense (DoD) and Intelligence Community (IC) organization providing strategic focus and unity of effort to the National Security Space Community.

NSSO 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. NSSO also assesses the consistency of the defense and intelligence space programs with national security space policy and planning guidance, and architectural decisions. They also assess trades between space and non-space solutions to meet DoD, IC, and other user requirements, a well as appropriate integration of space with land, sea, and air components in support of the Under Secretary of Defense for Acquisition, Technology, and Logistics (USD(AT&L)); the DDCI/CM; the Secretaries of the Military Departments; and the Assistant Secretary of Defense for Networks and Information Integration (ASD(NII)).

The NSSO obtains technical analysis 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 fifty percent of the total funding. Intelligence Community requirements and funding to support the NSSO 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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Continue NSS Strategies and Operating Concepts Development		1.657	1.674	1.727
(U) Continue National Security Space (NSS) Plan Development	0.500	1.784	1.804	1.860
(U) Continue Architectural Development Effort or Study to include such topics as: Objective Blue Force Tracking; Integrated Force Application; and Space Control and Information Operations	7.431	4.461	4.507	4.650
(U) Continue NSS Program Assessment	2.549	1.911	1.931	1.993
(U) Continue Architecture Transition Planning and Implimentation Support	1.000	0.637	0.644	0.664
(U) Continue Enterprise Engineering	0.000	2.294	2.318	2.391
(U) Total Cost	11.480	12.744	12.878	13.285

Exhibit R-2a, RDT&E Project Justification	DATE February 2005
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305917F Space Architect	PROJECT NUMBER AND TITLE 4746 Space Architect
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(U) **C. Other Program Funding Summary (\$ in Millions)**

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	

(U) Intelligence Community*

*Available in the classified 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, strategy, plan and development. Funds will be applied to existing contract vehicles.

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Exhibit R-3, RDT&E Project Cost Analysis

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February 2005

BUDGET ACTIVITY				PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE					
07 Operational System Development				0305917F Space Architect						4746 Space Architect					
(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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>	
(U) <u>Product Development</u>															
Space Architect - Science Applications International Corp; SPARTA, Inc; AEGIS/MANTECH Research Corp; Aerospace Corp; MITRE; TASC	FFRDC & SETA Level of Effort	Various		11.480		12.744		12.878		13.285		Continuing	TBD		
None													0.000		
Subtotal Product Development			0.000	11.480		12.744		12.878		13.285		Continuing	TBD	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	0.000	
Remarks:															
(U) <u>Test & Evaluation</u>															
None				0.000									0.000		
None													0.000		
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000	
Remarks:															
(U) <u>Space Architect</u>															
Subtotal Space Architect			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000	
Remarks:															
(U) Total Cost			0.000	11.480		12.744		12.878		13.285		Continuing	TBD	0.000	

Exhibit R-4, RDT&E Schedule Profile

DATE

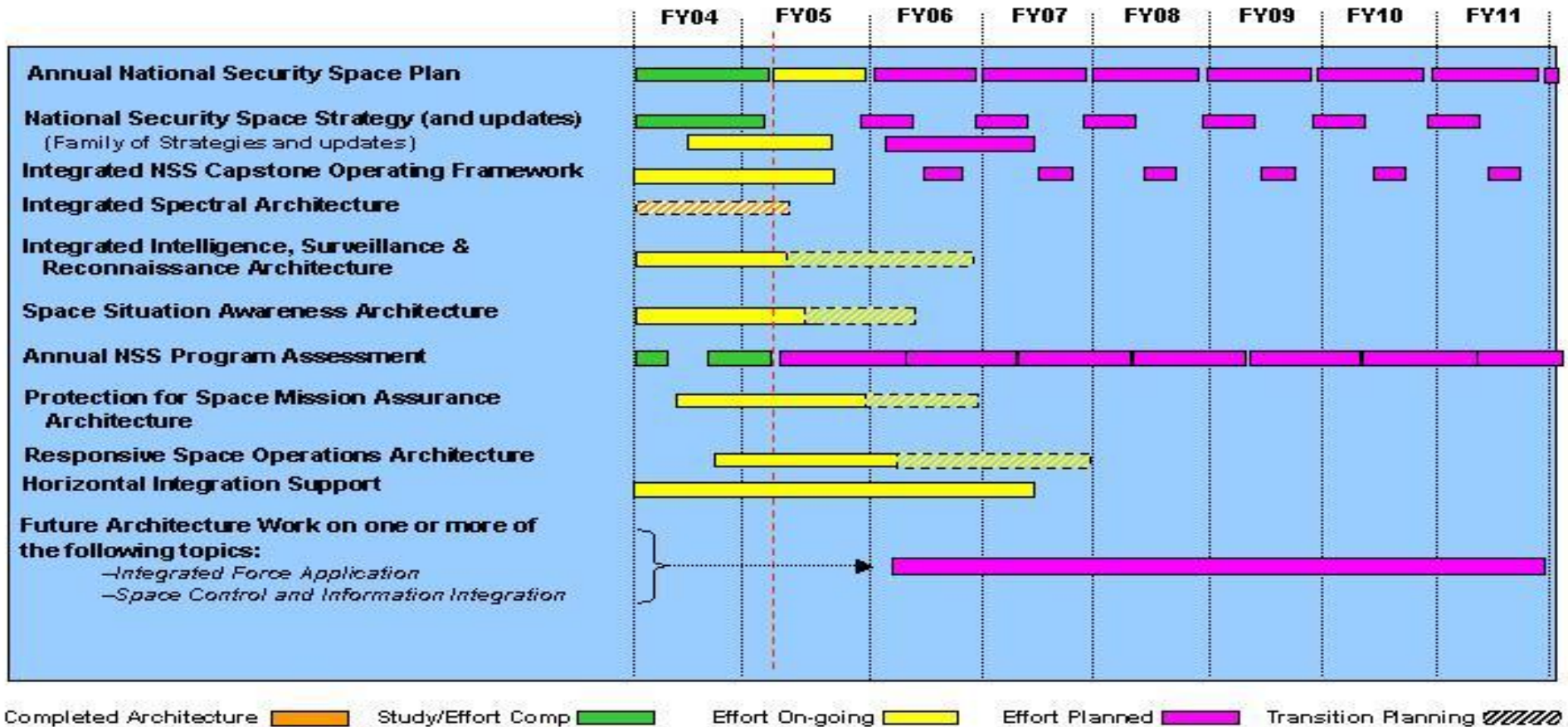
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BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0305917F Space Architect

PROJECT NUMBER AND TITLE
4746 Space Architect

NSSA (NSSO) Schedule



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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2005
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305917F Space Architect	PROJECT NUMBER AND TITLE 4746 Space Architect
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	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Schedule Profile				
(U) Completed initial deployment of Space.XXX and continue to improve tool	1Q	1-4Q	1-4Q	1-4Q
(U) Implement the Transformational Communications government reference architecture	1-4Q	1-4Q	1-4Q	1-4Q
(U) Conduct annual assessment of POM and APOM		1Q	1Q	1Q
(U) Conduct annual assessment of the national security space program	3-4Q	1-4Q	1-4Q	1-4Q
(U) Complete the FY04 National Security Space Plan and update annually.	1-4Q	1-4Q	1-4Q	1-4Q
(U) Develop National Security Space Strategy (NSS) and update annually	1-4Q	1-2Q	1-2Q	1-2Q
(U) Developed NSS Protection Strategy	3-4Q	1-2Q		
(U) Implement Integrated Spectral Architecture	1-4Q	1-2Q		
(U) Complete and implement Integrated Intelligence, Surveillance, and Reconnaissance (I-ISR) Architecture	1-4Q	1-4Q	1-3Q	
(U) Complete and implement Space Situational Awareness Architecture	1-4Q	1-4Q	1-2Q	
(U) Incorporated integrated technology roadmap into National Security Space Plan	4Q	1-3Q		
(U) Develop and update Integrated National Security Space Capstone Operating Framework	1-4Q	1-2Q	2-3Q	2-3Q
(U) Conduct additional analysis and trades for I-ISR capabilities		3-4Q	1-4Q	
(U) Conduct development of Protection for Space Mission Assurance Architecture	3-4Q	1-4Q	1-4Q	
(U) Develop and implement Responsive Space Operations Architecture	4Q	1-4Q	1-4Q	1-4Q
(U) Conduct Horizontal Integration Support	1-4Q	1-4Q	1-4Q	1-2Q
(U) Develop National Security Space Architectures for Joint DoD/IC Blue Force Situational Awareness, Integrated Force Application, Space Control and Information Operations, or other architectures or studies as directed	1-4Q	1-4Q	1-4Q	1-4Q

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PE NUMBER: 0307141F
 PE TITLE: NASS, IO TECH INTEGRATION & TOOL DEV

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2005
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0307141F NASS, IO TECH INTEGRATION & TOOL DEV
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Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	13.100	15.182	15.386	15.374	15.523	15.572	15.527	0.000	0.000
4871 Information Operations Technology	0.000	13.100	15.182	15.386	15.374	15.523	15.572	15.527	0.000	0.000

In FY 2005, contents from PE 33140G, were transferred to PE 37141F, NASS IO Technology Integration and Tool Development, Project 4871 in order to fulfill an OSD program decision which moved funds from the National Security Agency (NSA) to USSTRATCOM. The Air Force is the Executive Agent for this RDT&E program.

(U) A. Mission Description and Budget Item Justification

The Network Attack Support Staff (NASS) supports the Information Operations (IO) community by supplying a cadre of experts on Computer Network Attack (CNA) technology. The NASS provides technical assistance for CNA development, reviews CNA plans and coordinates on CNA operations.

NASS RDT&E funds research, development, testing and systems upgrades of the technologies and capabilities that allow US Strategic Command (USSTRATCOM) to plan, coordinate, integrate, deconflict, and synchronize DoD Computer Network Operations (CNO). This program also provides the ability for other Combatant Commanders CNO planning. The NASS accomplishes its mission via the systems engineering, testing and development of four primary integrative functions; Toolbox Operations System, Tool Assurance, Toolbox Portal/Forum, and CNO Product Capability Development. Further detail is classified and can be provided upon request.

This effort is Budget Activity 7, operational system development, because the program provides information superiority technology to the DoD via CNA, exploitation and related tools and techniques.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget		13.100	15.182	15.386
(U) Current PBR/President's Budget	0.000	13.100	15.182	15.386
(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 2005

BUDGET ACTIVITY 07 Operational System Development					PE NUMBER AND TITLE 0307141F NASS, IO TECH INTEGRATION & TOOL DEV			PROJECT NUMBER AND TITLE 4871 Information Operations Technology		
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4871 Information Operations Technology	0.000	13.100	15.182	15.386	15.374	15.523	15.572	15.527	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The Network Attack Support Staff (NASS) supports the Information Operations (IO) community by supplying a cadre of experts on Computer Network Attack (CNA) technology. The NASS provides technical assistance for CNA development, reviews CNA plans and coordinates on CNA operations.

NASS RDT&E funds research, development, testing and systems upgrades of the technologies and capabilities that allow US Strategic Command (USSTRATCOM) to plan, coordinate, integrate, deconflict, and synchronize DoD Computer Network Operations (CNO). This program also provides the ability for other Combatant Commanders CNO planning. The NASS accomplishes its mission via the systems engineering, testing and development of four primary integrative functions; Toolbox Operations System, Tool Assurance, Toolbox Portal/Forum, and CNO Product Capability Development. Further detail is classified and can be provided upon request.

This effort is Budget Activity 7, operational system development, because the program provides information superiority technology to the DoD via CNA, exploitation and related tools and techniques.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Further research, testing, upgrades and evaluation of the Toolbox Operational System, Tool Assurance, Toolbox Portal/Forum and other CNO Product Capability Developments will be done to meet USSTRACOM requirements.		13.100	15.182	15.386
(U) Total Cost	0.000	13.100	15.182	15.386

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
(U) PE 37141F, NASS Operations & Management Funds	0.000	9.570	10.299	10.096	10.788	11.416	11.395	11.398	Continuing	TBD

(U) D. Acquisition Strategy

Contracts will be awarded on full and open competition

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2005

BUDGET ACTIVITY										PE NUMBER AND TITLE			PROJECT NUMBER AND TITLE		
07 Operational System Development										0307141F NASS, IO TECH INTEGRATION & TOOL DEV			4871 Information Operations 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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>	
(U) <u>Product Development</u>															
CNO Project Capability Development Contractor	T&M	Fort Meade, MD				3.505	Dec-04	5.066	Apr-06	5.170	Apr-07	Continuing	TBD	TBD	
Subtotal Product Development			0.000	0.000		3.505		5.066		5.170		Continuing	TBD	TBD	
Remarks:															
(U) <u>Support</u>															
Miscellaneous hardware/software	T&M	Fort Meade, MD				0.100	Dec-04					Continuing	TBD	TBD	
Systems Engineering	T&M	Fort Meade, MD				0.348	Dec-04	0.500	Apr-06	0.600	Apr-07	Continuing	TBD		
Subtotal Support			0.000	0.000		0.448		0.500		0.600		Continuing	TBD	TBD	
Remarks:															
(U) <u>Test & Evaluation</u>															
Toolbox Assurance	CPFF	Booz Allen and Hamilton, Fort Meade, MD				2.335	Dec-04	2.335	Apr-06	2.335	Apr-07	Continuing	TBD	TBD	
Toolbox Assurance	CPAF	CSC, Fort Meade, MD				2.995	Dec-04	2.995	Apr-06			Continuing	TBD	TBD	
Toolbox Operations	T&M	Northrop Grumman - TASC, Fort Meade, MD				0.390	Dec-04	0.390	Apr-06			Continuing	TBD	TBD	
Toolbox Portal/Forum	CPFF	SAIC, Fort Meade, MD				1.229	Dec-04	1.229	Apr-06	1.229	Apr-07	Continuing	TBD	TBD	
Toolbox Portal/Forum	T&M	Titan Systems Corp, Fort Meade, MD				0.350	Dec-04					Continuing	TBD	TBD	
Contracts to be awarded	TBD	NSA				1.848	Dec-04	2.667	Apr-06	6.052	Apr-07	Continuing	TBD	TBD	
Subtotal Test & Evaluation			0.000	0.000		9.147		9.616		9.616		Continuing	TBD	TBD	
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			0.000	0.000		13.100		15.182		15.386		Continuing	TBD	TBD	

Project 4871

R-1 Shopping List - Item No. 209-3 of 209-5

Exhibit R-3 (PE 0307141F)

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0307141F NASS, IO TECH
INTEGRATION & TOOL DEV

PROJECT NUMBER AND TITLE
4871 Information Operations
Technology

Key Milestones			FY04	FY05	FY06	FY07
Tool Box System Mods and Operations				▲	▲	▲
Tool Assurance				▲	▲	▲
Toolbox Portal/Forum				▲	▲	▲
Capability Development				▲	▲	▲

On Contract	▲
One Year Option	▲

Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2005

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0307141F NASS, IO TECH
INTEGRATION & TOOL DEV

PROJECT NUMBER AND TITLE

4871 Information Operations
Technology

(U) Schedule Profile

(U) Toolbox Operations

(U) Tool Assurance

(U) Toolbox Portal/Forum

(U) Capability Development

FY 2004

FY 2005

FY 2006

FY 2007

4Q

2Q

2Q

4Q

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PE NUMBER: 0308699F
 PE TITLE: Shared Early Warning System

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2005
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0308699F Shared Early Warning System
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Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	2.550	3.281	3.295	3.357	3.436	3.481	3.553	3.599	Continuing	TBD
4838 Shared Early Warning System	2.550	3.281	3.295	3.357	3.436	3.481	3.553	3.599	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

The Shared Early Warning System (SEWS) is the result of Presidential foreign policy initiatives beginning in 1996. 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. The SEWS provides Theater Combatant Commanders and foreign nation partners direct operational benefit. Foreign partner arrangements are negotiated with individual countries on a bilateral basis to provide selected region-specific missile warning information. 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 (SETA) 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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	3.210	3.345	3.376	3.388
(U) Current PBR/President's Budget	2.550	3.281	3.295	3.357
(U) Total Adjustments	-0.660	-0.064		
(U) Congressional Program Reductions				
Congressional Rescissions			-0.064	
Congressional Increases				
Reprogrammings	-0.564			
SBIR/STTR Transfer	-0.096			

(U) Significant Program Changes:

Exhibit R-2a, RDT&E Project Justification

DATE
February 2005

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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4838 Shared Early Warning System	2.550	3.281	3.295	3.357	3.436	3.481	3.553	3.599	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The Shared Early Warning System (SEWS) is the result of Presidential foreign policy initiatives beginning in 1996. 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. The SEWS provides Theater Combatant Commanders and foreign nation partners direct operational benefit. Foreign partner arrangements are negotiated with individual countries on a bilateral basis to provide selected region-specific missile warning information. 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 (SETA) 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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Accomplishments/Planned Program				
(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.	2.550	3.281	3.295	3.357
(U) Total Cost	2.550	3.281	3.295	3.357

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

	<u>FY 2004</u> <u>Actual</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>FY 2010</u> <u>Estimate</u>	<u>FY 2011</u> <u>Estimate</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) Other APPN										
(U) OPAF (PE 0308699F, Comm #75, BA 3)										
(U) Elect Mods, P-1 Line Item	0.192	0.285	1.528	0.291	0.298	0.252	0.241	0.318	Continuing	TBD
(U) Operations and Maintenance AF	7.080	7.879	8.537	8.401	8.714	8.784	8.897	9.024	Continuing	TBD

Note: Fiscal year 2006 provides for major technological refresh of the SEWS system.

(U) D. Acquisition Strategy

SEWS employs a spiral development acquisition strategy which enables rapid development and fielding of capability in response to validated requirements.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2005

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) 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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>	
(U) <u>Product Development</u>															
Lockheed Martin	SS/CPAF	Colorado Springs, CO	9.156	0.666	Oct-03	1.865	Oct-04	1.882	Oct-05	1.891	Oct-06	Continuing	TBD	TBD	
Navy	MIPR	San Diego, CA	0.353	0.180	Sep-04	0.200	Jan-05	0.208	Nov-05	0.216	Nov-06	Continuing	TBD	TBD	
Various Ctrs/Gov Agencies	MIPR/AF		2.849	0.698	Jul-04	0.053	Jan-05	0.000		0.000		Continuing	TBD	TBD	
Subtotal Product Development			12.358	1.544		2.118		2.090		2.107		Continuing	TBD	TBD	
Remarks:															
(U) <u>Support</u>															
MITRE	SS/CPFF	Colorado Springs, CO	2.263	0.500	Oct-03	0.505	Oct-04	0.525	Oct-05	0.546	Oct-06	Continuing	TBD	TBD	
A&AS	C/R	Colorado Springs, CO	3.978	0.500	Apr-04	0.652	Nov-04	0.674	Nov-05	0.698	Nov-06	Continuing	TBD	TBD	
PMA	N/A	Colorado Springs, CO	1.131	0.006	Oct-03	0.006	Oct-04	0.006	Oct-05	0.006	Oct-06	Continuing	TBD	TBD	
Subtotal Support			7.372	1.006		1.163		1.205		1.250		Continuing	TBD	TBD	
Remarks:															
(U) Total Cost			19.730	2.550		3.281		3.295		3.357		Continuing	TBD	TBD	

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

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	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
Spiral development of common system architecture	▲		▲		▲		△		△		△		△		△		△		△		△		△	
<div style="border: 1px solid black; padding: 5px; background-color: #e0e0e0;"> Schedule reflects planned software drops every six months, stemming from spiral development schedule and used to keep Combatant Commanders' SEWS capabilities in step with those acquired by partner nations. </div>																								


-  *Planned Ongoing Activity*
-  *Ongoing Activity that is Complete*
-  *Completed Event*
-  *Planned Task(s)*

Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2005

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0308699F Shared Early Warning System

PROJECT NUMBER AND TITLE

4838 Shared Early Warning System

(U) Schedule Profile

FY 2004

FY 2005

FY 2006

FY 2007

(U) Spiral development of common system architecture

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PE NUMBER: 0401115F
 PE TITLE: C-130 AIRLIFT SQUADRONS

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2005
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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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	103.777	150.901	233.028	217.602	171.130	88.041	38.901	0.000	Continuing	TBD
4885 Avionics Modernization Program (AMP)	103.777	150.901	233.028	217.602	171.130	88.041	38.901	0.000	Continuing	TBD

(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/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 data link 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.

USAF's C-130 fleet consists of 14 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 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: C/EC/WC-130J are not included in AMP program).

Shown here are RDT&E funds for C-130 AMP. SOCOM's AC/EC/MC/HC-130s will have additional CAAP equipment installed along with AMP that will be funded in MFP-11. 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 14 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 rebaselined the program due to funding reductions in FYs 03/04 which resulted 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

DATE

February 2005

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0401115F C-130 AIRLIFT SQUADRONS

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	105.381	150.242	232.209	214.716
(U) Current PBR/President's Budget	103.777	150.901	233.028	217.602
(U) Total Adjustments	-1.604	0.659		
(U) Congressional Program Reductions	-0.895			
Congressional Rescissions				
Congressional Increases		0.659		
Reprogrammings	-0.709			
SBIR/STTR Transfer				
(U) <u>Significant Program Changes:</u>				
None				

Exhibit R-2a, RDT&E Project Justification

DATE
February 2005

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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4885 Avionics Modernization Program (AMP)	103.777	150.901	233.028	217.602	171.130	88.041	38.901	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(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/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 data link 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.

USAF's C-130 fleet consists of 14 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 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: C/EC/WC-130J are not included in AMP program).

Shown here are RDT&E funds for C-130 AMP. SOCOM's AC/EC/MC/HC-130s will have additional CAAP equipment installed along with AMP that will be funded in MFP-11. 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 14 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 rebaselined the program due to funding reductions in FYs 03/04 which resulted 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.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Detailed design work continues for both Group A(wiring, racks, etc) and B (computers, instrumentation, etc.) equipment for the C/AC/EC/HC/LC/MC-130 fleets. Coding and unit testing for the software integration facility continues.	85.709	116.762	135.783	106.313
(U) Engineering Change Orders (ECO), Govt Furnished Parts and Information (GFP/GFI), and Award Fee.	6.635	14.990	29.303	20.971

Exhibit R-2a, RDT&E Project Justification	DATE February 2005
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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) Developmental Test and Evaluation.	3.400	9.740	14.354	12.326
(U) Training System development upgrades.	0.000	2.459	45.453	69.286
(U) Program office support (A&AS, TDY, training and supplies).	8.033	6.950	8.135	8.706
(U) Total Cost	103.777	150.901	233.028	217.602

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	<u>Total Cost</u>
(U) AF RDT&E										
(U) Other APPN										
(U) PE 0401115F, 3010, C-130 AMP, BP1100			50.559	87.667	188.030	357.686	427.400	417.693	1,325.150	2,854.185

(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 FYs 03/04 which resulted in delays in System Development and Demonstration program by up to 2 years.

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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			0401115F C-130 AIRLIFT SQUADRONS								4885 Avionics Modernization Program (AMP)			
(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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>														
Boeing, Long Beach, CA	CPAF		146.601	92.344	Dec-03	135.739	Dec-04	210.539	Dec-05	196.570	Dec-06	261.157	1,042.950	0.000
Subtotal Product Development			146.601	92.344		135.739		210.539		196.570		261.157	1,042.950	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		30.810	8.033		6.276		8.135		8.706		13.461	75.421	
Subtotal Support			30.810	8.033		6.276		8.135		8.706		13.461	75.421	0.000
Remarks:	Award Dates vary throughout the year depending on activity (TDY, Training, Contractor Support)													
(U) <u>Test & Evaluation</u>														
Various			16.170	3.400	Jan-04	8.886	Jan-05	14.354		12.326		18.924	74.060	
Subtotal Test & Evaluation			16.170	3.400		8.886		14.354		12.326		18.924	74.060	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			193.581	103.777		150.901		233.028		217.602		293.542	1,192.431	0.000

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY
07 Operational System Development

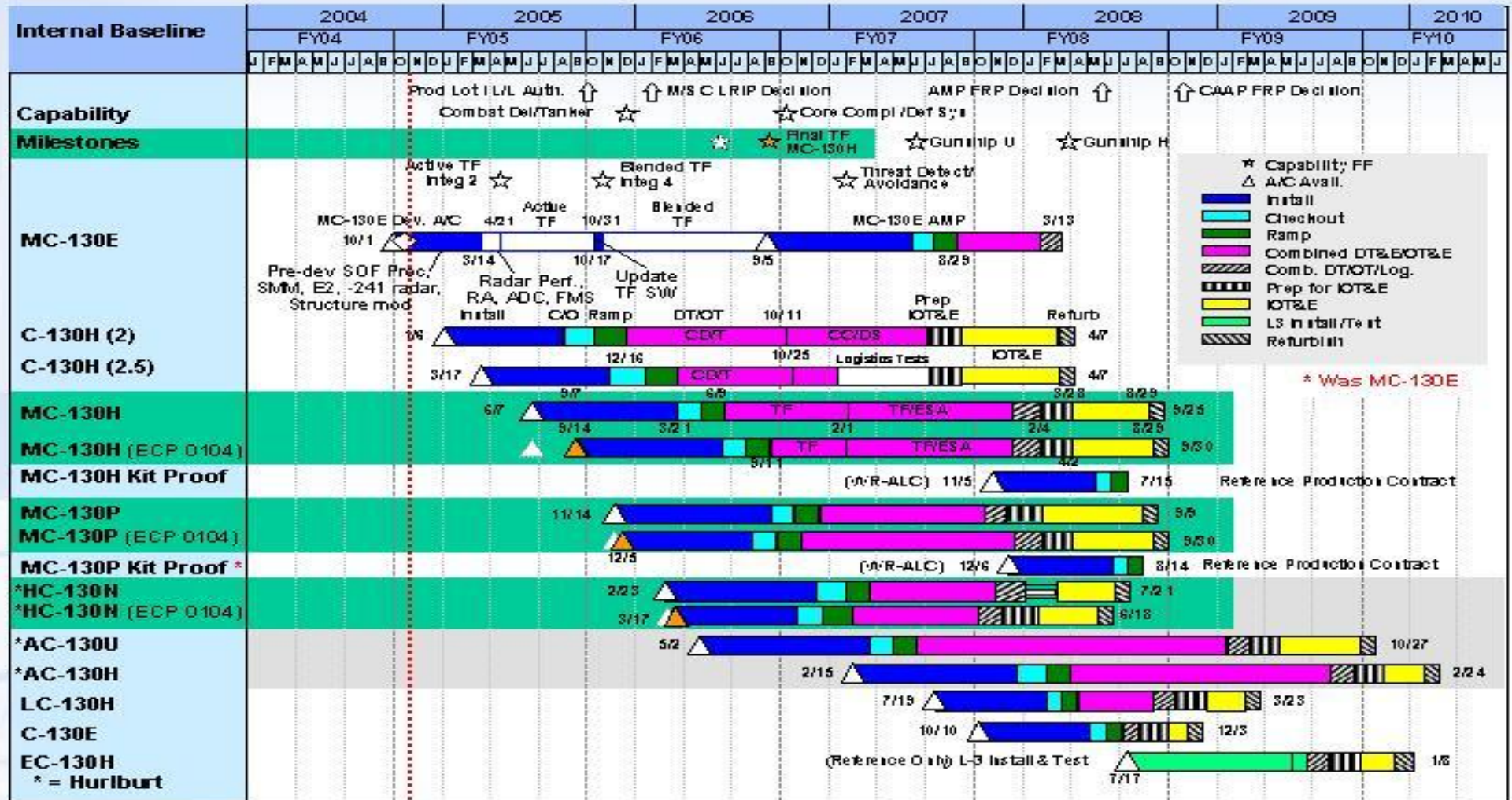
PE NUMBER AND TITLE
0401115F C-130 AIRLIFT
SQUADRONS

PROJECT NUMBER AND TITLE
4885 Avionics Modernization
Program (AMP)

Authority: MCR 003832 for ECP 0104

C-130 AMP EMD (MC-130E Demo, Trial Install, Test)

AMP OSO4 Rev. 2.4: 17 SEP 03; Status: 01 OCT 04



Competition Sensitive - This document includes competition sensitive information that shall not be disclosed outside the Government and shall not be duplicated, used, or disclosed - in whole or in part - for any purpose other than to support the C-130AMP program.
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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2005
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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)
--	---	---

(U) <u>Schedule Profile</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</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		
(U) C-130H2 First Flight			1Q	
(U) M/SC/LRIP Decision			2Q	
(U) MC-130 First Flight			3Q	
(U) AC-130U First Flight				4Q

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Exhibit R-2, RDT&E Budget Item Justification

DATE

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0401119F C-5 Airlift Squadrons

Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	325.907	330.049	226.479	149.591	50.926	0.000	0.000	0.000	0.000	1,711.094
4495 Avionics Modernization Program	67.385	10.926	0.000	0.000	0.000	0.000	0.000	0.000	0.000	373.773
4835 Reliability Enhancement & Reengining Program	258.522	319.123	226.479	149.591	50.926	0.000	0.000	0.000	0.000	1,337.321

(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 [Phase II is the Reliability Enhancement and Re-engining Program (RERP)]. AMP implements communication, navigation, surveillance/air traffic management (CNS/ATM) [formerly, 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. CNS/ATM capability 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. The final software build, which is required to address system effectiveness & suitability, is expected to complete in CY 05 with operational testing to follow. Avionics capability required for modernization that is not complete at the end of AMP development will be captured and funded in RERP, which is Phase II of the C-5 modernization program. The C-5 modernization program was approved in FY04 to use the contractor supported weapon system (CSWS) support concept. Initial spares in support of CSWS will be purchased with 3010, BP11 funds instead of 3010, BP16 funds. 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 (Phase I is the Avionics Modernization Program (AMP)). RERP is a comprehensive modernization effort to improve 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 TF39 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 communication, navigation, surveillance/air traffic management (CNS/ATM) 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 TOC. 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) completed in Mar 04. Avionics capability required

Exhibit R-2, RDT&E Budget Item Justification

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0401119F C-5 Airlift Squadrons

for modernization that is not complete at the end of AMP development will be captured and funded in RERP. The C-5 modernization program was approved in FY04 to use the contractor supported weapon system (CSWS) support concept. Initial spares in support of CSWS will be purchased with 3010, BP11 funds instead of 3010, BP16 funds. This project is comprised of low technical risk efforts supporting fielded weapons systems and, therefore, was assigned to Budget Activity 7, Operational Systems Development. As described above, RERP includes a new start effort for avionics capability required for modernization, but which may not be complete at the end of AMP development.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	356.570	332.982	317.664	208.106
(U) Current PBR/President's Budget	325.907	330.049	226.479	149.591
(U) Total Adjustments	-30.663	-2.933		
(U) Congressional Program Reductions	0.000			
Congressional Rescissions	-3.029	-2.933		
Congressional Increases				
Reprogrammings	-15.746			
SBIR/STTR Transfer	-11.888			

(U) Significant Program Changes:

FY06 PB:

FY06 has been reduced by \$91.2M since the FY05 PB submittal. This funding reduction was made in the reliability enhancement and re-engining program (RERP) to fund higher priority Departmental requirements.

FY07:

FY07 has been reduced by \$58.5M since the FY05 PB submittal. This funding reduction was made in the reliability enhancement and re-engining program (RERP) to fund higher priority Departmental requirements.

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		
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4495 Avionics Modernization Program	67.385	10.926	0.000	0.000	0.000	0.000	0.000	0.000	0.000	373.773
Quantity of RDT&E Articles	0	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 communication, navigation, surveillance/air traffic management (CNS/ATM) [formerly, 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. CNS/ATM capability 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. The final software build, which is required to address system effectiveness & suitability, is expected to complete in CY05 with operational testing to follow. Avionics capability required for modernization that is not complete at the end of AMP development will be captured and funded in RERP, which is Phase II of the C-5 modernization program. The C-5 modernization program was approved in FY04 to use the contractor supported weapon system (CSWS) support concept. Initial spares in support of CSWS will be purchased with 3010, BP11 funds instead of 3010, BP16 funds. 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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) System Engineering/Program Management	13.395	1.156		
(U) AMP Kit Design/Development/Contractor Test	40.970	5.540		
(U) Prototype Fabrication/Install	2.871	0.966		
(U) Mission Support	3.108	0.515		
(U) Government Flight Test Cost	7.041	2.749		
(U) Total Cost	67.385	10.926	0.000	0.000

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

	<u>FY 2004</u> <u>Actual</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>FY 2010</u> <u>Estimate</u>	<u>FY 2011</u> <u>Estimate</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) AF RDT&E										
(U) Other APPN										
(U) Aircraft Procurement, AF,	76.894	96.630	69.296	49.600	27.785	4.138			340.108	800.127

Exhibit R-2a, RDT&E Project Justification	DATE February 2005
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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)

BA-5, C-5 Mods, Avionics Modernization Program, BP-11 Aircraft Procurement, AF,									
(U) BA-5, C-5 Mods, Avionics Modernization Program, BP-16 Aircraft Procurement, AF,	11.522								11.522
(U) BA-5, C-5 Mods, Reliability Enhancement and Re-engining Program, BP-11	20.001	141.144	435.208	631.960	764.980	869.731	6,842.840	9,705.864	

(U) D. Acquisition Strategy

Avionics Modernization Program: Program acquisition strategy establishes a single integrating contractor (Lockheed Martin Aeronautics Company) to modify and qualify integrated Commercial Off-the-Shelf (COTS) line replaceable units (LRUs) and software to meet C-5 performance and communication, navigation, surveillance/air traffic management (CNS/ATM) requirements; update existing C-5 engineering and technical data; develop interface control specifications based on performance requirements; prototype the new system; and support flight testing. AMP contract awarded to the Lockheed Martin/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

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February 2005

BUDGET ACTIVITY				PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE					
07 Operational System Development				0401119F C-5 Airlift Squadrons						4495 Avionics Modernization 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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>	
(U) <u>Product Development</u>															
Lockheed Martin Aeronautics Co	CPAF		265.787	57.236	Oct-03	7.662	Oct-04	0.000		0.000		0.000	330.685	298.700	
N/A													0.000		
Subtotal Product Development			265.787	57.236		7.662		0.000		0.000		0.000	330.685	298.700	
Remarks:															
(U) <u>Support</u>															
WR-ALC/LT			7.580	1.492		0.000							9.072	9.072	
ASC/GRA			11.769	1.616		0.515							13.900	13.900	
N/A													0.000		
Subtotal Support			19.349	3.108		0.515		0.000		0.000		0.000	22.972	22.972	
Remarks:															
(U) <u>Test & Evaluation</u>															
418 Test Squadron (Edwards AFB)			10.326	7.041		2.749							20.116	20.116	
N/A													0.000		
Subtotal Test & Evaluation			10.326	7.041		2.749		0.000		0.000		0.000	20.116	20.116	
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			295.462	67.385		10.926		0.000		0.000		0.000	373.773	341.788	

Exhibit R-4, RDT&E Schedule Profile

DATE

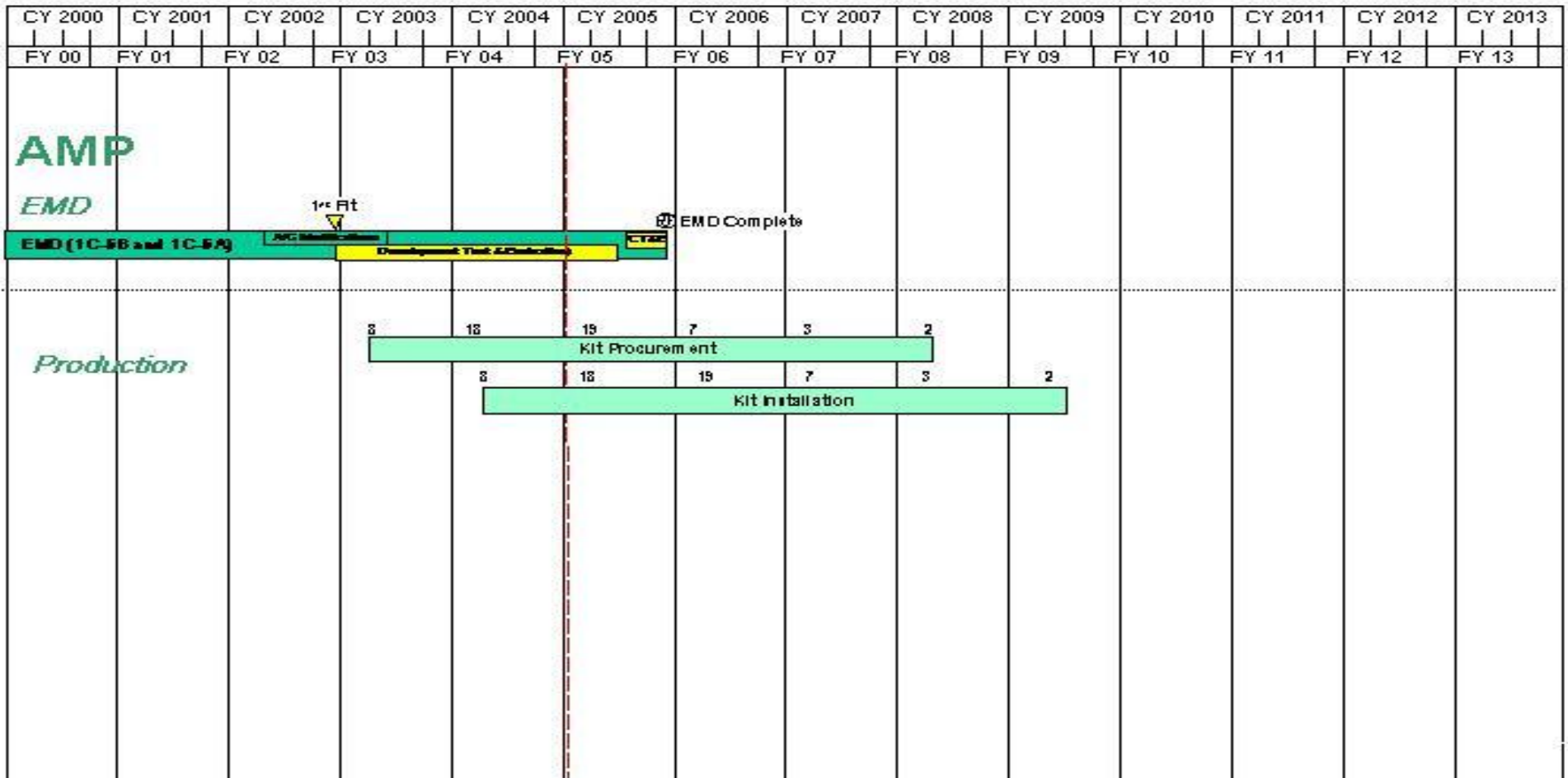
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BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0401119F C-5 Airlift Squadrons

PROJECT NUMBER AND TITLE
4495 Avionics Modernization Program

**C-5 Summary Schedule
Avionics Modernization Program (AMP)**



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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2005
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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
---	--	--

(U) <u>Schedule Profile</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Production Installation Start (FY04/3)	3Q			
(U) AMP Flight Test Complete (FY06/1)			1Q	

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		0401119F C-5 Airlift Squadrons						4835 Reliability Enhancement & Reengining Program		
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4835 Reliability Enhancement & Reengining Program	258.522	319.123	226.479	149.591	50.926	0.000	0.000	0.000	0.000	1,337.321
Quantity of RDT&E Articles	3	0	0	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 TF39 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 TOC. 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) completed in Mar 04. Avionics capability required for modernization that is not complete at the end of AMP development will be captured and funded in RERP. The C-5 modernization program was approved in FY04 to use the contractor supported weapon system (CSWS) support concept. Initial spares in support of CSWS will be purchased with 3010, BP11 funds instead of 3010, BP16 funds. This project is comprised of low technical risk efforts supporting fielded weapons systems and, therefore, was assigned to Budget Activity 7, Operational Systems Development. As described above, RERP includes a new start effort for avionics capability required for modernization, but which may not be complete at the end of AMP development.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Systems Engineering/Program Management	22.491	21.201	16.093	10.620
(U) RERP Design/Development	129.946	166.575	123.148	81.266
(U) Prototype Fabrication/Install	97.460	115.089	70.670	46.635
(U) Mission Support	5.258	7.946	6.409	5.690
(U) Government Test Support	3.367	8.312	10.159	5.380
(U)				
(U) Total Cost	258.522	319.123	226.479	149.591

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E										
(U) Other APPN										
(U) Aircraft Procurement, AF, BA-5, C-5 Mods, Reliability Enhancement and Re-engining Program, BP-11			20.001	141.144	435.208	631.960	764.980	869.731	6,842.840	9,705.864
(U) Aircraft Procurement, AF, BA-5, C-5 Mods, Avionics Modernization Program, BP-11	76.894	96.630	69.296	49.600	27.785	4.138			340.108	800.127
(U) Aircraft Procurement, AF, BA-5, C-5 Mods, Avionics Modernization Program, BP-16		11.522								11.522

(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 Aeronautics Co has been selected as the prime contractor through a sole source arrangement. Lockheed has selected General Electric (Powerplant), Goodrich (Pylon), and Honeywell (Avionics) as the major subcontractors.

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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			0401119F C-5 Airlift Squadrons								4835 Reliability Enhancement & Reengining 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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>	
(U) <u>Product Development</u>															
Lockheed Martin Aeronautics Co (Pre-EMD)	FFP		46.738									0.000	46.738	46.738	
Lockheed Martin Aeronautics Co (SDD)	CPAF		264.392	249.897	Oct-03	302.865	Oct-04	209.911	Oct-05	138.521	Oct-06	50.435	1,216.021	1,216.021	
												0.000			
Subtotal Product Development			311.130	249.897		302.865		209.911		138.521		50.435	1,262.759	1,262.759	
Remarks:															
(U) <u>Support</u>															
WR-ALC/LT			6.598	0.172		3.178		2.544		2.130		0.100	14.722	14.722	
ASC/GRA			6.888	5.086		4.768		3.865		3.560		0.391	24.558	24.558	
N/A													0.000		
Subtotal Support			13.486	5.258		7.946		6.409		5.690		0.491	39.280	39.280	
Remarks:															
(U) <u>Test & Evaluation</u>															
418 Test Squadron (Edwards AFB)			8.064	3.367		8.312		10.159		5.380		0.000	35.282	35.282	
N/A													0.000		
Subtotal Test & Evaluation			8.064	3.367		8.312		10.159		5.380		0.000	35.282	35.282	
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			332.680	258.522		319.123		226.479		149.591		50.926	1,337.321	1,337.321	

Exhibit R-4, RDT&E Schedule Profile

DATE

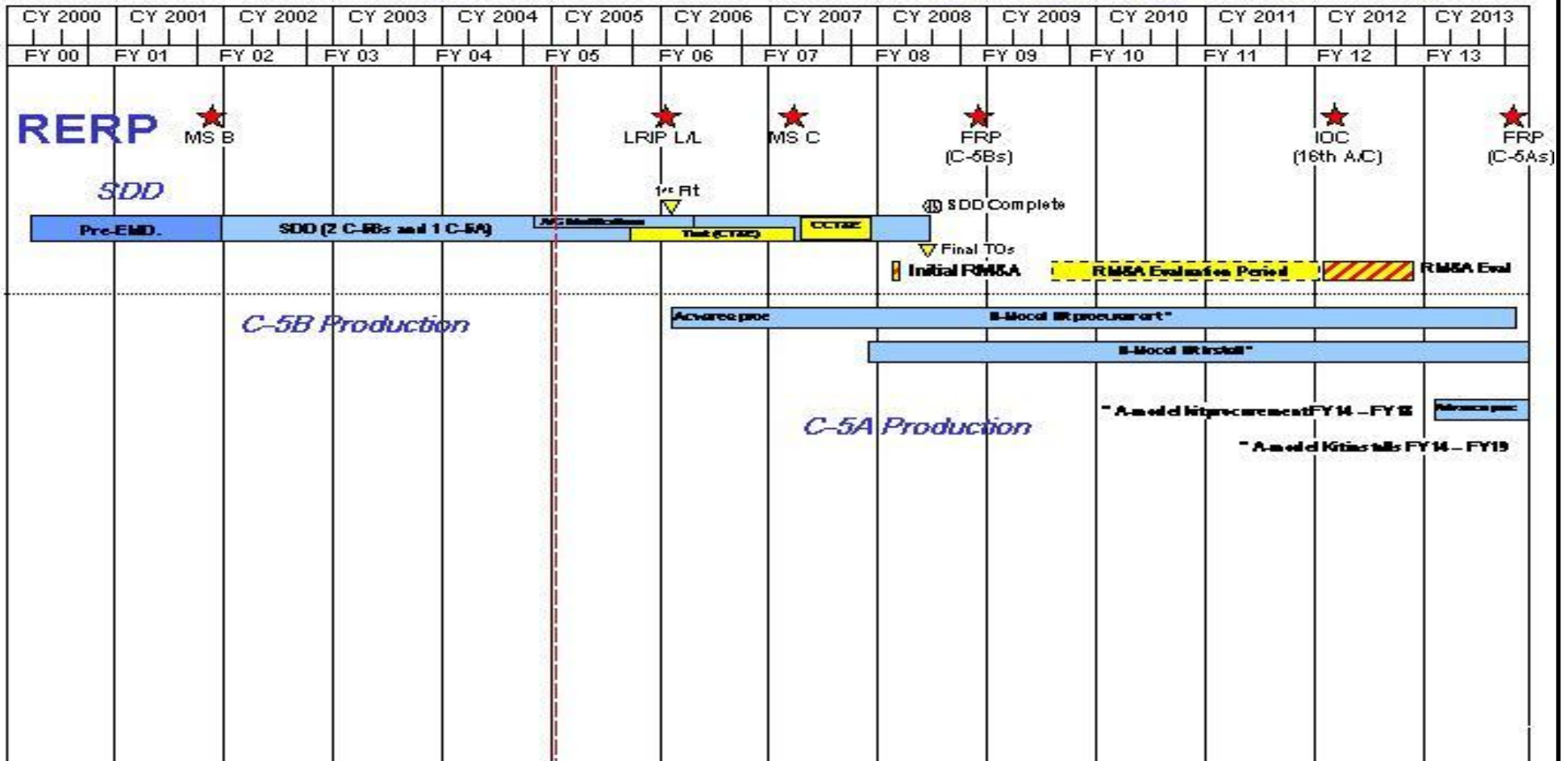
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BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0401119F C-5 Airlift Squadrons

PROJECT NUMBER AND TITLE
4835 Reliability Enhancement & Reengining Program

C-5 Summary Schedule Reliability Enhancement & Re-engining Program (RERP)



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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2005
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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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Schedule Profile				
(U) Critical Design Review (CDR)(FY04/2)	2Q			
(U) First Prototype Flight (FY06/2)			2Q	
(U) MS C (FY07/2)				2Q

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PE NUMBER: 0401130F
 PE TITLE: C-17 Aircraft

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2005
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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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	174.902	199.915	165.762	173.251	176.190	192.337	174.327	164.678	Continuing	TBD
2569 C-17 Aircraft	174.902	199.915	165.762	173.251	176.190	192.337	174.327	164.678	Continuing	TBD

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 aircraft performance improvements.

This program is budget activity 7, Operational System Development, because the program has completed Milestone III and is continuing performance improvements to increase the operational capability of the C-17 through programmed modifications.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	183.913	199.692	141.141	166.101
(U) Current PBR/President's Budget	174.902	199.915	165.762	173.251
(U) Total Adjustments	-9.011	0.223		
(U) Congressional Program Reductions		-1.777		
Congressional Rescissions		-1.100		
Congressional Increases			2.000	
Reprogrammings	-3.138			
SBIR/STTR Transfer	-4.773			

(U) Significant Program Changes:

FY06/07 increases are for several new projects, including Airdrop Improvements, Identification Friend/Foe (IFF) Mode 5 & Global Air Traffic Management (GATM) IFF Mode S Enhanced S, Crew Armor Protection Phase II (12.7 mm), and Demand Assigned Multiple Access (DAMA).

The FY03 National Defense Authorization Act (NDAA) language directed T&E centers to charge only direct costs beginning FY06; this reduction in FY06-FY11 is a result of the ZBT transferring indirect dollars from the customer accounts to PE 65807F, T&E Support.

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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
2569 C-17 Aircraft	174.902	199.915	165.762	173.251	176.190	192.337	174.327	164.678	Continuing	TBD
Quantity of RDT&E Articles	0	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 aircraft performance improvements.

This program is budget activity 7, Operational System Development, because the program has completed Milestone III and is continuing performance improvements to increase the operational capability of the C-17 through programmed modifications.

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

	FY 2004	FY 2005	FY 2006	FY 2007
(U) Performance Improvement Development & Testing	100.934	124.425	91.691	92.651
(U) Systems Engineering/Program Management	42.506	34.649	35.293	36.900
(U) Producibility Enhancement/Performance Improvement (PE/PI) Contractor Flight Test	16.338	19.820	26.900	27.800
(U) Producibility Enhancement/Performance Improvement (PE/PI) Government Flight Test	15.124	21.021	11.878	15.900
(U) Total Cost	174.902	199.915	165.762	173.251

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

	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total Cost
(U) APAF, MYP, BA02, PE0401130F	2099.873	2633.679	2790.859	2328.012	344.935	345.363	310.844	289.044	0.000	11,142.609
(U) APAF, ICS, PE0401130F	910.964	931.089	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1,842.053
(U) APAF, A/C Mods, BA05, PE0401130F	80.285	87.786	260.826	395.261	499.540	501.419	390.683	381.588	0.000	2,597.388
(U) MilCon, Facilities, PE0401130F	74.145	55.244	70.300	173.928	46.071	1.204	0.000	0.000	0.000	420.892

In FY06, aircraft interim contract support (ICS) transitions to contractor logistic support (CLS). Sustainment funds were transferred from ICS to O&M. Funds for initial spares and other non-CLS efforts were transferred from ICS to MYP.

(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

0401130F C-17 Aircraft

PROJECT NUMBER AND TITLE

2569 C-17 Aircraft

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 Globemaster III Sustainment Partnership (field support) contract (to support the current and future fielded aircraft) - (APAF); 4) a MYP engine contract (for Government Furnished Equipment [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 proceeded 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: 8-9-13-15-12-15-8), beginning with the economic order quantity (EOQ) funding in FY96. Sixty additional C-17s are 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 original program was (FY03-07 Quantity): 7-11-14-15-13. Congressional direction during the FY 05 budget process has added an additional aircraft in FY 05 and removed one aircraft in FY 07. The new program (FY 03 through FY 07 quantities) is 7-11-15-15-12.

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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				0401130F C-17 Aircraft							2569 C-17 Aircraft			
(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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) Product Development														
Boeing	C,FPI/FP		5,337.804										5,337.804	
Boeing	C,CPFF		719.235	159.639	Jan-04	178.745	Jan-05	153.734	Jan-06	157.191	Jan-07	638.192	2,006.736	
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			6,173.776	159.639		178.745		153.734		157.191		638.192	7,461.277	0.000
Remarks:														
(U) Support														
Mission Support OGC	PO		97.800									0.000	97.800	
Site Activation OGC	PO		1.500									0.000	1,500	
Miscellaneous			22.400									0.000	22.400	
None													0.000	
Subtotal Support			121.700	0.000		0.000		0.000		0.000		0.000	121.700	0.000
Remarks:														
(U) Test & Evaluation														
Combined Test Force	PO		281.336	15.124	Jan-04	21.021	Jan-05	11.878	Jan-06	15.900	Jan-07	68.600	413.859	
Wright Labs/Arnold Eng Dev Center	PO		10.443	0.139	Oct-03	0.149	Oct-04	0.150	Oct-05	0.160	Oct-06	0.740	11.781	
Other	PO		3.150									0.000	3.150	
None													0.000	
Subtotal Test & Evaluation			294.929	15.263		21.170		12.028		16.060		69.340	428.790	0.000
Remarks:														
(U) Management														
Subtotal Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
(U) Total Cost			6,590.405	174.902		199.915		165.762		173.251		707.532	8,011.767	0.000

Exhibit R-4, RDT&E Schedule Profile

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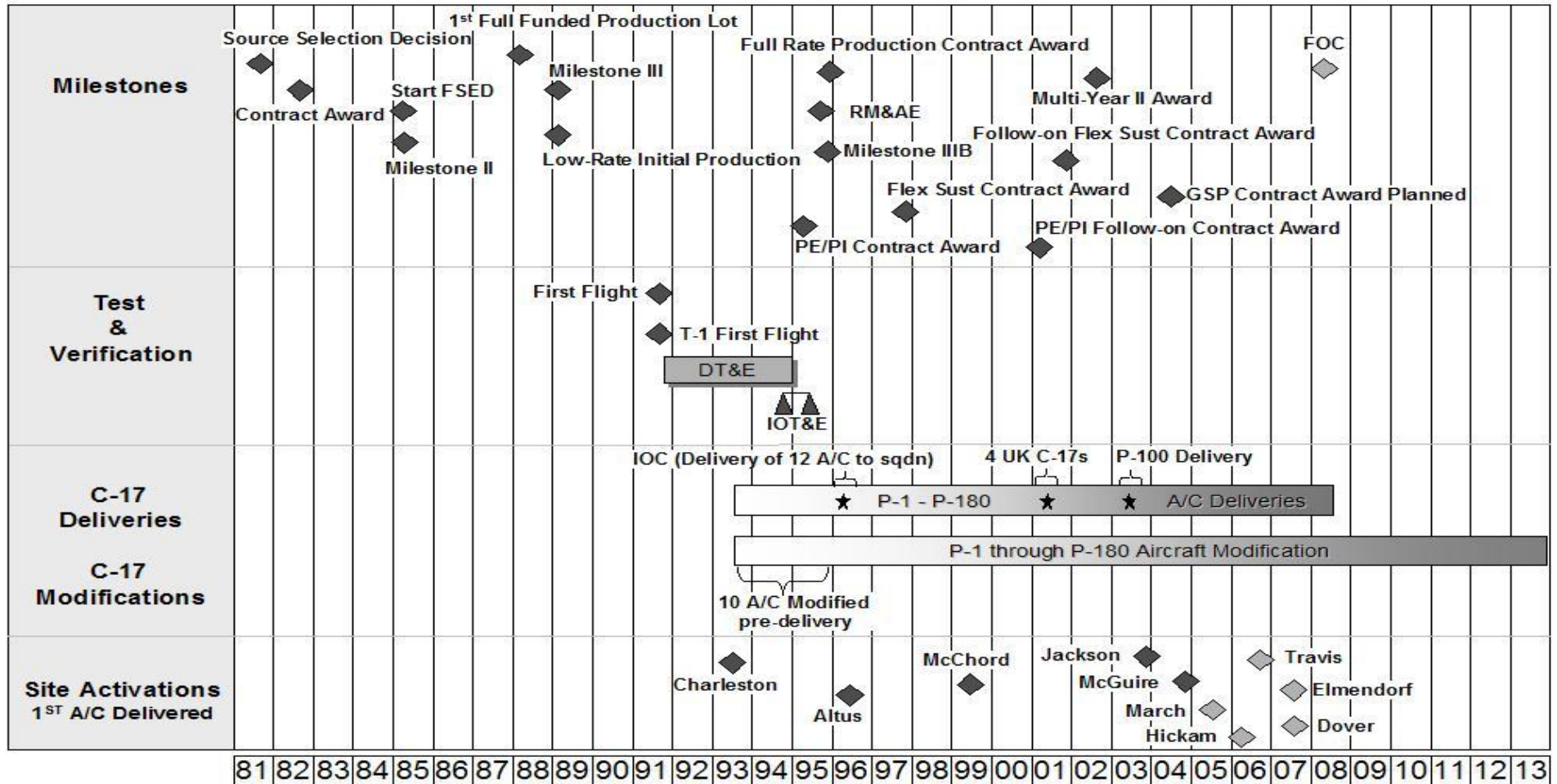
BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0401130F C-17 Aircraft

PROJECT NUMBER AND TITLE
2569 C-17 Aircraft

C-17 Schedule

81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 00 01 02 03 04 05 06 07 08 09 10 11 12 13



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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2005
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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) <u>Schedule Profile</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Incremental Funding of Ongoing Performance Improvement Projects (Boeing)	1-3Q	1-3Q	1-3Q	1-3Q
(U) GATM/SAASM RNP Improvements	1Q			
(U) Formation Flying	2Q			
(U) Mission Computer/Core Integrated Processor	3Q			
(U) Flight Test Data Archive	2Q			
(U) Software Product Improvement Change Request (PICR)	1Q			
(U) Airdrop Improvements				1Q
(U) IFF Mode 5 & GATM IFF Mode S Enhanced S			1Q	
(U) Crew Armor Protection Phase II				1Q
(U) Demand Assigned Multiple Access (DAMA)				1Q
(U) Air Force Flight Test Center	2Q	1Q	2Q	1Q

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PE NUMBER: 0401132F
 PE TITLE: C-130J PROGRAM

Exhibit R-2, RDT&E Budget Item Justification									DATE February 2005	
BUDGET ACTIVITY 07 Operational System Development					PE NUMBER AND TITLE 0401132F C-130J PROGRAM					
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	12.885	32.910	6.681	35.376	44.758	39.980	43.308	47.528	Continuing	TBD
5061 C-130J	12.885	32.910	6.681	35.376	44.758	39.980	43.308	47.528	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

FY06 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) Continuation of Block 6.0 Upgrades. Block 6.0 is the first phase of at least four block upgrades. AMC/CC has mandated capability releases on a two-year cycle. These Block Upgrades include:
 - a) 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.
 - b) The development, integration, and testing of aircraft modifications necessary to correct deficiencies identified in qualification and operational testing of this platform.
 - c) 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 aircraft, with its extended (by 15 ft) fuselage, provides additional cargo carrying capacity for the USAF combat delivery mission compared with legacy C-130E/H and the C-130J (short). 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

Exhibit R-2, RDT&E Budget Item Justification

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0401132F C-130J PROGRAM

communications (SATCOM) voice and data link capability, high frequency data link (HFDL), Controller-Pilot Data Link Communications (CPDLC), and AMC Mobility 2000 (M2K) 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. An updated C-130J ORD is being reviewed by the Joint Requirements Oversight Council (JROC). Expect JROC approval 2 Q FY05.

FY07 C-130J program RDT&E funding provides for:

- 1) Continued participation in COSSURM
- 2) Completion of Block 6.0
- 3) Start of Block 7.0 development. Like Block 6.0, Block 7.0 primarily consists of mandated GATM/nav safety requirements.

This effort is assigned to Budget Activity 7 as it supports an operational system.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	13.551	36.305	13.545	56.506
(U) Current PBR/President's Budget	12.885	32.910	6.681	35.376
(U) Total Adjustments	-0.666	-3.395		
(U) Congressional Program Reductions				
Congressional Rescissions	-0.115	-0.330		
Congressional Increases				
Reprogrammings	-0.202	-3.065		
SBIR/STTR Transfer	-0.349			

(U) Significant Program Changes:

Block 6.0 funding reduced in FY06 due poor execution. Block 6.0 development now extends into FY07.

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				0401132F C-130J PROGRAM				5061 C-130J		
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
5061 C-130J	12.885	32.910	6.681	35.376	44.758	39.980	43.308	47.528	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

FY06 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) Continuation of Block 6.0 Upgrades. Block 6.0 is the first phase of at least four block upgrades. AMC/CC has mandated capability releases on a two-year cycle. These Block Upgrades include:
 - a) 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.
 - b) The development, integration, and testing of aircraft modifications necessary to correct deficiencies identified in qualification and operational testing of this platform.
 - c) 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 aircraft, with its extended (by 15 ft) fuselage, provides additional cargo carrying capacity for the USAF combat delivery mission compared with legacy C-130E/H and the C-130J (short). 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

Exhibit R-2a, RDT&E Project Justification

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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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Mobility 2000 (M2K) 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. An updated C-130J ORD is being reviewed by the Joint Requirements Oversight Council (JROC). Expect JROC approval 2 Q FY05.

FY07 C-130J program RDT&E funding provides for:

- 1) Continued participation in COSSURM
- 2) Completion of Block 6.0
- 3) Start of Block 7.0 development. Like Block 6.0, Block 7.0 primarily consists of mandated GATM/nav safety requirements.

This effort is assigned to Budget Activity 7 as it supports an operational system.

(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) COSSURM payment	0.896	1.441	1.524	1.759
(U) Initiate non-recurring engineering design and software development for Block 6.0 GATM/nav safety requirements and aircraft deficiencies/product improvements.	11.323			
(U) Congressional Rescissions	0.115			
(U) Reprogrammings	0.202			
(U) SBIR/STTR Transfer	0.349			
(U) Continue Block 6.0 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.		31.469	3.657	7.000
(U) Flight Test			1.500	0.500
(U) Initiate non-recurring engineering design and software development for Block 7.0 GATM/nav safety requirements and aircraft deficiencies/product improvements.				24.117
(U) Block 8.0 Phase 0				2.000
(U) Total Cost	12.885	32.910	6.681	35.376

(U) <u>C. Other Program Funding Summary (\$ in Millions)</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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
(U) Other APPN										
(U) PE 0401132F, C-130J										
(U) Procurement (BP1100)										
(U) Mod MN-_1377 Blk 5.4	9.600	25.400	5.988						0.000	40.988

Exhibit R-2a, RDT&E Project Justification

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

(U) Mod MN-_1701 Blk 6.0	36.551	21.600	2.875			0.000	61.026
(U) Mod MN-_6298 Blk 7.0		10.298	40.128	27.900	4.800	0.000	83.126
(U) Mod MN-_5222 Blk 8.0				22.100	53.200	46.000	121.300
(U) Mod MN-_8629 LAIRCM				38.682	8.315		TBD

(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 began with FY03 RDT&E funding and continues through FY07 RDT&E funding, Block 7.0, which will start in FY07, Block 8.0, which will start in FY09, and Block 9.0, which will start in FY11. 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

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BUDGET ACTIVITY				PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE					
07 Operational System Development				0401132F C-130J PROGRAM						5061 C-130J					
(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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>	
(U) <u>Product Development</u> Aeronautical Systems Center (AFMC), WPAFB, OH	CPFF	Lockheed Martin Aeronautics, Marietta GA		11.989	Mar-04	31.469	Nov-04	3.657	Nov-05	33.117	Nov-06		80.232		
Subtotal Product Development Remarks:			0.000	11.989		31.469		3.657		33.117		0.000	80.232	0.000	
(U) <u>Support</u> TBD													0.000	0.000	
Subtotal Support Remarks:			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000	
(U) <u>Test & Evaluation</u> Air Force Materiel Command (DT&E)								1.500	Oct-05	0.500	Oct-06		2.000		
Subtotal Test & Evaluation Remarks:			0.000	0.000		0.000		1.500		0.500		0.000	2.000	0.000	
(U) <u>Management</u> COSSURM				0.896		1.441	Oct-04	1.524	Oct-05	1.759	Oct-06		5.620		
Subtotal Management Remarks:			0.000	0.896		1.441		1.524		1.759		0.000	5.620	0.000	
(U) <u>Lockheed Martin Aeronautics, Marietta, GA</u>															
(U) Total Cost Remarks:			0.000	12.885		32.910		6.681		35.376		0.000	87.852	0.000	

Exhibit R-4, RDT&E Schedule Profile

DATE

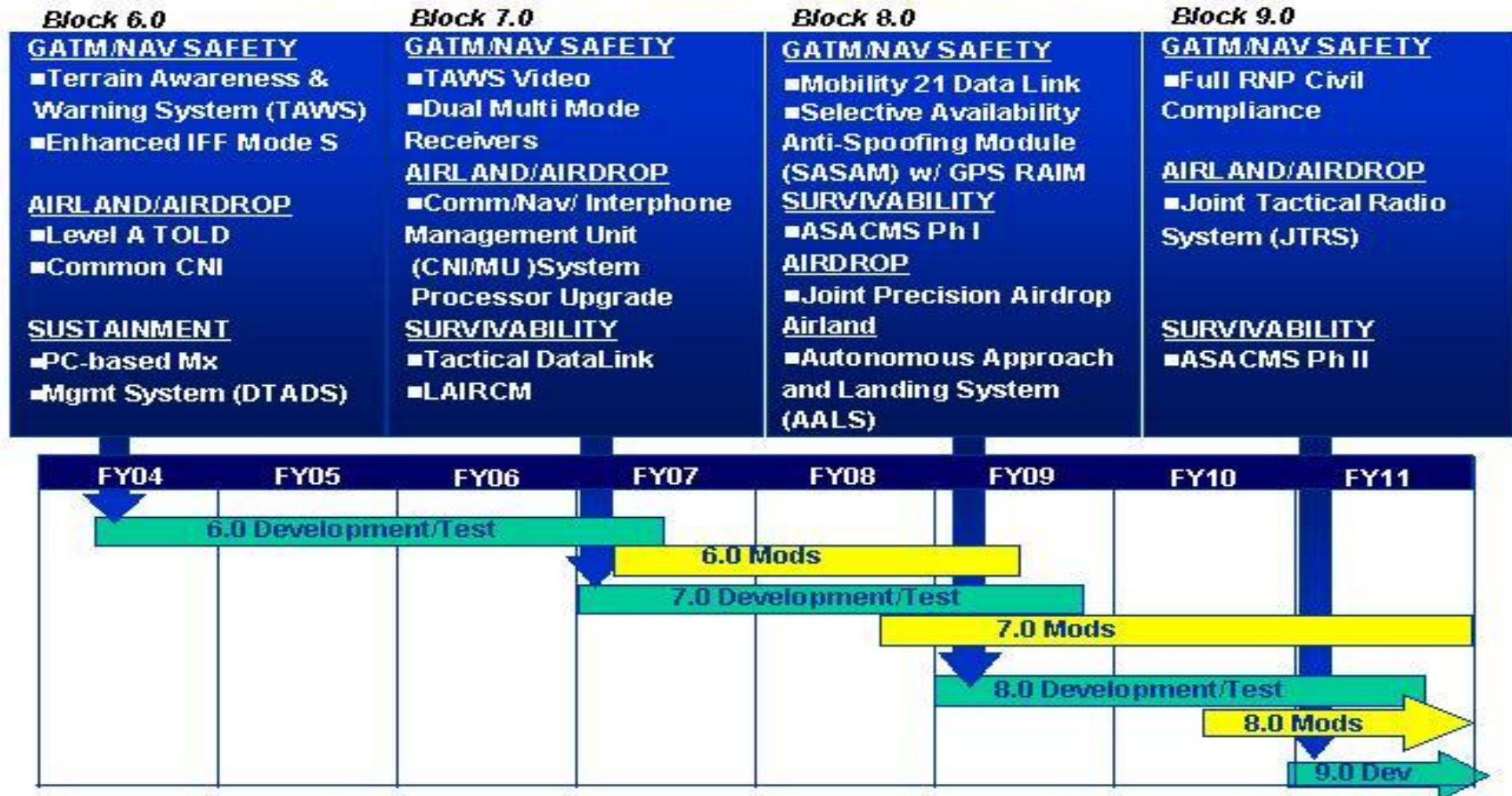
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BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0401132F C-130J PROGRAM

PROJECT NUMBER AND TITLE
5061 C-130J

C-130J Block Upgrade Plan



Note: Block upgrades include variants, so mods will begin on C-130Js while EC-130J and WC-130J development is still underway

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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 0401132F C-130J PROGRAM	PROJECT NUMBER AND TITLE 5061 C-130J
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(U) <u>Schedule Profile</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Block 6.0 FY04 contract award	2Q			
(U) Block 6.0 FY05 award		1Q		
(U) Block 6.0 FY06 award			1Q	
(U) Block 6.0 DT&E payment to AFFTC			1Q	
(U) Start of Block 6.0 DT&E			4Q	
(U) Block 6.0 FY07 award				1Q
(U) Block 7.0 FY07 contract award				1Q

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PE NUMBER: 0401133F
 PE TITLE: Aeromedical Evacuation

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2005
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0401133F Aeromedical Evacuation
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Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	0.000	2.077	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4910 Aeromedical Readiness	0.000	0.000	2.077	0.000	0.000	0.000	0.000	0.000	0.000	0.000

In FY06, this is a new PE.

(U) A. Mission Description and Budget Item Justification

The program will modify COTS based Patient Isolation Units (PIU) in order to facilitate air transport of patients that may have been exposed to Critical List infections and/or Biological Warfare agents.

The funding may be transferred to another USAF Program were it will be more properly executed.

This program is in BA 7, Operational Systems Development, and it will modify existing COTS systems for use on deployed, operational aircraft.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget				
(U) Current PBR/President's Budget	0.000	0.000	2.077	
(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 0401133F Aeromedical Evacuation			PROJECT NUMBER AND TITLE 4910 Aeromedical Readiness		
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4910 Aeromedical Readiness	0.000	0.000	2.077	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	0		

(U) A. Mission Description and Budget Item Justification

The program will modify COTS based Patient Isolation Units (PIU) in order to facilitate air transport of patients that may have been exposed to Critical List infections and/or Biological Warfare agents.

The funding may be transferred to another USAF Program were it will be more properly executed.

This program is in BA 7, Operational Systems Development, and it will modify existing COTS systems for use on deployed, operational aircraft.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Analysis of User Requirements			0.100	
(U) Design of Patient Isolation Units			0.700	
(U) Manufacture and Modification of Initial Design			0.250	
(U) Developmental Testing of R&D Products			0.200	
(U) Modifications Based on Developmental Test			0.120	
(U) Purchase Prototypes for Evaluation & Testing			0.150	
(U) Operational Testing of Patient Isolation Unit			0.500	
(U) Program Management Support, Travel, Administration			0.057	
(U) Total Cost	0.000	0.000	2.077	0.000

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
(U) Not applicable										

(U) D. Acquisition Strategy

Contract will be awarded based on 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				0401133F Aeromedical Evacuation							4910 Aeromedical Readiness			
(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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> Analysis, Design, Manufacture, Development, Testing and Purchase	TBD	TBD						2.020	Apr-06			Continuing	TBD	TBD
Subtotal Product Development			0.000	0.000		0.000		2.020		0.000		Continuing	TBD	TBD
Remarks:														
(U) <u>Support</u> Program Support	TBD	TBD						0.057				Continuing	TBD	TBD
Subtotal Support			0.000	0.000		0.000		0.057		0.000		Continuing	TBD	TBD
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) Total Cost			0.000	0.000		0.000		2.077		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

0401133F Aeromedical Evacuation

PROJECT NUMBER AND TITLE

4910 Aeromedical Readiness

	FY 06				FY 07			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Receipt of Funds	▲							
Source Selection	▲	▲						
Contract Award		▲						
PDR			▲					
CDR				▲				
Test				▲	▲	▲		
IOC/Begin Production						▲		

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2005
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0401133F Aeromedical Evacuation	PROJECT NUMBER AND TITLE 4910 Aeromedical Readiness
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	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Schedule Profile				
(U) Receipt of funds			1Q	
(U) Source selection			1-2Q	
(U) Contract Award			2Q	
(U) PDR			3Q	
(U) CDR			4Q	
(U) Testing			4Q	1-2Q
(U) IOC				2Q

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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 2005
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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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	42.768	73.015	55.743	34.772	26.494	25.640	6.007	6.986	Continuing	TBD
4942 Large Aircraft Infrared Counter Measures (LAIRCM)	42.768	73.015	55.743	34.772	26.494	25.640	6.007	6.986	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

The Large Aircraft Infrared Countermeasures (LAIRCM) system provides a significantly improved defensive capability for the AF's large aircraft to counter the IR Man-Portable Air Defense Systems (MANPADS) threat.

The current LAIRCM system [AN/AAQ-24V(13)] consists of ultra-violet (UV) missile warning sensors (MWS), a missile tracking system, small laser turret assemblies (SLTA) and processors to detect, track and counter incoming IR missiles. This system is fully automatic following power-up. The number of turrets per aircraft is determined by the size and IR signature of the aircraft. The multi-command Operational Requirements Document (ORD) -- LAIRCM ORD 314-92, was validated on 3 Aug 98. LAIRCM meets AMC's Nov 02 Urgent & Compelling Need to protect AMC's selected aircraft. The first two LAIRCM-equipped C-17s were delivered to AMC in May 03. The first LAIRCM-equipped C-130H completed IOT&E in Jul 04.

In the FY05 budget, the AF planned to equip 137 AMC aircraft with LAIRCM. This number has been revised to 444 AMC aircraft following completion of the "Study Report on Current and Future Threats to Mobility Aircraft" in Apr 04. This study was directed by the AF's FY06-11 Annual Planning & Program Guidance (APPG). Recent operations in Iraq and Afghanistan further validate the AF's need to increase the number of cargo aircraft, equipped with LAIRCM.

In FY03, LAIRCM's Phase II began development of a smaller laser turret assembly, referred to as the mini-turret. This smaller turret is programmed for production start in late FY06. Development of the Next Generation Missile Warning System (NexGen MWS) began in June 04 with production and incorporation into LAIRCM beginning in FY07. The C-17s will be retrofitted with this Phase II hardware when the equipment becomes available in FY06/FY07. The Phase I equipment removed from the C-17s, will be retrofitted onto AMC's C-130s. Development for the LAIRCM-equipped C-5B starts in FY05 with production starting in FY07. Development for the LAIRCM-equipped C-130J starts in FY07 with production starting in FY10.

Large Aircraft IR Countermeasures Program (LAIRCM) is in Budget Activity 7, Operational Systems Development as it is an electronic countermeasures systems upgrade to four existing weapons systems (C-17, C-130H, C-5B and C-130J).

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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	45.946	73.684	68.391	20.926
(U) Current PBR/President's Budget	42.768	73.015	55.743	34.772
(U) Total Adjustments	-3.178	-0.669		
(U) Congressional Program Reductions		-0.669		
Congressional Rescissions	-0.390			
Congressional Increases				
Reprogrammings	-0.209			
SBIR/STTR Transfer	-2.579			

(U) **Significant Program Changes:**

In FY03, LAIRCM deliveries were accelerated by 12 months in response to an AMC Urgent and Compelling need for increased protection from the MANPADS threat. The first two LAIRCM-equipped C-17s were delivered to AMC in May 2003 under the LAIRCM Lite program. This accelerated Lite program took the first 12 production turrets and installed them only in the tailcones of the first 12 C-17s. The two forward-mounted turrets will be retrofitted to these aircraft when additional turret assemblies become available. The LAIRCM Lite configuration significantly improves the C-17's survivability in the near-term, but does not meet the system requirements.

Because of the success of this LAIRCM Lite Program, the AF will continue to configure C-17s in the Lite configuration (tail only turret) until early FY07 when the new mini-turret comes into production.

In FY04, Congress approved a reprogramming action of \$36M (procurement) that will fund an additional 18 C-17s with LAIRCM Lite.

In FY06 and FY07, the funds were rephased to better align with the work being performed. Also, the AF has determined that 444 AF airlift and tanker aircraft now need to be LAIRCM-equipped versus the previous requirement of 137 LAIRCM airlift and tanker aircraft.

Exhibit R-2a, RDT&E Project Justification

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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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total	
4942 Large Aircraft Infrared Counter Measures (LAIRCM)	42.768	73.015	55.743	34.772	26.494	25.640	6.007	6.986	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0			

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

The Large Aircraft Infrared Countermeasures (LAIRCM) system provides a significantly improved defensive capability for the AF's large aircraft to counter the IR Man-Portable Air Defense Systems (MANPADS) threat.

The current LAIRCM system [AN/AAQ-24V(13)] consists of ultra-violet (UV) missile warning sensors (MWS), a missile tracking system, small laser turret assemblies (SLTA) and processors to detect, track and counter incoming IR missiles. This system is fully automatic following power-up. The number of turrets per aircraft is determined by the size and IR signature of the aircraft. The multi-command Operational Requirements Document (ORD) -- LAIRCM ORD 314-92, was validated on 3 Aug 98. LAIRCM meets AMC's Nov 02 Urgent & Compelling Need to protect AMC's selected aircraft. The first two LAIRCM-equipped C-17s were delivered to AMC in May 03. The first LAIRCM-equipped C-130H completed IOT&E in Jul 04.

In the FY05 budget, the AF planned to equip 137 AMC aircraft with LAIRCM. This number has been revised to 444 AMC aircraft following completion of the "Study Report on Current and Future Threats to Mobility Aircraft" in Apr 04. This study was directed by the AF's FY06-11 Annual Planning & Program Guidance (APPG). Recent operations in Iraq and Afghanistan further validate the AF's need to increase the number of cargo aircraft, equipped with LAIRCM.

In FY03, LAIRCM's Phase II began development of a smaller laser turret assembly, referred to as the mini-turret. This smaller turret is programmed for production start in late FY06. Development of the Next Generation Missile Warning System (NexGen MWS) began in June 04 with production and incorporation into LAIRCM beginning in FY07. The C-17s will be retrofitted with this Phase II hardware when the equipment becomes available in FY06/FY07. The Phase I equipment removed from the C-17s, will be retrofitted onto AMC's C-130s. Development for the LAIRCM-equipped C-5B starts in FY05 with production starting in FY07. Development for the LAIRCM-equipped C-130J starts in FY07 with production starting in FY10.

Large Aircraft IR Countermeasures Program (LAIRCM) is in Budget Activity 7, Operational Systems Development as it is an electronic countermeasures systems upgrade to four existing weapons systems (C-17, C-130H, C-5B and C-130J).

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Complete development of Basic LAIRCM system, support equipment, technical orders, etc.	15.779			
(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.	2.058			
(U) Develop the mini-turret	7.010	15.200	4.100	
(U) Develop installation of LAIRCM on the C-5B		15.834	4.065	11.826
(U) Develop installation of LAIRCM on the C-130J				1.000
(U) Develop the Next Generation Missile Warning System (NexGen MWS)	0.300	28.306	26.996	6.685

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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 0401134F Large Aircraft InfraRed Counter Measures (LAIRCM)	PROJECT NUMBER AND TITLE 4942 Large Aircraft Infrared Counter Measures (LAIRCM)
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(U) Government testing and risk reduction	4.343	4.976	5.479	4.708
(U) Program office support (TDY, A&AS contract support, training, supplies and award fee.	13.278	8.699	15.103	10.553
(U) Total Cost	42.768	73.015	55.743	34.772

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E										
(U) Other APPN										
(U) PE 41134F, C-17 Procurement (BP1100)	28.990	39.713	84.463	195.492	166.550	203.254	31.230	11.004		760.696
(U) PE 41134F, C-130 Procurement (BP1100)	42.162	31.839	7.236	9.769	44.282	10.344	2.646	0.000		148.278
(U) PE 41134F, C-5B Procurement (BP1100)	0.000	0.000	0.000	28.476	36.898	33.696	28.924	5.940		133.934
(U) PE 41134F, C-130J Procurement (BP1100)	0.000	0.000	0.000	0.000	0.000	0.000	37.210	8.064		45.274
(U) PE 54343F, C-130 (AFRC) Procurement (BP1100)					34.515	54.306	1.040	1.031		90.892
(U) NGRFA 0350 (ANG)	11.000									
(U) SOCOM Funding					26.100					26.100

(U) D. Acquisition Strategy

Integration of the LAIRCM subsystems is being accomplished by Northrop Grumman, who was awarded this CPAF contract on 28 Sep 01. Boeing integrates and installs 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 C-5B aircraft will be awarded in FY05. The contract to install LAIRCM on the C-130J aircraft will be awarded in FY07. The NexGen Missile Warning System development contracts were awarded in Jun 04 to Northrop Grumman and Lockheed to develop competing 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 2005			
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) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2004 Cost	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) Product Development														
Northrop Grumman	CPAF	Equipment manufacturer, Rolling Meadows, IL	48.382	20.616	Sep-01	0.000						0.000	68.998	TBD
Boeing	CPAF	LAIRCM installs; Long Beach, CA	31.414	0.819	Jan-02	0.000							32.233	TBD
Northrop Grumman	CPFF	NexGen MWS Development, Rolling Meadows, IL	0.000	0.150	Jun-04	14.306	Feb-05	13.996	Feb-05	0.000			28.452	TBD
Lockheed Martin	CPFF	NexGen MWS Development, Orlando, FL	0.000	0.150	Jun-04	14.000	Jun-04	13.000	Jun-04	3.904	Jun-04		31.054	TBD
TBD	TBD	Mini-turret Development, Rolling Meadows, IL		0.000		15.200	Jan-05	4.100	Jan-05	2.781	Jan-05		22.081	TBD
TBD	TBD	C-5B Development & Integration	0.000	0.000		15.165	Jun-05	1.417	Jun-05	15.672	Jun-05		32.254	TBD
TBD	TBD	C-130J Development & Integration	0.000	0.000		0.000		0.000		1.000	May-07	28.000	29.000	TBD
FY01 RDT&E under PE 41130F			44.883										44.883	
Subtotal Product Development			124.679	21.735		58.671		32.513		23.357		28.000	288.955	TBD
Remarks:														TBD
(U) Support														
ASC/GRI			14.377	13.278		8.868		8.550		6.207		26.507	77.787	TBD
AFRL			2.100	2.451		0.000		0.000		0.000			4.551	TBD
WRALC			0.000	1.560		0.500		0.500		0.500			3.060	TBD
Subtotal Support			16.477	17.289		9.368		9.050		6.707		26.507	85.398	TBD
Remarks:														
(U) Test & Evaluation														
Various Gov't Test Organizations	Various		13.714	3.744		4.976		14.180		4.708		10.000	51.322	TBD
Subtotal Test & Evaluation			13.714	3.744		4.976		14.180		4.708		10.000	51.322	TBD
Remarks:														
Project 4942						R-1 Shopping List - Item No. 216-6 of 216-9								Exhibit R-3 (PE 0401134F)

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2005

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) <u>Management</u>								
Subtotal Management	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Remarks:								
(U) <u>Total System Cost</u>								
(U) Total Cost	154.870	42.768	73.015	55.743	34.772	64.507	425.675	TBD
Remarks:								

Exhibit R-4, RDT&E Schedule Profile

DATE

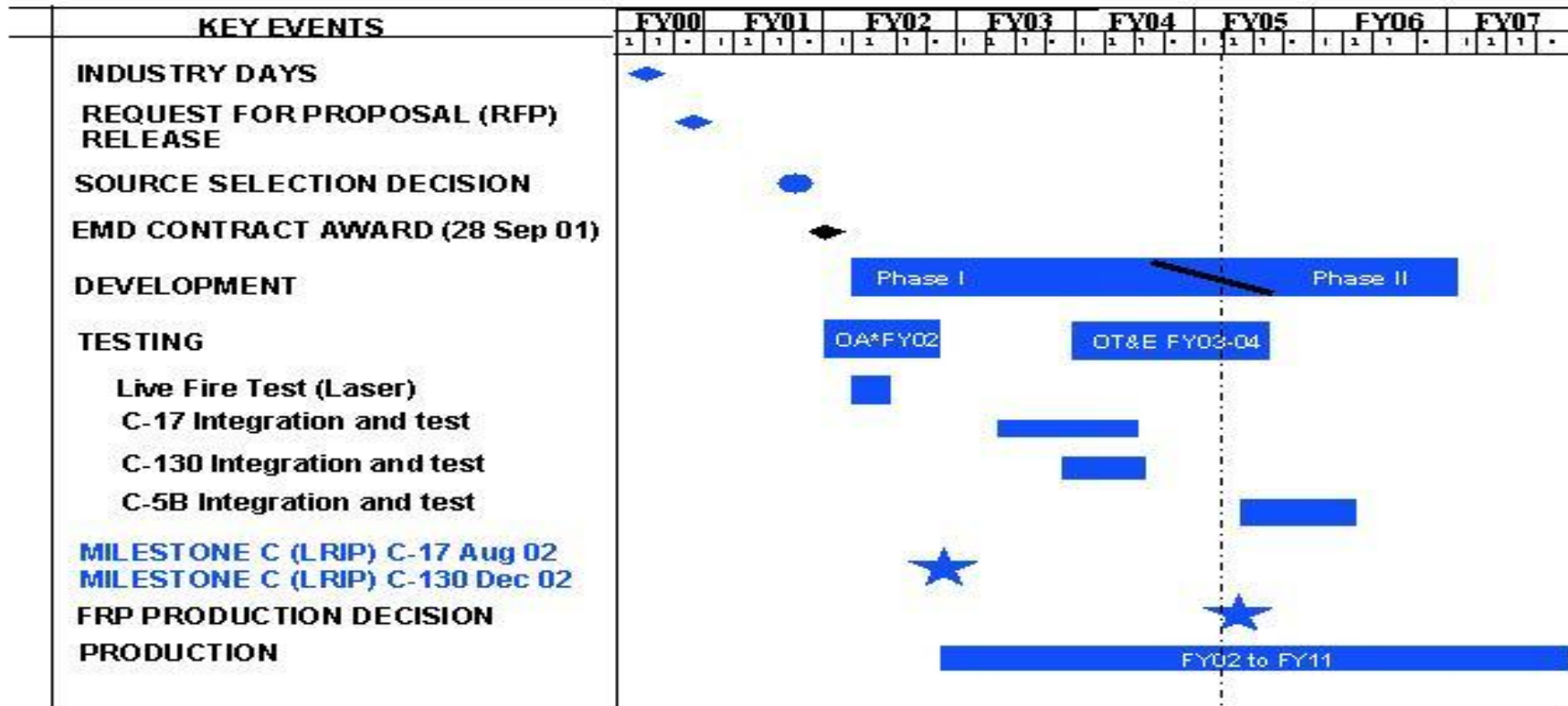
February 2005

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)

LAIRCM



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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2005
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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) <u>Schedule Profile</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) C-17 Aircraft Integration (Jan 02 - Nov 03)	1Q			
(U) C-17 #1 modification and OT&E (Feb 03 - Nov 03)	1Q			
(U) C-130 Aircraft Integration (April 02 - Nov 03)	1Q			
(U) C-130 # 1 Modification and OT&E (Oct 03 - May 04)	1-4Q			
(U) Operational Assessment: (Jun - Jul 02)	1Q			
(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	4Q			
(U) Phase II SDD (FY04-FY06)	1Q			
(U) C-5B Aircraft Integration (FY05-FY07)		2Q		
(U) C-130J Aircraft Integration (FY07-FY09)				4Q

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PE NUMBER: 0401218F
 PE TITLE: KC-135s

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2005
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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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	3.009	1.070	1.498	1.121	1.138	1.159	0.000	0.000	Continuing	TBD
4494 KC-135 Aging Aircraft Program	3.009	1.070	1.498	1.121	1.138	1.159	0.000	0.000	Continuing	TBD

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	3.147	1.079	1.489	1.102
(U) Current PBR/President's Budget	3.009	1.070	1.498	1.121
(U) Total Adjustments	-0.138	-0.009		
(U) Congressional Program Reductions				
Congressional Rescissions		-0.009		
Congressional Increases				
Reprogrammings	-0.054			
SBIR/STTR Transfer	-0.084			

(U) **Significant Program Changes:**
 FY04 funding includes money for BOWST

Exhibit R-2a, RDT&E Project Justification

DATE
February 2005

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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4494 KC-135 Aging Aircraft Program	3.009	1.070	1.498	1.121	1.138	1.159	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Corrosion/crack growth rate and fatigue determination and testing	0.907	0.340	0.425	0.125
(U) Basic materials test and predictive technique	0.120	0.000	0.000	0.000
(U) Functional Systems Integrity Program (FSIP)	0.000	0.479	0.698	0.698
(U) Mission support/contractor support	0.356	0.251	0.375	0.298
(U) Boom Operator Weapon System Trainer	1.626	0.000	0.000	0.000
(U) Total Cost	3.009	1.070	1.498	1.121

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

	<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>FY 2010</u>	<u>FY 2011</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>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 2005

BUDGET ACTIVITY				PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE				
07 Operational System Development				0401218F KC-135s						4494 KC-135 Aging Aircraft 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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> C/KC-135 Fleet Support	SS/FFP	Boeing, Wichita, KS	1.252	0.757	Jan-04	1.010	Mar-05	1.208	Nov-05	1.050	Dec-06	Continuing	TBD	
Subtotal Product Development			1.252	0.757		1.010		1.208		1.050		Continuing	TBD	0.000
Remarks:														
(U) <u>Support</u> Design Engineering Program (DEP)	C/FP	ARINC, Oklahoma City, other support ctrs.	0.119	0.123	Jan-04	0.000		0.224	Jan-06			Continuing	TBD	
Subtotal Support			0.119	0.123		0.000		0.224		0.000		Continuing	TBD	0.000
Remarks:														
(U) <u>Test & Evaluation</u> Testing	Project Order/MIP R	Wright Labs, Dayton, OH, NASA, VA, etc.	1.776	2.046	Dec-03	0.000						Continuing	TBD	
Subtotal Test & Evaluation			1.776	2.046		0.000		0.000		0.000		Continuing	TBD	0.000
Remarks:														
(U) <u>Management</u> Subtotal Management			0.000	0.083		0.060		0.066		0.071		Continuing	TBD	0.000
Remarks:												Continuing	TBD	0.000
(U) Total Cost			3.147	3.009		1.070		1.498		1.121		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

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	FY04				FY05				FY06				FY07			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Corrosion & Fatigue Testing	[Planned Ongoing Activity]															
Materials Test & Predictive Tech	[Planned Ongoing Activity]															
FSIP (see note 1)	[Planned Ongoing Activity]															
Boom Operator Wpn Sys Trainer		[Planned Ongoing Activity]	[Planned Ongoing Activity]	[Planned Ongoing Activity]												
Note 1: FSIP will continue to examine additional aircraft systems as required while monitoring those systems that have previously been examined.																

[Planned Ongoing Activity] **Planned Ongoing Activity**

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Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2005

BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0401218F KC-135s	PROJECT NUMBER AND TITLE 4494 KC-135 Aging Aircraft Program
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(U) Schedule Profile	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Corrosion & Fatigue Testing	1-4Q	1-4Q	1-4Q	1-4Q
(U) Materials Test & Predictive Tech	1Q			
(U) FSIP	1-4Q	1-4Q	1-4Q	1-4Q
(U) Boom Operator Weapon System Trainer	2Q	1Q		

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PE NUMBER: 0401219F
 PE TITLE: KC-10S

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2005
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0401219F KC-10S
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Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	6.410	0.000	13.472	38.710	49.999	5.609	0.000	0.000	Continuing	TBD
4496 KC-10 GATM	6.410	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	84.761
5195 Aircraft Modernization Program (AMP)	0.000	0.000	13.472	38.710	49.999	5.609	0.000	0.000	Continuing	TBD

One aircraft kit in FY08

(U) A. Mission Description and Budget Item Justification

Global Air Traffic Management (GATM) was based upon evolving Communication, Navigation and Surveillance (CNS) and Free Flight concepts and requirements. Key elements of its architecture were Dual MMR (Multi-Mode Receiver), Dual CMU (Communications Management Unit), Communication Data links (HF, VHF, SATCOM), and associated avionics components and wiring. Communications upgrades included a data link to augment/replace voice communications. The navigation capabilities included a fully integrated GPS and an advanced flight management system. The surveillance capabilities included automatic aircraft position reporting (both enroute and oceanic). Prototype aircraft delivery was scheduled for 3QFY03 but due to schedule slips and cost overruns, the prototype delivery was expected to be delayed to 2QFY05. The development program was terminated in April 2004.

KC-10 Aircraft Modernization Program (AMP) will provide a fully digital aircraft where all measurements are taken by digital sensors, transmitted to digital equipment to use these readings to operate the aircraft and displays for the aircrew. This will include the capability to display real time information in the cockpit. Communications upgrades include a data link to augment/replace voice communications. Navigation capabilities include a fully integrated GPS and an advanced flight management system. Surveillance capabilities include automatic aircraft position reporting (both enroute and oceanic). KC-10 aircraft modernization is needed. Reliability/maintainability concerns and obsolescence issues include inertial navigation units (INU), central air data computer (CADC), radar, analog autopilot, analog engine instruments, analog flight instruments, analog nav/comm radios, cockpit voice recorder (CVR), and flight data recorder (FDR), fuel system gauges and flight engineer station controls/instruments. KC-10 AMP will automate aircrew tasks to reduce the crew's workload, integrate all products and displays into an efficient package that will allow the KC-10 to be operated by a pilot, co-pilot and boom operator. System controls and displays will be digitized and relocated to provide safe and efficient operation of the KC-10 in its primary air refueling and all secondary missions. An aircrew augmentee and/or flight engineer must be able to be seated in the cockpit to assist in cockpit operations.

These efforts support a fielded weapon system and therefore are assigned to Budget Activity 7, Operational Systems Development.

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2005

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0401219F KC-10S**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	2.306	18.452	0.000	0.000
(U) Current PBR/President's Budget	6.410	0.000	13.472	38.710
(U) Total Adjustments	4.104	-18.452		
(U) Congressional Program Reductions				
Congressional Rescissions	-0.020	-18.452		
Congressional Increases				
Reprogrammings	4.124			
SBIR/STTR Transfer				
(U) <u>Significant Program Changes:</u>				
GATM Development Program Cancelled; Congress rescinded GATM RDT&E appropriations in FY05.				
The Aircraft Modernization Program is a new start in FY06.				

Exhibit R-2a, RDT&E Project Justification

DATE
February 2005

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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4496 KC-10 GATM	6.410	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	84.761
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

Global Air Traffic Management (GATM) was based upon evolving Communication, Navigation and Surveillance (CNS) and Free Flight concepts and requirements. Key elements of its architecture were Dual MMR (Multi-Mode Receiver), Dual CMU (Communications Management Unit), Communication Data links (HF, VHF, SATCOM), and associated avionics components and wiring. Communications upgrades included a data link to augment/replace voice communications. The navigation capabilities included a fully integrated GPS and an advanced flight management system. The surveillance capabilities included automatic aircraft position reporting (both enroute and oceanic). Prototype aircraft delivery was scheduled for 3QFY03 but due to schedule slips and cost overruns, the prototype delivery was expected to be delayed to 2QFY05. The development program was terminated in April 2004

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) System Engineering	3.878	0.000	0.000	0.000
(U) Program Management	1.936	0.000	0.000	0.000
(U) FAA Certification	0.596	0.000	0.000	0.000
(U) Total Cost	6.410	0.000	0.000	0.000

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
(U) Other APPN	8.320	6.455								14.775
PE#401219F / KC-10 Squadrons, Aircraft Procurement										

(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 was managed at the KC-10 System Program Office at OC-ALC. Development effort was terminated in April 2004.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2005

BUDGET ACTIVITY				PE NUMBER AND TITLE							PROJECT NUMBER AND TITLE				
07 Operational System Development				0401219F KC-10S							4496 KC-10 GATM				
(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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>	
(U) <u>Product Development</u>															
KC10/MD10 Growth Path Study	T&M	Boeing, OK	0.636										0.636		
GATM Sys Eng	SS/CPAF	Boeing, KS	95.518	3.878	Oct-03								99.396		
FAA Certification	SS/CPAF	Boeing, KS	5.688	0.596									6.284		
Subtotal Product Development			101.842	4.474		0.000		0.000		0.000		0.000	106.316	0.000	
Remarks:															
(U) <u>Support</u>															
Support Contractors	T&M	ARINC, other support contractors	0.411										0.411		
AF Mission Support System (AFMSS)	T&M	Hanscom AFB	1.095										1.095		
Subtotal Support			1.506	0.000		0.000		0.000		0.000		0.000	1.506	0.000	
Remarks:															
(U) <u>Test & Evaluation</u>															
Test Planning	T&M	418 Test Squadron AFFTC (Edwards AFB)	0.073										0.073		
EMC/EMI Analysis	T&M	Joint Spectrum Center, OH	0.097										0.097		
Subtotal Test & Evaluation			0.170	0.000		0.000		0.000		0.000		0.000	0.170	0.000	
Remarks:															
(U) <u>Management</u>															
Program Office		OC-ALC	0.138	1.936									2.074		
Subtotal Management			0.138	1.936		0.000		0.000		0.000		0.000	2.074	0.000	
Remarks:															
(U) <u>Boeing</u>															
(U) Total Cost			103.656	6.410		0.000		0.000		0.000		0.000	110.066	0.000	
Remarks:															

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0401219F KC-10S

PROJECT NUMBER AND TITLE

4496 KC-10 GATM

NO SCHEDULE REQUIRED

Exhibit R-4a, RDT&E Schedule Detail	DATE February 2005
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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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Schedule Profile				
(U) Issue Stop Work order	3Q			
(U) Contract Terminated for Convenience	3Q			
There are no GATM RDT&E appropriations in FY05				

Exhibit R-2a, RDT&E Project Justification

DATE
February 2005

BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0401219F KC-10S				PROJECT NUMBER AND TITLE 5195 Aircraft Modernization Program (AMP)		
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
5195 Aircraft Modernization Program (AMP)	0.000	0.000	13.472	38.710	49.999	5.609	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

KC-10 Aircraft Modernization Program (AMP) will provide a fully digital aircraft where all measurements are taken by digital sensors, transmitted to digital equipment to use these readings to operate the aircraft and displays for the aircrew. This will include the capability to display real time information in the cockpit. Communications upgrades include a data link to augment/replace voice communications. Navigation capabilities include a fully integrated GPS and an advanced flight management system. Surveillance capabilities include automatic aircraft position reporting (both enroute and oceanic). KC-10 aircraft modernization is needed. Reliability/maintainability concerns and obsolescence issues include inertial navigation units (INU), central air data computer (CADC), radar, analog autopilot, analog engine instruments, analog flight instruments, analog nav/comm radios, cockpit voice recorder (CVR), and flight data recorder (FDR), fuel system gauges and flight engineer station controls/instruments. KC-10 AMP will automate aircrew tasks to reduce the crew's workload, integrate all products and displays into an efficient package that will allow the KC-10 to be operated by a pilot, co-pilot and boom operator. System controls and displays will be digitized and relocated to provide safe and efficient operation of the KC-10 in its primary air refueling and all secondary missions. An aircrew augmentee and/or flight engineer must be able to be seated in the cockpit to assist in cockpit operations.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Program Management/ System Engineering	0.000	0.000		5.700
(U) Kit Design/Development	0.000	0.000		15.200
(U) Prototype Fabrication	0.000	0.000		11.090
(U) FAA Certification	0.000	0.000	0.500	2.000
(U) Mission Support	0.000	0.000	4.072	4.720
(U) Vulnerability Assessment			5.000	
(U) Military Flight Operations Quality Assurance Program			0.400	
(U) Trng Systems Reqt's Analysis / Bus Case Analysis			0.500	
(U) Wright Labs SIL Development			2.800	
(U) Independent Cost Estimates			0.200	
(U) Total Cost	0.000	0.000	13.472	38.710

Exhibit R-2a, RDT&E Project Justification

DATE

February 2005

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0401219F KC-10S

PROJECT NUMBER AND TITLE

5195 Aircraft Modernization Program (AMP)

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
(U) Other APPN			1.600	2.000	7.503	37.215	46.165	63.742	Continuing	TBD
PE # 40219F / KC-10 Squadrons, Aircraft procurement, AF, BA-5, KC-10 Mods, BP-11, BP-16										

(U) **D. Acquisition Strategy**

Will be competitively awarded, best value contract.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2005

BUDGET ACTIVITY				PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE					
07 Operational System Development				0401219F KC-10S						5195 Aircraft Modernization Program (AMP)					
(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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>	
(U) <u>Product Development</u>															
Kit Design/Development and Prototype Fabrication	TBD	TBD	0.000							26.290	May-07	Continuing	TBD		
FAA Certification								0.500		2.000		Continuing	TBD		
Subtotal Product Development			0.000	0.000		0.000		0.500		28.290		Continuing	TBD	0.000	
Remarks:															
(U) <u>Support</u>															
Mission Support		Wright Patterson AFB, OH						4.072		4.720		Continuing	TBD		
Subtotal Support			0.000	0.000		0.000		4.072		4.720		Continuing	TBD	0.000	
Remarks:															
(U) <u>Test & Evaluation</u>															
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000		Continuing	TBD	0.000	
Remarks:															
(U) <u>Management</u>															
Program Management/System Engineering		Wright Patterson AFB, OH								5.700		Continuing	TBD		
Vulnerability Assessment								5.000	Jan-06			Continuing	TBD		
Military Flight Operations Quality Assurance Program								0.400				Continuing	TBD		
Trng Systems Reqt's Analysis / Bus Case Analysis								0.500				Continuing	TBD		
Wright Labs SIL Development								2.800	Jan-06			Continuing	TBD		
Independent Cost Estimates								0.200				Continuing	TBD		
Subtotal Management			0.000	0.000		0.000		8.900		5.700		Continuing	TBD	0.000	
Remarks:															
(U) Total Cost			0.000	0.000		0.000		13.472		38.710		Continuing	TBD	0.000	

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0401219F KC-10S

PROJECT NUMBER AND TITLE
5195 Aircraft Modernization Program
(AMP)

KC-10S R-4 AMP Schedule Profile

Fiscal Year	FY05				FY06				FY07				FY08				FY09				FY10				FY11				FY12			
	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
Capabilities Development Document					☆																											
Contract Award									☆																							

☆ Major Event or Milestone

Planned Ongoing Activity

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Exhibit R-4a, RDT&E Schedule Detail		DATE February 2005
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0401219F KC-10S	PROJECT NUMBER AND TITLE 5195 Aircraft Modernization Program (AMP)
---	---	--

(U) Schedule Profile	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Capabilities Development Document			2Q	
(U) Contract Award				3Q

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PE NUMBER: 0401221F
 PE TITLE: KC-135 Replacement Tanker

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2005
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0401221F KC-135 Replacement Tanker
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Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	0.000	99.210	301.614	163.900	57.816	28.889	0.000	Continuing	TBD
4927 KC-135 Replacement Tanker	0.000	0.000	99.210	301.614	163.900	57.816	28.889	0.000	Continuing	TBD

FY05 Congressional add of \$100M in Tanker Replacement Transfer Fund. Some of the funds will be requested in FY05; remainder will be used in FY06 and beyond.

(U) A. Mission Description and Budget Item Justification

The KC-135 fleet averages over 44 years. There are 530 KC-135s that are operated by the active duty Air Force, Air National Guard, and Air Force Reserves. The risk of operating a fleet of this age has become unacceptable. This program will begin the replacement of the fleet with the first aircraft being delivered in FY10. This effort will result in a replacement tanker for the KC-135 -- the replacement platform has not been selected, but the program presented is modeled on a commercial derivative tanker . This effort is assigned to Budget Activity 7 because we are pursuing operational systems development.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	0.000	0.000	101.508	216.027
(U) Current PBR/President's Budget	0.000	0.000	99.210	301.614
(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 has been restructured to represent a commercial derivative tanker.				

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development					PE NUMBER AND TITLE 0401221F KC-135 Replacement Tanker			PROJECT NUMBER AND TITLE 4927 KC-135 Replacement Tanker		
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4927 KC-135 Replacement Tanker	0.000	0.000	99.210	301.614	163.900	57.816	28.889	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

FY05 Congressional add of \$100M in Tanker Replacement Transfer Fund. Some of the funds will be requested in FY05; remainder will be used in FY06 and beyond.

(U) A. Mission Description and Budget Item Justification

The KC-135 fleet averages over 44 years. There are 530 KC-135s that are operated by the active duty Air Force, Air National Guard, and Air Force Reserves. The risk of operating a fleet of this age has become unacceptable. This program will begin the replacement of the fleet with the first aircraft being delivered in FY10. This effort will result in a replacement tanker for the KC-135 -- the replacement platform has not been selected, but the program presented is modeled on a commercial derivative tanker. This effort is assigned to Budget Activity 7 because we are pursuing operational systems development.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Non-recurring engineering--USAF unique NRE tanker systems (e.g., military avionics, refueling systems, structures, electrical)	0.000	0.000	96.554	298.249
(U) Test			0.410	1.352
(U) Program office			2.246	2.013
(U) Total Cost	0.000	0.000	99.210	301.614

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
(U) Aircraft Procurement				48.130	1172.062	2061.150	2188.655	3119.100		
(U) MILCON					7.783	125.300	43.800	43.800		
(U) O&M					1.143	5.657	70.935	118.219		

APPN=PE#0401221F/KC-135 Replacement Aircraft

(U) D. Acquisition Strategy

The acquisition strategy is to be determined pending selection of replacement tanker. Notional profile based on a commercial derivative aircraft acquisition.

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Exhibit R-3, RDT&E Project Cost Analysis											DATE February 2005			
BUDGET ACTIVITY 07 Operational System Development					PE NUMBER AND TITLE 0401221F KC-135 Replacement Tanker					PROJECT NUMBER AND TITLE 4927 KC-135 Replacement Tanker				
(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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> NRE	TBD	Aerospace manufacturer TBD		0.000		0.000		96.554	Jun-06	298.249			394.803	
Subtotal Product Development			0.000	0.000		0.000		96.554		298.249		0.000	394.803	0.000
Remarks:	Contract award dates are NOTIONAL until recapitalization program is defined.													
(U) <u>Support</u> Currently n/a														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> Test and Planning	TBD	Proposed AFFTC, AFOTEC, Edwards AFB		0.000		0.000		0.410		1.352			1.762	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.410		1.352		0.000	1.762	0.000
Remarks:														
(U) <u>Management</u> Tanker system modernization squadron (System Program Office)	n/a	ASC/GRR, Wright Patterson AFB		0.000		0.000		2.246		2.013			4.259	
Subtotal Management			0.000	0.000		0.000		2.246		2.013		0.000	4.259	0.000
Remarks:														
(U) Total Cost			0.000	0.000		0.000		99.210		301.614		0.000	400.824	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY
07 Operational System Development

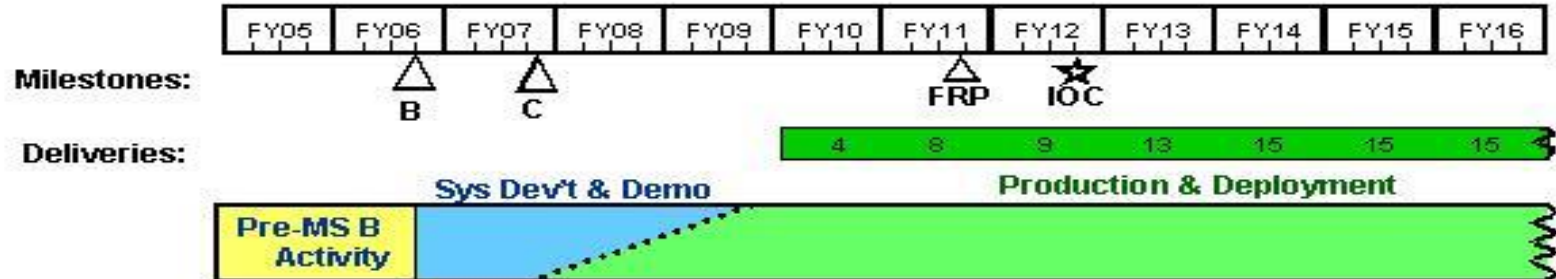
PE NUMBER AND TITLE
0401221F KC-135 Replacement Tanker

PROJECT NUMBER AND TITLE
4927 KC-135 Replacement Tanker



FOR OFFICIAL USE ONLY

Notional Schedule KC-135 Replacement Program



As of:

Integrity - Service - Excellence

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2005
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0401221F KC-135 Replacement Tanker	PROJECT NUMBER AND TITLE 4927 KC-135 Replacement Tanker
---	--	---

<u>(U) Schedule Profile</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Non-recurring engineering			3-4Q	1-4Q
(U) Test			3-4Q	1-4Q
(U) Program office			1-4Q	1-4Q
(U) Milestone B estimate			3Q	
(U) Milestone C estimate				3Q

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PE NUMBER: 0408011F
 PE TITLE: SPECIAL TACTICS/COMBAT CONTROL

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2005
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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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	1.058	2.156	1.019	5.091	5.617	8.196	7.406	Continuing	TBD
5138 ST System Development	0.000	1.058	2.156	1.019	5.091	5.617	8.196	7.406	Continuing	TBD

In FY05, this is a new PE.

(U) A. Mission Description and Budget Item Justification

This program will develop specified technologies that provide Combat Control operators with the capability to see, range, and designate a target at distances from 20 meters out to 10,000 meters, day or night. It also possesses the means to develop highly accurate target grid coordinates in three dimensions and then image a target, both pre and post-strike, and transmit the picture to C2 centers. 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 the aircraft via voice over the radio. Current targeting equipment is limited in range, to line of sight, and information management. 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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	0.000	1.058	2.156	1.019
(U) Current PBR/President's Budget	0.000	1.058	2.156	1.019
(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 0408011F SPECIAL TACTICS/COMBAT CONTROL			PROJECT NUMBER AND TITLE 5138 ST System Development		
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
5138 ST System Development	0.000	1.058	2.156	1.019	5.091	5.617	8.196	7.406	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

This program will develop specified technologies that provide Combat Control operators with the capability to see, range, and designate a target at distances from 20 meters out to 10,000 meters, day or night. It also possesses the means to develop highly accurate target grid coordinates in three dimensions and then image a target, both pre and post-strike, and transmit the picture to C2 centers. 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 the aircraft via voice over the radio. Current targeting equipment is limited in range, to line of sight, and information management. 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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) System and equipment development.		0.858	1.612	0.850
(U) System test and evaluation.		0.200	0.544	0.169
(U) Total Cost	0.000	1.058	2.156	1.019

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

	<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>FY 2010</u>	<u>FY 2011</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>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 2005

BUDGET ACTIVITY				PE NUMBER AND TITLE							PROJECT NUMBER AND TITLE				
07 Operational System Development				0408011F SPECIAL TACTICS/COMBAT CONTROL							5138 ST System Development				
(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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>	
(U) <u>Product Development</u>															
Various	TBD	TBD		0.000		0.858	Aug-05	1.612	Aug-06	0.850	Aug-07	Continuing	TBD	TBD	
Subtotal Product Development			0.000	0.000		0.858		1.612		0.850		Continuing	TBD	TBD	
Remarks:															
(U) <u>Support</u>													0.000	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>															
Various	TBD	TBD		0.000		0.200	Aug-05	0.544	Aug-06	0.169	Aug-07	Continuing	TBD	TBD	
Subtotal Test & Evaluation			0.000	0.000		0.200		0.544		0.169		Continuing	TBD	TBD	
Remarks:															
(U) <u>Management</u>													0.000	0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000	
Remarks:															
(U) Total Cost			0.000	0.000		1.058		2.156		1.019		Continuing	TBD	TBD	
In FY04 the first Spiral for BRITES was previously funded and listed under BPAC 6622, which no longer exists. Funding moved into BPAC 5138.															

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

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 Milestone FY06-FY11																																
	FY04			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				
LITES							X																									
BRITES					X																											
SOFNET							X																									
BATMAN				X																												

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Exhibit R-4a, RDT&E Schedule Detail

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February 2005

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

- (U) LITES & SOFNET contract awards
- (U) LITES IOC
- (U) BRITES First Delivery
- (U) SOFNET First Delivery
- (U) BATMAN First Delivery

FY 2004

FY 2005

FY 2006

FY 2007

4Q

4Q

2Q

4Q

4Q

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PE NUMBER: 0702207F
 PE TITLE: Depot Maintenance (Non-IF)

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2005
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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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	1.337	1.418	1.408	1.450	1.472	1.500	1.530	1.552	Continuing	TBD
3326 Precision Measurement & Calibration	1.337	1.418	1.408	1.450	1.472	1.500	1.530	1.552	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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	1.394	1.431	1.401	1.423
(U) Current PBR/President's Budget	1.337	1.418	1.408	1.450
(U) Total Adjustments	-0.057	-0.013		
(U) Congressional Program Reductions				
Congressional Rescissions		-0.013		
Congressional Increases				
Reprogrammings				
SBIR/STTR Transfer	-0.057			
(U) <u>Significant Program Changes:</u>				
None				

Exhibit R-2a, RDT&E Project Justification

DATE

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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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
3326 Precision Measurement & Calibration	1.337	1.418	1.408	1.450	1.472	1.500	1.530	1.552	Continuing	TBD
Quantity of RDT&E Articles	0	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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Continue development of national measurement standards to support Air Force infrared / laser / electro-optical weapon systems and support equipment.	0.430	0.607	0.620	0.625
(U) Continue development of standards for electrical measurements to support high accuracy electronic test equipment.	0.205	0.384	0.233	0.200
(U) Continue development of standards for radar support, RF communication systems, and radar cross section range measurements.	0.362	0.160	0.200	0.215
(U) Continue the development of improved calibration standards to support physical, mechanical and electro-mechanical support equipment.	0.105	0.180	0.125	0.185
(U) Continue the development of national standards for calibration of ionizing radiation hazard instrumentation.	0.030	0.037	0.055	0.025
(U) Continue development of improved standards and procedures to support chemical/biological measurements	0.090	0.050	0.075	0.100
(U) Continue development of standards and procedures to support analytical metrology applications	0.115	0.000	0.100	0.100

Exhibit R-2a, RDT&E Project Justification

DATE

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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0702207F Depot Maintenance (Non-IF)	PROJECT NUMBER AND TITLE 3326 Precision Measurement & Calibration
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(U) Total Cost	1.337	1.418	1.408	1.450
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(U) **C. Other Program Funding Summary (\$ in Millions)**

	<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>FY 2010</u>	<u>FY 2011</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>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

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BUDGET ACTIVITY				PE NUMBER AND TITLE							PROJECT NUMBER AND TITLE			
07 Operational System Development				0702207F Depot Maintenance (Non-IF)							3326 Precision Measurement & Calibration			
(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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>														
National Institute of Standards & Technology	MIPR (DD FORM 448)			1.092		1.330		1.268		1.325		Continuing	TBD	
Department of Energy	MIPR (DD FORM 448)			0.110		0.063		0.015		0.000		Continuing	TBD	
GSA Contract	In House			0.115		0.000		0.100		0.100		Continuing	TBD	
AFMC				0.020		0.025		0.025		0.025			0.095	
Subtotal Product Development			0.000	1.337		1.418		1.408		1.450		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	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	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			0.000	1.337		1.418		1.408		1.450		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0702207F Depot Maintenance (Non-IF)

PROJECT NUMBER AND TITLE

3326 Precision Measurement & Calibration

Exhibit R-4a, RDT&E Schedule Detail	DATE February 2005
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0702207F Depot Maintenance (Non-IF)	PROJECT NUMBER AND TITLE 3326 Precision Measurement & Calibration
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<p>(U) Schedule Profile</p> <p>(U) A schedule for Depot Maintenance PE is Not Applicable due to the nature of this project.</p>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
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PE NUMBER: 0702239F
 PE TITLE: Avionics Component Improvement Program

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2005
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0702239F Avionics Component Improvement Program
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Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	0.993	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4926 Reengineering and Enabling Technologies	0.000	0.993	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

(U) A. Mission Description and Budget Item Justification

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget				
(U) Current PBR/President's Budget	0.000	0.000		
(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 0702239F Avionics Component Improvement Program			PROJECT NUMBER AND TITLE 4926 Reengineering and Enabling Technologies		
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4926 Reengineering and Enabling Technologies	0.000	0.993	0.000	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	0		

(U) A. Mission Description and Budget Item Justification

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U)				
(U)				
(U)				
(U) Total Cost	0.000	0.000	0.000	0.000

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

	<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>FY 2010</u>	<u>FY 2011</u>	<u>Cost to</u>	<u>Total Cost</u>
(U)	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	

(U) D. Acquisition Strategy

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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				0702239F Avionics Component Improvement Program						4926 Reengineering and Enabling Technologies				
(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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>														
Subtotal Product Development			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
(U) <u>Support</u>														
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) Total Cost			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

**0702239F Avionics Component
Improvement Program**

PROJECT NUMBER AND TITLE

**4926 Reengineering and Enabling
Technologies**

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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

0702239F Avionics Component
Improvement Program

PROJECT NUMBER AND TITLE

4926 Reengineering and Enabling
Technologies

(U) Schedule Profile

FY 2004

FY 2005

FY 2006

FY 2007

(U)

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PE NUMBER: 0708011F
 PE TITLE: Industrial Preparedness

Exhibit R-2, RDT&E Budget Item Justification									DATE February 2005	
BUDGET ACTIVITY 07 Operational System Development					PE NUMBER AND TITLE 0708011F Industrial Preparedness					
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	58.719	56.708	36.934	35.979	39.569	39.379	39.743	39.637	Continuing	TBD
2865 Manufacturing Technology	58.719	56.708	36.934	35.979	39.569	39.379	39.743	39.637	Continuing	TBD

(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/ Reconnaissance (C2ISR) and Space sectors of the industrial base. Note: In FY 2005, Congress added \$19.2 million for Advanced Low Observable Coatings Production Scale-up (\$3.5 million), Technical Insertion Demonstration and Evaluation (TIDE) Program (\$5 million), Nickel Hydride Battery Development (\$1.3 million), Electronic Industry-Wide Network for Characteristics and Specifications (e-LINCS) Program (\$1million), Advanced Nanomaterials Research (\$1.9 million), Aerial Multi-Axis Platform (\$1 million), Affordable Multi-Junction Solar Cells (\$1.5 million), Laser Peening for F-119 Engines (\$1 million), Rapid Manufacturing Using Computers and Lasers (\$1 million), Supply Chain Optimization Universal Tool Kit (\$1 million), and WR-ALC Maintenance Operations Support (MOS) Simulation Model (\$1 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

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0708011F Industrial Preparedness

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	57.007	38.012	38.782	38.237
(U) Current PBR/President's Budget	58.719	56.708	36.934	35.979
(U) Total Adjustments	1.712	18.696		
(U) Congressional Program Reductions				
Congressional Rescissions		-0.504		
Congressional Increases		19.200		
Reprogrammings	3.061			
SBIR/STTR Transfer	-1.349			
(U) <u>Significant Program Changes:</u>				
Not Applicable.				

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		
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
2865 Manufacturing Technology	58.719	56.708	36.934	35.979	39.569	39.379	39.743	39.637	Continuing	TBD
Quantity of RDT&E Articles	0	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/ Reconnaissance (C2ISR) and Space sectors of the industrial base. Note: In FY 2005, Congress added \$19.2 million for Advanced Low Observable Coatings Production Scale-up (\$3.5 million), Technical Insertion Demonstration and Evaluation (TIDE) Program (\$5 million), Nickel Hydride Battery Development (\$1.3 million), Electronic Industry-Wide Network for Characteristics and Specifications (e-LINCS) Program (\$1million), Advanced Nanomaterials Research (\$1.9 million), Aerial Multi-Axis Platform (\$1 million), Affordable Multi-Junction Solar Cells (\$1.5 million), Laser Peening for F-119 Engines (\$1 million), Rapid Manufacturing Using Computers and Lasers (\$1 million), Supply Chain Optimization Universal Tool Kit (\$1 million), and WR-ALC Maintenance Operations Support (MOS) Simulation Model (\$1 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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) MAJOR THRUST: Manufacturing of Aeronautical Survivability and Modernization. Pursue affordable and efficient manufacturing investigations for critical, high quality, reliable structural, propulsion, stealth, and electronic components and assemblies required for existing and next generation aircraft.	16.087	13.760	3.664	2.020
(U) In FY 2004: Completed manufacturability efforts of laser components for the Affordable Missile Warning Sensor for large aircraft. Continued high value pilot efforts to verify advantages of flexible manufacturing, commercial/military integration, quality processing, and supplier improvements (e.g., Composites Affordability Initiative). Investigated and developed manufacturing capabilities for more affordable low-observable structures. Continued effort to reduce high-cycle fatigue damping in engine components. Continued rapid response productivity improvement efforts with selected high value programs.				
(U) In FY 2005: Continue high value efforts to verify advantages of flexible manufacturing,				

Exhibit R-2a, RDT&E Project Justification	DATE February 2005
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0708011F Industrial Preparedness	PROJECT NUMBER AND TITLE 2865 Manufacturing Technology
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commercial/military integration, quality processing, and supplier improvements. Continue development of manufacturing capabilities for more affordable low-observable structures. Continue rapid response productivity improvement efforts with selected high value programs.

(U) In FY 2006: Continue high value efforts to verify advantages of flexible manufacturing, commercial/military integration, quality processing, and supplier improvements. Continue development of manufacturing capabilities for more affordable low-observable structures. Begin affordability/producibility improvements for radio frequency/infrared/directed energy countermeasures systems. Continue rapid response productivity improvement efforts with selected high value programs.

(U) In FY 2007: Continue high value efforts to verify advantages of flexible manufacturing, commercial/military integration, quality processing, and supplier improvements. Continue development of manufacturing capabilities for more affordable low-observable structures. Continue affordability/producibility improvements for radio frequency/infrared/directed energy countermeasures systems. Continue rapid response productivity improvement efforts with selected high value programs.

(U)

(U) MAJOR THRUST: Manufacturing for Sustainment/Readiness. Pursue cost-effective repair and manufacturing technologies for affordable sustainment components.	8.453	9.527	5.251	6.061
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(U) In FY 2004: Pursued cost-effective repair and manufacturing technologies for affordable sustainment of aircraft and turbine engine components. Completed pilot efforts to demonstrate benefits from inserting electronic parts obsolescence management tools into weapon system production programs. Maintained multi-year Engine Rotor Life Extension (ERLE) technical effort to extend the life of critical, high value rotating engine components, which have been exposed to high-cycle fatigue environments -- continued ERLE spiral I effort. Continued 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 multi-year ERLE technical effort to extend the life of critical, high value rotating engine components, which have been exposed to high-cycle fatigue environments. Complete ERLE spiral I effort to reduce high-cycle fatigue damping in engine components. Initiate ERLE spiral II technical effort to extend the life of critical, high value rotating engine components, which have been exposed to high-cycle fatigue environments. Continue rapid response productivity improvement efforts with selected high-value programs.

(U) In FY 2006: Continue cost-effective repair and manufacturing technologies for affordable sustainment of aircraft and turbine engine components. Continue ERLE spiral II technical effort to extend the life of critical, high value rotating engine components, which have been exposed to high-cycle fatigue environments. Continue rapid response productivity improvement efforts with selected high value programs.

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Exhibit R-2a, RDT&E Project Justification		DATE February 2005			
BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0708011F Industrial Preparedness	PROJECT NUMBER AND TITLE 2865 Manufacturing Technology			
(U) In FY 2007: Continue cost-effective repair and manufacturing technologies for affordable sustainment of aircraft and turbine engine components. Continue ERLE spiral II technical effort to extend the life of critical, high value rotating engine components, which have been exposed to high-cycle fatigue environments. 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 components and materials for advanced tactical missiles, aircraft missile sensors, and directed energy systems.	4.735	3.946	5.302	4.444	
(U) In FY 2004: Continued 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. Initiated manufacturing technology efforts supporting producibility/affordability improvements in high priority precision-guided munitions components. Continued rapid response producibility improvement efforts with selected high value programs.					
(U) In FY 2005: Continue to pursue efficient and cost-effective manufacturing methods for high performance and reliable components for advanced tactical missiles and aircraft missile sensors. Complete Inertial Measurement Unit for Micro-Electro-Mechanical Systems effort. Continue efforts supporting producibility/affordability improvements in high priority precision-guided munitions (PGM) components -- complete efforts on Global Positioning System (GPS) anti-spoofing module coating production process improvements. Continue rapid response productivity improvement efforts with selected high-value programs.					
(U) In FY 2006: Continue to pursue efficient and cost-effective manufacturing methods for high performance and reliable components for advanced tactical missiles, aircraft missile sensors, and directed energy systems. Continue efforts supporting producibility/affordability improvements in high priority PGM components. Continue rapid response productivity improvement efforts with selected high value programs.					
(U) In FY 2007: Continue to pursue efficient and cost-effective manufacturing methods for high performance and reliable components for advanced tactical missiles, aircraft missile sensors, and directed energy systems. Continue efforts supporting producibility/affordability improvements in high priority PGM components. Continue rapid response productivity improvement efforts with selected high value programs.					
(U) MAJOR THRUST: Manufacturing of Command, Control, Intelligence, Surveillance and Reconnaissance (C2ISR) Electronics and Space. Address critical manufacturing issues for various C2ISR and space	10.153	10.444	22.717	23.454	
Project 2865	R-1 Shopping List - Item No. 224-6 of 224-14	Exhibit R-2a (PE 0708011F)			

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Exhibit R-2a, RDT&E Project Justification			DATE		
			February 2005		
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE			
07 Operational System Development	0708011F Industrial Preparedness	2865 Manufacturing Technology			
platforms.					
(U) In FY 2004: Continued efforts to address critical electronics manufacturing technologies for various C2ISR platforms. Focused efforts on components such as electronically scanned arrays to improve producibility, reliability, and affordability. Continued rapid response producibility improvement efforts with selected high value programs.					
(U) In FY 2005: Continue efforts to address critical electronics manufacturing technologies for various C2ISR systems in order to improve affordability and producibility. Continue major multi-year and cross-sector effort on Active Electronically Scanned Arrays (AESAs) components to enable improved manufacturing processes, reduce integration and test, and reduce production costs for all users of AESA systems. Continue rapid response productivity improvement efforts with selected high value programs.					
(U) In FY 2006: Continue efforts to address critical manufacturing technologies for various C2ISR and space systems in order to improve affordability and producibility. Continue effort on AESA to enable improved manufacturing processes, reduced integration and test, and reduce production costs for armament, aeronautical, C2ISR, and space users of AESA systems. Begin efforts related to affordability/producibility improvements for datalinks components. Investigate affordability and producibility of key space system components through improved manufacturing processes, technology transition, and/or supplier base improvements. Continue rapid response productivity improvement efforts with selected high value programs.					
(U) In FY 2007: Continue efforts to address critical electronics manufacturing technologies for various C2ISR and space systems in order to improve affordability and producibility. Continue effort on AESA to enable improved manufacturing processes, reduce integration and test, and reduce production costs for armament, aeronautical, C2ISR, and space users of AESA systems. Continue efforts related to affordability/producibility improvements for datalinks components. Investigate affordability and producibility of key space system components through improved manufacturing processes, technology transition, and/or supplier base improvements. Continue rapid response productivity improvement efforts with selected high value programs.					
(U)	CONGRESSIONAL ADD: Applied Research and Technology in Transition.	9.509	0.000	0.000	0.000
(U) In FY 2004: Developed tasks associated with Applied Research and Technology in Transition. Began to develop a Center for Aerospace Manufacturing Technology at the University of Missouri - Rolla dedicated to research on advanced aerospace manufacturing.					
(U) In FY 2005: Not Applicable.					
(U) In FY 2006: Not Applicable.					
(U) In FY 2007: Not Applicable.					
(U)					

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Exhibit R-2a, RDT&E Project Justification			DATE February 2005	
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE		
07 Operational System Development	0708011F Industrial Preparedness	2865 Manufacturing Technology		
(U) CONGRESSIONAL ADD: Advanced Low Observable Coatings Production Scale-up. (U) In FY 2004: Produced coatings via improved manufacturing process and began system level demonstration, test, and evaluation. (U) In FY 2005: Continue tasks to increase production rates and reduce low observable coating cost. (U) In FY 2006: Not Applicable. (U) In FY 2007: Not Applicable. (U)	2.717	3.470	0.000	0.000
(U) CONGRESSIONAL ADD: Technical Insertion Demonstration and Evaluation (TIDE) Program. (U) In FY 2004: Developed Government program management guidelines and defined optimal collaboration processes/tools, and deployed commercial collaboration processes/tools into the weapons supply chain to accelerate production. (U) In FY 2005: Study current state of Original Equipment Managers (OEM) - Subject Matter Experts collaboration and develop capabilities for improvement. Develop a supply chain assessment tool for Government and OEM program managers. Continue to deploy commercial collaboration processes/tools into the weapons supply chain to accelerate production. (U) In FY 2006: Not Applicable. (U) In FY 2007: Not Applicable. (U)	2.426	4.956	0.000	0.000
(U) CONGRESSIONAL ADD: Nickel Hydride Battery. (U) In FY 2004: Continued test and evaluation. Designed and implemented additional production scale-up efficiencies and automation. (U) In FY 2005: Continue test and evaluation. Continued additional production scale-up efficiencies and automation. (U) In FY 2006: Not Applicable. (U) In FY 2007: Not Applicable. (U)	1.941	1.288	0.000	0.000
(U) CONGRESSIONAL ADD: Electronic Industry-Wide Network for Characteristics and Specifications (e-LINCS). (U) In FY 2004: Completed Needs Analysis Report, developed system infrastructure, e-LINCS website launched, and initiated regional pilot planning. (U) In FY 2005: Continued refinement of infrastructure, pilot program kick-off, initiation of sub-task training and conducting of Advisory Board Meetings. (U) In FY 2006: Not Applicable. (U) In FY 2007: Not Applicable. (U)	0.971	0.992	0.000	0.000

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Exhibit R-2a, RDT&E Project Justification			DATE February 2005	
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE		
07 Operational System Development	0708011F Industrial Preparedness	2865 Manufacturing Technology		
(U) CONGRESSIONAL ADD: Advanced Nanomaterials Research.	1.727	1.883	0.000	0.000
(U) In FY 2004: Initiated investigation of funtionalization methods for pilot plant scale up for production of high quality single walled nanotubes and metalized nanomaterials.				
(U) In FY 2005: Down select and validate, synthesis, purification and funtionalization methods for pilot plant scale up for production of high quality single walled nanotubes and metalized nanomaterials.				
(U) In FY 2006: Not Applicable.				
(U) In FY 2007: Not Applicable.				
(U)				
(U) CONGRESSIONAL ADD: Aerial Multi-Axis Platform.	0.000	0.991	0.000	0.000
(U) In FY 2004: Not Applicable.				
(U) In FY 2005: Pursue reducing de-paint flow time by implementing Aerial Multi-Axis Platform in new and existing facilities.				
(U) In FY 2006: Not Applicable.				
(U) In FY 2007: Not Applicable.				
(U)				
(U) CONGRESSIONAL ADD: Affordable Multi-Junction Solar Cells.	0.000	1.486	0.000	0.000
(U) In FY 2004: Not Applicable.				
(U) In FY 2005: Investigating and developing lean, domestic sources of high purity Germanium (Ge) wafers required in manufacturing Multi-Junction Solar Cells.				
(U) In FY 2006: Not Applicable.				
(U) In FY 2007: Not Applicable.				
(U)				
(U) CONGRESSIONAL ADD: Laser Peening for F119 Engines.	0.000	0.992	0.000	0.000
(U) In FY 2004: Not Applicable.				
(U) In FY 2005: Increase damage tolerance of integrally bladed rotors.				
(U) In FY 2006: Not Applicable.				
(U) In FY 2007: Not Applicable.				
(U)				
(U) CONGRESSIONAL ADD: Rapid Manufacturing Using Computers and Lasers.	0.000	0.991	0.000	0.000
(U) In FY 2004: Not Applicable.				
(U) In FY 2005: Develop rapid manufacturing capabilities by reducing the cost and time of manufacturing through the use of innovative and novel processes.				
(U) In FY 2006: Not Applicable.				
(U) In FY 2007: Not Applicable.				
(U)				

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Exhibit R-2a, RDT&E Project Justification	DATE February 2005
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0708011F Industrial Preparedness	PROJECT NUMBER AND TITLE 2865 Manufacturing Technology
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(U) CONGRESSIONAL ADD: Supply Chain Optimization Universal Tool Kit (SCOUT).	0.000	0.991	0.000	0.000
(U) In FY 2004: Not Applicable.				
(U) In FY 2005: Utilize radio frequency identification technology, lean six sigma practices, and information technology to effect improvements in DoD value chain.				
(U) In FY 2006: Not Applicable.				
(U) In FY 2007: Not Applicable.				
(U)				
(U) CONGRESSIONAL ADD: WR-ALC Maintenance Operations Support (MOS) Simulation Model.	0.000	0.991	0.000	0.000
(U) In FY 2004: Not Applicable.				
(U) In FY 2005: Develop tasks associated with WR-ALC Maintenance Operations Support (MOS) Simulation Model.				
(U) In FY 2006: Not Applicable.				
(U) In FY 2007: Not Applicable.				
(U)				
(U) Total Cost	58.719	56.708	36.934	35.979

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E										
(U) Other APPN										
Not Applicable.										

(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

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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0708011F Industrial Preparedness	PROJECT NUMBER AND TITLE 2865 Manufacturing Technology
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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>2004</u> <u>Cost</u>	<u>FY 2004</u> <u>Cost</u>	<u>FY 2004</u> <u>Award</u> <u>Date</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</u>	<u>FY 2006</u> <u>Cost</u>	<u>FY 2006</u> <u>Award</u> <u>Date</u>	<u>FY 2007</u> <u>Cost</u>	<u>FY 2007</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
(U) <u>Product Development</u>														
Advanced Technology Inst	Coop		0.825									0.000	0.825	
	Agmt													
Aerojet-General Corp	Coop		2.150									0.000	2.150	
	Agmt													
Anteon	Various		7.652	1.400		1.883						0.000	10.935	
AT&T Government Solutions	Cost Plus		0.300									0.000	0.300	
Boeing	Various		26.850	1.344		1.738						0.000	29.932	
Central State University	Cost Share		0.400									0.000	0.400	
CMC	Various		0.600			0.400							1.000	
Doyle Center for MTech, PA	Various		1.500	2.500		4.956							8.956	
Electro Energy Inc	Various		0.855	2.000		1.288							4.143	
Frontier Technologies	Cost Plus		0.557									0.000	0.557	
GE	Coop		0.898	0.200								0.000	1.098	
	Agmt													
General Atomics	Various		7.600	2.800		3.470							13.870	
GRC	Cost Plus		2.470	1.000								0.000	3.470	
Honeywell	Various		4.190	0.630		0.338						0.000	5.158	
Indigo	Various					0.475							0.475	
Infoscribe	Various		1.030	0.445		0.223							1.698	
Kaman-Dayron	Various		0.742	0.100		0.200							1.042	
KBSI	Cost Share		3.350									0.000	3.350	
Lockheed Martin	Various		16.245	1.461		0.584						0.000	18.290	
LSP Technologies	Cost Share		8.834			0.992						0.000	9.826	
Mississippi State University	Cost Share		0.250									0.000	0.250	
MIT	Coop		10.456	2.290		2.000						0.000	14.746	
	Agmt													
Motorola	Tech Int		1.939									0.000	1.939	
	Agr													
Northrop Grumman	Various		29.929	4.973		3.392						0.000	38.294	
Pratt & Whitney	Tech Int		5.950	0.577								0.000	6.527	
	Agr													
Raytheon	Coop		1.100	0.304		1.908						0.000	3.312	
	Agmt													
Surmet	Various					0.550							0.550	
TMCI	Cost Plus		1.635									0.000	1.635	
TRW	Coop		4.615									0.000	4.615	
	Agmt													
Univ Dayton Res Inst	Cost Plus		8.304	4.996		4.108						0.000	17.408	
Univ Maryland	Coop		2.550	9.800								0.000	12.350	

Project 2865

R-1 Shopping List - Item No. 224-11 of 224-14

Exhibit R-3 (PE 0708011F)

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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				0708011F Industrial Preparedness				2865 Manufacturing Technology			
US Technology	Agmt	0.760		1.000						1.760	
UTC	Various	0.830	0.352						0.000	1.182	
Various	Various	91.514	21.547	27.203	36.934	Sep-06	35.979	Sep-07	Continuing	TBD	
Subtotal Product Development		246.880	58.719	56.708	36.934		35.979		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)											
Subtotal		0.000	0.000	0.000	0.000		0.000		0.000	0.000	0.000
Remarks:											
(U) Total Cost		246.880	58.719	56.708	36.934		35.979		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

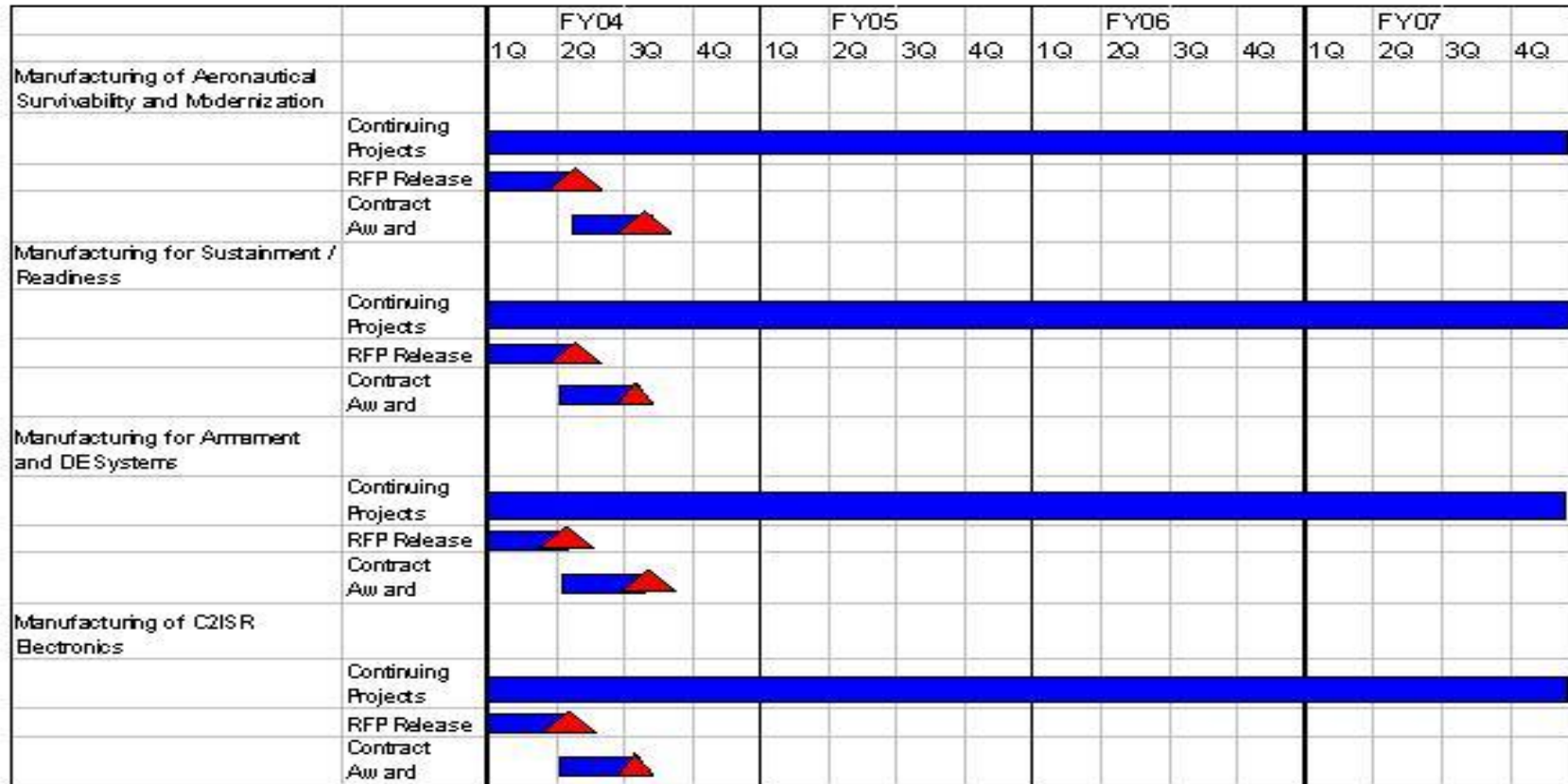
February 2005

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0708011F Industrial Preparedness

PROJECT NUMBER AND TITLE
2865 Manufacturing Technology

ManTech Schedule Summary



UNCLASSIFIED

Exhibit R-4a, RDT&E Schedule Detail	DATE February 2005
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0708011F Industrial Preparedness	PROJECT NUMBER AND TITLE 2865 Manufacturing Technology
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	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) <u>Schedule Profile</u>				
(U) Manufacturing Technology for Aeronautical Survivability and Modernization.	1-4Q	1-4Q	1-4Q	1-4Q
(U) Request for Proposal Release	2Q	2Q	2Q	2Q
(U) Contract Awards	3Q	3Q	3Q	3Q
(U) Manufacturing Technology for Sustainment / Readiness	1-4Q	1-4Q	1-4Q	1-4Q
(U) Request for Proposal Release	1Q	1Q	1Q	1Q
(U) Contract Awards	2Q	2Q	2Q	2Q
(U) Manufacturing for Armament and Directed Energy Systems.	1-4Q	1-4Q	1-4Q	1-4Q
(U) Request for Proposal Release	1Q	1Q	1Q	1Q
(U) Contract Awards	2Q	2Q	2Q	2Q
(U) Manufacturing for command, control, intelligence, surveillance, and reconnaissance (C2ISR) electronics	1-4Q	1-4Q	1-4Q	1-4Q
(U) Request for Proposal Release	1Q	1Q	1Q	1Q
(U) Contract Awards	2Q	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 2005
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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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	1.340	0.991	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5054 CAM Modernization	1.340	0.991	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

(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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	1.381	0.000	0.000	0.000
(U) Current PBR/President's Budget	1.340	0.991	0.000	0.000
(U) Total Adjustments	-0.041	0.991		
(U) Congressional Program Reductions				
Congressional Rescissions			-0.009	
Congressional Increases			1.000	
Reprogrammings				
SBIR/STTR Transfer	-0.041			

(U) Significant Program Changes:

The funding shown in FY 2004 is a Congressional Add for Reliability and Maintainability Information System (REMIS), not CAMS. CAMS Modernization was completed in FY 2003. REMIS provides a single, primary Air Force data system for collecting and processing equipment maintenance data which is used to provide information on reliability and maintainability, trend analysis, failure prediction and weapon system availability. REMIS funds are being used to support the migration/modernization of REMIS to Gobar Combat Support System - Air Force.

In FY 2005, Congress added an additional \$1.0 Million RDT&E funds to Logistic Support Activities for REMIS.

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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
5054 CAM Modernization	1.340	0.991	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	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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Accomplishments/Planned Program				
(U) CAMS Modernization	0.000	0.000	0.000	0.000
(U) Support Contractors (MCR, SenCom)	0.000	0.000	0.000	0.000
(U) System Program Office (SPO) Operations	0.000	0.000	0.000	0.000
(U) REMIS GCSS-AF migration/Modernization	1.340	0.991	0.000	0.000
(U) Total Cost	1.340	0.991	0.000	0.000

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

	<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>FY 2010</u>	<u>FY 2011</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>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 2005

BUDGET ACTIVITY										PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
07 Operational System Development										0708012F Logistic Support Activities					5054 CAM 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 Prior to FY 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>					
(U) <u>Product Development</u> CAMS Modernization													0.000						
- Software Development	MIPR	Engineering & Software Technology Solutions, Standard Systems Group, Maxwell AFB-Gunter Annex, AL	3.278	0.000		0.000		0.000		0.000		0.000	3.278	3.278					
- Software Development	C & CPAF	Information Technology Services (ITS), Maxwell AFB-Gunter Annex, AL	4.591	0.000		0.000		0.000		0.000		0.000	4.591	4.591					
REMISS - GCSS-AF Migration/Modernization	C & CPAF	Northrop Grumman Information Technology, Wright Patterson AFB, OH	0.000	1.340	Feb-05	0.991	Apr-05	0.000		0.000		Continuing	TBD	TBD					
Subtotal Product Development			7.869	1.340		0.991		0.000		0.000		Continuing	TBD	TBD					
Remarks:																			
(U) <u>Support</u> Support Contractors	C & FP	Maxwell AFB-Gunter Annex, AL	0.312	0.000		0.000		0.000		0.000		0.000	0.312	0.312					
Subtotal Support			0.312	0.000		0.000		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	0.432	0.000		0.000		0.000		0.000		0.000	0.432	0.432					
Subtotal Management			0.432	0.000		0.000		0.000		0.000		0.000	0.432	0.432					
Project 5054																			

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Exhibit R-3 (PE 0708012F)

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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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Remarks:										
(U)										
Subtotal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Remarks:										
(U) Total Cost	8.613	1.340	0.991	0.000	0.000	0.000	Continuing	TBD	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0708012F Logistic Support Activities

PROJECT NUMBER AND TITLE
5054 CAM Modernization

Exhibit R-4: REMIS Schedule Profile

7 Jan 05

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 Software (7R1) Development (Unisys CDE). Transferred to PEC/EPAC 78611F/674654																																
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

DATE

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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**

(U) Complete CAMS 7R1Unisys Centralized Database Software Development

(U) Start REMIS GCSS-AF Migration/Modernization

(U) REMIS GCSS-AF Migration/Modernization

FY 2004

1Q

FY 2005

2Q

2-4Q

FY 2006

1-3Q

FY 2007

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PE NUMBER: 0708026F

PE TITLE: Productivity, Reliability, Availability, Maintainability Program

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2005
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0708026F Productivity, Reliability, Availability, Maintainability Program
--	--

Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	8.675	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
2146 PRAM	8.675	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

Note: Program was terminated in FY 2004 due to higher Air Force priorities. However, Congress added funds for special interest projects in FY 2004.

(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. This program is in Budget Activity 7, Operational System Development since it provides support to systems in operational use.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	8.924	0.000	0.000	0.000
(U) Current PBR/President's Budget	8.675	0.000	0.000	0.000
(U) Total Adjustments	-0.249	0.000		
(U) Congressional Program Reductions				
Congressional Rescissions				
Congressional Increases				
Reprogrammings				
SBIR/STTR Transfer	-0.249			

(U) Significant Program Changes:

Program was terminated in FY 2004 due to higher Air Force priorities. However, Congress added funds for special interest projects in FY 2004.

C. Performance Metrics

Under Development.

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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
2146 PRAM	8.675	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	0		

Note: Program was unfunded in FY 2004 due to higher Air Force priorities. However, Congress added funds for special interest projects in FY 2004.

(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. This program is in Budget Activity 7, Operational System Development since it provides support to systems in operational use.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) CONGRESSIONAL ADD: Turbine Engine Sustainment Initiative.	3.373	0.000	0.000	0.000
(U) In FY 2004: Continued efforts 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) In FY 2006: Not Applicable.				
(U) In FY 2007: Not Applicable.				
(U) CONGRESSIONAL ADD: Lean Depot Engine Repair (LEADER).	4.338	0.000	0.000	0.000
(U) In FY 2004: Continued efforts to install lean production cells to reduce man-hours and increase production throughput on turbine engines.				
(U) In FY 2005: Not Applicable.				
(U) In FY 2006: Not Applicable.				
(U) In FY 2007: Not Applicable.				
(U) CONGRESSIONAL ADD: Inspection Technology for Turbine Engines.	0.964	0.000	0.000	0.000
(U) In FY 2004: Continued efforts 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) In FY 2006: Not Applicable.				
(U) In FY 2007: Not Applicable.				
(U) Total Cost	8.675	0.000	0.000	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

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	

(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				PE NUMBER AND TITLE							PROJECT NUMBER AND TITLE			
07 Operational System Development				0708026F Productivity, Reliability, Availability, Maintainability Program							2146 PRAM			
(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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>														
Numerous	Various											0.000	0.000	
General Atomics	Various											0.000	0.000	
Lockheed Martin	Various											0.000	0.000	
ARINC	T&M											0.000	0.000	
Battelle	T&M											0.000	0.000	
Lockheed Sanders	T&M											0.000	0.000	
Southwest Research	T&M											0.000	0.000	
CACI	T&M											0.000	0.000	
NCI Information Systems	T&M											0.000	0.000	
General Dynamics	TBD											0.000	0.000	
UDRI	CPFF			3.925									3.925	
TBD	T&M			3.947									3.947	
Numerous	Various			0.803									0.803	
None													0.000	
Subtotal Product Development			0.000	8.675		0.000		0.000		0.000		0.000	8.675	0.000
Remarks:														
(U) <u>Support</u>														
None														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>														
None														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>														
Subtotal Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
(U) Total Cost			0.000	8.675		0.000		0.000		0.000		0.000	8.675	0.000

Exhibit R-4, RDT&E Schedule Profile

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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

PRAM Schedule

		FY 04				FY 05				FY 06				FY 07			
		1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Turb Eng Sustain																	
	Cont Proj	_____															
	RFP	_____▲															
	Contract	_____▲															
Lean Depot Eng Repair																	
	Cont Proj	_____															
	RFP	_____▲															
	Contract	_____▲															
Insp ec Tech Turbine Eng																	
	Cont Proj	_____															
	RFP	_____▲															
	Contract	_____▲															

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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) Schedule Profile

- (U) Turbine Engine Sustainment
- (U) Request for Proposal Release
- (U) Contract Award
- (U) Lean Depot Engine Repair
- (U) Request for Proposal Release
- (U) Contract Award
- (U) Inspection Technology for Turbine Engines
- (U) Request for Proposal Release
- (U) Contract Award

FY 2004

FY 2005

FY 2006

FY 2007

1-4Q

1-2Q

3-4Q

1-4Q

1-2Q

3-4Q

1-4Q

1-2Q

3-4Q

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PE NUMBER: 0708610F

PE TITLE: Logistics Information Technology (LOGIT)

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2005
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0708610F Logistics Information Technology (LOGIT)
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Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	0.000	44.503	45.726	46.409	46.841	46.587	47.181	0.000	0.000
5208 Expeditionary Combat Support System (ECSS)	0.000	0.000	44.503	45.726	46.409	46.841	46.587	47.181	0.000	0.000

Project 5208, Expeditionary Combat Support System (ECSS), efforts were transferred from PE0708611F, Support Systems Development, Project 4654, Integrated Maintenance Data System and Project 5044, Log Application Integrated Logistics System - Supply, in order to support the Enterprise Resource Planning (ERP) technical solution (named ECSS) and provide enhanced visibility and management oversight.

(U) **A. Mission Description and Budget Item Justification**
 EXPEDITIONARY COMBAT SUPPORT SYSTEM (ECSS): ECSS is the Commercial-Off-the-Shelf (COTS) based system that will enable the Expeditionary Logistics 21st Century (eLog21) future logistics vision. ECSS will leverage an Enterprise Resource Planning (ERP) COTS solution as its primary system. ECSS is a component of the larger eLog21 systems architecture and consists of modules that will integrate financials, order management, purchasing, inventory management, distribution, and other business functions of the Air Force onto one platform. ECSS will enable coordination of the systems and process changes necessary to streamline and improve the Air Force logistics supply chain. ECSS will replace over 500 legacy Air Force information technology systems with a COTS information technology suite. This suite consists of over ten integrated modules with software/hardware and embedded/updatable best business practices, as well as capabilities in product support and engineering; supply chain management; expeditionary logistics C2; and maintenance, repair, and overhaul. Advance Planning and Scheduling (APS) are COTS unique components that are not identified in most ERP solution sets but are a major DoD functionality.

This program is in Budget Activity 7, Operational System Development because the program modernizes Automated Information Systems (AIS).

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	0.000	0.000	0.000	0.000
(U) Current PBR/President's Budget	0.000	0.000	44.503	45.726
(U) Total Adjustments	0.000	0.000		
(U) Congressional Program Reductions				
Congressional Rescissions				
Congressional Increases				
Reprogrammings				
SBIR/STTR Transfer				

(U) **Significant Program Changes:**
 Funding in FY 2006 to FY2011 moved from PE 0708611F to PE 0708610F, a new PE, to provide improved visibility and management oversight of ERP solution.

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0708610F Logistics Information Technology (LOGIT)				PROJECT NUMBER AND TITLE 5208 Expeditionary Combat Support System (ECSS)			
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total	
5208 Expeditionary Combat Support System (ECSS)	0.000	0.000	44.503	45.726	46.409	46.841	46.587	47.181	0.000	0.000	
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0			

In FY 2006, Project 5208, Expeditionary Combat Support System (ECSS), efforts were transferred from PE0708611F, Support Systems Development, Project 4654, Integrated Maintenance Data System and Project 5044, Log Application Integrated Logistics System - Supply, in order to support the Enterprise Resource Planning (ERP) technical solution (named ECSS) and provide enhanced visibility and management oversight.

(U) A. Mission Description and Budget Item Justification

EXPEDITIONARY COMBAT SUPPORT SYSTEM (ECSS): ECSS is the Commercial-Off-the-Shelf (COTS) based system that will enable the Expeditionary Logistics 21st Century (eLog21) future logistics vision. ECSS will leverage an Enterprise Resource Planning (ERP) COTS solution as its primary system. ECSS is a component of the larger eLog21 systems architecture and consists of modules that will integrate financials, order management, purchasing, inventory management, distribution, and other business functions of the Air Force onto one platform. ECSS will enable coordination of the systems and process changes necessary to streamline and improve the Air Force logistics supply chain. ECSS will replace over 500 legacy Air Force information technology systems with a COTS information technology suite. This suite consists of over ten integrated modules with software/hardware and embedded/updatable best business practices, as well as capabilities in product support and engineering; supply chain management; expeditionary logistics C2; and maintenance, repair, and overhaul. Advance Planning and Scheduling (APS) are COTS unique components that are not identified in most ERP solution sets but are a major DoD functionality.

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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) ERP System Integration	0.000	0.000	37.803	39.026
(U) APS Integration	0.000	0.000	6.700	6.700
(U) Total Cost	0.000	0.000	44.503	45.726

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
(U) Other Procurement AF, ECSS (PE 0708610F)	0.000	0.000	2.535	2.607	2.666	2.731	2.793	2.833	Continuing	TBD
(U) Operations & Maintenance AF, ECSS (PE 0708610F)	0.000	0.000	35.100	100.500	149.300	159.200	73.200	44.651	Continuing	TBD

(U) D. Acquisition Strategy

Contract will be awarded as FAR Part 8 order against GSA schedule and/or Enterprise Software Agreement (ESA) and the Blanket Purchase Agreement (BPA) under the

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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

0708610F Logistics Information
Technology (LOGIT)

PROJECT NUMBER AND TITLE

5208 Expeditionary Combat Support
System (ECSS)

Enterprise Software Initiative (ESI).

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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 0708610F Logistics Information Technology (LOGIT)	PROJECT NUMBER AND TITLE 5208 Expeditionary Combat Support System (ECSS)
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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 2004</u> <u>Cost</u>	<u>FY 2004</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2007</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</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>Date</u>		<u>Date</u>		<u>Date</u>		<u>Date</u>			
(U) <u>Product Development</u>														
ERP System Integration	C/FFP	AFMC/MSG	0.000	0.000		0.000		37.803	Oct-05	39.026	Oct-06	Continuing	TBD	TBD
APS Integration	C/FFP	AFMC/MSG	0.000	0.000		0.000		6.700	Oct-05	6.700	Oct-06	Continuing	TBD	TBD
Subtotal Product Development			0.000	0.000		0.000		44.503		45.726		Continuing	TBD	TBD
Remarks:														
(U) Total Cost			0.000	0.000		0.000		44.503		45.726		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0708610F Logistics Information
Technology (LOGIT)

PROJECT NUMBER AND TITLE
5208 Expeditionary Combat Support
System (ECSS)



U.S. AIR FORCE

ECSS SCHEDULE

Fiscal Year	FY 06				FY 07			
	1	2	3	4	1	2	3	4
ERP System Integration								
Planning / Blueprinting	△							
APS Pathfinder								

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

Integrity - Service - Excellence

Exhibit R-4a, RDT&E Schedule Detail

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0708610F Logistics Information
Technology (LOGIT)

PROJECT NUMBER AND TITLE

5208 Expeditionary Combat Support
System (ECSS)

(U) Schedule Profile

FY 2004

FY 2005

FY 2006

FY 2007

(U) ERP System Integration

1-4Q

1-4Q

(U) APS Integration

1-4Q

1-4Q

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PE NUMBER: 0708611F
 PE TITLE: Support Systems Development

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2005
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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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	72.047	68.065	10.316	10.551	10.794	10.969	11.197	11.386	Continuing	TBD
3318 Product Data Systems Modernization (PDSM)	7.696	5.208	3.351	3.321	3.422	3.478	3.573	3.625	Continuing	TBD
4654 Integrated Maintenance Data System (IMDS)	41.478	38.932	0.032	0.000	0.000	0.000	0.049	0.022	Continuing	TBD
4926 Reengineering and Enabling Technologies	6.105	3.970	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5042 Log Application Logistics Integration (LALI)	6.725	7.054	6.933	7.209	7.341	7.457	7.575	7.722	Continuing	TBD
5044 Log Application ILS-S (LAILS-S)	10.043	12.901	0.000	0.021	0.031	0.034	0.000	0.017	Continuing	TBD

In FY 2006, Project 4654, Integrated Maintenance Data System and Project 5044, Log Application Integrated Logistics System - Supply efforts were transferred to PE 0708610F, Logistics Information Technology, Project 5208, Expeditionary Combat Support System (ECSS), in order to support the Enterprise Resource Planning (ERP) technical solution (named ECSS) and provide enhanced visibility and management oversight. The small amount of funds remaining for projects 4654 (FY 2006, 2010, and 2011) and 5044 (FY 2007, 2008, 2009 and 2011) is due to a database error and will be corrected during the FY 2007 budget cycle.

(U) A. Mission Description and Budget Item Justification

This program element supports five separate programs. PDSM (project 3318) upgrades 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. JCALS will be replaced 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)

Because of DoD and Air Force Transformation Policy and Direction, Air Force has moved current functional stovepipe legacy system development to an Enterprise Resource Planning (ERP) technical solution that achieves horizontal integration across functional domains. IMDS, LALI, and LAILS-S funding will support this ERP solution.

This program is a Budget Activity 7, Operational System Development, because projects are being engineered to support already operational weapon systems.

Exhibit R-2, RDT&E Budget Item Justification

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0708611F Support Systems Development

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	72.843	50.238	48.647	49.419
(U) Current PBR/President's Budget	72.047	68.065	10.316	10.551
(U) Total Adjustments	-0.796	17.827		
(U) Congressional Program Reductions				
Congressional Rescissions		-0.873		
Congressional Increases		19.700		
Reprogrammings	1.383	-1.000		
SBIR/STTR Transfer	-2.179			

(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.

In FY 2005, Congress added \$19.7 Million RDT&E funds to SSD for new activities not related to SSD programmed projects. These included Information Assurance for Reengineering and Enabling Technologies (\$2.0 Million), Air Force Center of Acquisition Reengineering and Enabling Technologies (\$2.0 Million), C-5/C-17 IDE (Aging Aircraft) (\$5.0 Million), Develop Rapid Retargeting Capability at Warner Robins Air Logistics Center Depot (\$1.0 Million), Special Operations Forces Program Directorate (WR-ALC/LU) Integrated Data Environment (IDE) (\$1.0 Million), Center for Aircraft & System/Support Infrastructure (\$1.0 Million), ACC Support Systems Development (\$2.7 Million), Heavy Duty Hybrid Electric (\$2.0 Million), Common Core Power Production Program (\$2.0 Million), and Teleoperated Semi-autonomous Robot for Aging Aircraft Maintenance (\$1.0 Million). The AF is working to identify and transfer these funds to the correct program office for execution. As part of this effort, the AF determined that the correct PE for the \$1.0 Million Develop Rapid Retargeting Capability at Warner Robins Air Logistics Center Depot add belongs in PE 0702239F Avionics Component Improvement Program and has moved these funds to that PE for FY2005 execution.

IMDS, LALI, and LAILS-S funding will support the Expeditionary Combat Support System (ECSS)/ERP program. Because of DoD and Air Force Transformation Policy and Direction, Air Force has moved current functional stovepipe legacy system development to an ERP technical solution that achieves horizontal integration across functional domains. ECSS is the name being used for this ERP technical solution. FY2006 to FY2011 IMDS and LAILS-S funds have been moved into PE 0708610F Logistics Information Technology, a new PE set up for enhanced visibility and management oversight of the ECSS/ERP effort.

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 3318 Product Data Systems Modernization (PDSM)		
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
3318 Product Data Systems Modernization (PDSM)	7.696	5.208	3.351	3.321	3.422	3.478	3.573	3.625	Continuing	TBD
Quantity of RDT&E Articles	0	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 being replaced by the modernization program Enhanced Technical Information Management System (ETIMS). It will develop new software and integrate existing Technical Order databases. 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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Accomplishments/Planned Program				
(U) Manage AF technical data activities	0.675	0.926	0.532	0.525
(U) Develop Automated Civil Engineer Systems (ACES) Software	0.463	0.015	0.000	0.000
(U) Continue Technical Order (TO) Architecture Integration	0.320	0.270	0.165	0.161
(U) Continue Technical Data Integrator/Developer Support	5.123	3.377	2.254	2.240
(U) Continue Integration/Migration of Technical Management systems	0.825	0.370	0.260	0.260
(U) Support and Sustain Technical Data Integration Lab	0.290	0.250	0.140	0.135
(U) Total Cost	7.696	5.208	3.351	3.321

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

	<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>FY 2010</u>	<u>FY 2011</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>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

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BUDGET ACTIVITY				PE NUMBER AND TITLE							PROJECT NUMBER AND TITLE				
07 Operational System Development				0708611F Support Systems Development							3318 Product Data Systems Modernization (PDSM)				
(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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>	
(U) <u>Product Development</u> Software Development (ACES)	MIPR	Softwae Factory, SSG/BICE, Maxwell AFB- Gunter Annex, AL	1.876	0.463	Mar-04	0.015	Mar-05	0.000		0.000		Continuing	TBD	TBD	
Subtotal Product Development			1.876	0.463		0.015		0.000		0.000		Continuing	TBD	TBD	
Remarks:															
(U) <u>Support</u> Manage and Support Technical Data activities	C/FP	LOGTEC/M TC, MSG/MM, Wright Patterson AFB, OH	14.059	2.266	Jan-04	2.049	Jan-05	1.207	Jan-06	1.202	Jan-07	Continuing	TBD	TBD	
Develop and Integrate Technical Data activities	C/FP	Intergraph, MSG/MM, Wright Patterson AFB, OH	3.359	4.539	Aug-04	2.843	Jun-05	1.959	Jun-06	1.935	Jun-07	Continuing	TBD	TBD	
Subtotal Support			17.418	6.805		4.892		3.166		3.137		Continuing	TBD	TBD	
Remarks:															
(U) <u>Management</u> System Program Office (SPO) Operations	MIPR	MSG/MM, Wright Patterson AFB, OH	0.876	0.428	Oct-03	0.301	Oct-04	0.185	Oct-05	0.184	Oct-06	Continuing	TBD	TBD	
Subtotal Management			0.876	0.428		0.301		0.185		0.184		Continuing	TBD	TBD	
Remarks:															
(U) Total Cost			20.170	7.696		5.208		3.351		3.321		Continuing	TBD	TBD	

Exhibit R-4, RDT&E Schedule Profile

DATE

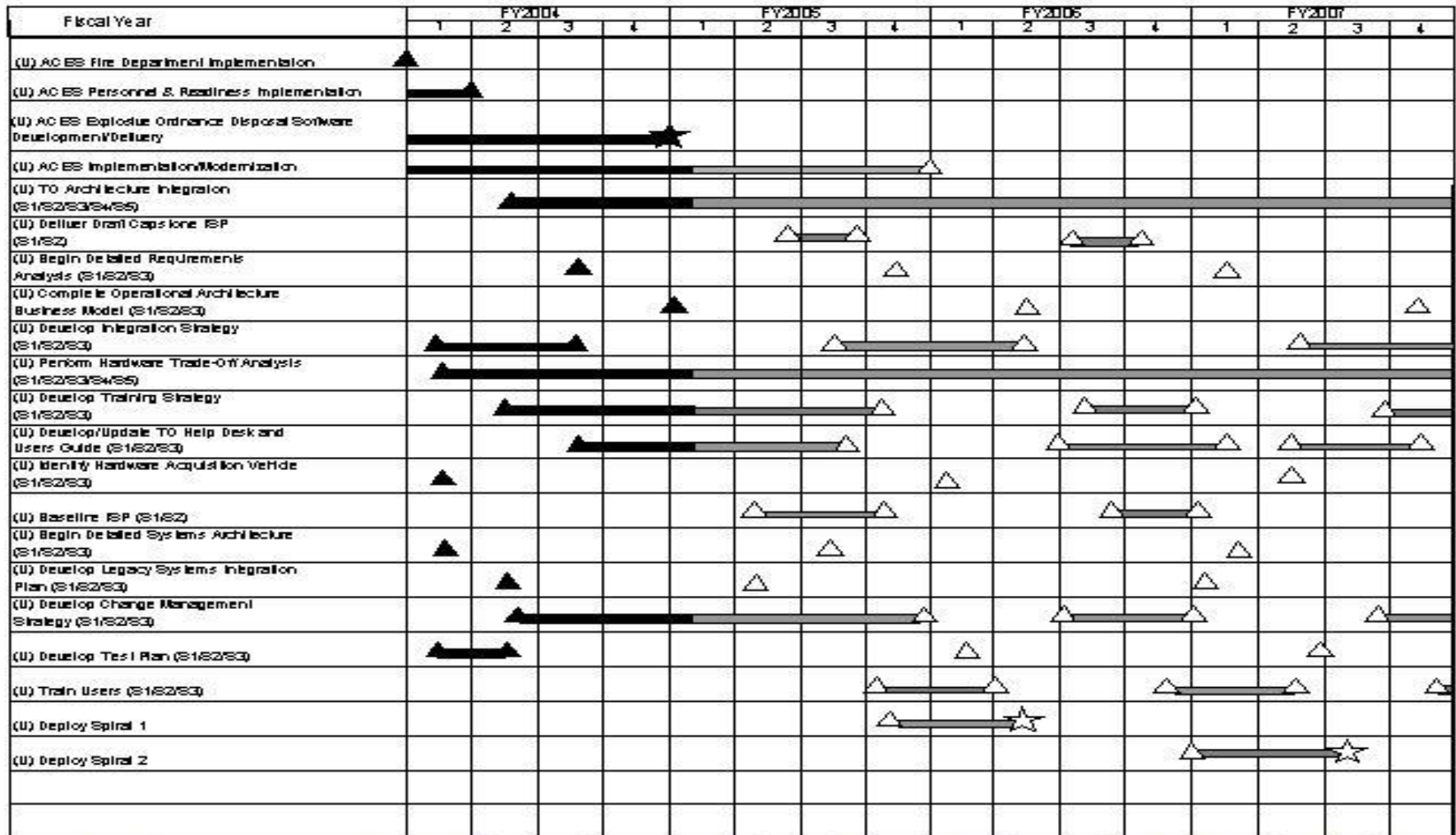
February 2005

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 Project 3318 PDSM/ACES



★ 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 2005
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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) <u>Schedule Profile</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) ACES Fire Department Implementation	1Q			
(U) ACES Personnel & Readiness Implementation	1Q			
(U) ACES Explosive Ordnance Disposal S/W Development/Delivery	1-4Q			
(U) ACES Implementation Modernization Complete	1-4Q	1-4Q		
(U) TO Architecture Integration (S1/S2/S3/S4/S5)	2-4Q	1-4Q	1-4Q	1-4Q
(U) Deliver Draft Capstone ISP (S1/S2)		2-3Q	3-4Q	
(U) Begin Detailed Requirements Analysis (S1/S2/S3)	3Q	4Q		1Q
(U) Complete Operational Architecture Business Model (S1/S2/S3)		1Q	2Q	4Q
(U) Develop Integration Strategy (S1/S2/S3)	1-3Q	3-4Q	1-2Q	2-4Q
(U) Perform Hardware Trade-Off Analysis (S1/S2/S3/S4/S5)	1-4Q	1-4Q	1-4Q	1-4Q
(U) Develop Training Strategy (S1/S2/S3)	2-4Q	4Q	2-4Q	1Q
(U) Develop/Update TO Help Desk and Users Guide (S1/S2/S3)	3-4Q	1-3Q	3-4Q	1-4Q
(U) Identify Hardware Acquisition Vehicle (S1/S2/S3)	1Q		1Q	2Q
(U) Baseline ISP Complete (S1/S2)		2-4Q	3-4Q	1Q
(U) Begin Detailed Systems Architecture (S1/S2/S3)	1Q	3Q		1Q
(U) Develop Legacy Systems Integration Plan (S1/S2/S3)	2Q	1-4Q		1Q
(U) Develop Change Management Strategy (S1/S2/S3)	2-4Q	1-4Q	3-4Q	2Q
(U) Develop Test Plan (S1/S2/S3)	1-2Q		1Q	1-2Q
(U) Train Users (S1/S2/S3)		4Q	4Q	1-2Q
(U) Deploy Spiral 1		4Q	1-2Q	
(U) Deploy Spiral 2				1-3Q

Note: S1/S2/S3/S4/S5 denotes Spiral 1, Spiral 2, Spiral 3, Spiral 4 and Spiral 5

Exhibit R-2a, RDT&E Project Justification

DATE

February 2005

BUDGET ACTIVITY		PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE		
07 Operational System Development		0708611F Support Systems Development						4654 Integrated Maintenance Data System (IMDS)		
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4654 Integrated Maintenance Data System (IMDS)	41.478	38.932	0.032	0.000	0.000	0.000	0.049	0.022	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

In FY 2006, Project 4654, Integrated Maintenance Data System, efforts were transferred to PE 0708610F, Logistics Information Technology, Project 5208, Expeditionary Combat Support System (ECSS), in order to support the Enterprise Resource Planning (ERP) technical solution (named ECSS) and provide enhanced visibility and management oversight. The small amount of funds remaining for project 4654 (FY 2006, 2010, and 2011) is due to a database error and will be corrected during the FY 2007 budget cycle.

(U) A. Mission Description and Budget Item Justification

Integrated Maintenance Data System (IMDS) is an information technology program which provides Joint Command and Air Force warfighters with global maintenance visibility of aircraft, space, missile, communications, and related support environments. It will develop new software and integrate existing databases. IMDS provides the capability to plan and accomplish combat operations anywhere in the world. IMDS includes sustainment of AF standard base level legacy maintenance systems ensuring operational maintenance capabilities continue to support the operational Air Force. Thus, IMDS enables the Air Force to increase its combat sortie production capability while also decreasing its mobility footprint and cost of operations.

Beginning in FY 2006, IMDS funding will support the Expeditionary Combat Support System (ECSS)/Enterprise Resource Planning (ERP) program. Because of DoD and Air Force Transformation Policy and Direction, Air Force has moved current functional stovepipe legacy system development to an ERP technical solution that achieves horizontal integration across functional domains. ECSS is the name being used for this ERP technical solution. IMDS is also accomplishing the defining and consolidating of maintenance capabilities to support the implementation of the maintenance domain in the AF Logistics Enterprise solution, ECSS.

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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Accomplishments/Planned Program				
(U) Continue IMDS System Development	16.151	14.918	0.000	0.000
(U) Continue Systems Engineering and Development Contractor Support	3.130	4.855	0.000	0.000
(U) Support System Program Office (SPO) Operations and management oversight	3.377	4.459	0.000	0.000
(U) Low Emission/Efficient Hybrid Aviation Refueling Truck Propulsion	2.368	0.000	0.000	0.000
(U) Center for Aircraft System/Support Infrastructure	1.149	1.000	0.000	0.000
(U) C-5/C17 SCME Aging Aircraft	2.870	5.000	0.000	0.000
(U) Teleoperated Semiautonomous Robot for Aging Aircraft Maintenance	1.436	1.000	0.000	0.000
(U) Fuel Cell-Based Common Core Power Production	3.829	2.000	0.000	0.000
(U) Commodity Management System Consolidation	2.000	0.000	0.000	0.000
(U) Performance Based Logistics/Maintenance Steering Group 3	1.149	0.000	0.000	0.000

Project 4654

R-1 Shopping List - Item No. 228-7 of 228-27

Exhibit R-2a (PE 0708611F)

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 4654 Integrated Maintenance Data System (IMDS)
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(U) Special Operations Aircraft Depot Maintenance	1.149	1.000	0.000	0.000
(U) Heavy Duty Hybrid Electric	2.870	2.000	0.000	0.000
(U) ACC Support Systems Development	0.000	2.700	0.000	0.000
(U) Continue ECSS/ERP support	0.000	0.000	0.032	0.000
(U) Total Cost	41.478	38.932	0.032	0.000

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
(U) Other Procurement AF, IMDS (PE 0708611F).	2.424	2.567	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
(U) Operations & Maintenance AF, IMDS (PE 0708611F)	1.082	1.663	0.000	0.000	0.000	0.000	0.000	0.000	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 2005		
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) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2004 Cost	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) <u>Product Development</u> IMDS System Software Development	MIPR	Engineering and Software Technology Solution, SSG, Maxwell AFB-Gunter Annex, AL	2.273	6.817	Oct-03	7.502	Oct-04	0.000		0.000		Continuing	TBD	TBD
GCSS-AF Systems Integration Software Development	C/CPAF C/FP	LMSI, Owego, NY General Dynamics, Montgomery, AL	0.260	1.877	Nov-03	1.269	Mar-05	0.000		0.000		Continuing	TBD	TBD
Air Force Knowledge System (AFKS/Enterprise Data Integration (EDI) Software Development	MIPR C/FP	SSG Maxwell-Gunter AFB, AL MSG, Wright Patterson AFB, OH Northrop-Grumman IT, Montgomery, AL	3.000	0.745	Oct-03	2.039	Mar-05	0.000		0.000		Continuing	TBD	TBD
ERP Low Emission/Efficient Hybrid Aviation Refueling Truck Propulsion	TBD C/FP	TBD Southwest Research Institute, San Antonio, TX (PRIME) and Mack Truck Inc, Hagerstown, MD (Sub)	0.000	0.000		0.000		0.032		0.000		Continuing	TBD	TBD
Center for Aircraft System/Support Infrastructure	SS/FP	TMI/CACI, OK	5.625	1.149	Jun-04	1.000	Jun-05	0.000		0.000		0.000	7.774	TBD
C-5/C17 SCME Aging Aircraft	C/FFP	Intergraph Corp,	1.422	2.870	Aug-04	5.000	Jun-05	0.000		0.000		0.000	9.292	TBD
Project 4654	R-1 Shopping List - Item No. 228-9 of 228-27											Exhibit R-3 (PE 0708611F)		

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Exhibit R-3, RDT&E Project Cost Analysis										DATE February 2005			
BUDGET ACTIVITY 07 Operational System Development					PE NUMBER AND TITLE 0708611F Support Systems Development					PROJECT NUMBER AND TITLE 4654 Integrated Maintenance Data System (IMDS)			
Teleoperated Semiautonomous Robot for Aging Aircraft Maintenance	SS/CPFF	Huntsville, AL Battelle, Columbus, OH	0.000	1.436	Aug-04	1.000	Jun-05	0.000	0.000	0.000	2.436	TBD	
Fuel Cell-Based Common Core Power Production	C/FP	FCTEC, Johnstown PA.	0.000	3.829	Aug-04	2.000	Jun-05	0.000	0.000	0.000	5.829	TBD	
Commodity Management System Consolidation	MIPR	DLA	0.000	2.000	Sep-04	0.000		0.000	0.000	0.000	2.000	TBD	
Performance Based Logistics/Maintenance Steering Group 3	C/FFP	Integrgraph Corp., Huntsville, AL	0.000	1.149	Aug-04	0.000		0.000	0.000	0.000	1.149	TBD	
Special Operations Aircraft Depot Maintenance	SS/FP	Intergraph Corp., Huntsville, AL	0.000	1.149	Aug-04	1.000	Jun-05	0.000	0.000	0.000	2.149	TBD	
Heavy Duty Hybrid Electric	C/FP	Mack Truck, Hagerstown, MD	0.000	2.870	Aug-04	2.000	Jun-05	0.000	0.000	0.000	4.870	TBD	
ACC Support Systems Development	TBD	TBD	0.000	0.000		2.700	Jun-05	0.000	0.000	0.000	2.700	TBD	
Subtotal Product Development			14.576	34.971		29.618		0.032	0.000	Continuing	TBD	TBD	
Remarks:													
(U) <u>Support</u> Contractor Support	C/FP	MITRE, MCR, Titan, SenCom, DSD, Sumaria Systems, PSI, STSC, Montgomery, AL	12.660	3.130	Jan-04	4.855	Mar-05	0.000	0.000	Continuing	TBD	TBD	
Subtotal Support			12.660	3.130		4.855		0.000	0.000	Continuing	TBD	TBD	
Remarks:													
(U) <u>Management</u> System Program Office Operations	MIPR	SSG, Maxwell AFB-Gunter Annex, AL	8.755	3.377	Oct-03	4.459	Oct-04	0.000	0.000	Continuing	TBD	TBD	
Subtotal Management			8.755	3.377		4.459		0.000	0.000	Continuing	TBD	TBD	
Remarks:													
(U) Total Cost			35.991	41.478		38.932		0.032	0.000	Continuing	TBD	TBD	

Project 4654

R-1 Shopping List - Item No. 228-10 of 228-27

Exhibit R-3 (PE 0708611F)

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0708611F Support Systems
Development

PROJECT NUMBER AND TITLE
4654 Integrated Maintenance Data
System (IMDS)

Exhibit R-4 : IMDS Schedule Profile

12 Jan. 05

IMDS Support Development	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
IMDS Functional Baseline (FB)	▲																															
Maint. Enterprise Integration/Info. Flow Optimization (MEMFO)									▲																							
Tool Accountability System Phase II					▲																											
Training Business Area (TBA)	▲																															
Enhanced Maintenance Operation Center (EMOC)	■																															
Enterprise Data Integration (EDI)					▲																											
CAMS Software (7RI) Development (Unisys CDB) Continuation from 78012F/675044					■				▲																							
ERP Analysis													▲																			

- ★ 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 2005
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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>Schedule Profile</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) IMDS Functional Baseline (FB)	1-4Q	1-4Q	1-4Q	
(U) Maintenance Enterprise Integration/Information Flow Optimization (MEI/IFO)	4Q	1-4Q	1-4Q	
(U) Tool Accountability System Phase II (TAS)	1-3Q			
(U) Training Business Area (TBA)	1-4Q	1-4Q	1-3Q	
(U) Enhanced Maintenance Operation Center (EMOC)	1-4Q	1-4Q	1-3Q	
(U) Enterprise Data Integration (EDI) Formally Data Management	1-4Q	1-4Q	1-3Q	
(U) CAMS Software (7R1) Development (Unisys CDB)	1-4Q	1-3Q		
(U) ERP Analysis			2Q	1-4Q

Exhibit R-2a, RDT&E Project Justification

DATE
February 2005

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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4926	Reengineering and Enabling Technologies	6.105	3.970	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	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.

This program funds research and development projects that will increase the reliability and readiness of weapons systems and platforms and provide future savings in total ownership costs. The objective of the program is to optimize the return-on-investments that reduce the operating and support costs for aging systems. Current Air Force Reduction of Total Ownership Cost (RTOC) efforts are demonstrating that cost reductions can be achieved by a variety of best practices. They include replacing high cost and low reliability components, enhancing supply chain efficiency, using smart decision support tools with logistics support arrangements, leveraging commercial-of-the-shelf components, and initiating public-private partnerships. The program seeks to reduce the cost of products and processes used to acquire, operated, and sustain weapon systems as well as infrastructure costs. The aim is to realize significant cost reductions in order to free up budgetary Total Obligation Authority to help fund urgent modernization priorities. The primary objectives are to capture and arrest cost growth, reduce the costs and capture the savings, and then reinvest the savings in future cost savings in future cost saving initiatives.

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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Accomplishments/Planned Program				
(U) Acquisition Reengineering Studies	5.148	3.166	0.000	0.000
(U) Scientist and Engineers Transformation Initiative	0.000	0.000	0.000	0.000
(U) Information Assurance for Enabling Technologies	0.957	0.804	0.000	0.000
(U) Total Cost	6.105	3.970	0.000	0.000

Exhibit R-2a, RDT&E Project Justification

DATE

February 2005

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0708611F Support Systems Development

PROJECT NUMBER AND TITLE

4926 Reengineering and Enabling Technologies

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

	<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>FY 2010</u>	<u>FY 2011</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>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 2005

BUDGET ACTIVITY				PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE					
07 Operational System Development				0708611F Support Systems Development						4926 Reengineering and Enabling Technologies					
(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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>	
(U) <u>Product Development</u>															
Acquisition Reengineering Studies	C/GSA	CLR, Arlington, VA	5.860	5.148		3.166		0.000		0.000		Continuing	TBD	TBD	
Scientist and Engineers Transformation Initiative	C/GSA	Various	1.250	0.000		0.000		0.000		0.000		Continuing	TBD	TBD	
Information Assurance for Enabling Technologies			0.000	0.957		0.804		0.000		0.000		Continuing	TBD	TBD	
Subtotal Product Development			7.110	6.105		3.970		0.000		0.000		Continuing	TBD	TBD	
Remarks:															
(U) Total Cost			7.110	6.105		3.970		0.000		0.000		Continuing	TBD	TBD	

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

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

23 Jan. 05

Fiscal Year	FY 04				FY 05				
	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)

Exhibit R-4a, RDT&E Schedule Detail	DATE February 2005
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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) <u>Schedule Profile</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Acquisition Reengineering Studies	2Q			
(U) Scientist and Engineers Transformation Initiative	2Q			
(U) Information Assurance for Enabling Technologies	2Q			

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 5042 Log Application Logistics Integration (LALI)		
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
5042 Log Application Logistics Integration (LALI)	6.725	7.054	6.933	7.209	7.341	7.457	7.575	7.722	Continuing	TBD
Quantity of RDT&E Articles	0	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 and provide integration support to assist this effort. 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.

LALI integration funding will support the Expeditionary Combat Support System (ECSS)/Enterprise Resource Planning (ERP) program. Because of DoD and Air Force Transformation Policy and Direction, Air Force has moved current functional stovepipe legacy system development to an ERP technical solution that achieves horizontal integration across functional domains. ECSS is the name being used for this ERP technical solution.

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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Accomplishments/Planned Program				
(U) Continue Program Management Office (PMO) Support	1.510	1.805	1.811	1.838
(U) Continue PMO Tasks(Supporting Integration and Development)	0.346	0.357	0.353	0.360
(U) Provide Systems Engineering Base Support	0.544	0.540	0.535	0.546
(U) Continue Systems Engineering Contractor Support	4.198	4.226	4.109	4.338
(U) Continue Integration Task Contracts	0.127	0.126	0.125	0.127
(U) Total Cost	6.725	7.054	6.933	7.209

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

	<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>FY 2010</u>	<u>FY 2011</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>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 2005

BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0708611F Support Systems Development	PROJECT NUMBER AND TITLE 5042 Log Application Logistics Integration (LALI)
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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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u>														
Support Contractor (Portfolio Management, Architecture, & Data Management)	C/FP	Greentree, Wright Patterson AFB, OH	0.629	0.600	Feb-04	0.620	Feb-05	0.614	Feb-06	0.627	Feb-07	Continuing	TBD	TBD
Support Contractor (Data Management, Enterprise Architecture, & System Modernization support)	C/FP	Oracle, Maxwell AFB-Gunter Annex, AL	0.923	1.042	Feb-04	1.048	Feb-05	1.037	Feb-06	1.064	Feb-07	Continuing	TBD	TBD
Portal/Systems Engineering Support (Integration Task)	C/FP	Various, Maxwell AFB-Gunter Annex, AL	0.076	0.082	Oct-03	0.083	Oct-04	0.082	Oct-05	0.084	Oct-06	Continuing	TBD	TBD
Portal/Systems Engineering Support (Integration Task)	MIPR	Engineering, SSG, Maxwell AFB-Gunter Annex, AL	0.039	0.045	Oct-03	0.043	Oct-04	0.043	Oct-05	0.043	Oct-06	Continuing	TBD	TBD
PMO Tasks (Supporting Integration and Development)	MIPR	SSG, Maxwell AFB-Gunter Annex, AL	0.336	0.346	Oct-03	0.357	Oct-04	0.357	Oct-05	0.357	Oct-06	Continuing	TBD	TBD
Subtotal Product Development			2.003	2.115		2.151		2.133		2.175		Continuing	TBD	TBD
Remarks:														
<u>(U) Support</u>														
Support Contractor	C/FP	DSD, Maxwell AFB-Gunter Annex, AL	0.868	1.641	Feb-04	1.629	Feb-05	1.538	Feb-06	1.718	Feb-07	Continuing	TBD	TBD
Subtotal Support			0.868	1.641		1.629		1.538		1.718		Continuing	TBD	TBD
Remarks:														
<u>(U) Test & Evaluation</u>														
PMO Support	MIPR	SSG, Maxwell AFB-Gunter Annex, AL	0.179	0.387	Oct-03	0.366	Oct-04	0.366	Oct-05	0.370	Oct-06	Continuing	TBD	TBD
Support Contractor	C/FP	Optimization Technology INC, Maxwell	0.291	0.915	Feb-04	0.929	Feb-05	0.916	Feb-06	0.938	Feb-06	Continuing	TBD	TBD

Project 5042

R-1 Shopping List - Item No. 228-19 of 228-27

Exhibit R-3 (PE 0708611F)

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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			0708611F Support Systems Development						5042 Log Application Logistics Integration (LALI)			
		AFB-Gunter Annex, AL	0.470	1.302	1.295	1.282	1.308	Continuing	TBD	TBD		
	Subtotal Test & Evaluation Remarks:											
(U)	<u>Management</u>											
	PMO Support (System Program Office management and operations)	MIPR SSG, Maxwell AFB-Gunter Annex, AL	1.371	1.123	1.439	Oct-04 1.445	Oct-05 1.468	Oct-06	Continuing	TBD	TBD	
	Base Support	MIPR SSG, Maxwell AFB-Gunter Annex, AL	0.334	0.544	0.540	Oct-04 0.535	Oct-05 0.540	Oct-06	Continuing	TBD	TBD	
	Subtotal Management Remarks:		1.705	1.667	1.979	1.980	2.008	Continuing	TBD	TBD		
(U)	Total Cost		5.046	6.725	7.054	6.933	7.209	Continuing	TBD	TBD		

Exhibit R-4, RDT&E Schedule Profile

DATE

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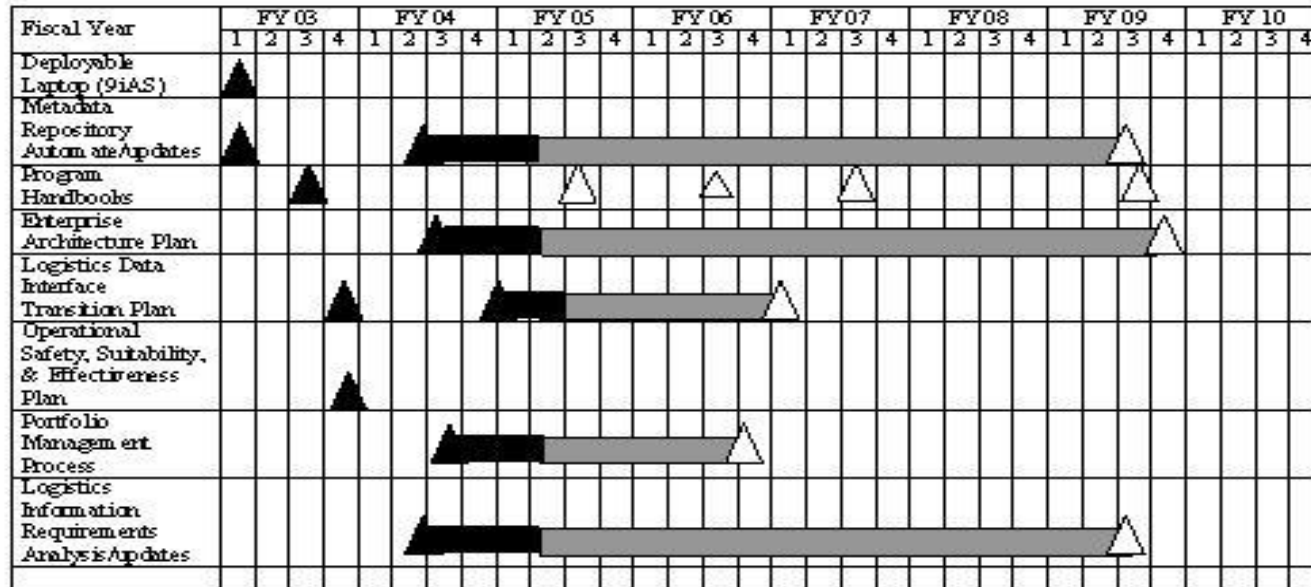
BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0708611F Support Systems
Development

PROJECT NUMBER AND TITLE
5042 Log Application Logistics
Integration (LALI)

Exhibit R-4: Logistics Integration Schedule Profile

13 Jan 05



- ☆ 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)
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(U) Schedule Profile	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Metadata Repository (Automate/Updates)	2Q	1-4Q	1-4Q	1-4Q
(U) Program Handbooks		3Q	3Q	3Q
(U) Architecture Plan Integrated Data Warehouse (IDW) Preliminary Architecture	3Q	1-4Q	1-4Q	1-4Q
(U) Logistics Data Interface Transition Plan		1-4Q	1-4Q	1Q
(U) Portfolio Management Process Updates	3-4Q	1-4Q	1-4Q	1-4Q
(U) Logistics Information Requirements Analysis/Updates	3-4Q	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 0708611F Support Systems Development			PROJECT NUMBER AND TITLE 5044 Log Application ILS-S (LAILS-S)		
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
5044 Log Application ILS-S (LAILS-S)	10.043	12.901	0.000	0.021	0.031	0.034	0.000	0.017	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

In FY 2006, Project 5044, Log Application Integrated Logistics System - Supply efforts were transferred to PE 0708610F, Logistics Information Technology, Project 5208, Expeditionary Combat Support System (ECSS), in order to support the Enterprise Resource Planning (ERP) technical solution (named ECSS) and provide enhanced visibility and management oversight. The small amount of funds remaining for project 5044 (FY 2007, 2008, 2009 and 2011) is due to a database error and will be corrected during the FY 2007 budget cycle.

(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.

Beginning in FY 2005, LAILS-S funding will support the Expeditionary Combat Support System (ECSS)/Enterprise Resource Planning (ERP) program. Because of DoD and Air Force Transformation Policy and Direction, Air Force has moved current functional stovepipe legacy system development to an ERP technical solution that achieves horizontal integration across functional domains. ECSS is the name being used for this ERP technical solution.

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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Accomplishments/Planned Program				
(U) Completed Logistics Business Area Integration	0.914	0.000	0.000	0.000
(U) Completed Component Development	4.365	0.000	0.000	0.000
(U) Completed Acquisition & Integration Support (Logistics Requirements Analysis)	0.912	0.000	0.000	0.000
(U) Completed System Program Office (SPO) Operations (Labor, Management Support)	1.730	0.000	0.000	0.000
(U) Research Enterprise Resource Planning (ERP) Solution	2.122	0.000	0.000	0.000
(U) Continue ECSS/ERP solution planning and analysis blueprinting	0.000	12.901	0.000	0.021
(U) Total Cost	10.043	12.901	0.000	0.021

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
(U) Not Applicable										

Exhibit R-2a, RDT&E Project Justification

DATE

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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 (LAIS-S)

(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 2005		
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) 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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> Logistics Business Area Integration	C/CPAF	Lockheed Martin, Montgomery, AL	1.103	0.914	Jan-04	0.000		0.000		0.000		0.000	2.017	2.017
Component Development	C/CPAF	Keane Federal Systems, Inc., McLean, VA	5.908	4.365	Oct-03	0.000		0.000		0.000		0.000	10.273	10.125
ERP Solution - Planning & Analysis Study	MIPR	MSG, Wright Patterson AFB, OH	0.481	0.000		12.901	Oct-04	0.000		0.021	Oct-06	Continuing	TBD	TBD
- ERP Task Order	C/CPAF	Keane Federal Systems, Inc., McLean, VA	0.000	2.122	Oct-03	0.000		0.000		0.000		0.000	2.122	TBD
Subtotal Product Development Remarks:			7.492	7.401		12.901		0.000		0.021		Continuing	TBD	TBD
(U) <u>Support</u> Acquisition & Integration Contract Support	C/FP	Support Contractors (DSD, MCR, Sumaria Systems, etc.), Montgomery, AL	0.603	0.912	Jan-04	0.000		0.000		0.000		0.000	1.515	1.575
Subtotal Support Remarks:			0.603	0.912		0.000		0.000		0.000		0.000	1.515	1.575
(U) <u>Management</u> SPO Operations	MIPR	Standard Systems Group, Maxwell AFB-Gunter Annex, AL	3.476	1.730	Oct-03	0.000		0.000		0.000		0.000	5.206	5.295
Subtotal Management Remarks:			3.476	1.730		0.000		0.000		0.000		0.000	5.206	5.295
(U) Total Cost Project 5044			11.571	10.043		12.901		0.000		0.021		Continuing	TBD	TBD

R-1 Shopping List - Item No. 228-25 of 228-27

Exhibit R-3 (PE 0708611F)

Exhibit R-4, RDT&E Schedule Profile

DATE

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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)

Exhibit R-4: ILS-S Schedule Profile

12 Jan 05

Fiscal Year	FY 03				FY 04				FY 05				FY 06				FY 07			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Supply Modernization	[Ongoing Activity that is Complete]																			
-- Release 2	▲																			
-- Release 3			▲																	
Enterprise Resource Planning	[Planned Ongoing Activity]																			
-- Visible Inventory Position							▲													
-- Web Mission Capable Asset Sourcing System (M&SS)						▲														
-- Audit Trail					▲															
-- Enterprise Solution - Supply (ES-S)											△	△							△	

- ☆ 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 2005
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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>Schedule Profile</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Supply Modernization	2Q			
(U) Enterprise Resource Planning	1-4Q	1-3Q		
(U) Visible Inventory Position	3Q			
(U) Web Mission Capable Asset Sourcing System	1-2Q			
(U) Audit Trail	1Q	2-3Q		
(U) Enterprise Solution-Supply	4Q	2-3Q		1Q

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PE NUMBER: 0804757F
 PE TITLE: JOINT NATIONAL TRAINING CENTER

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2005
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0804757F JOINT NATIONAL TRAINING CENTER
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Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	0.000	2.924	3.060	3.052	3.151	3.224	3.279	0.000	0.000
4567 Joint Modeling and Simulation System (JMASS)	0.000	0.000	2.924	3.060	3.052	3.151	3.224	3.279	0.000	0.000

In FY04 84757F, Joint National Training Capability, was a new PE and included new start efforts. FY06 includes new start efforts. NOTE: This PE is also in BA03 for FY04 and FY05 efforts and will move to BA07 for FY06 and out efforts.

(U) A. Mission Description and Budget Item Justification

Supports the SECDEF's Transformation in Training/Joint National Training Capability (JNTC). Develops capabilities that integrate live, virtual, and constructive elements into a seamless joint training environment. Using a scientific and phased approach, researches new technologies and methods that provide a crucial technology-based foundation supporting all JNTC operations. This program is in budget activity 7- Operational Systems Development because it supports rapid transformation of Department of Defense training into a Joint National Training Capability.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget			2.908	3.003
(U) Current PBR/President's Budget	0.000	0.000	2.924	3.060
(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 0804757F JOINT NATIONAL TRAINING CENTER			PROJECT NUMBER AND TITLE 4567 Joint Modeling and Simulation System (JMASS)		
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4567 Joint Modeling and Simulation System (JMASS)	0.000	0.000	2.924	3.060	3.052	3.151	3.224	3.279	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) **A. Mission Description and Budget Item Justification**
 Supports the SECDEF's Transformation in Training/Joint National Training Capability (JNTC). Develops capabilities that integrate live, virtual, and constructive elements into a seamless joint training environment. Using a scientific and phased approach, researches new technologies and methods that provide a crucial technology-based foundation supporting all JNTC operations.
 This program is in budget activity 7- Operational Systems Development because it supports rapid transformation of Department of Defense training into a Joint National Training Capability.

(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Begin/Continue Air Force Modeling and Simulation Tool Kit (AFMSTT) Air Warfare Simulation (AWSIM) Upgrades (FY04 and FY05 efforts in BA03 PE84757F)			1.676	1.892
(U) Begin Multi-level security (Radiant Mercury) for Distributed Mission Operation Center (DMOC)			0.490	0.521
(U) Begin Concept of Operations for Space DMOC into JNTC Live-Virtual-Constructive events			0.533	0.428
(U) Begin Command and Control, Intelligence, Surveillance and Reconnaissance (C2ISR) replay tool development; terrain/visual/IR/SAR database to support CONUS and OCONUS			0.225	0.219
(U) Total Cost	0.000	0.000	2.924	3.060

(U) <u>C. Other Program Funding Summary (\$ in Millions)</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>FY 2010</u>	<u>FY 2011</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>Estimate</u>		
(U) Related Activities:										TBD
Training Ranges RDT&E AF PE 0207429F, Combat										
(U) Training Range Equipment OPAF (FY04 & FY05 funding in BA03 PE 84757F)			15.824	15.606	20.314	20.483	20.762	2.203	Continuing	TBD
(U) PE 0804757F, Joint National Training Center, APAF			2.954	2.958	1.534	1.552	1.559	1.650	Continuing	TBD
(U) PE 0804757F, Joint National Training Center, OPAF			21.075	21.808	23.658	24.262	24.896	25.230	Continuing	TBD

Exhibit R-2a, RDT&E Project Justification

DATE

February 2005

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0804757F JOINT NATIONAL
TRAINING CENTER

PROJECT NUMBER AND TITLE

4567 Joint Modeling and Simulation
System (JMASS)

(U) D. Acquisition Strategy

The acquisition strategy will be competitive, with cost plus fixed fee and firm fixed price contracts.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2005

BUDGET ACTIVITY				PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE				
07 Operational System Development				0804757F JOINT NATIONAL TRAINING CENTER						4567 Joint Modeling and Simulation System (JMASS)				
(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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>														
AFMSTT		Northrup Grumman, McLean, VA	0.000	0.000				1.560	Jan-06	1.764	Jan-07	Continuing	TBD	
DMOC-S		SPARTA, Schreiber AFB, CO	0.000	0.000				0.503	Jan-06	0.428	Jan-07	Continuing	TBD	
DMOC TENA-HLA		Northrup Grumman, McLean, VA	0.000	0.000				0.340	Mar-06	0.371	Mar-07	Continuing	TBD	
DMOC (DTNG)		Lockheed Martin Corp, Kirtland AFB, NM						0.150	Mar-06	0.150	Mar-07	Continuing	TBD	
C2ISR		Lockheed Martin Corp, Kirtland AFB, NM	0.000	0.000				0.255	Mar-06	0.219	Mar-07	Continuing	TBD	
Subtotal Product Development			0.000	0.000		0.000		2.808		2.932		Continuing	TBD	0.000
Remarks:														
(U) <u>Support</u>														
AFMSTT		Northrup Grumman, McLean, VA	0.000					0.116	Mar-06	0.128	Mar-07	Continuing	TBD	
DMOC-S		Northrup Grumman, McLean, VA						0.000				Continuing	TBD	
Subtotal Support			0.000	0.000		0.000		0.116		0.128		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	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			0.000	0.000		0.000		2.924		3.060		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY
07 Operational System Development

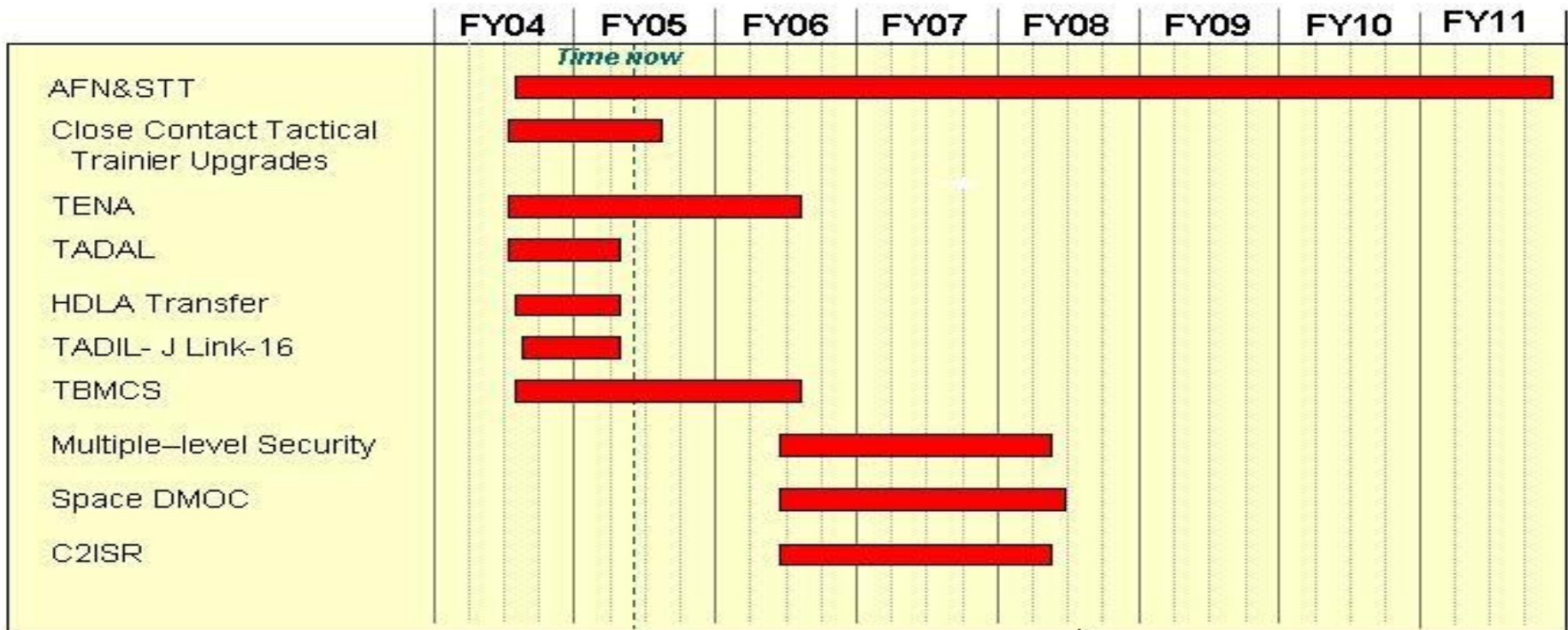
PE NUMBER AND TITLE
0804757F JOINT NATIONAL
TRAINING CENTER

PROJECT NUMBER AND TITLE
4567 Joint Modeling and Simulation
System (JMASS)



U.S. AIR FORCE

Joint National Training Capability



Concept activities
Procurement

Design / development
Operations / sustainment

Integration / test
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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2005
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0804757F JOINT NATIONAL TRAINING CENTER	PROJECT NUMBER AND TITLE 4567 Joint Modeling and Simulation System (JMASS)
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(U) <u>Schedule Profile</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) AFM&STT	3Q	2Q	2Q	2Q
(U) Close Contact Tactical Training Upgrades	3Q			
(U) TENA	3Q	3Q		
(U) TADIL	3Q			
(U) HLA Transfer	3Q			
(U) TADIL - J Link-16	3Q			
(U) TBMCS	3Q	3Q		
(U) Basic Operating Support, System Acquisition, Engineering Support	1Q	1Q	1Q	1Q
(U) Multi-level Security (Radiant Mercury)	1Q	1Q	1Q	1Q
(U) Concept of Operations for Space DMOC-S			3Q	2Q
(U) C2ISR replay tool development			3Q	3Q

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PE NUMBER: 0808716F
 PE TITLE: OTHER PERSONNEL ACTIVITIES

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2005
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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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	0.109	0.111	0.112	0.112	0.113	0.115	0.117	0.000	0.000
4236 Engineering Analysis	0.000	0.109	0.111	0.112	0.112	0.113	0.115	0.117	0.000	0.000

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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	0.000	0.109	0.111	0.112
(U) Current PBR/President's Budget	0.000	0.109	0.111	0.112
(U) Total Adjustments	0.000	0.000		
(U) Congressional Program Reductions				
Congressional Rescissions				
Congressional Increases				
Reprogrammings				
SBIR/STTR Transfer				

(U) Significant Program Changes:

Exhibit R-2a, RDT&E Project Justification

DATE
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BUDGET ACTIVITY 07 Operational System Development					PE NUMBER AND TITLE 0808716F OTHER PERSONNEL ACTIVITIES			PROJECT NUMBER AND TITLE 4236 Engineering Analysis		
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4236 Engineering Analysis	0.000	0.109	0.111	0.112	0.112	0.113	0.115	0.117	0.000	0.000
Quantity of RDT&E Articles	0	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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Conduct engineering analysis on military and civilian equal opportunity issues.		0.109	0.111	0.112
(U) Total Cost	0.000	0.109	0.111	0.112

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

	<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>FY 2010</u>	<u>FY 2011</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>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 2005

BUDGET ACTIVITY				PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE				
07 Operational System Development				0808716F OTHER PERSONNEL ACTIVITIES						4236 Engineering Analysis				
(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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>														
Eng Analysis	Grant	Various				0.109	Apr-05	0.111	Apr-06	0.112	Apr-07	Continuing	TBD	TBD
Subtotal Product Development			0.000	0.000		0.109		0.111		0.112		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	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	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			0.000	0.000		0.109		0.111		0.112		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
0808716F OTHER PERSONNEL
ACTIVITIES

PROJECT NUMBER AND TITLE
4236 Engineering Analysis

Engineering Analysis

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							△				△				△				△				△				△				△	

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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

**0808716F OTHER PERSONNEL
ACTIVITIES**

PROJECT NUMBER AND TITLE

4236 Engineering Analysis

(U) Schedule Profile

FY 2004

FY 2005

FY 2006

FY 2007

(U) Receive grants

2Q

2Q

2Q

(U) Award grants

3Q

3Q

3Q

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UNCLASSIFIED

PE NUMBER: 0901202F

PE TITLE: JOINT PERSONNEL RECOVERY AGENCY (JPRA)

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2005
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0901202F JOINT PERSONNEL RECOVERY AGENCY (JPRA)
--	--

Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	0.000	0.978	0.988	1.004	1.022	1.046	1.064	0.000	0.000
691X EO/IR Warning & Countermeasures Tech	0.000	0.000	0.978	0.988	1.004	1.022	1.046	1.064	0.000	0.000

In FY06, this is a new PE.

(U) A. Mission Description and Budget Item Justification

EO/IR Warning & Countermeasures supports the analysis, modernization and application of four main areas: Tagging, tracking, and location of isolated personnel; Survival Radios; Personnel Recovery technologies modernization; and Personnel Recovery C2 architectures.

This effort is directed at overcoming longstanding, unresolved Personnel Recovery technology issues which have been consistently highlighted by military operations and validated by OSD JCSAR JT&E and the Personnel Recovery Technology Working Group.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget				
(U) Current PBR/President's Budget	0.000	0.000	0.978	0.988
(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 0901202F JOINT PERSONNEL RECOVERY AGENCY (JPRA)				PROJECT NUMBER AND TITLE 691X EO/IR Warning & Countermeasures Tech			
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total	
691X EO/IR Warning & Countermeasures Tech	0.000	0.000	0.978	0.988	1.004	1.022	1.046	1.064	0.000	0.000	
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0			

PRMS currently in use at COCOM Rescue Coordination Centers and AF AOCs. JPRA oversaw development of PRMS during ACTD and fielding to COCOMs and Services. ACTD Transition Plan did not identify responsibility for funding further development of PRMS. PRMS is critical piece of Personnel Recovery capability for operations in CENTCOM AOR and for other MCOs worldwide.

JPRA executes DoD Executive Agent for Personnel Recovery, CDRUSJFCOM, responsibilities to assess current and future technologies for application to shortfalls in COCOM and Service Personnel Recovery capabilities.

(U) A. Mission Description and Budget Item Justification

EO/IR Warning & Countermeasures supports the analysis, modernization and application of four main areas: Tagging, tracking, and location of isolated personnel; Survival Radios; Personnel Recovery technologies modernization; and Personnel Recovery C2 architectures.

This effort is directed at overcoming longstanding, unresolved Personnel Recovery technology issues which have been consistently highlighted by military operations and validated by OSD JCSAR JT&E and the Personnel Recovery Technology Working Group.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Personnel Recovery Mission Software Development (PRMS)			0.430	0.440
(U) Personnel Recovery Extraction using Smart Sensors (PRESS)			0.118	0.108
(U) Technology Assessment			0.430	0.440
(U) Total Cost	0.000	0.000	0.978	0.988

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
(U) Not applicable										

(U) D. Acquisition Strategy

Contracts will be awarded based on full and open competition.

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Exhibit R-3, RDT&E Project Cost Analysis

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February 2005

BUDGET ACTIVITY				PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE					
07 Operational System Development				0901202F JOINT PERSONNEL RECOVERY AGENCY (JPRA)						691X EO/IR Warning & Countermeasures Tech					
(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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>	
(U) <u>Product Development</u>															
Personnel Recovery Mission Software Development (PRMS)	TBD	TBD						0.430	Mar-06	0.440	Mar-07	Continuing	TBD	TBD	
Personnel Recovery Extraction using Smart Sensors (PRESS)	TBD	TBD						0.118	May-06	0.108	May-07	Continuing	TBD	TBD	
Tech Assessment								0.430	Mar-06	0.440	Mar-07	Continuing	TBD	TBD	
Subtotal Product Development			0.000	0.000		0.000		0.978		0.988		Continuing	TBD	TBD	
Remarks:															
(U) <u>Support</u>															
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) Total Cost			0.000	0.000		0.000		0.978		0.988		Continuing	TBD	TBD	

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0901202F JOINT PERSONNEL
RECOVERY AGENCY (JPRA)

PROJECT NUMBER AND TITLE
691X EO/IR Warning &
Countermeasures Tech

JPRA

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
PRMS/Tech Assessment						△				△				△				△				△				△				△		
PRESS							△				△				△				△				△				△				△	

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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

**0901202F JOINT PERSONNEL
RECOVERY AGENCY (JPRA)**

PROJECT NUMBER AND TITLE

**691X EO/IR Warning &
Countermeasures Tech**

(U) Schedule Profile

FY 2004

FY 2005

FY 2006

FY 2007

(U) PRMS

2Q

2Q

(U) PRESS

3Q

3Q

(U) Technology Assessment

2Q

2Q

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PE NUMBER: 0901212F
 PE TITLE: SERVICE-WIDE SUPPORT

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2005
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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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	4.116	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5060 Joint Personnel Adjudication System (JPAS)	4.116	0.000	0.000	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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	4.333	0.000	0.000	0.000
(U) Current PBR/President's Budget	4.116	0.000	0.000	0.000
(U) Total Adjustments	-0.217	0.000		
(U) Congressional Program Reductions				
Congressional Rescissions				
Congressional Increases				
Reprogrammings	-0.087			
SBIR/STTR Transfer	-0.130			

(U) Significant Program Changes:

Funding request for out years pending program review. Budgeting and management oversight of JPAS has been moved to the Defense Security Service (DSS).

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 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
5060 Joint Personnel Adjudication System (JPAS)	4.116	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	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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Accomplishments/Planned Program				
(U) Implement/Integrate Automated Continuing Evaluation System (ACES)				
(U) Interface Enhancements	0.187	0.000	0.000	0.000
(U) Public Key Infrastructure (PKI)/Common Access Card (CAC)				
(U) Govt Program Office Infrastructure				
(U) E-Report for Adjudication-Implementation	3.487	0.000	0.000	0.000
(U) Interoperability with DoD Criminal Agencies - Requirements/Programming	0.280	0.000	0.000	0.000
(U) Interoperability with Defense Finance and Accounting Services (DFAS) - Requirements/Programming	0.162	0.000	0.000	0.000
(U) Total Cost	4.116	0.000	0.000	0.000

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E (PE0305128F)	20.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

(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 recomputed in FY02 and awarded.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2005

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) 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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> EDS	C/FFP	Annapolis Junction, Md.	2.241	2.703	Oct-03	0.000		0.000		0.000		Continuing	TBD	TBD
Subtotal Product Development			2.241	2.703		0.000		0.000		0.000		Continuing	TBD	TBD
Remarks:													0.000	TBD
(U) <u>Test & Evaluation</u> HAI - IV&V; Training	C/FFP	Arlington, Va.	0.975	0.952	Oct-03	0.000		0.000		0.000		Continuing	TBD	TBD
Subtotal Test & Evaluation			0.975	0.952		0.000		0.000		0.000		Continuing	TBD	TBD
Remarks:													TBD	TBD
(U) <u>Management</u> Program Office	MIPR	AFCAF, Bolling AFB, Wash. DC	0.471	0.461	Oct-03	0.000		0.000		0.000		Continuing	TBD	TBD
Subtotal Management			0.471	0.461		0.000		0.000		0.000		Continuing	TBD	TBD
Remarks:													TBD	TBD
(U) Total Cost			3.687	4.116		0.000		0.000		0.000		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

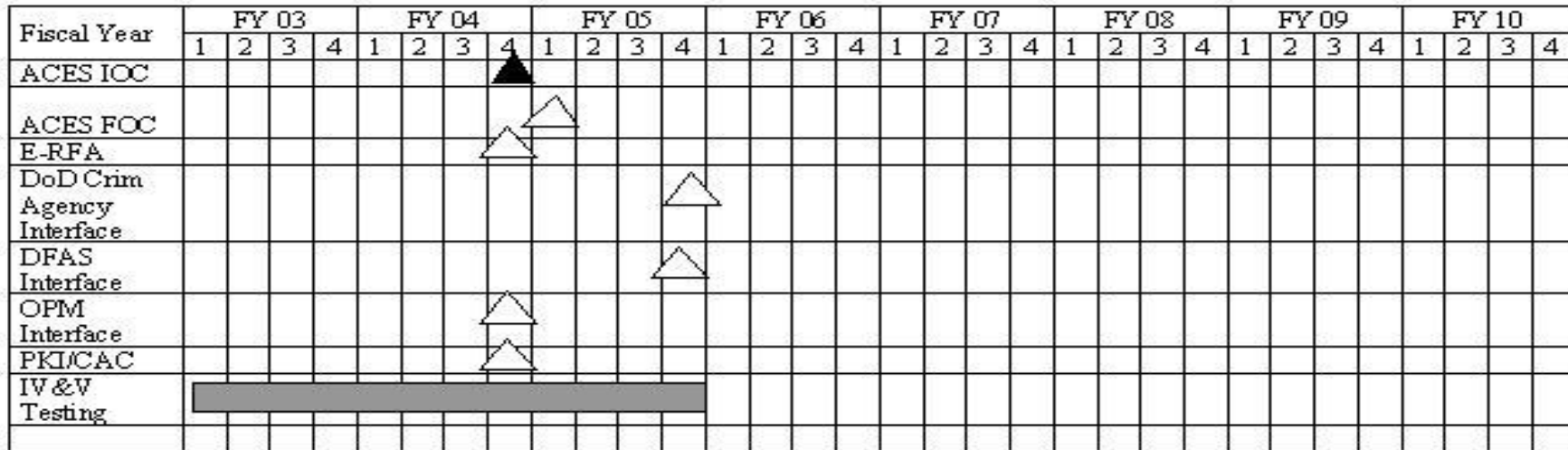
February 2005

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



- ☆ 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 SAF/AQXR or FMBI analysts for details.

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2005
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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)
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(U) <u>Schedule Profile</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Implement/Integrate ACES- IOC	4Q			
(U) Implement/Integrate ACES- FOC		1-4Q		
(U) E-RFA Implementation	4Q			
(U) Identify and develop requirements/interface with DoD Criminal Agencies		4Q		
(U) Identify and develop requirements/interface with DFAS		4Q		
(U) Expand interface with Office of Personnel Management (OPM)	2Q			
(U) PKI/CAC	1Q			
(U) IV&V Testing	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 2005
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0901218F Civilian Compensation Program
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Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	14.369	7.208	7.445	7.747	7.866	7.958	8.142	8.281	Continuing	TBD
4139 Civilian Compensation Program	14.369	7.208	7.445	7.747	7.866	7.958	8.142	8.281	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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	7.130	7.208	7.445	7.747
(U) Current PBR/President's Budget	14.369	7.208	7.445	7.747
(U) Total Adjustments	7.239	0.000		
(U) Congressional Program Reductions	-0.061			
Congressional Rescissions				
Congressional Increases				
Reprogrammings	7.300			
SBIR/STTR Transfer				
(U) <u>Significant Program Changes:</u>				
N/A				

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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 0901218F Civilian Compensation Program			PROJECT NUMBER AND TITLE 4139 Civilian Compensation Program		
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4139 Civilian Compensation Program	14.369	7.208	7.445	7.747	7.866	7.958	8.142	8.281	Continuing	TBD
Quantity of RDT&E Articles	0	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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Accomplishments/Planned Program	0.000			
(U) Continue a program to compensate employees assigned to RDT&E facilities for worked-related injury or disease.	14.369	7.208	7.445	7.747
(U) Total Cost	14.369	7.208	7.445	7.747

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
(U) Operation and Maintenance	0.000	0.000	0.000	0.000	0.000	0.000			0.000	TBD

(U) D. Acquisition Strategy

Not Applicable.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2005

BUDGET ACTIVITY			PE NUMBER AND TITLE								PROJECT NUMBER AND TITLE				
07 Operational System Development			0901218F Civilian Compensation Program								4139 Civilian Compensation 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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>	
(U) <u>Product Development</u> Continue development of compensation plan				14.369	Aug-04	7.208	Aug-05	7.445	Aug-06	7.747	Aug-07	Continuing	TBD	0.000	
Subtotal Product Development			0.000	14.369		7.208		7.445		7.747		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	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	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	0.000	
Remarks:															
(U) <u>NA</u> Not Applicable													0.000		
(U) Total Cost			0.000	14.369		7.208		7.445		7.747		Continuing	TBD	0.000	
Remarks:															

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0901218F Civilian Compensation Program

PROJECT NUMBER AND TITLE

4139 Civilian Compensation Program

A schedule is not applicable due to the nature of this PE

Exhibit R-4, RDT&E Schedule Profile

DATE

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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

A schedule is not applicable due to the nature of this PE

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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

0901218F Civilian Compensation Program

PROJECT NUMBER AND TITLE

4139 Civilian Compensation Program

(U) Schedule Profile

FY 2004

FY 2005

FY 2006

FY 2007

(U) Not Applicable

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PE NUMBER: 0901220F
 PE TITLE: PERSONNEL ADMINISTRATION

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2005
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0901220F PERSONNEL ADMINISTRATION
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Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	0.000	16.383	18.187	12.040	16.189	10.522	11.934	Continuing	TBD
5194 Force Development Transformation	0.000	0.000	16.383	18.187	12.040	16.189	10.522	11.934	Continuing	TBD

In FY06, PE 0901220F, Personnel Administration, includes new start RDT&E efforts.

(U) A. Mission Description and Budget Item Justification

The Force Development Transformation (FDT) project under the Personnel Administration program funds operational developments necessary to acquire, field, and modify segments of an integrated Air Force Human Resource (HR) customer service delivery system that will effectively incorporate personnel, manpower, and pay services for the Total Force - Active Duty, Reserve, Guard, and Civilians. It supports the transition from the current AF personnel HR system enterprise (Military Personnel Data System (MilPDS) plus other AF unique applications) to a Global Combat Support System-Air Force (GCSS-AF) compliant enterprise that supports the deployment of the Defense Integrated Military Human Resources System (DIMHRS) to the AF in November, 2007, and supports reengineered AF personnel business processes. FDT is supported through the AF architecture enterprise using Enterprise Resource Planning (ERP) Commercial Off The Shelf (COTS) products. FDT is composed of two primary subprograms: virtual Personnel Center (vPC) and Personnel Service Delivery System (PSDS). As a major component of the construct, vPC is being developed as an extension of the current virtual Military Personnel Flight (vMPF) as a bridge between legacy systems such as MilPDS and forthcoming DIMHRS capabilities. vPC will provide "one-stop shopping" to airmen in a seamless, integrated fashion through web-enabled self-service functionality. vPC enables customers to make well-informed decisions and take necessary actions regarding their professional responsibilities, personal careers and the welfare of their families by giving them the tools and expert information they need for HR processes to include, but not limited to: assignments, recognition, evaluations, separations, reenlistment, promotions, in/out processing and on-line records review (e-Records). PSDS, which will incorporate the vPC capabilities and take on the longer-term issues to overhaul MilPDS and other legacy systems, allowing full interoperability with DIMHRS.

This program is in Budget Activity 7, Operational System Development, because it upgrades and develops capabilities for current operational systems.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	0.000	0.000	0.000	0.000
(U) Current PBR/President's Budget	0.000	0.000	16.383	18.187
(U) Total Adjustments	0.000	0.000		
(U) Congressional Program Reductions				
Congressional Rescissions				
Congressional Increases				
Reprogrammings				
SBIR/STTR Transfer				

(U) Significant Program Changes:

The Air Force is exploring options to accelerate this program into FY05.

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development					PE NUMBER AND TITLE 0901220F PERSONNEL ADMINISTRATION			PROJECT NUMBER AND TITLE 5194 Force Development Transformation		
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
5194 Force Development Transformation	0.000	0.000	16.383	18.187	12.040	16.189	10.522	11.934	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The Force Development Transformation (FDT) project under the Personnel Administration program funds operational developments necessary to acquire, field, and modify segments of an integrated Air Force Human Resource (HR) customer service delivery system that will effectively incorporate personnel, manpower, and pay services for the Total Force - Active Duty, Reserve, Guard, and Civilians. It supports the transition from the current AF personnel HR system enterprise (Military Personnel Data System (MilPDS) plus other AF unique applications) to a Global Combat Support System-Air Force (GCSS-AF) compliant enterprise that supports the deployment of the Defense Integrated Military Human Resources System (DIMHRS) to the AF in November, 2007, and supports reengineered AF personnel business processes. FDT is supported through the AF architecture enterprise using Enterprise Resource Planning (ERP) Commercial Off The Shelf (COTS) products. FDT is composed of two primary subprograms: virtual Personnel Center (vPC) and Personnel Service Delivery System (PSDS). As a major component of the construct, vPC is being developed as an extension of the current virtual Military Personnel Flight (vMPF) as a bridge between legacy systems such as MilPDS and forthcoming DIMHRS capabilities. vPC will provide "one-stop shopping" to airmen in a seamless, integrated fashion through web-enabled self-service functionality. vPC enables customers to make well-informed decisions and take necessary actions regarding their professional responsibilities, personal careers and the welfare of their families by giving them the tools and expert information they need for HR processes to include, but not limited to: assignments, recognition, evaluations, separations, reenlistment, promotions, in/out processing and on-line records review (e-Records). PSDS, which will incorporate the vPC capabilities and take on the longer-term issues to overhaul MilPDS and other legacy systems, allowing full interoperability with DIMHRS.

This program is in Budget Activity 7, Operational System Development, because it upgrades and develops capabilities for current operational systems.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Develop application modules for the Virtual Personnel Center (vPC), to include but not limited to: Assignments, Recognition, Evaluations, Separations, Re-enlistment, In/Out Processing, Promotions, Duty Status, Disciplinary Actions and Training.			12.411	11.534
(U) Integrate development hardware for vPC			1.400	
(U) Develop PSDS as a GCSS-AF compliant systems enterprise framework to transition from MilPDS to DIMHRS. This effort will integrate Air Force-unique, web-enabled, self-service capabilities with existing DIMHRS and DCPDS functionalities.			2.270	6.344
(U) Program Management Support			0.302	0.309
(U) Total Cost	0.000	0.000	16.383	18.187

Exhibit R-2a, RDT&E Project Justification

DATE

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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0901220F PERSONNEL ADMINISTRATION	PROJECT NUMBER AND TITLE 5194 Force Development Transformation
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(U) C. Other Program Funding Summary (\$ in Millions)

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
Other Procurement, AF WSC										
(U) 834010 General Information Technologies	0.000	0.000	2.186	3.841	1.585	0.985	0.664	0.676	Continuing	TBD
(U) Operations and Maintenance, AF, Project 5194	0.000	0.000	12.530	17.973	20.769	25.503	16.325	12.292	Continuing	TBD
(U) Operations and Maintenance, AF, Legacy Sustainment	26.762	34.400	29.000	12.664	12.742	12.927	13.200	13.300	Continuing	TBD

(U) D. Acquisition Strategy

Force Development Transformation employs an evolutionary acquisition strategy with spiral 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 2005

BUDGET ACTIVITY				PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE					
07 Operational System Development				0901220F PERSONNEL ADMINISTRATION						5194 Force Development Transformation					
(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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>	
(U) <u>Product Development</u> vPC Contract	IDIQ	CellExchange Federal, Inc. Framingham, MA						9.300	Nov-05	7.544	Nov-06	Continuing	TBD	TBD	
vPC e-Records	TBD	TBD						1.100	Dec-05	2.740	Oct-06	Continuing	TBD	TBD	
vPC Call Center	TBD	TBD						2.011	Mar-06	1.250	Oct-06	Continuing	TBD	TBD	
PSDS Datawarehouse	TBD	TBD						1.700	Apr-06	0.640	Oct-06	Continuing	TBD	TBD	
PSDS Contract	TBD	TBD								5.704	Feb-07	Continuing	TBD	TBD	
Subtotal Product Development			0.000	0.000		0.000		14.111		17.878		Continuing	TBD	TBD	
Remarks:															
(U) <u>Support</u> Hardware Integration	FP	TBD						1.970	Jan-06	0.000		Continuing	TBD	TBD	
Subtotal Support			0.000	0.000		0.000		1.970		0.000		Continuing	TBD	TBD	
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> Electronic Systems Center		Randolph AFB, TX						0.302	Oct-05	0.309	Oct-06	Continuing	TBD	TBD	
Subtotal Management			0.000	0.000		0.000		0.302		0.309		Continuing	TBD	TBD	
Remarks:															
(U) Total Cost			0.000	0.000		0.000		16.383		18.187		Continuing	TBD	TBD	

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY
07 Operational System Development

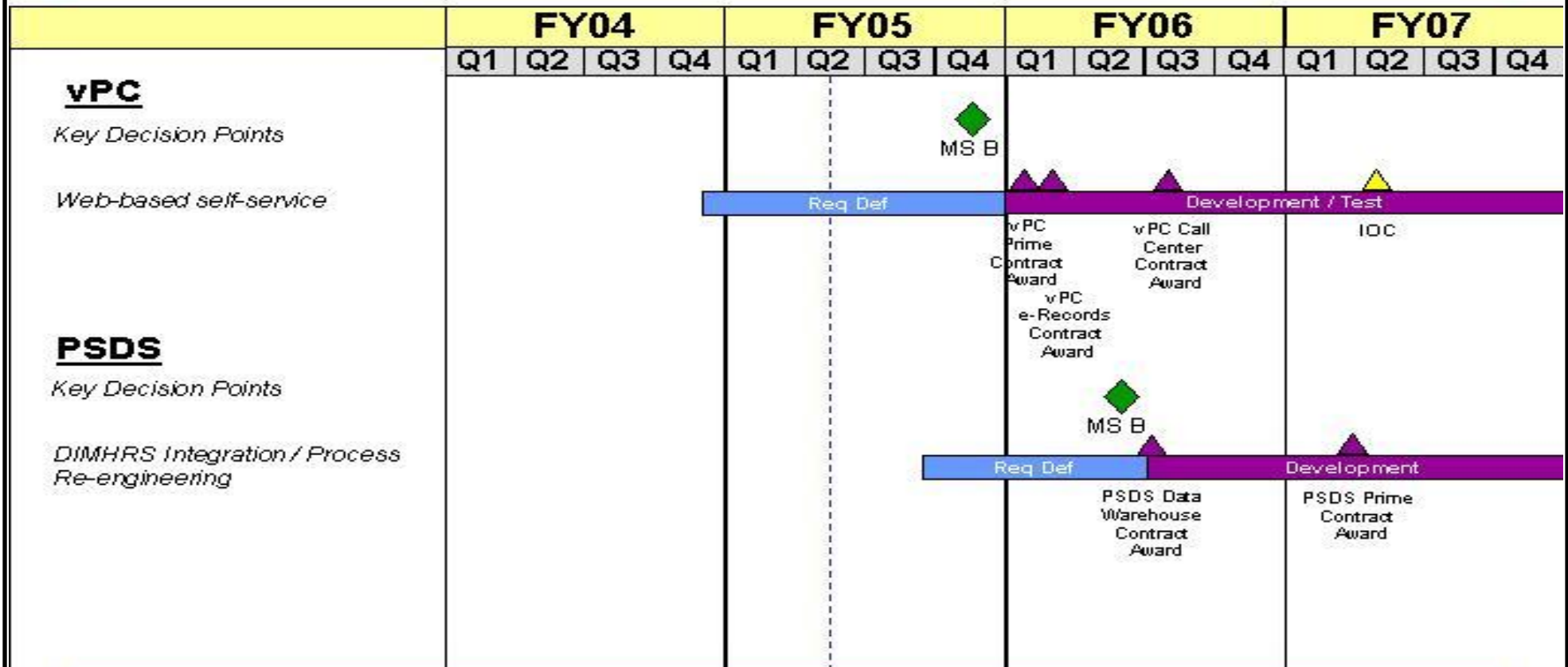
PE NUMBER AND TITLE
0901220F PERSONNEL
ADMINISTRATION

PROJECT NUMBER AND TITLE
5194 Force Development
Transformation



U.S. AIR FORCE

FDT Schedule



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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2005
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0901220F PERSONNEL ADMINISTRATION	PROJECT NUMBER AND TITLE 5194 Force Development Transformation
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(U) <u>Schedule Profile</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) vPC Milestone B		4Q		
(U) vPC Prime Contract Award			1Q	
(U) vPC e-Records Contract Award			1Q	
(U) vPC Call Center Contract Award			2Q	
(U) vPC IOC				2Q
(U) PSDS Milestone B			2Q	
(U) PSDS Datawarehouse Contract Award			3Q	
(U) PSDS Prime Contract Award				2Q

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2005
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0901538F FIRST
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Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	12.620	15.594	17.531	27.528	16.228	16.589	17.020	17.263	Continuing	TBD
5036 Financial Information Resource System (FIRST)	12.620	15.594	12.531	16.228	16.228	16.589	17.020	17.263	Continuing	TBD
5179 Defense Enterprise Accounting Management System - AF (DEAMS)	0.000	0.000	5.000	11.300	0.000	0.000	0.000	0.000	0.000	0.000

(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 capabilities include Enterprise Data View, 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). 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 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 and establish a financial enterprise data warehouse capability for the Air Force.

Defense Enterprise Accounting Management System (DEAMS) is a COTS-based software configuration effort to provide a modern accounting and finance system. The system will replace existing legacy systems to provide core management functions consistent with financial management laws, regulations and policy, general ledger, funds management, payments, receivables, cost and revenues, and fiduciary reporting. The AF increment will build on a USTRANSCOM pilot and enhance

Exhibit R-2, RDT&E Budget Item Justification

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0901538F FIRST

that pilot to include AF investment funding and Air Force Working Capital Fund (AFWCF). DEAMS will be compliant with the Clinger-Cohen Act, Business Management Modernization Program (BMMP), and Global Combat Support System-Air Force (GCSS-AF). The COTS product will be Joint Federal Management Improvement Program (JFMIP) compliant. DEAMS will support and incorporate capabilities that were planned for future increments in FIRST. DEAMS will support elimination of duplicative and unnecessary systems. DEAMS provides the capability to be utilized by other services within the DoD.

This program is in Budget Activity 7, Operational System Development, because the program modernizes Automated Information Systems (AIS).

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	13.284	15.732	13.233	13.839
(U) Current PBR/President's Budget	12.620	15.594	17.531	27.528
(U) Total Adjustments	-0.664	-0.138		
(U) Congressional Program Reductions				
Congressional Rescissions		-0.138		
Congressional Increases				
Reprogrammings	-0.267			
SBIR/STTR Transfer	-0.397			

(U) Significant Program Changes:

FY 2006 and 2007 increases are for integration of the DEAMS COTS based accounting system into the FIRST.

Exhibit R-2a, RDT&E Project Justification

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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)		
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
5036 Financial Information Resource System (FIRST)	12.620	15.594	12.531	16.228	16.228	16.589	17.020	17.263	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(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 (PPBE) system. FIRST will be developed using the Spiral Development approach and maximize use of Commercial Off The Shelf (COTS) products. The core capabilities include Enterprise Data View (formerly called Acquire Accounting), Budget Formulation, Funds Management, Budget Execution, and Cost Modeling. FIRST will also 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 Materiel Command financial managers 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. In accordance with the Operational Requirements Document (ORD), FIRST will continue to incorporate legacy systems (e.g., Automated Business Services System (ABSS) and Obligation Adjustment Reporting System (OARS)) functionality. DEAMS will support and incorporate capabilities that were planned for future increments in FIRST. DEAMS will support elimination of duplicative and unnecessary systems. DEAMS provides the capability to be utilized by other services within the DoD.

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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Accomplishments/Planned Program				
(U) Application Development, Test, and Support for Enterprise Data View capability - Complete	0.393	0.000	0.000	0.000

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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 0901538F FIRST	PROJECT NUMBER AND TITLE 5036 Financial Information Resource System (FIRST)
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(U) Application Development & Test for Budget Formulation capability	7.787	8.705	7.214	0.800
(U) Application Development & Test for Funds Management/Budget Execution capability	0.000	0.283	0.300	8.425
(U) Development of legacy system functionality into FIRST (e.g., ABSS, CMS, OARS)	3.013	5.105	3.555	2.389
(U) Application Development & Test for Cost Modeling capability	0.000	0.000	0.000	3.111
(U) GCSS-AF Test & Integration	1.377	1.322	1.362	1.403
(U) Government Independent Test and Assessment	0.050	0.179	0.100	0.100
(U) Total Cost	12.620	15.594	12.531	16.228

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
(U) Other Procurement, AF (PE 0901538F)	1.225	0.722	0.749	0.786	0.804	0.824	0.845	0.860	Continuing	TBD
(U) O&M, AF (PE 0308610F)	4.486	3.664	3.809	3.819	2.842	2.919	2.919	2.919	Continuing	TBD

(U) D. Acquisition Strategy

All major contracts awarded after full and open competition.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2005

BUDGET ACTIVITY			PE NUMBER AND TITLE								PROJECT NUMBER AND TITLE				
07 Operational System Development			0901538F FIRST								5036 Financial Information Resource System (FIRST)				
(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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>	
(U) <u>Product Development</u>															
Application Development	C/CPAF	Accenture, Fairborn, Ohio	13.661	11.193	Apr-04	14.093	Apr-05	11.069	Apr-06	14.725	Apr-07	Continuing	TBD	68.475	
GCSS-AF Integration	C/CPAF	LM, Fairborn, Ohio	0.867	1.377	Dec-03	1.322	Dec-04	1.362	Dec-05	1.403	Dec-06	Continuing	TBD	TBD	
Subtotal Product Development			14.528	12.570		15.415		12.431		16.128		Continuing	TBD	TBD	
Remarks:															
(U) <u>Test & Evaluation</u>															
Joint Interoperability Test Center (JITC)	MIPR	JITC, Fort Huachuca, Arizona	0.023	0.050	Oct-03	0.179	Oct-04	0.100	Oct-05	0.100	Oct-06	Continuing	TBD	TBD	
Subtotal Test & Evaluation			0.023	0.050		0.179		0.100		0.100		Continuing	TBD	TBD	
Remarks:															
(U) Total Cost			14.551	12.620		15.594		12.531		16.228		Continuing	TBD	TBD	

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0901538F FIRST

PROJECT NUMBER AND TITLE
5036 Financial Information Resource System (FIRST)



U.S. AIR FORCE

FIRST SCHEDULE

Fiscal Year	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				
Enterprise Data View (EDV)	[Planned Ongoing Activity]																											
EDV Ready	▲																											
Budget Formulation (BF)	[Planned Ongoing Activity]																											
Complete BF COTS/GOTS Eval	▲																											
Complete BF Functional Design		▲																										
Complete BF Spiral 1				△																								
Complete BF Spiral 2						△																						
Complete BF Spiral 3								△																				
Complete BF Spiral 4										△																		
Budget Formulation Capability										☆																		
Web-based ABSS	[Planned Ongoing Activity]																											
ABSS Deployment										△	△																	
Integration/Support/Analysis/ Future Increments	[Planned Ongoing Activity]																											

- ☆ 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 2005

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0901538F FIRST

PROJECT NUMBER AND TITLE

5036 Financial Information Resource System (FIRST)

(U) Schedule Profile

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) EDV Ready	1Q			
(U) Complete BF COTS/GOTS Evaluation	2Q			
(U) Complete BF Functional Design	3Q			
(U) Complete BF Spiral 1		2Q		
(U) Complete BF Spiral 2			1Q	
(U) Complete BF Spiral 3			4Q	
(U) Complete BF Spiral 4				2Q
(U) Web-based ABSS			4Q	
(U) Integration/Support/Analysis/Future Increments	1-4Q	1-4Q	1-4Q	1-4Q

Exhibit R-2a, RDT&E Project Justification

DATE
February 2005

BUDGET ACTIVITY 07 Operational System Development					PE NUMBER AND TITLE 0901538F FIRST			PROJECT NUMBER AND TITLE 5179 Defense Enterprise Accounting Management System - AF (DEAMS)		
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Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
5179 Defense Enterprise Accounting Management System - AF (DEAMS)	0.000	0.000	5.000	11.300	0.000	0.000	0.000	0.000	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

Defense Enterprise Accounting Management (DEAMS) is a COTS-based software configuration effort to provide a modern accounting and finance system. The system will replace existing legacy systems to provide core management functions consistent with financial management laws, regulations and policy, general ledger, funds management, payments, receivables, cost and revenues, and fiduciary reporting. The AF increment will build on a USTRANSCOM pilot and enhance that pilot to include AF investment funding and AFWCF. DEAMS will be compliant with the Clinger-Cohen Act, Business Management Modernization Program (BMMP), Global Combat Support System-Air Force (GCSS-AF). The COTS product will be Joint Federal Management Improvement Program (JFMIP) compliant. DEAMS will support the elimination and duplication of unnecessary systems. DEAMS will provide capability that was scheduled for future increments of FIRST. DEAMS will also provide the capacity to expand to other services within the DoD.

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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) DEAMS Blueprinting of AF requirements	0.000	0.000	5.000	11.300
(U)				
(U)				
(U) Total Cost	0.000	0.000	5.000	11.300

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>			
(U) Transportation Working Capital Fund (TWCF)	46.500	19.200	13.900	9.900	6.200	6.200	6.200	6.200	6.200	Continuing	TBD
(U) 3400 (PE 91212F)	25.200	25.200	14.200	20.100	25.600	25.600	25.600	25.600	25.600	Continuing	TBD

(U) D. Acquisition Strategy

All major contracts awarded utilizing the DOD Enterprise System Integrator Blanket Purchase Agreement under the Enterprise Software Initiative (ESI).

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2005

BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0901538F FIRST	PROJECT NUMBER AND TITLE 5179 Defense Enterprise Accounting Management System - AF (DEAMS)
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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 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>														
Deams Blueprinting of AF Requirements	TBD	TBD	0.000	0.000		0.000		5.000	May-06	11.300	Oct-06	Continuing	TBD	TBD
Subtotal Product Development			0.000	0.000		0.000		5.000		11.300		Continuing	TBD	TBD
Remarks:														
(U) Total Cost			0.000	0.000		0.000		5.000		11.300		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0901538F FIRST

PROJECT NUMBER AND TITLE
5179 Defense Enterprise Accounting Management System - AF (DEAMS)



U.S. AIR FORCE

DEAMS SCHEDULE

Fiscal Year	FY 04				FY 05				FY 06				FY 07				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
Blueprint AF Increment																								

- ☆ 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 2005
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0901538F FIRST	PROJECT NUMBER AND TITLE 5179 Defense Enterprise Accounting Management System - AF (DEAMS)
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(U) <u>Schedule Profile</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Blueprint Air Force Increment			4Q	1-4Q

FY 2006 President's Budget Submittal

BASE	FY	Project #	Title	PE	(\$000)	Remarks
Eglin	04	FTFA021197	Install Guardrails Bldg 999	6.59.76F	40	New FY04 Project
Eglin	04	FTFA011145	Install Fence Climatic Lab Storage Area	6.59.76F	22	New FY04 Project
Eglin	04	FTFA041169	Construct Mechanical Room Addition, GWEF	6.59.76F	72	New FY04 Project
Eglin	04	FTFA031313	Const Weather Cover Fabrication Facility	6.59.76F	465.5	New FY04 Project
Edwards	04	FSPM012544	MC CNST LOX CART MAINTENANCE FAC	6.59.76F	450	New FY04 Project
Hanscom	04	MXRD040028	Construct Computer Room Bldg 1607, Room	6.38.58F	22.5	New FY04 Project
Wright-Pat	04	ZHTV041990	Provide A/C 2nd and 3rd Floor AFRL	6.22.01F	69.9	New FY04 Project
Wright-Pat	04	ZHTV042053	INSTL HUMIDIFICATION CONTROL	6.22.03F	275	New FY04 Project
Wright-Patt	04	ZHTV030042	PRVD POWER SUPPLY FOR CARL	6.22.03F	450	New FY04 Project
Wright-Patt	04	ZHTV030016B	CNST MECHANICAL ROOM	6.22.03F	592	New FY04 Project
Eglin	05	FTFA011226	CONSTRUCT IGLOO AND IGLOO WALL MO	6.59.76F	309	New FY05 Project
Eglin	05	FTFA011101	Add to Parking Area Building 432	6.26.02F	26	Moved from FY04
Eglin	05	FTFA031269	Construct LDERF Office and Machine Shop	6.26.02F	582	New FY05 Project
Eglin	05	FTFA031026A1	LDERF LABORATORY	6.26.02F	530	New FY05 Project
Eglin	05	FTFA971041	CONSTRUCT MUNITIONS TEST FAC	6.58.07F	420	New FY05 Project
Edwards	05	FSPM032510	MC CBR SITE PREP RVITS	6.59.76F	25	New FY05 Project
Edwards	05	FSPM022526	MC CNST OFFICE SPACE AFRL B8595	6.59.76F	25	New FY05 Project
Wright-Pat	05	ZHTV032047A	Construct Canopy/Install Windows	6.22.01F	111.3	New FY05 Project
Wright-Pat	05	ZHTV032808	Construct Fuels Storage Pad	6.22.03F	300	Moved from FY04
Wright-Pat	05	ZHTV030043	Construct Support Facility for GEOLAB	6.22.04F	70	Moved from FY04
Kirtland	07	MHMV011664	CONSTRUCT LAB SUPPORT SPACE	6.22.02F	460	New FY07 Project

1. COMPONENT AIR FORCE	FY 2004 PROJECT DATA (computer generated)			2. DATE	
3. INSTALLATION AND LOCATION EGLIN AIR FORCE BASE, FLORIDA			4. PROJECT TITLE INSTALL GUARD RAILS BLDG 999		
5. PROGRAM ELEMENT 65976	6. CATEGORY CODE 315-237	7. PROJECT NUMBER FTFA021197	8. PROJECT COST (\$000) EEIC 529 12		
9. COST ESTIMATES					
ITEM		U/M	QUANTITY	UNIT	COST
PRIMARY FACILITIES					12.0
INSTALL GUARD RAILS BUILDING 999		LS			(12.0)
SUBTOTAL					12.0
PROFIT AND OVERHEAD (0 %)					0.0
TOTAL FUNDED COST					12.0
UNFUNDED COST (0 %)					0.0
TOTAL REQUEST					12.0
10. Description of Proposed Work: The work will consist of installing 8" diameter steel pipe bollards filled with concrete at 20 locations on 5'-0" intervals. Bollards to be 48" in height from base plate to top of bollard. Base plate to be 15" square - 3/4" thick with (4) 3/4" diameter, 10" expansion bolts.					
11. Requirement: As Required.					
<u>PROJECT:</u> Install bollards on the east side of Bldg 999. (Minor Construction using FY04 RDT&E funds)					
<u>REQUIREMENT:</u> Work is necessary to prevent mobile equipment from falling over the edge of the loading ramp.					
<u>CURRENT SITUATION:</u> Existing guardrail is sufficient for pedestrians but will not prevent forklifts, bobtails, and munitions trailers from falling over the edge.					
<u>IMPACT IF NOT PROVIDED:</u> Equipment will continue to be at risk of crashing through the existing guard rail protection and being damaged by the fall from the ramp.					

1. COMPONENT AIR FORCE	FY 2004 PROJECT DATA (computer generated)			2. DATE	
3. INSTALLATION AND LOCATION EGLIN AIR FORCE BASE, FLORIDA			4. PROJECT TITLE INSTALL FENCE CLIMATIC LAB STORAGE AREA		
5. PROGRAM ELEMENT 65976	6. CATEGORY CODE 310-926	7. PROJECT NUMBER FTFA011145	8. PROJECT COST (\$000) EEIC 529 22		
9. COST ESTIMATES					
ITEM		D/M	QUANTITY	UNIT	COST
PRIMARY FACILITIES					22.0
INSTALL FENCE CLIMATIC LAB STORAGE AREA		LS			(22.0)
SUBTOTAL					22.0
PROFIT AND OVERHEAD (0 %)					0.0
TOTAL FUNDED COST					22.0
UNFUNDED COST (0 %)					0.0
TOTAL REQUEST					22.0
10. Description of Proposed Work: Install chain link fencing with 3 strands of barbed wire and gate around the Climatic Lab Storage Area. Erect 800 LF of 7' FE6 chain link fence and two 84 SF FE6 swing gates for a 24' opening.					
11. Requirement: As Required.					
<u>PROJECT:</u> Install Fence Climatic Lab Storage Area. (Minor Construction using FY04 RDT&E funds)					
<u>REQUIREMENT:</u> Fence is necessary to provide security for stored items.					
<u>CURRENT SITUATION:</u> The Climatic Lab Storage Area has approximately \$2 million worth of material (equipment, fuels, and chemicals) that need protection from possible theft and vandalism.					
<u>IMPACT IF NOT PROVIDED:</u> If not provided, \$2 million worth of material (equipment, fuels, and chemicals) will continue to be unprotected from possible theft and vandalism.					

1. COMPONENT AIR FORCE	FY 2004 PROJECT DATA (computer generated)			2. DATE	
3. INSTALLATION AND LOCATION EGLIN AIR FORCE BASE, FLORIDA			4. PROJECT TITLE CONST MECHANICAL RM ADDITION GWEF (BLDG 374)		
5. PROGRAM ELEMENT 65976	6. CATEGORY CODE 315-236	7. PROJECT NUMBER FTFA041169	8. PROJECT COST (\$000) EEIC 529 72		
9. COST ESTIMATES					
ITEM		U/M	QUANTITY	UNIT	COST
PRIMARY FACILITIES					72.0
CONSTRUCT MECHANICAL ROOM ADDITION, GWEF		LS			(72.0)
SUBTOTAL					72.0
PROFIT AND OVERHEAD (0 %)					0.0
TOTAL FUNDED COST					72.0
UNFUNDED COST (0 %)					0.0
TOTAL REQUEST					72.0
10. Description of Proposed Work: Construct mechanical room addition (approx 30' x 30' x 15' high) to match existing. Exterior walls to be CMU with stucco finish. Built-up roofing with roof drains. Install two roll-up doors. Install personnel doors. Extend existing wet pipe sprinkler system into addition.					
11. Requirement: As Required.					
<u>PROJECT:</u> Provides for constructing a mechanical room addition at Bldg 374, GWEF. (Minor Construction using FY04 RDT&E funds).					
<u>REQUIREMENT:</u> Work is necessary to provide adequate space for two new replacement boilers. A new mechanical room is needed to house these new boilers. Having 2 boilers will allow our HVAC shop to perform the required boiler maintenance without the facility ever losing hot water capability and jeopardizing mission testing.					
<u>CURRENT SITUATION:</u> Existing (and only) boiler at Bldg 374 is beyond economical repair and has been shut down. Two (2) new boilers have been ordered but are too large to fit into the existing mechanical room.					
<u>IMPACT IF NOT PROVIDED:</u> If not provided, the testing mission at the GWEF will be jeopardized since the facility will lose hot water capability during boiler maintenance.					

1. COMPONENT AIR FORCE	FY 2004 PROJECT DATA (computer generated)			2. DATE	
3. INSTALLATION AND LOCATION EGLIN AIR FORCE BASE, FLORIDA			4. PROJECT TITLE CONST WEATHER COVER FABRICATION FACILITY		
5. PROGRAM ELEMENT 65976	6. CATEGORY CODE 319-995	7. PROJECT NUMBER FTFA031313	8. PROJECT COST (\$000) EEIC 529 465.5		
9. COST ESTIMATES					
ITEM		U/M	QUANTITY	UNIT	COST
PRIMARY FACILITIES					465.5
CONSTRUCT WEATHER COVER FABRICATION FACILITY		LS			(465.5)
SUBTOTAL					465.5
PROFIT AND OVERHEAD (0 %)					0.0
TOTAL FUNDED COST					465.5
UNFUNDED COST (0 %)					0.0
TOTAL REQUEST					465.5
10. Description of Proposed Work: Construct Weather Cover Fabrication Facility.					
11. Requirement: As Required.					
<p>PROJECT: Project provides for constructing a facility in Area A-19 on Eglin's Main Base to house the 46th Test Wing's Weather Cover Fabrication Facility. (Minor Construction using FY04 RDT&E funds).</p> <p>REQUIREMENT: Work is necessary to provide a replacement facility for Bldg 604 which is to be demolished. Construct a 50' x 120' x 16 (high) pre-engineered, clear span metal building with reinforced concrete slab, heavy gauge standing seam roof with ridge vent and closed gable ends. Install insulation. Install perforated metal from floor up to four feet around walls of building (metal will be installed over insulation). Install two 3'x7' insulated exterior exit metal doors and frames with hinges, entrance locksets, closers door bumpers, panic hardware and vision panel. Install aluminum gutter and downspouts. Install underground primary power line and transformer. Painting. Install new concrete 6" thick in gravelled areas. Install pendent mounted, 250W explosion proof mercury lights. Install outlets along the walls. Install new panel for lights and receptacles. Install grounding points, lighting protection system and surge protector. Install HVAC system. Construct mechanical room, comm/electrical room, restroom, shop/storage area and office space complete with all finishes.</p> <p>CURRENT SITUATION: The 46th Test Wing has an in-house capability for manufacturing weather covers for use on test range assets. These covers protect the valuable one-of-a-kind assets from the environment and also allow the operations and maintenance personnel to work on the assets in inclement weather.</p> <p>IMPACT IF NOT PROVIDED: If not provided, production of weather covers to protect valuable assets will be significantly hampered.</p>					

1. COMPONENT AIR FORCE	FY 2004 PROJECT DATA (computer generated)			2. DATE	
3. INSTALLATION AND LOCATION EDWARDS AIR FORCE BASE, CALIFORNIA		4. PROJECT TITLE MC CNST LOX CART MAINTENANCE FACILITY B1717			
5. PROGRAM ELEMENT 65976	6. CATEGORY CODE 442-258	7. PROJECT NUMBER FSPM012544	8. PROJECT COST (\$000) EEIC 529 477.8		
9. COST ESTIMATES					
ITEM		U/M	QUANTITY	UNIT	COST
PRIMARY FACILITIES					260.4
CONSTRUCT LOX CART MAINTENANCE FACILITY		SM	186	1,400	(260.4)
SUPPORTING FACILITIES					217.4
CONCRETE STORAGE AREA		SM	50	592	(29.6)
SITE PREP		LS			(25.0)
UTILITIES		LS			(100.0)
RELOCATE CLEAN ROOM		LS			(40.0)
PARKING		SM	670	34	(22.8)
SUBTOTAL					477.8
PROFIT AND OVERHEAD (0 %)					0.0
TOTAL FUNDED COST					477.8
UNFUNDED COST (0 %)					0.0
TOTAL REQUEST					477.8
10. Description of Proposed Work: 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 PROJECT DATA (computer generated)			2. DATE	
3. INSTALLATION AND LOCATION HANSCOM AIR FORCE BASE, MASSACHUSETTS		4. PROJECT TITLE CONSTRUCT COMPUTER ROOM BLDG 1607 RM 170			
5. PROGRAM ELEMENT 63858	6. CATEGORY CODE 317-311	7. PROJECT NUMBER MXRD040028	8. PROJECT COST (\$000) EEIC 529 23		
9. COST ESTIMATES					
ITEM		U/M	QUANTITY	UNIT	COST
PRIMARY FACILITIES					23.0
CONSTRUCT COMPUTER ROOM BLDG 1607 ROOM 170		LS			(23.0)
SUBTOTAL					23.0
PROFIT AND OVERHEAD (0 %)					0.0
TOTAL FUNDED COST					23.0
UNFUNDED COST (0 %)					0.0
TOTAL REQUEST					23.0
10. Description of Proposed Work: This project will construct a computer room in an existing SCIF in the facility. This will include the addition of walls, lighting, an update to the sprinkler system, new doors and locks and the installation of an air conditioning system. Air Conditioning: 2 Tons					
11. Requirement: As Required. <u>PROJECT:</u> Construct a computer room in building 1607, Room 170. (Minor Construction using FY04 RDT&E funds) <u>REQUIREMENT:</u> A secure computer room within the existing SCIF is required to support the relocation of an existing RDT&E mission to this facility. This RDT&E mission requires adequate space to house sensitive computer equipment isolated from other existing computer systems with a dedicated backup generator circuit. <u>CURRENT SITUATION:</u> Room 170 was originally constructed as a SCIF. The existing space was not designed to support sensitive computer equipment. Computer support for the relocated RDT&E function is currently collocated within another group's area compromising security and creating scheduling conflicts. <u>IMPACT IF NOT PROVIDED:</u> The user's mission will be impacted by being forced to share time and resources with another group.					

1. COMPONENT AIR FORCE	FY 2004 PROJECT DATA (computer generated)			2. DATE	
3. INSTALLATION AND LOCATION WRIGHT PATTERSON AIR FORCE BASE, OHIO			4. PROJECT TITLE PRVD A/C 2ND & 3RD FLOOR AFRL		
5. PROGRAM ELEMENT 62201	6. CATEGORY CODE 311-171	7. PROJECT NUMBER ZHTV041990	8. PROJECT COST (\$000) EEIC 529 69.9		
9. COST ESTIMATES					
ITEM		U/M	QUANTITY	UNIT	COST
PRIMARY FACILITIES					55.9
INSTALL AIR CONDITIONING		LS			(55.9)
SUBTOTAL					55.9
PROFIT AND OVERHEAD (25 %)					14.0
TOTAL FUNDED COST					69.9
UNFUNDED COST (0 %)					0.0
TOTAL REQUEST					69.9
10. Description of Proposed Work: Install air handler, controls, chiller and associated ductwork to deliver air-conditioned air to the second and third floors of the building.					
11. Requirement: As Required.					
<p><u>PROJECT:</u> Provide Air Conditioning 2nd and 3rd Floor 20065. (Minor Construction using FY04 RDT&E funds)</p> <p><u>REQUIREMENT:</u> A climate-controlled environment is required to support sensitive equipment, equipment operators and other workers in support of weapons systems research and development.</p> <p><u>CURRENT SITUATION:</u> The second and third floors do not have complete climate control. On the second floor, a new instrumentation, data acquisition, and controls systems laboratory has been established. The lab supports in-house activities resulting in new methodologies to accomplish the Air Vehicles Directorate's experimental requirements. In addition, a new capacitive structures laboratory is being established. The capacitive structures lab will include a faraday cage with high voltage power systems which may exceed 500,000 volts. This new technology has the potential to contribute significantly to directed energy programs the Air Force is currently pursuing. Both these labs were located on the 2nd floor to facilitate personnel safety in conjunction with the fact that the required infrastructures resources are available at this location. The 3rd floor has been designated as a bench level work area for technician personnel to perform electronics repair, instrument test articles, and perform test hardware assembly and checkout. The work performed in these laboratories is tedious and is very sensitive to a high heat and humidity environment. The second and third floors often experience temperatures exceeding 90 degrees Fahrenheit and 90% humidity.</p> <p><u>IMPACT IF NOT PROVIDED:</u> The extremes of temperature and humidity will adversely affect experiment and test apparatus, distorting and rendering research data invalid. Failure to provide a climate-controlled environment at these locations would increase the cost, and technical risk for the experimental validation activities being pursued by the Air Vehicles Directorate. Progress in direct energy research will be delayed, adversely impacting the Air Force's lead in developing, testing, and deploying technologically advanced weapons systems.</p>					

1. COMPONENT AIR FORCE	FY 2004 PROJECT DATA (computer generated)			2. DATE	
3. INSTALLATION AND LOCATION WRIGHT PATTERSON AIR FORCE BASE, OHIO			4. PROJECT TITLE INSTL HUMIDIFICATION CONTROL		
5. PROGRAM ELEMENT 62203	6. CATEGORY CODE 310-921	7. PROJECT NUMBER ZHTV042053	8. PROJECT COST (\$000) EEIC 529 275		
9. COST ESTIMATES					
ITEM		U/M	QUANTITY	UNIT	COST
PRIMARY FACILITIES					220.0
SC LAB MED		LS			(220.0)
SUBTOTAL					220.0
PROFIT AND OVERHEAD (25 %)					55.0
TOTAL FUNDED COST					275.0
UNFUNDED COST (0 %)					0.0
TOTAL REQUEST					275.0
10. Description of Proposed Work: Install air handler, including related controls, piping, and power, and HVAC distribution system. Tie system into the existing 10838 HVAC system.					
11. Requirement: As Required.					
<u>PROJECT:</u> Install Humidification Control					
<u>REQUIREMENT:</u> Provide controlled environment for toxicology research on animal subjects.					
<u>CURRENT SITUATION:</u> The vivarium annex to 10838 does not have proper humidity control and ventilation, leading to disease in laboratory animals used as experimental subjects. Lack of proper climate control and the resultant diseases invalidates the experiment results derived from the animal subjects. A disease called ring tail has been found on the animal subjects in the vivarium.					
<u>IMPACT IF NOT PROVIDED:</u> Failure to provide proper climate control will continue to lead to animal diseases and invalid test results, and will result in the toxicology laboratory losing certification, rendering future scientific studies in the toxicology laboratory invalid and jeopardizing future research grants.					

1. COMPONENT AIR FORCE		FY 2004 PROJECT DATA (computer generated)		2. DATE	
3. INSTALLATION AND LOCATION WRIGHT PATTERSON AIR FORCE BASE, OHIO			4. PROJECT TITLE PRVD POWER SUPPLY FOR CARL		
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
PRIMARY FACILITIES					360.0
POWER SUPPLY TO THE CARL FACILITY		LS			(360.0)
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 Work: 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 PROJECT DATA (computer generated)			2. DATE	
3. INSTALLATION AND LOCATION WRIGHT PATTERSON AIR FORCE BASE, OHIO				4. PROJECT TITLE CNST MECHANICAL ROOM		
5. PROGRAM ELEMENT 62203		6. CATEGORY CODE 318-612	7. PROJECT NUMBER ZHTV030016B	8. PROJECT COST (\$000) EEIC 529 592		
9. COST ESTIMATES						
ITEM				U/M	QUANTITY	COST
PRIMARY FACILITIES						473.6
ADD TO MECHANICAL ROOM				SM	185	(473.6)
SUBTOTAL						473.6
PROFIT AND OVERHEAD (25 %)						118.4
TOTAL FUNDED COST						592.0
UNFUNDED COST (0 %)						0.0
TOTAL REQUEST						592.0
10. Description of Proposed Work: 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 2005 PROJECT DATA (computer generated)			2. DATE	
3. INSTALLATION AND LOCATION EGLIN AIR FORCE BASE, FLORIDA			4. PROJECT TITLE CONSTRUCT IGLOO AND IGLOO WALL MOCKUP		
5. PROGRAM ELEMENT 65976	6. CATEGORY CODE 422-264	7. PROJECT NUMBER FTFA011226	8. PROJECT COST (\$000) EEIC 529 308.6		
9. COST ESTIMATES					
ITEM		U/M	QUANTITY	UNIT	COST
CONSTRUCT IGLOO & IGLOO WALL MOCKUP					263.6
IGLOO WALL MOCK-UP		EA	2	55,000	(110.0)
IGLOO		SM	84	1,829	(153.6)
SUPPORTING FACILITIES					45.0
SITE IMPROVEMENTS		LS			(25.0)
DEMO IGLOO AND WALL MOCKUPS		LS			(20.0)
SUBTOTAL					308.6
PROFIT AND OVERHEAD (0 %)					0.0
TOTAL FUNDED COST					308.6
UNFUNDED COST (0 %)					0.0
TOTAL REQUEST					308.6
10. Description of Proposed Work: Construct a 900 SF reinforced concrete earth covered igloo and 2 adjacent reinforced concrete igloo wall mock-ups.					
11. Requirement: 84 SM Adequate: 0 SM Substandard: 84 SM					
<u>PROJECT:</u> Construct a earth covered igloo and adjacent igloo wall mock-ups. (Minor construction using FY05 RDT&E funds)					
<u>REQUIREMENT:</u> This project was validated at a special meeting of the Installation Security Council held in January 2002. Requirements are in concurrence with AFI-31-101 and the most recent VAT and JSIVA for Eglin AFB. ESC/FD is tasked with the responsibility of procuring Force Protection Systems for various DoD assets. An igloo and adjacent igloo walls are required to support testing interior sensor systems for the Force Protection Systems Program Office (SPO) through Force on Force exercises prior to procurement and deployment.					
<u>CURRENT SITUATION:</u> ESC/FD, the Force Protection SPO utilizes test area C-3 on Eglin AFB, FL. The existing site does not possess the necessary facilities to adequately test the new generation of Research and Development Force Protection Systems.					
<u>IMPACT IF NOT PROVIDED:</u> Without this project, DoD Force Protection capabilities will be compromised due to inadequate testing of prototype force protection facilities.					

1. COMPONENT AIR FORCE	FY 2005 PROJECT DATA (computer generated)			2. DATE	
3. INSTALLATION AND LOCATION EGLIN AIR FORCE BASE, FLORIDA		4. PROJECT TITLE ADD TO PARKING AREA, BUILDING 432			
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
PRIMARY FACILITIES					26.0
ADD TO PARKING AREA, BLDG 432		LS			(26.0)
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 Work: Asphalt parking lot for 15 POV parking spots adjacent to building 432.					
11. Requirement: As Required.					
<p><u>PROJECT:</u> Constructs POV parking adjacent to building 432. (Minor Construction using FY05 RDT&E funds).</p> <p><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.</p> <p><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.</p> <p><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.</p>					

1. COMPONENT AIR FORCE	FY 2005 PROJECT DATA (computer generated)			2. DATE	
3. INSTALLATION AND LOCATION EGLIN AIR FORCE BASE, FLORIDA			4. PROJECT TITLE CONSTRUCT LDERF OFFICE AND MACHINE SHOP		
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 CONSTRUCT LDERF OFFICE AND MACHINE SHOP	
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 2005 PROJECT DATA (computer generated)			2. DATE	
3. INSTALLATION AND LOCATION EGLIN AIR FORCE BASE, FLORIDA			4. PROJECT TITLE LDERF LABORATORY		
5. PROGRAM ELEMENT 62602	6. CATEGORY CODE 317-311	7. PROJECT NUMBER FTFA031026A1	8. PROJECT COST (\$000) EEIC 529 529.8		
9. COST ESTIMATES					
ITEM		U/M	QUANTITY	UNIT	COST
PRIMARY FACILITIES					449.8
ELECT RSCH LAB		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 418 SM 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> Provides a laboratory for indoor lasing. Includes special purpose space and work benches for testing detection systems, developing lasers and testing optics.					
<u>REQUIREMENT:</u> The Laser Detection and Ranging component of the LDERF requires an indoor range for certain tests on lasing equipment. Indoor laboratories area 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 System (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 the 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.					

1. COMPONENT AIR FORCE	FY 2005 PROJECT DATA (computer generated)			2. DATE	
3. INSTALLATION AND LOCATION EGLIN AIR FORCE BASE, FLORIDA			4. PROJECT TITLE CONSTRUCT MUNITIONS TEST FAC		
5. PROGRAM ELEMENT 65807	6. CATEGORY CODE 315-237	7. PROJECT NUMBER FTFA971041	8. PROJECT COST (\$000) EEIC 529 420		
9. COST ESTIMATES					
ITEM		U/M	QUANTITY	UNIT	COST
PRIMARY FACILITIES					420.0
CONSTRUCT MUNITIONS TEST FACILITY		LS			(420.0)
SUBTOTAL					420.0
PROFIT AND OVERHEAD (0 %)					0.0
TOTAL FUNDED COST					420.0
UNFUNDED COST (0 %)					0.0
TOTAL REQUEST					420.0
10. Description of Proposed Work: Construct a new munitions test facility to replace the existing temporary trailers					
11. Requirement: As Required.					
<u>PROJECT:</u> Construct Munitions Test Facility. (Minor Construction using FY05 RDT&E funds).					
<u>REQUIREMENT:</u> A new facility is required to house the non-hands on munitions personnel associated with the munitions test program.					
<u>CURRENT SITUATION:</u> Personnel have been displaced from Bldg 999 because of explosive safety considerations (live munitions operations are performed in the facility). Personnel are currently being housed in three double-wide trailers.					
<u>IMPACT IF NOT PROVIDED:</u> Personnel will continued to operate out of temporary facilities causing mission delays.					

1. COMPONENT AIR FORCE	FY 2008 PROJECT DATA (computer generated)			2. DATE	
3. INSTALLATION AND LOCATION EDWARDS AIR FORCE BASE, CALIFORNIA		4. PROJECT TITLE MC CBR SITE PREP RVITS			
5. PROGRAM ELEMENT 65976	6. CATEGORY CODE 319-441	7. PROJECT NUMBER FSPM032510	8. PROJECT COST (\$000) EEIC 529 25		
9. COST ESTIMATES					
ITEM		U/M	QUANTITY	UNIT	COST
PRIMARY FACILITIES					25.0
EQUIP RSCH LAB		LS			(25.0)
SUBTOTAL					<hr/> 25.0
PROFIT AND OVERHEAD (0 %)					0.0
TOTAL FUNDED COST					<hr/> 25.0
UNFUNDED COST (0 %)					0.0
TOTAL REQUEST					<hr/> 25.0
10. Description of Proposed Work: Construct a small facility with concrete pad and small sump to support testing of small rocket engines at the south test stand near B1926.					
11. Requirement: As Required.					
<u>PROJECT:</u> Construct a small facility with concrete pad and small sump to support testing of small rocket engines at the south test stand near B1926.					
<u>REQUIREMENT:</u> Construct a small facility with concrete pad and small sump to support testing of small rocket engines at the south test stand near B1926.					
<u>IMPACT IF NOT PROVIDED:</u> This work is required to support testing in support of the X-43 program.					

1. COMPONENT AIR FORCE	FY 2008 PROJECT DATA (computer generated)			2. DATE	
3. INSTALLATION AND LOCATION EDWARDS AIR FORCE BASE, CALIFORNIA			4. PROJECT TITLE MC CNST OFFICE SPACE AFRL B8595		
5. PROGRAM ELEMENT 65976	6. CATEGORY CODE 312-477	7. PROJECT NUMBER FSPM022526	8. PROJECT COST (\$000) EEIC 529 25		
9. COST ESTIMATES					
ITEM		U/M	QUANTITY	UNIT	COST
PRIMARY FACILITIES					25.0
MSL/SPACE RSH TST		LS			(25.0)
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 Work: Install 20' x 20' two story office space inside high bay area of building 8595.					
11. Requirement: As Required. <u>PROJECT:</u> Install 20' x 20' two story office space inside high bay area of building 8595. <u>REQUIREMENT:</u> Install 20' x 20' two story office space inside high bay area of building 8595. <u>IMPACT IF NOT PROVIDED:</u> The new office space is required to support increase in research and development activity.					

1. COMPONENT AIR FORCE	FY 2005 PROJECT DATA (computer generated)			2. DATE	
3. INSTALLATION AND LOCATION WRIGHT PATTERSON AIR FORCE BASE, OHIO			4. PROJECT TITLE CNSTR CANOPY/INSTL WINDOWS		
5. PROGRAM ELEMENT 62201	6. CATEGORY CODE 311-114	7. PROJECT NUMBER ZHTV032047A	8. PROJECT COST (\$000) EEIC 529 111.3		
9. COST ESTIMATES					
ITEM		U/M	QUANTITY	UNIT	COST
PRIMARY FACILITIES					89.0
CONSTRUCT FRONT ENTRANCE		LS			(89.0)
SUBTOTAL					89.0
PROFIT AND OVERHEAD (25 %)					22.3
TOTAL FUNDED COST					111.3
UNFUNDED COST (0 %)					0.0
TOTAL REQUEST					111.3
10. Description of Proposed Work: Excavate, provide foundations, superstructure, windows, doors, interior finishes and utilities for an entry vestibule at 20045.					
11. Requirement: As Required.					
<u>PROJECT:</u> Construct Canpoy/Install Windows 20045. (Minor Construction using FY05 RDT&E funds)					
<u>REQUIREMENT:</u> Reconfiguration of the entrance via interior remodeling of the lobby and provision of an entrance vestibule is required to improve force protection and security for classified research activities, provide a secure single point of entry and reception area for visitors and create a focal point within the facility to assist in way finding.					
<u>CURRENT SITUATION:</u> 20045 is a central automatic data processing (ADP) and administrative support facility for the Air Force Research Laboratories Air Vehicles Directorate (AFRL/VA). ADP support is provided to facilities in the adjacent AFLR/VA complex and to other VA research laboratories and shops throughout Area B of Wright-Patterson AFB. Office space is also provided to scientists, technicians, and engineers engaged in testing and experimentation in the VA research laboratories and shops. While actual experimentation occurs at the labs, desktop analyses and development occurs in the 20045 administrative center. A study has been conducted that recommends a comprehensive interior renovation to more efficiently support the scientific research mission of AFRL/VA, with recommendations to reconfigure an antiquated and confusing office arrangement and circulation system and construct a new entrance and vestibule.					
<u>IMPACT IF NOT PROVIDED:</u> 20045 will not have an optimal spatial arrangement to support scientists, engineers, and technicians engaged in research, testing, and development in aeronautical sciences, fixed wing aerospace structures, and flight controls and simulations due to a confused interior spatial arrangement. A central secure area for visiting scientists, engineers, and dignitaries and building users will not be provided, adversely affecting quality of work as well as the security of classified research occurring in the facility.					
<u>ADDITIONAL:</u> Companion repair project ZHTV032047B, Repair Vestibule, accomplishes interior repairs and reconfiguration of the vestibule area within the facility footprint.					

1. COMPONENT AIR FORCE	FY 2005 PROJECT DATA (computer generated)			2. DATE	
3. INSTALLATION AND LOCATION WRIGHT PATTERSON AIR FORCE BASE, OHIO			4. PROJECT TITLE CONSTRUCT FUELS STORAGE PAD		
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
PRIMARY FACILITIES					240.0
CONSTRUCT FUELS STORAGE PAD		LS			(240.0)
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 Work: 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.					
<p><u>PROJECT:</u> Construct Fuels Storage Pad. (Minor Construction using FY05 RDT&E funds)</p> <p><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.</p> <p><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.</p> <p><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.</p>					

1. COMPONENT AIR FORCE	FY 2005 PROJECT DATA (computer generated)			2. DATE	
3. INSTALLATION AND LOCATION WRIGHT PATTERSON AIR FORCE BASE, OHIO			4. PROJECT TITLE CONSTRUCT SUPPORT FACILITY FOR GEOLAB		
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
PRIMARY FACILITIES					56.0
CONSTRUCT SUPPORT FACILITY FOR GEOLAB		LS			(56.0)
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 Work: 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 FY05 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 2007 PROJECT DATA (computer generated)			2. DATE	
3. INSTALLATION AND LOCATION KIRTLAND AIR FORCE BASE, NEW MEXICO			4. PROJECT TITLE CONSTRUCT LABORATORY SUPPORT SPACE		
5. PROGRAM ELEMENT 62202	6. CATEGORY CODE 312-477	7. PROJECT NUMBER MHMV011664	8. PROJECT COST (\$000) EEIC 529 460		
9. COST ESTIMATES					
ITEM		U/M	QUANTITY	UNIT	COST
PRIMARY FACILITIES					460.0
CONSTRUCT LAB SUPPORT SPACE B472		LS			(460.0)
SUBTOTAL					460.0
PROFIT AND OVERHEAD (0 %)					0.0
TOTAL FUNDED COST					460.0
UNFUNDED COST (0 %)					0.0
TOTAL REQUEST					460.0
10. Description of Proposed Work: Construct additional secure laboratory support space adjacent to the high-bay Science and Technology (S&T) laboratories in building 472 with secure access and sound attenuation to STC 45. Addition will be lightweight concrete slab on open web steel bar joists with walls, flooring, ceiling, lighting, heating, ventilation, and air conditioning, and appropriate fire detection/suppression.					
11. Requirement: As Required.					
<u>PROJECT:</u> Construct Laboratory Support Space, Building 472. (Minor Construction using FY07 RDT&E funds)					
<u>REQUIREMENT:</u> Colocation of laboratory analysis, engineering, and management support space with their respective high-bay Science and Technology laboratories is required to improve efficiencies and to reduce S&T costs.					
<u>CURRENT SITUATION:</u> The existing facility's layout is inadequate to provide the additional square footage of secure laboratory support space needed within Building 472. Current laboratory support space is housed in other facilities remote from their respective high-bay laboratories.					
<u>IMPACT IF NOT PROVIDED:</u> Operational costs will continue to be higher than necessary due to the split operation. Science and Technology professionals will continue to waist unnecessary manhours in travel time between support space and high-bay laboratories that could be better utilized in performing and studying actual experiments.					