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**DEPARTMENT OF THE AIR FORCE**

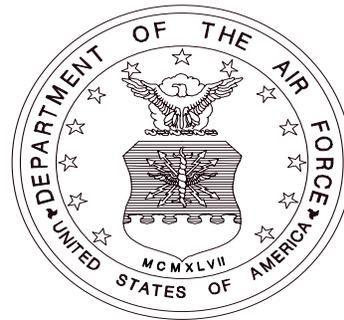
**FISCAL YEAR (FY) 2006/2007 BUDGET ESTIMATES**

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

**DESCRIPTIVE SUMMARIES, VOLUME II**

**BUDGET ACTIVITIES 4 - 6**

**FEBRUARY 2005**



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**Fiscal Year 2006 Budget Estimates  
RDT&E Descriptive Summaries, Volume II  
Budget Activities 4 - 6  
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.
  - 3) All exhibits in this document have been assembled in accordance with DoD 7000.14R, Financial Management Regulation, Volume 2B, Chapter 5, Section 050402. Exception:
    - a) Exhibit R-1, RDT&E Program, which was distributed under a separate cover due to classification.
  - 4) 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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SPECIAL TACTICS/COMBAT CONTROL	0408011F	2137

Specialized Undergraduate Pilot Training	0604233F	871
STRAT WAR PLANNING SYS - USSTRATCOM	0101313F	1357
Submunitions	0604604F	1013
Support Systems Development	0708611F	2187
Tactical AIM Missiles	0207161F	1453
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 &amp; 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&amp;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&amp;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 &amp; 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&amp;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)**

<b>2004 Actual</b>	<b>2005 Estimate</b>	<b>2006 Estimate</b>
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*

<b>Key Performance Measures from Latest PART</b>	<b>Year</b>	<b>Target</b>	<b>Actual</b>
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	

<b>Recommended Follow-up Actions</b>	<b>Status</b>
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)**

<b>2004 Actual</b>	<b>2005 Estimate</b>	<b>2006 Estimate</b>
1,100	1,133	1,500

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PE NUMBER: 0603260F  
 PE TITLE: Intelligence Advanced Development

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0603260F Intelligence Advanced Development</b>
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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	4.364	4.571	4.580	4.734	4.817	4.902	5.007	5.076	Continuing	TBD
3479 Advanced Sensor Exploitation	0.922	0.822	0.743	0.774	0.804	0.822	0.835	0.841	Continuing	TBD
3480 Automated Imagery Exploitation	0.883	1.324	1.355	1.398	1.416	1.438	1.470	1.492	Continuing	TBD
3481 Knowledge Based Tech For Intelligence	1.804	1.349	1.381	1.425	1.443	1.465	1.499	1.521	Continuing	TBD
3482 Science & Tech Intelligence Methodology	0.755	1.076	1.101	1.137	1.154	1.177	1.203	1.222	Continuing	TBD

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

(U) Intelligence Advanced Development (IAD) demonstrates and validates advanced technologies required to support warfighter needs for timely all-source intelligence information. IAD research supports global awareness, consistent battlespace knowledge, precision information, and the execution of time critical missions. IAD projects provide better on-time information to the warfighter by using new and existing data sources, streamlining data analyses, reducing the required intelligence footprint, and by extending the life of sensors in place as well as enhancing their performance. Air Force Research Lab Rome Research Site (AFRL/IFE) works directly with users, employing a rapid prototyping evolutionary approach, integrating finished modules directly into the field. The programs are oriented toward specific shortfalls and deficiencies as documented by the major commands (MAJCOMS), combatant commands, and intelligence organizations in their mission and functional area plans. The goal of this program is to expedite technology transition from the laboratory to operational use via rapid prototyping. This AF program is focused on technology insertion to correct AF intelligence deficiencies at tactical and operational levels. This program bridges the transition of new technologies from Advanced Technology Demonstrations (ATDs) and Integrated Technology Thrust Programs (ITTPs) into current/new systems, and also supports the associated Defense Technology Objectives (DTOs).

This program is in Advanced Component Development & Prototypes (ACD&P), Budget Activity 4, because it demonstrates and validates advanced technology which enhances information / intelligence systems' capabilities 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	4.453	4.612	4.655	4.740
(U) Current PBR/President's Budget	4.364	4.571	4.580	4.734
(U) Total Adjustments	-0.089	-0.041		
(U) Congressional Program Reductions				
Congressional Rescissions		-0.041		
Congressional Increases				
Reprogrammings	-0.089			
SBIR/STTR Transfer				

(U) Significant Program Changes:

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**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>							PE NUMBER AND TITLE <b>0603260F Intelligence Advanced Development</b>		PROJECT NUMBER AND TITLE <b>3479 Advanced Sensor Exploitation</b>		
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	
3479 Advanced Sensor Exploitation	0.922	0.822	0.743	0.774	0.804	0.822	0.835	0.841	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0			

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

The project objectives are to develop, demonstrate and evaluate a near-real-time all source correlation/fusion capability by applying state-of-the-art data processing techniques for the receipt, correlation, templating, and analysis of battlefield information. Capabilities will be developed in an open systems architecture environment allowing for the greatest efficiency in terms of integrating or interfacing with other systems. There are Air Force, DoD, and Coalition needs to correlate various sources of intelligence information (Communications Intelligence - COMINT, Electronic Intelligence - ELINT, Imagery Intelligence - IMINT) within seconds/minutes as opposed to hours/days with current manual and semi-automated methods. The project includes development of data correlation and predictive intelligence algorithms as well as target analysis and prioritization, air order of battle update, and tactical analysis techniques. This computerized approach will speed up the correlation of data from diverse sources of intelligence information, including COMINT, ELINT, and IMINT; providing faster situational awareness and threat assessment, and replace manual systems with automated capabilities.

This program is in Advanced Component Development & Prototypes (ACD&P), Budget Activity 4, because it demonstrates and validates advanced technology which enhances information / intelligence systems' capabilities 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) Complete Advanced Fusion Workstation (AFWS) Transition	0.409			
(U) Continue/Complete Predictive Battlespace Awareness (PBA)	0.513	0.822	0.743	
(U) Initiate Web Automated Assistance with Intelligence Preparation of the Battlespace (WA2IPB)				0.774
(U) Total Cost	0.922	0.822	0.743	0.774

**(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>Complete</u>							
(U) AF RDT&E										
(U) Other APPN										
None										

**(U) D. Acquisition Strategy**

All major contracts within this project were awarded after full and open competition.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2005**

<b>BUDGET ACTIVITY</b>	<b>PE NUMBER AND TITLE</b>	<b>PROJECT NUMBER AND TITLE</b>
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>0603260F Intelligence Advanced Development</b>	<b>3479 Advanced Sensor Exploitation</b>

(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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>														
Advanced Fusion Workstation (AFWS)	C/CPFF	Northrop-Gru mman Corp., Melbourne, FL	0.278	0.409	Nov-03	0.000		0.000		0.000		0.000	0.687	0.687
Predictive Battlespace Awareness (PBA)	C/CPFF	Zel-Tec, Inc., Hampton, VA	0.320	0.513	Nov-03	0.822	Nov-04	0.743	Nov-05	0.000		0.000	2.398	2.398
Web Automated Assistance with Intelligence Preparation of the Battlefield (WA2IPB)	TBD	TBD	0.000	0.000		0.000		0.000		0.774	Jan-07	3.603	4.377	TBD
Subtotal Product Development			0.598	0.922		0.822		0.743		0.774		3.603	7.462	TBD
Remarks:														
(U) Total Cost			0.598	0.922		0.822		0.743		0.774		3.603	7.462	TBD



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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0603260F Intelligence Advanced Development</b>	<b>PROJECT NUMBER AND TITLE</b> <b>3479 Advanced Sensor Exploitation</b>
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<b>(U) <u>Schedule Profile</u></b>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Complete Advanced Fusion Work Station (AFWS)	4Q			
(U) Continue / Complete Predictive Battlespace Awareness (PBA)	1-4Q	1-4Q	4Q	
(U) Initiate Web Automated Assistance with Intelligence Preparation of the Battlespace (WA2IPB)				2Q

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**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>						PE NUMBER AND TITLE <b>0603260F Intelligence Advanced Development</b>		PROJECT NUMBER AND TITLE <b>3480 Automated Imagery Exploitation</b>		
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
3480 Automated Imagery Exploitation	0.883	1.324	1.355	1.398	1.416	1.438	1.470	1.492	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 demonstrates and validates the capability to more accurately and quickly interpret digital imagery and video by developing/evaluating computer-assisted techniques to manipulate and overlay imagery, cartographic data, signals intelligence (SIGINT), and on-line intelligence data. The result of this effort will be more precise target locations and identifications, precise target reference scenes, and more accurate damage assessments for the operator; all developed for easy supportability on low-cost, commercially-available computer workstations.

This program is in Advanced Component Development & Prototypes (ACD&P), Budget Activity 4, because it demonstrates and validates advanced technology which enhances information / intelligence systems' capabilities 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) Continue / Complete Imagery Assurance and Exploitation	0.144	0.150		
(U) Initiate / Complete Distributed Common Ground Systems (DCGS) Video Processing Capability (VPC)	0.145	0.100		
(U) Initiate / Complete J-View Integration into AF Research Laboratory (AFRL) Imagery Viewer	0.194	0.150		
(U) Initiate / Complete Map-Based Interface to Geospacial Product Library Client	0.194	0.150		
(U) Initiate / Continue / Complete UAV Motion Imagery Exploitation (MIE)	0.206	0.365	0.400	
(U) Initiate / Continue / Complete Dynamic Motion Imagery Annotation & Exploitation Tools		0.200	0.479	0.320
(U) Initiate / Continue / Complete Operational Imagery Protection and Authentication		0.209	0.476	0.415
(U) Initiate Multi-View Toolkit for Imagery Assessment and Exploitation				0.663
(U) Total Cost	0.883	1.324	1.355	1.398

**(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>Complete</u>							
(U) AF RDT&E										
(U) Other APPN										
None										

**(U) D. Acquisition Strategy**

All major contracts within this project were awarded after full and open competition.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2005**

<b>BUDGET ACTIVITY</b>	<b>PE NUMBER AND TITLE</b>	<b>PROJECT NUMBER AND TITLE</b>
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>0603260F Intelligence Advanced Development</b>	<b>3480 Automated Imagery Exploitation</b>

(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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>														
Imagery Assurance and Exploitation	C/CPFF	PAR Government Systems Corp., New Hartford, NY	0.276	0.144	Nov-03	0.150	Nov-04					0.000	0.570	0.570
Distributed Common Ground Systems (DCGS) Video Processing Capability (VPC) Video Annotation Capability	C/CPFF	Science Applications International Corp (SAIC), Dayton, OH	0.000	0.145	Jan-04	0.100	Nov-04					0.000	0.245	0.444
J-View Integration into AFRL Imagery Viewer	C/CPFF	CACI-MTL Systems, Inc., Beavercreek, OH	0.000	0.194	Jan-04	0.150	Nov-04					0.000	0.344	0.344
Map-Based Interface for Geospacial Product Library Client	C/CPFF	LPA Systems, Fairport, NY	0.000	0.194	Jan-04	0.150	Nov-04					0.000	0.344	0.344
UAV Motion Imagery Exploitation (MIE)	C/CPFF	PAR Government Systems Corp., New Hartford, NY	0.000	0.206	Jan-04	0.365	Nov-04	0.400	Nov-05			0.000	0.971	1.198
Dynamic Motion Imagery Annotation & Exploitation Tools	C/CPFF	TBD	0.000	0.000		0.200	Mar-05	0.479	Nov-05	0.320	Nov-06	0.000	0.999	TBD
Operational Imagery Protection and Authentication	C/CPFF	TBD	0.000	0.000		0.209	Mar-05	0.476	Nov-05	0.415	Nov-06	0.000	1.100	TBD
Multi-View Toolkit for Imagery Assessment and Exploitation	C/TBD	TBD	0.000	0.000		0.000				0.663	Jan-07	1.971	2.634	TBD
Subtotal Product Development			0.276	0.883		1.324		1.355		1.398		1.971	7.207	TBD
Remarks:														
(U) Total Cost			0.276	0.883		1.324		1.355		1.398		1.971	7.207	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603260F Intelligence Advanced Development

PROJECT NUMBER AND TITLE

3480 Automated Imagery Exploitation

Fiscal Year	2004				2005				2006				2007				2008				2009				2010				2011			
	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
<b><u>Automated Imagery Exploitation (BPAC 3480)</u></b>																																
- Imagery Assurance & Exploitation																																
- Distributed Common Ground System (DCGS) Video Proc Capability (VPC)																																
- J-View Integration into AFRL Imagery Viewer																																
- Map-Based Interface for Geospacial Product Library Client																																
- UAV Motion Imagery Exploitation (MIE)																																
- Dynamic Motion Imagery Annotation Exploitation Tools																																
- Operational Imagery Protection and Authentication																																
- Multi-View Toolkit for Imagery Assessment and Exploitation																																

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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0603260F Intelligence Advanced Development</b>	<b>PROJECT NUMBER AND TITLE</b> <b>3480 Automated Imagery Exploitation</b>
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<b>(U) <u>Schedule Profile</u></b>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Continue / Complete Imagery Assurance & Exploitation	1-4Q	1-4Q	1Q	
(U) Initiate / Continue/Complete Distributed Common Ground Systems (DCGS) Video Processing Capability (VPC)	2Q	1-4Q	1Q	
(U) Initiate / Continue/Complete J-View Integration into AFRL Imagery Viewer	2Q	1-4Q	2Q	
(U) Initiate / Continue/Complete Map-Based Interface for Geospacial Product Library Client	2Q	1-4Q	2Q	
(U) Initiate / Continue/Complete UAV Motion Imagery Exploitation (MIE)	2Q	1-4Q	1-4Q	2Q
(U) Initiate / Continue Dynamic Motion Imagery Annotation Exploitation Tools		2Q	1-4Q	1-4Q
(U) Initiate / Continue Operational Imagery Protection and Authentication		2Q	1-4Q	1-4Q
(U) Initiate Multi-View Toolkit for Imagery Assessment and Exploitation				2Q

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**Exhibit R-2a, RDT&E Project Justification**

DATE

**February 2005**

BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>					PE NUMBER AND TITLE <b>0603260F Intelligence Advanced Development</b>			PROJECT NUMBER AND TITLE <b>3481 Knowledge Based Tech For Intelligence</b>		
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
3481 Knowledge Based Tech For Intelligence	1.804	1.349	1.381	1.425	1.443	1.465	1.499	1.521	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 improves Global Awareness, Dynamic Planning, and Execution by providing knowledge bases and inference engines to exploit collected data for nine major commands and AF intelligence organizations. The development of the analytical aids is based on artificial intelligence techniques. The increased timeliness, efficiency and effectiveness derived will provide enhanced warning time and accuracy, allowing national/military authorities a greater range of options to avert, diminish or control a crisis.

This program is in Advanced Component Development & Prototypes (ACD&P), Budget Activity 4, because it demonstrates and validates advanced technology which enhances information/intelligence systems' capabilities 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) Continue Trusted Transfer Agent (TTA) -- Complete Phase 2, Reach Up	0.300			
(U) Continued Trusted Transfer Agent (TTA) -- Continue/Complete Phase 3, Starguard	0.504	0.250		
(U) Continue / Complete Infrastructure Operations Tool Access/Secure Intelligence Data Enterprise (IOTA / SIDEARM)	0.200	0.100		
(U) Initiate/Continue/Complete Counter Terrorism / Information Operations (CT / IO) Target Data Access	0.300	0.200	0.275	
(U) Initiate / Continue/Complete High Throughput Imagery Guard (H-TIG)	0.200	0.250	0.325	
(U) Initiate / Continue / Complete Multi Information Domain Access Web Server (MIDAS)	0.300	0.319	0.456	
(U) Initiate / Continue Enterprise Workflow Management (EWM)		0.230	0.325	0.350
(U) Initiate Non-Traditional Intelligence / Surveillance / Reconnaissance (ISR) Production Management (NTIPM)				1.075
(U) Total Cost	1.804	1.349	1.381	1.425

**(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>Complete</u>							
(U) AF RDT&E										
(U) Other APPN										
None										

**(U) D. Acquisition Strategy**

All major contracts within this project were awarded after full and open competition.

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Exhibit R-3, RDT&E Project Cost Analysis												DATE February 2005		
BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)					PE NUMBER AND TITLE 0603260F Intelligence Advanced Development					PROJECT NUMBER AND TITLE 3481 Knowledge Based Tech For Intelligence				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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) <b>Product Development</b>														
Trusted Transfer Agent (TTA) Phase 2 - Reach Up	C/IDIQ	Dolphin Technology, Inc., Rome, NY	0.358	0.300	Nov-03	0.000		0.000		0.000		0.000	0.658	0.658
Trusted Transfer Agent (TTA) Phase 3 - Secure Trusted Automated Routing (STAR) Guard	C/IDIQ	Dolphin Technology, Inc., Rome, NY	0.105	0.504	Nov-03	0.250	Nov-04	0.000		0.000		0.000	0.859	0.859
Information Operations Tool Access (IOTA) / Secure Intelligence Data Enterprise-Aware Repository Middleware (SIDEARM)	C/IDIQ	Northrop Grumman Corp, Bellevue, NE	0.200	0.200	Nov-03	0.100	Nov-04	0.000		0.000		0.000	0.500	0.500
Counter Terrorism /Information (CT / IO) Operations Target Data Access	C/CPFF	Northrop Grumman Corp, Bellevue, NE	0.000	0.300	Mar-04	0.200	Nov-04	0.275	Nov-05	0.000		0.000	0.775	0.775
High Throughput Imagery Guard (H-TIG)	C/IDIQ	Dolphin Technology, Inc., Rome, NY	0.000	0.200	Feb-04	0.250	Nov-04	0.325	Nov-05	0.000		0.000	0.775	0.775
Multi-Information Domain Access Web Server (MIDAS)	C/IDIQ	Dolphin Technology, Inc., Rome, NY	0.000	0.300	Mar-04	0.319	Nov-04	0.456	Nov-05	0.000		0.000	1.075	1.075
Enterprise Workflow Management	C/CPFF	TBD	0.000	0.000		0.230	Mar-05	0.325	Nov-05	0.350	Nov-06	0.150	1.055	TBD
Non-Traditional ISR Production Management (NTIPM)	TBD	TBD	0.000	0.000		0.000		0.000		1.075	Jan-07	2.864	3.939	TBD
Subtotal Product Development			0.663	1.804		1.349		1.381		1.425		3.014	9.636	TBD
Remarks:														
(U) Total Cost			0.663	1.804		1.349		1.381		1.425		3.014	9.636	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603260F Intelligence Advanced Development

PROJECT NUMBER AND TITLE

3481 Knowledge Based Tech For Intelligence

Fiscal Year	2004				2005				2006				2007				2008				2009				2010				2011			
	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
<b><u>Knowledge Based Technologies for Intelligence (BPAC 3481)</u></b>																																
- Trusted Transfer Agent (TTA)																																
-- TTA Phase 2, Reach Up																																
-- TTA Phase 3, Star Guard																																
- Infrastructure Operations Tools Access/Secure Intel Data Enterprise Aware Repository Middleware (IOTA/SIDEARM)																																
- Counter Terrorism/Info Ops (CT/IO) Target Data Access																																
- High Throughput Imagery Guard (H-TIG)																																
- Multi-Info Domain Access Web-Server (MIDAS)																																
- Enterprise Workflow Management																																
- Non Traditional ISR Production Mgmt																																

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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0603260F Intelligence Advanced Development</b>	<b>PROJECT NUMBER AND TITLE</b> <b>3481 Knowledge Based Tech For Intelligence</b>
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	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
<b>(U) <u>Schedule Profile</u></b>				
(U) Complete Trusted Transfer Agent (TTA) -- Complete Phase 2, Reach Up	4Q			
(U) Continue / Complete Trusted Transfer Agent (TTA) -- Continue / Complete Phase 3, Starguard	1-4Q	4Q		
(U) Continue / Complete Infrastructure Operations Tools Access (IOTA) / Secure Intelligence Data Enterprise -Aware Repository Middleware (IOTA / SIDEARM)	1-4Q	4Q		
(U) Initiate / Continue / Complete Counter-Terrorism/Information Operations (CT / IO) Target Data Access	2Q	1-4Q	4Q	
(U) Initiate / Continue / Complete High Throughput Imagery Guard (H-TIG)	2Q	1-4Q	4Q	
(U) Initiate / Continue / Complete Multi Information Domain Access Web Server (MIDAS)	2Q	1-4Q	4Q	
(U) Initiate / Continue Enterprise Workflow Management Tool		2Q	1-4Q	1-4Q
(U) Initiate Non Traditional ISR Production Management				2Q

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**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>							PE NUMBER AND TITLE <b>0603260F Intelligence Advanced Development</b>		PROJECT NUMBER AND TITLE <b>3482 Science &amp; Tech Intelligence Methodology</b>	
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
3482 Science & Tech Intelligence Methodology	0.755	1.076	1.101	1.137	1.154	1.177	1.203	1.222	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

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

The project demonstrates and validates intelligence methodologies and techniques for operational employment of simulation models in support of Air Intelligence Agency (AIA) requirements. The methods and techniques will help AIA improve their analysis of current and future foreign weapon systems, and prevent technological surprises to our warfighters with regard to the capabilities of these systems.

This program is in Advanced Component Development & Prototypes (ACD&P), Budget Activity 4, because it demonstrates and validates advanced technology which enhances information / intelligence systems' capabilities 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) Complete Tel-Scope Situation Awareness	0.200			
(U) Complete Joint Dynamic Information Operations Decision Environment (DIODE) Integration Tools	0.225			
(U) Continue / Complete Joint Integrated Air Defense System (IADS) View	0.150	0.377		
(U) Initiate / Continue/Complete DIODE / Automated Correspondence Analysis System (ACAS)	0.180	0.350	0.350	0.100
(U) Initiate / Continue/Complete Command & Control (C2) Process Models		0.349	0.351	0.281
(U) Initiate / Continue Integrated Denial & Deception Signatures and Materials (IDMATS)			0.400	0.290
(U) Initiate Adversary Tactics Training & Readiness Knowledge Base (ATT&RKB)				0.466
(U) Total Cost	0.755	1.076	1.101	1.137

**(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>Complete</u>							
(U) AF RDT&E										
(U) Other APPN										
None										

**(U) D. Acquisition Strategy**

All major contracts within this project were 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				
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				<b>0603260F Intelligence Advanced Development</b>						<b>3482 Science &amp; Tech Intelligence Methodology</b>				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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) <b>Product Development</b>														
Tel-Scope Situation Awareness	C/FFP	PRC, Inc., Dayton, OH	0.532	0.200	Nov-03	0.000		0.000		0.000		0.000	0.732	0.732
Joint DIODE Integration Tools	C/CPFF	Northrop-Grumman, Dayton, OH	0.283	0.225	Nov-03	0.000		0.000		0.000		0.000	0.508	0.508
Joint Integrated Air Defense System (IADS) View	C/CPFF	SAIC, Fairborn, OH	0.159	0.150	Nov-03	0.377	Nov-04	0.000		0.000		0.000	0.686	0.686
DIODE / Automated Correspondent Analysis System (ACAS)	C/CPFF	Prediction Systems, Inc., Spring Lake, NJ	0.000	0.180	Feb-04	0.350	Nov-04	0.350	Nov-05	0.100	Nov-06	0.000	0.980	0.980
Command and Control (C2) Process Models	C/CPFF	PRC, Inc., Dayton, OH	0.000	0.000		0.349	Feb-05	0.351	Nov-05	0.281	Nov-06	0.000	0.981	TBD
Integrated Denial & Deception Signatures and Materials (IDMATS)	TBD	TBD	0.000	0.000		0.000		0.400	Feb-06	0.290	Nov-06	0.325	1.015	TBD
Adversary Tactics & Training Readiness Knowledge Base	TBD	TBD	0.000	0.000		0.000		0.000		0.466	Feb-07	1.600	2.066	TBD
Subtotal Product Development			0.974	0.755		1.076		1.101		1.137		1.925	6.968	TBD
Remarks:														
(U) Total Cost			0.974	0.755		1.076		1.101		1.137		1.925	6.968	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603260F Intelligence Advanced Development

PROJECT NUMBER AND TITLE

3482 Science & Tech Intelligence Methodology

Fiscal Year	2004				2005				2006				2007				2008				2009				2010				2011			
	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
<b><i>Science and Technology Intelligence Methodology (BPAC 3482)</i></b>																																
- Tel-Scope Situation Awareness				◆																												
- Joint Dynamic Information Operations Decision Environment (DIODE) Integration Tools				◆																												
- Joint Integrated Air Defense System (IADS) View								◆																								
- DIODE/Automated Correspondence Analysis System (ACAS)	◆											◆																				
- Command and Control (C2) Process Models						◆						◆																				
- Integrated Denial & Deception Signatures & Materials (IDMATS)								◆				◆			◆																	
- Adversary Tactics & Training Readiness Knowledge Base (AT&TRKB)														◆																	◆	

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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0603260F Intelligence Advanced Development</b>	<b>PROJECT NUMBER AND TITLE</b> <b>3482 Science &amp; Tech Intelligence Methodology</b>
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<b>(U) <u>Schedule Profile</u></b>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Complete Tel-Scope Situation Awareness	4Q			
(U) Complete Joint DIODE Integration Tools	4Q			
(U) Continue / Complete Joint IADS View	1-4Q	1-4Q	1Q	
(U) Initiate / Continue / Complete DIODE / Automated Correspondence Analysis System (ACAS)	2Q	1-4Q	1-4Q	3Q
(U) Initiate / Continue/Complete Command and Control (C2) Process Models		2Q	1-4Q	4Q
(U) Initiate / Continue IDMATS Program			2Q	1-4Q
(U) Initiate Adversary Tactics & Training Readiness Knowledge Base (ATT & RKB)				2Q

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PE NUMBER: 0603287F  
 PE TITLE: Physical Security Equipment

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	<b>DATE</b> <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0603287F Physical Security Equipment</b>
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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	23.519	24.621	21.937	26.045	30.659	30.400	31.105	31.635	Continuing	TBD
5121 Physical Security Equipment	23.519	24.621	21.937	26.045	30.659	30.400	31.105	31.635	Continuing	TBD

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

This program is a budget activity level 4 based on the concept/technology development activities ongoing within the program. The purpose of this program is to develop physical security equipment (PSE) systems, to include Force Protection, for all DoD components. This program supports the protection of tactical, fixed, and nuclear weapons systems, DoD personnel and DoD facilities. The funds are used to provide PSE RDT&E for individual Service and joint PSE requirements. The PSE program is organized so that an ongoing USAF-coordinated Joint Action Group, consisting of Army, Navy, Air Force, and Defense Threat Reduction Agency (DTRA) representatives monitors, directs and prioritizes potential and existing PSE programs. OSD program oversight, as established by a Memorandum of Understanding, is provided by the Office of the Under Secretary of Defense, Acquisition, Technology and Logistics (AT&L), the Assistant Secretary of Defense for Intelligence (USD(I)), and the Assistant to the Secretary of Defense for Nuclear and Chemical and Biological (ATSD(NCB)) programs. With few exceptions, each Service sponsors RDT&E efforts for technologies and programs that have multi-service application. This program element supports the Army's advanced engineering development of Interior and Exterior Detection, Security Lighting, Security Barriers and Security Display Units. In a like manner, the program element also supports the Air Force's PSE RDT&E effort in the areas of Exterior Detection/Surveillance, Entry Control, Delay/Denial, Tactical Systems and Airborne Intrusion. Finally, the program supports Navy RDT&E efforts in the areas of Waterside Security, Explosive Detection, and improved technology for Locks, Safes and Vaults. Beginning with FY 1997, this PE includes funding for Force Protection Commercial-Off-The-Shelf (FP COTS) evaluation and testing, which has received focus since the 1996 Khobar Towers terrorist bombing incident. The FP COTS testing applies to all available technologies, which are considered effective for DoD physical security 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	24.275	24.621	21.937	26.045
(U) Current PBR/President's Budget	23.519	24.621	21.937	26.045
(U) Total Adjustments	-0.756	0.000		
(U) Congressional Program Reductions	-0.756			

- Congressional Rescissions
- Congressional Increases
- Reprogrammings
- SBIR/STTR Transfer

**(U) Significant Program Changes:**

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2005

BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				PE NUMBER AND TITLE <b>0603287F Physical Security Equipment</b>				PROJECT NUMBER AND TITLE <b>5121 Physical Security Equipment</b>			
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	
5121 Physical Security Equipment	23.519	24.621	21.937	26.045	30.659	30.400	31.105	31.635	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 is a budget activity level 4 based on the concept/technology development activities ongoing within the program. The purpose of this program is to develop physical security equipment (PSE) systems, to include Force Protection, for all DoD components. This program supports the protection of tactical, fixed, and nuclear weapons systems, DoD personnel and DoD facilities. The funds are used to provide PSE RDT&E for individual Service and joint PSE requirements. The PSE program is organized so that an ongoing USAF-coordinated Joint Action Group, consisting of Army, Navy, Air Force, and Defense Threat Reduction Agency (DTRA) representatives monitors, directs and prioritizes potential and existing PSE programs. OSD program oversight, as established by a Memorandum of Understanding, is provided by the Office of the Under Secretary of Defense, Acquisition, Technology and Logistics (AT&L), the Assistant Secretary of Defense for Intelligence (USD(I)), and the Assistant to the Secretary of Defense for Nuclear and Chemical and Biological (ATSD(NCB)) programs. With few exceptions, each Service sponsors RDT&E efforts for technologies and programs that have multi-service application. This program element supports the Army's advanced engineering development of Interior and Exterior Detection, Security Lighting, Security Barriers and Security Display Units. In a like manner, the program element also supports the Air Force's PSE RDT&E effort in the areas of Exterior Detection/Surveillance, Entry Control, Delay/Denial, Tactical Systems and Airborne Intrusion. Finally, the program supports Navy RDT&E efforts in the areas of Waterside Security, Explosive Detection, and improved technology for Locks, Safes and Vaults. Beginning with FY 1997, this PE includes funding for Force Protection Commercial-Off-The-Shelf (FP COTS) evaluation and testing, which has received focus since the 1996 Khobar Towers terrorist bombing incident. The FP COTS testing applies to all available technologies, which are considered effective for DoD physical security use.

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

## (U) FORCE PROTECTION/TACTICAL SECURITY EQUIPMENT

FY 2004FY 2005FY 2006FY 2007

11.358

- Completed an Aircraft Self -Protection Security System (ASPSS) prototype.
- Conducted ASPSS Design Testing
- Continued Pre-Planned Product Improvements (P3I) to the Tactical Automated Security System (TASS) annunciator.
- Continued TASS P3I efforts to incorporate long range detection, remotely operated weapons, and Unmanned Aerial Vehicle (UAV) capabilities.
- Completed the Electronic Trip Flare (ETF) Acquisition Strategy/Acquisition Plan.
- Completed the ETF Milestone B Decision Review Package.
- Completed the ETF Life Cycle Cost Estimate and Acquisition Program Baseline.
- Completed the development of the Remote Detection and Tracking Sensor (RDTs) and accomplish testing.
- Began the development of a RDTs Over-Water Detection Enhancement.
- Developed advanced concept systems that permit the informed selection of the correct sensor to be employed in a force protection environment, digitize video/IR images at the camera, classify targets, and network wireless sensors.
- Began development of a long range laser break-beam sensor.
- Conducted user assessment of 30 Battlefield Anti-Intrusion System (BAIS) systems deployed to Iraq in support of Stryker mission.

Exhibit R-2a, RDT&E Project Justification		DATE <b>February 2005</b>
BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	PE NUMBER AND TITLE <b>0603287F Physical Security Equipment</b>	PROJECT NUMBER AND TITLE <b>5121 Physical Security Equipment</b>
<ul style="list-style-type: none"> <li>- Continued to manage, develop, evaluate, and test Delay/Denial products.</li> <li>- Continued to manage sensor and assessment product developments and tests.</li> <li>- Continued to research technological advances at DoD, DoE, University Labs, DARPA programs, within industry, etc., with PSE utility.</li> <li>- Continued to prepare operational systems improvement plans; develop technology roadmap, update system architecture.</li> <li>- Continued to test, develop, and integrate equipment to improve security and access to facilities.</li> </ul>		
<p>(U) FORCE PROTECTION/TACTICAL SECURITY EQUIPMENT</p> <ul style="list-style-type: none"> <li>- Award EFT SDD contract. Conduct Production Qualification Testing</li> <li>- Correct ASPSS design deficiencies and develop a production model.</li> <li>- Complete development of a RDTS over-water detection enhancement.</li> <li>- Complete the development and testing of the PICS.</li> <li>- Develop Identification of Friend or Foe capability to work with wide area sensors</li> <li>- Begin Smart Gate P3I efforts to improve base access control</li> <li>- Develop and document Operational, System, and Technical Architectures</li> <li>- Continue to manage, develop, evaluate, and test Delay/Denial products.</li> <li>- Continue to manage sensor and assessment product developments and tests.</li> <li>- Continue to research technological advances at DoD, DoE, University Labs, DARPA, within industry, etc., with PSE utility.</li> <li>- Continue to prepare operational systems improvement plans; develop technology roadmap, update system architecture.</li> <li>- Continue to test, develop, and integrate equipment to improve security and access to facilities.</li> </ul>		15.652
<p>(U) FORCE PROTECTION/TACTICAL SECURITY EQUIPMENT</p> <ul style="list-style-type: none"> <li>- Issue Federal Business Opportunities Announcement for the Tactical Video Surveillance System (TVSS).</li> <li>- Conduct market survey for the TVSS.</li> <li>- Conduct Concept Exploration for best technical approach to integrate TVSS with other phenomenology for Tactical Intrusion Detection.</li> <li>- Refine or research improvements for the Smart Gate program.</li> <li>- Conduct comparative testing of various airframes for the ASPSS.</li> <li>- Continue TASS P3I efforts including improvements to the annunciator.</li> <li>- Continue to manage, develop, evaluate, and test Delay/Denial products.</li> <li>- Continue to manage sensor and assessment product developments and tests.</li> <li>- Continue to research technological advances at DoD, DoE, University Labs, DARPA, within industry, etc., with PSE utility.</li> <li>- Continue to prepare operational systems improvement plans; develop technology roadmap, update system architecture.</li> <li>- Continue to test, develop, and integrate equipment to improve security and access to facilities.</li> </ul>		10.340
<p>(U) FORCE PROTECTION/TACTICAL SECURITY EQUIPMENT</p> <ul style="list-style-type: none"> <li>- Prepare to obtain LKMD Milestone C (LRIP) Decision</li> <li>- Conduct a Leap Ahead assessment of current PSE capability.</li> <li>- Design, build, and test ASPSS.</li> </ul>		12.108

Exhibit R-2a, RDT&E Project Justification		DATE February 2005
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>0603287F Physical Security Equipment</b>	<b>5121 Physical Security Equipment</b>
<ul style="list-style-type: none"> <li>- Develop an enhanced CCDE.</li> <li>- Develop the software to support the Common Operational Picture.</li> </ul>		
(U) ROBOTIC SECURITY SYSTEMS INTEGRATION	0.425	
<ul style="list-style-type: none"> <li>- Investigated/developed motion detection algorithms for a Mission Payload Prototype (MPP)</li> <li>- Investigated COTS computer hardware, acoustical/chemical/biological sensors for integration with the MPP.</li> <li>- Continued to develop and analyze hardware and software to support the development of intrusion detection from an external robotics platform.</li> <li>- Delivered and tested FPASS image processing for real-time video stabilization and mosaicking.</li> <li>- Demonstrated FPASS interface with eTASS.</li> <li>- Improved FPASS GPS lock.</li> </ul>		
(U) ROBOTIC SECURITY SYSTEMS INTEGRATION		0.850
<ul style="list-style-type: none"> <li>- Design MPP modular architecture.</li> <li>- Build a smaller weatherized/ruggedized MPP prototype.</li> <li>- Develop interface between sensors and communications modules for the MPP.</li> <li>- Perform lab and field analysis of mobile intrusion detection from an external robotics platform.</li> <li>- Transition Doppler sensor and processing for the capability to detect intruders from a moving platform.</li> <li>- Make FPASS improvements relative to battery life, IR and EO imaging, and airframe durability.</li> </ul>		
(U) ROBOTIC SECURITY SYSTEMS INTEGRATION		0.788
<ul style="list-style-type: none"> <li>- Demonstrate ability to network robotic systems to provide enhanced detection, surveillance, and response in all aspects of installation force protection and installation security.</li> <li>- Continue efforts to improve the operational capability and safety of integrated weapon systems and robotics platforms employed in force protection and security missions.</li> <li>- Continue imagery improvements for the FPASS.</li> </ul>		
(U) ROBOTIC SECURITY SYSTEMS INTEGRATION		0.923
<ul style="list-style-type: none"> <li>- Integrate data feeds obtained from unmanned air and ground vehicles to improve surveillance capability and the common operational picture.</li> <li>- Begin to integrate remote weapon systems with robotic platforms</li> </ul>		
(U) WATERSIDE SECURITY SYSTEM	2.900	
<ul style="list-style-type: none"> <li>- Continued efforts with a foreign ally to develop the next generation of the WQX-2 sonar in support of Subsurface Threat Detection.</li> <li>- Continued pre-planned production improvements (P3I) efforts for COTS sonar technologies in support of Subsurface Threat Detection.</li> <li>- Conducted market investigations of anti-swimmer nets, barriers, and communications devices in order to enhance Swimmer Delay, Denial, and Response.</li> <li>- Developed software that addresses the weaknesses of video motion detection in support of Shoreline Intrusion Detection.</li> <li>- Provided report on the performance evaluation of selected animal recall devices that assist in developing a Non-Lethal Diver Deterrence.</li> <li>- Began analysis of existing data and requirements for a Passive Broadband Intruder Classifier (PBIC)</li> </ul>		
(U) WATERSIDE SECURITY SYSTEM		1.700
<ul style="list-style-type: none"> <li>- Conduct a comprehensive test program for the Reson, Thales, Lockheed, and other sonars in support of Subsurface Threat Detection.</li> <li>- Conduct in-water tests of Sea Fence and a composite material lightweight barrier developed by the Naval Facilities Engineering Support Center to provide Swimmer Delay, Denial, and Response capability.</li> </ul>		

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Exhibit R-2a, RDT&E Project Justification		DATE <b>February 2005</b>
BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	PE NUMBER AND TITLE <b>0603287F Physical Security Equipment</b>	PROJECT NUMBER AND TITLE <b>5121 Physical Security Equipment</b>
<ul style="list-style-type: none"> <li>- Integrate subsurface response capabilities to the baseline weapon system security architecture at high profile naval facilities.</li> <li>- Test and evaluate COTS VMD products that may integrate to provide shoreline intrusion detection</li> <li>- Begin behavioral testing in support of Non-Lethal Diver Deterrence.</li> <li>- Begin human effects testing in support of Non-Lethal Diver Deterrence.</li> <li>- Collect data on divers using various types of equipment in an effort to use a Passive Broadband to Classify Underwater Intruders.</li> <li>- Conduct surface WSS surveys of sister Air Force installations to maximize their protection from waterborne threats.</li> </ul>		
(U) WATERSIDE SECURITY SYSTEM		2.500
<ul style="list-style-type: none"> <li>- C3 Integration of Pierside and Shipboard Security Systems.</li> <li>- Begin upgrade of Swimmer Detection sonars.</li> </ul>		
(U) WATERSIDE SECURITY SYSTEM		2.928
<ul style="list-style-type: none"> <li>- Continue efforts to develop the next generation WQX-2 Sonar with Allies.</li> <li>- Leverage WSS efforts in support of SSBNs.</li> <li>- Continue to explore opportunities to develop a viable non-lethal means to neutralize swimmer threats.</li> <li>- Further develop brassboard WSS prototypes transitioned from applied research efforts.</li> </ul>		
(U) EXPLOSIVE DETECTION EQUIPMENT		5.615
<ul style="list-style-type: none"> <li>- Provided support to the Counter Bomb/Counter Bomber (CB2) Advanced Concept Technology Demonstration (ACTD).</li> <li>- Tested two non-imaging Millimeter Wave (MMW) prototype systems for effective range, sensitivity, resolution, penetration, and vulnerability to countermeasures.</li> <li>- Redesigning the Laser IMS Handheld Explosive Detector pre-prototype into a production model.</li> <li>- Completed the conceptual design of the Remote/Stand-off Explosive Detection System and provided a test-bed demonstration.</li> <li>- Provided support to the effort to find solutions to the Improvised Explosive Detection (IED) threat.</li> <li>- Continued to develop logistic support plans, summaries, operational manuals for selected COTS products.</li> <li>- Updated and maintained the EDE web site.</li> </ul>		
(U) EXPLOSIVE DETECTION EQUIPMENT		2.705
<ul style="list-style-type: none"> <li>- Repackage MMW prototype systems to meet operational requirements.</li> <li>- Refine the MMW technology for optimization in the stand-off detection of IEDs and suicide bombers.</li> <li>- Initiate LRIP of the Laser IMS Handheld Explosive Detector.</li> <li>- Complete the development of the basic Remote/Stand-off Explosive Detection System design and transition the basic design to industry.</li> <li>- Optimize technology identified in the Counter Bomb/Counter Bomber Advanced Concept Technology Demonstration (ACTD).</li> </ul>		
(U) EXPLOSIVE DETECTION EQUIPMENT		5.566
<ul style="list-style-type: none"> <li>- Invest in the integration of image and chem/bio detection to counter the WMD threat.</li> <li>- Invest in the reduction of the manpower footprint associated with the detection of vehicle and cargo explosive threats.</li> </ul>		
(U) EXPLOSIVE DETECTION EQUIPMENT		6.518
<ul style="list-style-type: none"> <li>- Acquire emerging explosive detection technology for comparative testing and realignment of a Baseline Explosive Detection Architecture.</li> <li>- Develop a hybrid image/trace explosive detection capability.</li> </ul>		

Exhibit R-2a, RDT&E Project Justification		DATE February 2005
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>0603287F Physical Security Equipment</b>	<b>5121 Physical Security Equipment</b>
<ul style="list-style-type: none"> <li>- Continue to invest in the development of a viable technology to provide a stand-off explosive detection capability against IEDs.</li> <li>- Reduce R/SEDS detection time yet increase detection capability.</li> <li>- Refine the capability of R/SEDS to specifically identify the type of explosive.</li> </ul>		
(U) LOCKS, SAFES, VAULTS	0.621	
<ul style="list-style-type: none"> <li>- Developed a universal mounting system for the Integrated Locking Device (ILD).</li> <li>- Completed the ILD User Data Package.</li> <li>- Provided ILD information and installation support.</li> <li>- Investigated and reviewed storage magazine test data regarding the Physical Security of Storage Magazines.</li> <li>- Prioritized storage magazine types based on quantity, risk to sensitive weapons/ammunition and delay times.</li> <li>- Published a findings report and proposed a way-ahead regarding the security of Storage Magazines.</li> <li>- Developed a Test and Evaluation Master Test Plan (TEMP).</li> <li>- Acted as a repository/center of excellence for ILD information and provided ILD installation coordination, support and training for DoD activities.</li> </ul>		
(U) LOCKS, SAFES, VAULTS		1.314
<ul style="list-style-type: none"> <li>- Develop a light-weight weapons armory door ILD system.</li> <li>- Incorporate design improvements for the ILD to increase operation and forced entry resistance.</li> <li>- Evaluate Storage Magazine construction for the purpose of determining the security of storage structures through testing and engineering analysis.</li> <li>- Initiate development of cost effective upgrade packages for substandard magazine door systems.</li> <li>- Act as a repository/center of excellence for ILD information and provide ILD installation coordination, support and training for DoD activities.</li> </ul>		
(U) LOCKS, SAFES, VAULTS		1.332
<ul style="list-style-type: none"> <li>- Complete the light-weight weapons armory door ILD prototype.</li> <li>- Develop ILD design improvements to increase operational capability and improve resistance against forced entry.</li> <li>- Continue evaluating Lock technology and attack tools.</li> </ul>		
(U) LOCKS, SAFES, VAULTS		1.560
<ul style="list-style-type: none"> <li>- Develop an ILD universal mount prototype.</li> <li>- Incorporate ILD design improvements that will increase operational capability and improve resistance against forced entry.</li> <li>- Integrate biometric technology with high security lock technology.</li> <li>- Integrate and automate Locking systems into other support systems.</li> </ul>		
(U) COMMERCIAL-OFF-THE-SHELF TESTING	2.600	
<ul style="list-style-type: none"> <li>- Began preparations for Force Protection Equipment Demonstration (FPED) V.</li> <li>- Provided support to the effort to find solutions to the Improvised Explosive Detection (IED) in Iraqi and Afghanistan.</li> <li>- Continued efforts that increase the situational awareness for system operators.</li> <li>- Investigated COTS capability that avoids increases in the manpower footprint.</li> <li>- Continued to support all testing of PSE products (COTS, NDI, Developmental), systems testing and development of required documentation.</li> </ul>		
(U) COMMERCIAL-OFF-THE-SHELF TESTING		2.400

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0603287F Physical Security Equipment</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5121 Physical Security Equipment</b>
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	<ul style="list-style-type: none"> <li>- Execute FPED V.</li> <li>- Continue to seek near-term (commercial) solutions for immediate force protection needs.</li> <li>- Continue to support all testing of PSE products (COTS, NDI, Developmental), systems testing and development of required documentation.</li> </ul>										
(U)	<b>COMMERCIAL-OFF-THE-SHELF TESTING</b>			1.411							
	<ul style="list-style-type: none"> <li>- Deliver FPED V After Action Report</li> <li>- Distribute FPED V CDs</li> <li>- Launch FPED VI on-line registration</li> <li>- Prepare to execute FPED VI.</li> </ul>										
	<ul style="list-style-type: none"> <li>- Continue to seek near-term (commercial) solutions for immediate force protection needs.</li> </ul>										
(U)	<b>COMMERCIAL-OFF-THE-SHELF TESTING</b>				2.008						
	<ul style="list-style-type: none"> <li>- Deliver FPED V Vendor and Attendee Survey.</li> <li>- Refine FPED VI on-line registration and informational website.</li> <li>- Execute FPED VI.</li> <li>- Continue to seek near-term (commercial) solutions for immediate force protection needs.</li> </ul>										
(U)	<b>Total Cost</b>		23.519	24.621	21.937	26.045					
(U)	<b><u>C. Other Program Funding Summary (\$ in Millions)</u></b>										
		<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>Complete</u>							
(U)	Not Applicable										
(U)	<b><u>D. Acquisition Strategy</u></b>										
	Not Applicable										

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2005**

<b>BUDGET ACTIVITY</b>	<b>PE NUMBER AND TITLE</b>	<b>PROJECT NUMBER AND TITLE</b>
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>0603287F Physical Security Equipment</b>	<b>5121 Physical Security Equipment</b>

(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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) <u>Product Development</u>														
HQ ESC (Air Force)	PO			6.273	Jan-04	7.621		6.115		7.161		Continuing	TBD	TBD
PM-PSE (US Army)	MIPR			5.702	Dec-03	4.610		4.756		5.569		Continuing	TBD	TBD
CNO-N34 (US Navy)	MIPR			7.456	Dec-03	6.910		7.062		8.270		Continuing	TBD	TBD
DTRA	MIPR			1.850	Jan-04	2.040		2.018		2.385		Continuing	TBD	TBD
Subtotal Product Development			0.000	21.281		21.181		19.951		23.385		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 &amp; 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 Office Support				2.238		3.440		1.986		2.660		Continuing	TBD	TBD
Subtotal Management			0.000	2.238		3.440		1.986		2.660		Continuing	TBD	TBD
Remarks:														
(U) <u>Not Applicable</u>														
(U) Total Cost			0.000	23.519		24.621		21.937		26.045		Continuing	TBD	TBD
Remarks:														

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603287F Physical Security Equipment

PROJECT NUMBER AND TITLE

5121 Physical Security Equipment

Exhibit R-4, Schedule Profile																				Date: September 2004																
BUDGET ACTIVITY										PE NUMBER AND TITLE										PROJECT NUMBER AND NAME																
04 Advanced Component Development and Prototypes (ACD&P)										PE0603287F Physical Security Equipment										5121 Physical Security Equipment																
Fiscal Year	2003				2004				2005				2006				2007				2008				2009				2010				2011			
	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
Further develop WSS brassboard prototypes transitioned from applied research efforts																																				
Refine MMW technology to counter standoff and suicide bomber threats												▲																								
C3 integration of Pierside and Shipboard Security Systems																▲																				
Initiate LRIP of Laser IMS HH ED												▲																								

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603287F Physical Security Equipment

PROJECT NUMBER AND TITLE

5121 Physical Security Equipment

Exhibit R-4, Schedule Profile		Date: September 2004																																		
BUDGET ACTIVITY		PE NUMBER AND TITLE																PROJECT NUMBER AND NAME																		
04 Advanced Component Development and Prototypes (ACD&P)		PE0603287F Physical Security Equipment																5121 Physical Security Equipment																		
Fiscal Year	2003				2004				2005				2006				2007				2008				2009				2010				2011			
	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				
MDARS Expeditionary Prototype SDD																																				
Provide support to CB2 ACTD				▲																																
Provide support to find solutions to the IED threat				▲																																
Buy Equipment to build a Hybrid Image/Trace EDE system																▲																				
Develop Test for Hybrid System																				▲																
Redesign the Laser IMS HH ED prototype for production								▲																												
Test two MMW prototypes												▲																								

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY  
04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE  
0603287F Physical Security  
Equipment

PROJECT NUMBER AND TITLE  
5121 Physical Security Equipment

Exhibit R-4, Schedule Profile																							Date: February 2005													
BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)										PE NUMBER AND TITLE PE0603287F Physical Security Equipment										PROJECT NUMBER AND NAME 5121 Physical Security Equipment																
Fiscal Year	2003				2004				2005				2006				2007				2008				2009				2010				2011			
	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
Conduct Market Investigations for anti-swimmer technology							▲																													
Network robotics systems for increased PS/FP capability																				▲																
Develop software to assess the weaknesses of Shoreline Intrusion Detection VHD																																				
T&E COTS VMD products for Shoreline Intrusion Detection																																				
Follow-on Early User Appraisal for MDARS																																				

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY  
04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE  
0603287F Physical Security  
Equipment

PROJECT NUMBER AND TITLE  
5121 Physical Security Equipment

Exhibit R-4, Schedule Profile																				Date: February 2005																
BUDGET ACTIVITY										PE NUMBER AND TITLE										PROJECT NUMBER AND NAME																
04 Advanced Component Development and Prototypes (ACD&P)										PE0603287F Physical Security Equipment										5121 Physical Security Equipment																
Fiscal Year	2003				2004				2005				2006				2007				2008				2009				2010				2011			
	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
Award LKMD SDD contract									▲																											
Continue TASS P31 efforts including the annunciator													▲																							
Conduct a Leap Ahead assessment of current PSE technology																					▲															
Investigate motion detection algorithms for MPP																																				
Investigate COTS sensors for integration with MPP																																				
Begin Smart Gate P31																																				
Design MPP modular architecture																																				

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY  
04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE  
0603287F Physical Security  
Equipment

PROJECT NUMBER AND TITLE  
5121 Physical Security Equipment

Exhibit R-4, Schedule Profile																Date: February 2005																				
BUDGET ACTIVITY								PE NUMBER AND TITLE								PROJECT NUMBER AND NAME																				
04 Advanced Component Development and Prototypes (ACD&P)								PE0603287F Physical Security Equipment								5121 Physical Security Equipment																				
Fiscal Year	2003				2004				2005				2006				2007				2008				2009				2010				2011			
	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
Market Survey for TVSS																																				
TVSS Prototype Design, Fabrication, & Integration																																				
TVSS Early User Appraisal																																				
P&S Market Survey and Investigation																																				
Develop a RDT&E Over-Water Detection Capability																																				
Complete LKMD Milestone B decision review package																																				
Development of the long range laser break-beam sensor																																				

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY  
04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE  
0603287F Physical Security Equipment

PROJECT NUMBER AND TITLE  
5121 Physical Security Equipment

Exhibit R-4, Schedule Profile																Date: September 2004																															
BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)																PE NUMBER AND TITLE PE0603287F Physical Security Equipment																PROJECT NUMBER AND NAME 5121 Physical Security Equipment															
Fiscal Year	2003				2004				2005				2006				2007				2008				2009				2010				2011														
	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											
Publish Report on the security of Storage Magazines								▲																																							
Develop a light weight ILD for weapons armory doors																▲																															
Begin prep for FPED V							▲																																								
Execute FPED V								▲																																							
Integrate biometric technology with high security lock technology																▲																															

UNCLASSIFIED

Exhibit R-4a, RDT&E Schedule Detail		DATE February 2005		
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE		
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>0603287F Physical Security Equipment</b>	<b>5121 Physical Security Equipment</b>		
<b>(U) Schedule Profile</b>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Conduct market survey for the TVSS			2Q	
(U) TVSS Prototype Design, Fabrication, & Integration			2Q	
(U) TVSS Early User Appraisal				1Q
(U) PAS Market Survey and Investigation			2Q	
(U) Begin to develop a RDTS Over-Water Detection Capability	2Q			
(U) Complete LKMD Milestone B decision review package	2Q			
(U) Begin development of the long range laser break-beam sensor	1Q			
(U) Award LKMD SDD contract		2Q		
(U) Continue TASS P3I efforts including the annunciator			1Q	
(U) Conduct a Leap Ahead assessment of current PSE technology				3Q
(U) Investigate motion detection algorithms for MPP	1Q			
(U) Investigate COTS sensors for integration with MPP	2Q			
(U) Begin Smart Gate P3I		1Q		
(U) Design MPP modular architecture		2Q		
(U) Conduct market investigation for anti-swimmer technology	3Q			
(U) Network robotics systems for increased PS/FP capability				1Q
(U) Develop software to assess the weaknesses of Shoreline Intrusion Detection VMD	4Q			
(U) T&E COTS VMD products for Shoreline Intrusion Detection		1Q		
(U) Follow-on Early User Appraisal for MDARS			3Q	
(U) MDARS Expeditionary Prototype SDD				2Q
(U) Provide support to CB2 ACTD	1Q			
(U) Provide support to find solutions to the IED threat	1Q			
(U) Buy Equipment to build a Hybrid Image/Trace EDE system			4Q	
(U) Develop test Hybrid system				1Q
(U) Redesign the Laser IMS HH ED prototype for production	3Q			
(U) Test two MMW prototypes	4Q			
(U) Further develop WSS brassboard prototypes transitioned from applied research				1Q
(U) Refine MMW technology to counter standoff and suicide bomber threats		2Q		
(U) C3 integration of Pierside and Shipboard Security Systems			3Q	
(U) Initiate LRIP of Laser IMS HH ED		3Q		
(U) Develop universal mounting system for the ILD	3Q			

**UNCLASSIFIED**

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>		DATE <b>February 2005</b>
BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	PE NUMBER AND TITLE <b>0603287F Physical Security Equipment</b>	PROJECT NUMBER AND TITLE <b>5121 Physical Security Equipment</b>
(U) Publish Report on the security of Storage Magazines	4Q	
(U) Develop a light weight ILD for weapons armory doors		4Q
(U) Begin prep for FPED V	1Q	
(U) Execute FPED V		3Q
(U) Integrate biometric technology with high security lock technology		1Q

**UNCLASSIFIED**

PE NUMBER: 0603421F  
 PE TITLE: GLOBAL POSITIONING SYSTEM

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0603421F GLOBAL POSITIONING SYSTEM</b>
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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	39.913	87.364	236.635	485.892	772.513	903.394	831.076	Continuing	TBD
4993 GPS BLOCK III	0.000	39.913	87.364	236.635	485.892	772.513	903.394	831.076	Continuing	TBD

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

Navstar Global Positioning System (GPS) is a space-based radio positioning, navigation, and time (PNT) distribution system. This Program Element (PE) funds the Research and Development (R&D) for GPS Block III Space and Control Segments. This includes, but is not limited to, advanced concept development, systems engineering and analysis, satellite systems development, the study of augmentation systems, control segment development, user equipment interfaces, training simulators, Integrated Logistics Support (ILS) products, and developmental test resources.

Funds will support engineering studies and analyses, architectural engineering studies, trade studies, systems engineering, system development, test and evaluation efforts, and mission operations in support of upgrades and product improvements for military and civil applications necessary to support efforts to protect U.S. military and allies' use of GPS.

This program is Budget Activity 4 - Advanced Component Development and Prototypes because it is a Phase A (Concept 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	40.568	180.023	291.035
(U) Current PBR/President's Budget	0.000	39.913	87.364	236.635
(U) Total Adjustments	0.000	-0.655		
(U) Congressional Program Reductions		-0.655		

- Congressional Rescissions
- Congressional Increases
- Reprogrammings
- SBIR/STTR Transfer

**(U) Significant Program Changes:**

The GPS III program has been restructured from an FY12 first launch (launch for capability profile), to no later than an FY13 first launch (launch for schedule profile), and provide the opportunity to evaluate incremental satisfaction of GPS III requirements. This approach could deliver a subset of mission-critical improvements before FY13 to incrementally satisfy near-term warfighter requirements. This approach is intended to be compliant with FY05 authorization language that directs the evaluation of various architectures that take advantage of smaller, lighter weight, and potentially less expensive GPS satellites. Plan to award contract(s) for Phase A System Design Review (SDR) in FY07.

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0603421F GLOBAL POSITIONING SYSTEM</b>	<b>PROJECT NUMBER AND TITLE</b> <b>4993 GPS BLOCK III</b>
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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
4993 GPS BLOCK III	0.000	39.913	87.364	236.635	485.892	772.513	903.394	831.076	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) **A. Mission Description and Budget Item Justification**  
 Navstar Global Positioning System (GPS) is a space-based radio positioning, navigation, and time (PNT) distribution system. This Program Element (PE) funds the Research and Development (R&D) for GPS Block III Space and Control Segments. This includes, but is not limited to, advanced concept development, systems engineering and analysis, satellite systems development, the study of augmentation systems, control segment development, user equipment interfaces, training simulators, Integrated Logistics Support (ILS) products, and developmental test resources.

Funds will support engineering studies and analyses, architectural engineering studies, trade studies, systems engineering, system development, test and evaluation efforts, and mission operations in support of upgrades and product improvements for military and civil applications necessary to support efforts to protect U.S. military and allies' use of GPS.

This program is Budget Activity 4 - Advanced Component Development and Prototypes because it is a Phase A (Concept Development).

<b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Continue Program Support for GPS III/Modernization	0.000	3.473	4.200	4.664
(U) Continue GPS III/Modernization Development	0.000	36.440	83.164	231.971
(U) Total Cost	0.000	39.913	87.364	236.635

<b><u>C. Other Program Funding Summary (\$ in Millions)</u></b>	<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>Complete</u>							
(U) AF RDT&E										
(U) PE 0305165F Navstar GPS (Space & Ground), R-191	142.198	147.037	188.301	131.624	106.993	78.502	58.638	38.044	Continuing	TBD
(U) Other APPN Operations and Maintenance										
(U) (PE 0305165F, BA 1 - Operating Forces, SAG 13D) Missile Procurement (PE	50.161	62.340	70.129	81.821	85.643	86.607	91.435	101.338	Continuing	TBD
(U) 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	12.495	7.774	13.637	12.275	5.650	6.232	11.005	69.017	Continuing	TBD

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2005

BUDGET ACTIVITY

**04 Advanced Component Development and Prototypes (ACD&P)**

PE NUMBER AND TITLE

**0603421F GLOBAL POSITIONING  
SYSTEM**

PROJECT NUMBER AND TITLE

**4993 GPS BLOCK III****(U) C. Other Program Funding Summary (\$ in Millions)**

0305165F, BP 83-Electronics  
and Telecommunications  
Equipment, WSC 836790,  
P-70 and WSC 836730; BP  
86 - Spares & Repair Parts  
WSC 86190A, P-62)

**(U) D. Acquisition Strategy**

On 15 Sep 03, the USecAF signed an Acquisition Decision Memorandum directing the GPS JPO to re-initiate Phase A activities (concept exploration/risk reduction) for GPS III. Two Phase A contracts were awarded in Jan 04 to Lockheed-Martin and Boeing, with direction to mature the GPS III program through Systems Requirements Review (SRR), culminating in a Key Decision Point-B (KDP-B) by 3QFY05. In Dec 04, the National Security Space Acquisition Policy was updated, which now requires the completion of a System Design Review (SDR) prior to KDP-B. To comply with this policy, the program will now conduct RFP release, source selection and contract award prior to KDP-B in order to minimize budget and schedule impacts. The winning contractor will then conduct SDR in 2QFY07, and KDP-B in 3QFY07. Concept exploration/risk reduction activities will evaluate the potential for incremental delivery of GPS III capabilities, which could potentially be fielded sooner than FY13.

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Exhibit R-3, RDT&E Project Cost Analysis												DATE February 2005		
BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)					PE NUMBER AND TITLE 0603421F GLOBAL POSITIONING SYSTEM					PROJECT NUMBER AND TITLE 4993 GPS BLOCK III				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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>														
Concept Defn and Risk Reduction													0.000	
Boeing	FPLOE	Seal Beach, CA	3.234	0.000		0.000		0.000		0.000		0.000	3.234	
Lockheed Martin	FPLOE	King of Prussia, PA	3.290	0.000		0.000		0.000		0.000		0.000	3.290	
Spectrum Astro	FPLOE	Gilbert, AZ	3.234	0.000		0.000		0.000		0.000		0.000	3.234	
Phase A Continuation Contracts													0.000	
Boeing	CPIF	Seal Beach, CA	12.774	0.000		5.600	Dec-04	0.000		0.000		0.000	18.374	20.816
Lockheed Martin	CPIF	King of Prussia, PA	12.774	0.000		5.600	Dec-04	0.000		0.000		0.000	18.374	20.816
Anticipated Phase A(SDR) Contract	CPIF	TBD	57.637	0.000		0.000		38.217	Jun-06	156.079	Nov-06	Continuing	TBD	
GPS III/Modernization System Engineering & Technical Support	Various	Various	0.000	0.000		25.240	Dec-04	44.947		75.892	Nov-06	Continuing	TBD	
Subtotal Product Development			92.943	0.000		36.440		83.164		231.971		Continuing	TBD	41.632
Remarks:														
(U) <u>Support</u>														
JPO Support for GPS III / Modernization	Various	Various	10.107	0.000		3.473	Nov-04	4.200	Nov-05	4.664	Nov-06	Continuing	TBD	
GPS Modernization Stewardship	Various	Various	9.200	0.000		0.000		0.000		0.000		Continuing	TBD	
Subtotal Support			19.307	0.000		3.473		4.200		4.664		Continuing	TBD	0.000
Remarks:														
														GPS Modernization Stewardship transferred to PE 0306165F starting in FY04
(U) <u>Test &amp; 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			112.250	0.000		39.913		87.364		236.635		Continuing	TBD	41.632

Exhibit R-4, RDT&E Schedule Profile

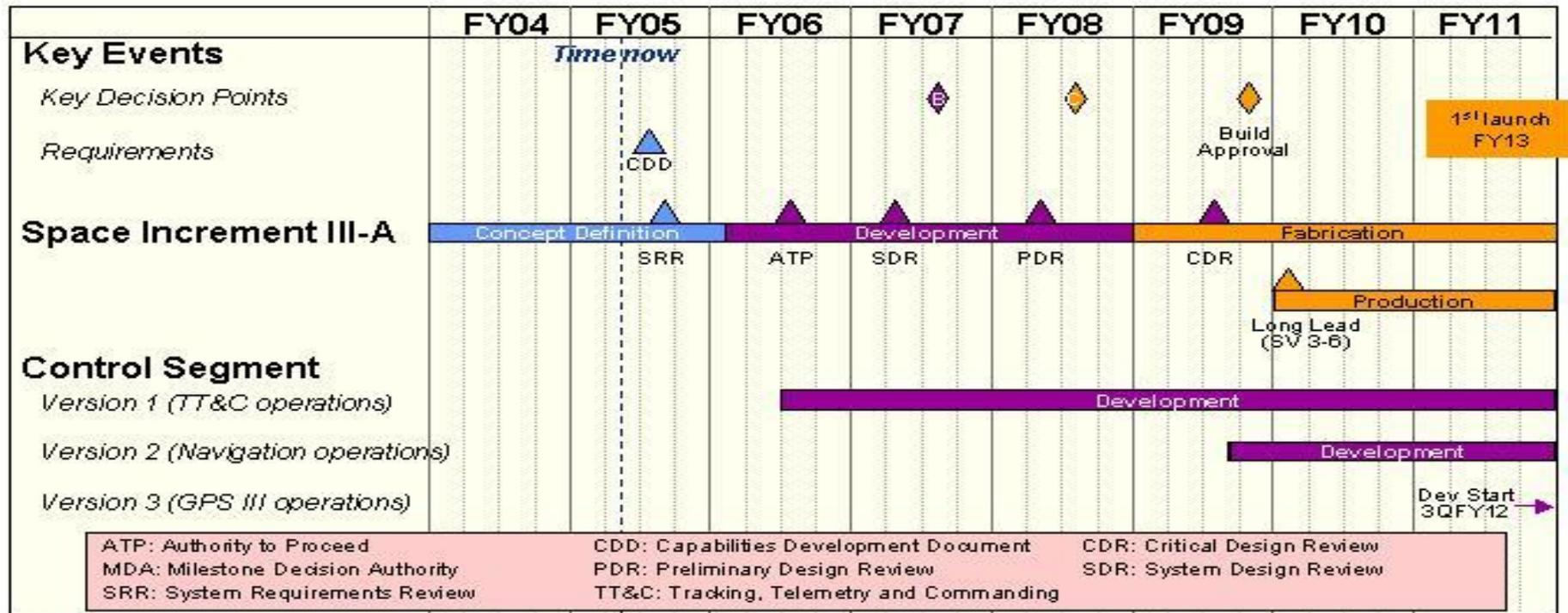
DATE

February 2005

BUDGET ACTIVITY  
04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE  
0603421F GLOBAL POSITIONING SYSTEM

PROJECT NUMBER AND TITLE  
4993 GPS BLOCK III



<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0603421F GLOBAL POSITIONING SYSTEM</b>	<b>PROJECT NUMBER AND TITLE</b> <b>4993 GPS BLOCK III</b>
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	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) <b>Schedule Profile</b>				
(U) Phase A Contract Award	2Q			
(U) Joint Requirements Oversight Council (JROC) Capabilities Development Document (CDD)		3Q		
(U) System Requirements Review (SRR)		3Q		
(U) Acquisition Strategy Panel (ASP)		4Q		
(U) Phase A System Development Review (SDR) Request for Proposal (RFP) Released			1Q	
(U) Phase A (SDR) Contract Award (Jun 06)			3Q	
(U) SDR				2Q
(U) Key Decision Point (KDP)-B				3Q

**UNCLASSIFIED**

PE NUMBER: 0603430F

PE TITLE: Advanced (EHF MILSATCOM (Space))

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0603430F Advanced (EHF MILSATCOM (Space))</b>
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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	775.841	606.659	665.257	631.991	430.040	233.839	93.775	82.188	Continuing	TBD
4050 Advanced MILSATCOM	775.841	606.659	665.257	631.991	430.040	233.839	93.775	82.188	Continuing	TBD

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

Develop and acquire Advanced Extremely High Frequency (AEHF) Military Satellite Communications (MILSATCOM) satellites, mission control segment and cryptography for survivable, anti-jam, worldwide, secure communications for the strategic and tactical warfighter. AEHF satellites will replenish the existing EHF system (Milstar) at much higher capacity and data rate capabilities. On 10 October 2001, a Milestone B decision was approved by the Defense Acquisition Executive to enter the System Development and Demonstration (SDD) phase. The SDD letter contract was awarded in Nov 01 and was definitized in Aug 02. The program is a sole source acquisition to a contractor team comprised of Lockheed Martin (prime/integrator) and Northrop-Grumman (provider of satellite payload). The follow-on buy for Satellite Vehicle 3 was approved in Jun 04. Satellites 1 and 2 are funded with RDT&E funds and satellite 3 is funded with procurement funds. An Interim Program Review was held 22 Oct 04 to decide if a fourth AEHF satellite would be added to the program in the FY06 President's Budget to meet Full Operational Capability (FOC). At this time, the Milestone Decision Authority (MDA) decided to maintain the AEHF and Transformational Satellite Communications System (TSAT) baselines, achieving AEHF FOC-equivalency with the first TSAT. AEHF is a cooperative program that includes International Partners (Canada, the United Kingdom, and The Netherlands) and is part of the DoD bid to provide NATO with a protected SATCOM capability.

This program is in Budget Activity 4, Advanced Component Development and Prototypes, since it funds Advanced EHF technology validation and modeling.

**(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	802.341	612.049	409.972	316.777
(U) Current PBR/President's Budget	775.841	606.659	665.257	631.991
(U) Total Adjustments	-26.500	-5.390		
(U) Congressional Program Reductions		-5.390		
Congressional Rescissions				
Congressional Increases				
Reprogrammings	1.500			
SBIR/STTR Transfer	-28.000			

**(U) Significant Program Changes:**

FY06/07: Development of new, complex information assurance (IA) products, concurrently with other AEHF subsystems, has been a technically challenging high-risk area for the program. In spite of risk reduction actions, delayed delivery of National Security Agency (NSA) IA products is preventing the government from delivering them to the AEHF prime contractor, Lockheed Martin, on-schedule. Late receipt of this Government Furnished Equipment will prevent on-time completion of AEHF system integration and test, and has resulted in a one-year launch delay to each of the three satellites, from Apr 07-09 to Apr 08-10. Additionally, the AEHF program incurred cost growth in the replacement of existing critical electronic components and unplanned payload component testing.

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>							PE NUMBER AND TITLE <b>0603430F Advanced (EHF MILSATCOM (Space))</b>		PROJECT NUMBER AND TITLE <b>4050 Advanced MILSATCOM</b>		
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	
4050 Advanced MILSATCOM	775.841	606.659	665.257	631.991	430.040	233.839	93.775	82.188	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0			

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

Develop and acquire Advanced Extremely High Frequency (AEHF) Military Satellite Communications (MILSATCOM) satellites, mission control segment and cryptography for survivable, anti-jam, worldwide, secure communications for the strategic and tactical warfighter. AEHF satellites will replenish the existing EHF system (Milstar) at much higher capacity and data rate capabilities. On 10 October 2001, a Milestone B decision was approved by the Defense Acquisition Executive to enter the System Development and Demonstration (SDD) phase. The SDD letter contract was awarded in Nov 01 and was definitized in Aug 02. The program is a sole source acquisition to a contractor team comprised of Lockheed Martin (prime/integrator) and Northrop-Grumman (provider of satellite payload). The follow-on buy for Satellite Vehicle 3 was approved in Jun 04. Satellites 1 and 2 are funded with RDT&E funds and satellite 3 is funded with procurement funds. An Interim Program Review was held 22 Oct 04 to decide if a fourth AEHF satellite would be added to the program in the FY06 President's Budget to meet Full Operational Capability (FOC). At this time, the Milestone Decision Authority (MDA) decided to maintain the AEHF and Transformational Satellite Communications System (TSAT) baselines, achieving AEHF FOC-equivalency with the first TSAT. AEHF is a cooperative program that includes International Partners (Canada, the United Kingdom, and The Netherlands) and is part of the DoD bid to provide NATO with a protected SATCOM capability.

This program is in Budget Activity 4, Advanced Component Development and Prototypes, since it funds Advanced EHF technology validation and modeling.

**(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 SDD of the AEHF satellites and MCS, continue build of Satellite 1 and 2 flight hardware, and intermediate software increments for bus, payload and MCS	685.441	515.359	604.590	574.387
(U) Continue satellite cryptographic development	36.200	36.300	9.400	6.900
(U) Continue qualification and productization of radiation-hardened components for USAF/DOD space programs	19.000	21.000	20.000	21.000
(U) Continue Program Office and related support activities	35.200	34.000	31.267	29.704
(U) Total Cost	775.841	606.659	665.257	631.991

**(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>Complete</u>							
(U) Related Proc:										
(U) MPAF, PE 0303604F, Advanced EHF, P-17/18		78.293	528.978	0.000	12.057	15.508	16.441	17.427	0.000	668.704
(U) RDT&E, PE 0603854F, Wideband MILSATCOM	35.621	20.119	3.917	7.010	5.742	6.392	6.485	6.555	Continuing	TBD

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0603430F Advanced (EHF MILSATCOM (Space))</b>	<b>PROJECT NUMBER AND TITLE</b> <b>4050 Advanced MILSATCOM</b>
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**(U) C. Other Program Funding Summary (\$ in Millions)**

(U) (Space), Project #644870, CCS-C, R-52 OPAF, PE 03033600F										
(U) Wideband Gapfiller System, Project #836780, CCS-C RDT&E, PE 0303601F,	8.203	1.664	0.290	0.000	0.000	0.000	0.000	0.000	15.477	
(U) MILSATCOM Terminals, BA-7, R-175	159.647	264.795	273.974	273.782	191.087	220.734	198.158	194.439	Continuing	TBD

**(U) D. Acquisition Strategy**

The Advanced MILSATCOM, also known as Advanced EHF (AEHF), program is a sole source acquisition to a contractor team comprised of Lockheed Martin (prime/integrator) and Northrop-Grumman (provider of the satellite payload). This team will perform the Advanced Component Development and Prototypes (ACD&P) and SDD of three satellites and associated mission command and control ground capabilities under Cost Plus Award Fee line items on the contract. AEHF will incorporate lessons learned and improvements from Milstar and commercial SATCOM practices into the next generation EHF secure, anti-jam military communications satellite system.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2005**

BUDGET ACTIVITY				PE NUMBER AND TITLE								PROJECT NUMBER AND TITLE		
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				<b>0603430F Advanced (EHF MILSATCOM (Space))</b>								<b>4050 Advanced MILSATCOM</b>		
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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>														
NSA	MIPR	Camden, NJ	104.582	36.200	Oct-03	36.300	Oct-04	9.400	Nov-05	6.900	Nov-06	0.000	193.382	
JTEO	PR	San Diego, CA	15.491									0.000	15.491	
MIT/LL	MIPR	Hanscom AFB, MA	4.988									0.000	4.988	
Hughes	CPFF	El Segundo, CA	67.175									0.000	67.175	
TRW	CPFF	Redondo Beach, CA	62.083									0.000	62.083	
Various	Various		66.659									0.000	66.659	
Lockheed Martin (Pre-EMD)	FFP	Sunnyvale, CA	225.011									0.000	225.011	
Hughes	FFP	El Segundo, CA										0.000	0.000	
SDD Contractor (Lockheed Martin)	CPAF		1,103.484	685.441	Oct-03	515.359	Oct-04	604.590	Nov-05	574.387	Nov-06	Continuing	TBD	
Radiation Hardened parts developers	Various		19.000	19.000		21.000		20.000		21.000		84.205	184.205	
None													0.000	
Subtotal Product Development			1,668.473	740.641		572.659		633.990		602.287		Continuing	TBD	0.000
Remarks:														
(U) <u>Support</u>														
Various	Various		88.496	35.200	Oct-03	34.000	Oct-04	31.267	Nov-05	29.704	Nov-06	Continuing	TBD	
None													0.000	
Subtotal Support			88.496	35.200		34.000		31.267		29.704		Continuing	TBD	0.000
Remarks:														
(U) <u>Test &amp; Evaluation</u>														
AFOTEC			0.000									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			1,756.969	775.841		606.659		665.257		631.991		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

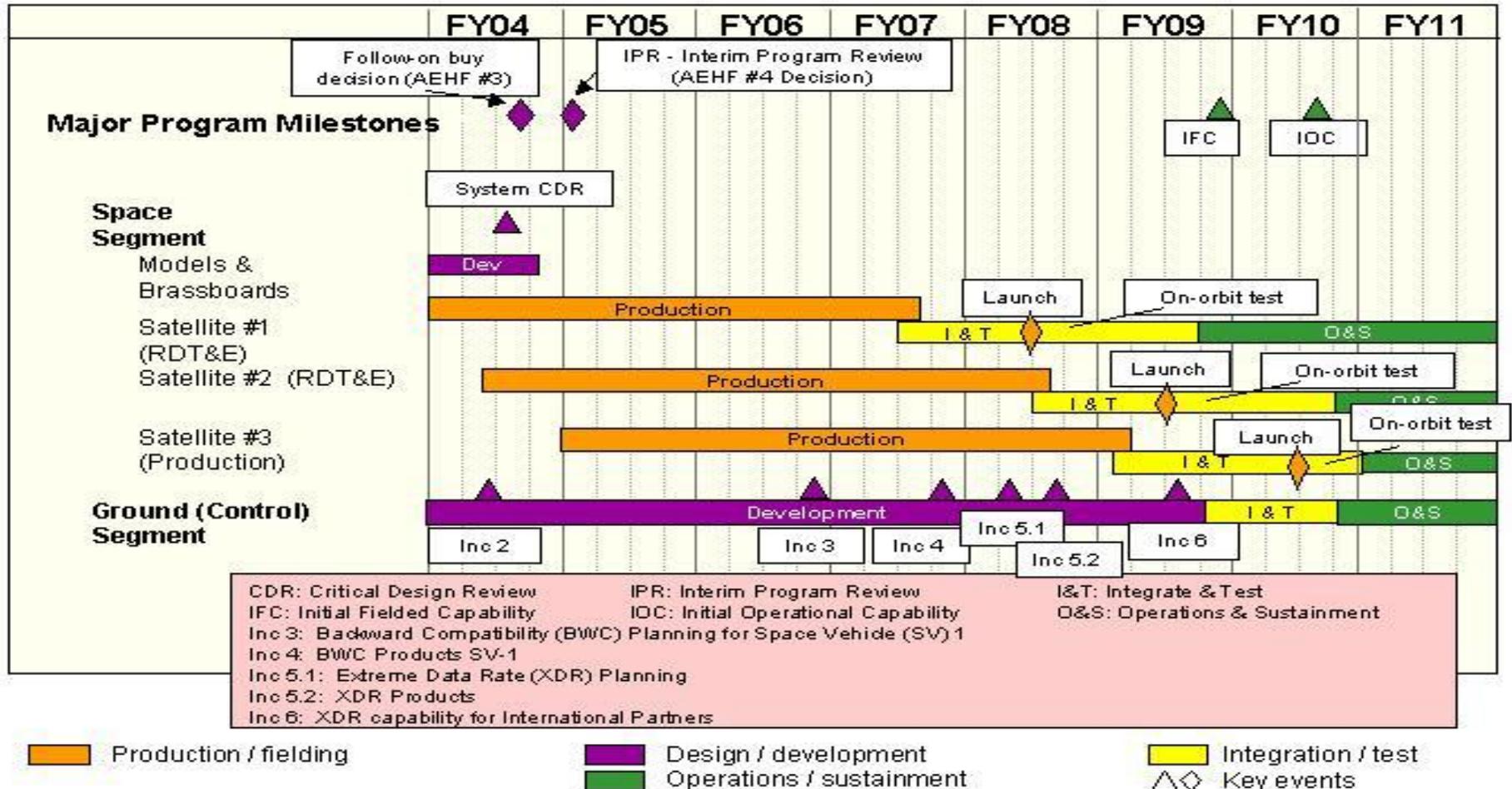
DATE

February 2005

BUDGET ACTIVITY  
04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE  
0603430F Advanced (EHF MILSATCOM (Space)

PROJECT NUMBER AND TITLE  
4050 Advanced MILSATCOM



<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2005</b>
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BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	PE NUMBER AND TITLE <b>0603430F Advanced (EHF MILSATCOM (Space))</b>	PROJECT NUMBER AND TITLE <b>4050 Advanced MILSATCOM</b>
--	---	--

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) <b>Schedule Profile</b>				
(U) System Critical Design Review (CDR)	3Q			
(U) Follow-On Buy Decision (previously referred to as Milestone C)	3Q			
(U) Interim Program Review		1Q		
(U) Complete Ground Segment Software Increment 3 (Backwards Compatibility w/Milstar II) Planning for Space Vehicle (SV)-1			1Q	
(U) Initiate Ground Segment Software Increment 5 (eXtreme Data Rate (XDR)) Planning and Products			3Q	
(U) Complete Ground Segment Software Increment 4 (Backwards Compatibility w/Milstar II) Products for SV-1				4Q
(U) Program Mangement Review			1-4Q	1-4Q

**UNCLASSIFIED**

PE NUMBER: 0603432F  
 PE TITLE: Polar MILSATCOM (Space)

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0603432F Polar MILSATCOM (Space)</b>
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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	5.190	0.895	2.185	35.281	119.683	137.432	186.094	126.547	Continuing	TBD
4052 Polar Satellite Communications	5.190	0.895	2.185	35.281	119.683	137.432	186.094	126.547	Continuing	TBD

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

This program element acquires the Polar Military Satellite Communications (MILSATCOM) system that provides protected communications (anti jam, anti scintillation, and low probability of intercept) for users in the north polar region.

Project 4052, Polar Satellite Communications, has previously funded three low data rate (LDR) Milstar packages onto three classified host satellites as an expedited, interim solution to protected connectivity requirements in the north polar region. One package is on-orbit, and the final two LDR packages will be available in FY05 and FY06, respectively. Two satellites with hosted packages are required to provide the necessary 24 hour coverage.

Beginning FY06, the Polar MILSATCOM system will acquire the next generation capability with two more polar packages via the same host program. Both the host and the polar communications packages require design modifications to replace obsolete components and take advantage of the more capable Advanced Extremely High Frequency (AEHF) technology. FY06 funds requirements analyses and design trade studies based on an updated Polar Capability Development Document (CDD). The two enhanced, hosted packages, will be available in FY13 and FY15. They replace previously documented plans to acquire an Advanced Polar System, PE 0604435F.

The Polar MILSATCOM program is in Budget Activity 4, Advanced Component Development and Prototypes, based on the 30 Mar 95 USD(A&T) memorandum to pursue the interim hosted solution.

**(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	5.533	0.960	0.000	0.000
(U) Current PBR/President's Budget	5.190	0.895	2.185	35.281
(U) Total Adjustments	-0.343	-0.065		
(U) Congressional Program Reductions		-0.065		
Congressional Rescissions				
Congressional Increases				
Reprogrammings				
SBIR/STTR Transfer	-0.343			

**(U) Significant Program Changes:**

FY06/07: Begin funding in FY06 two new enhanced packages on hosted satellites

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>							PE NUMBER AND TITLE <b>0603432F Polar MILSATCOM (Space)</b>		PROJECT NUMBER AND TITLE <b>4052 Polar Satellite Communications</b>	
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
4052 Polar Satellite Communications	5.190	0.895	2.185	35.281	119.683	137.432	186.094	126.547	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 acquires the Polar Military Satellite Communications (MILSATCOM) system that provides protected communications (anti jam, anti scintillation, and low probability of intercept) for users in the north polar region.

Project 4052, Polar Satellite Communications, has previously funded three low data rate (LDR) Milstar packages onto three classified host satellites as an expedited, interim solution to protected connectivity requirements in the north polar region. One package is on-orbit, and the final two LDR packages will be available in FY05 and FY06, respectively. Two satellites with hosted packages are required to provide the necessary 24 hour coverage.

Beginning FY06, the Polar MILSATCOM system will acquire the next generation capability with two more polar packages via the same host program. Both the host and the polar communications packages require design modifications to replace obsolete components and take advantage of the more capable Advanced Extremely High Frequency (AEHF) technology. FY06 funds requirements analyses and design trade studies based on an updated Polar Capability Development Document (CDD). The two enhanced, hosted packages, will be available in FY13 and FY15. They replace previously documented plans to acquire an Advanced Polar System, PE 0604435F.

The Polar MILSATCOM program is in Budget Activity 4, Advanced Component Development and Prototypes, based on the 30 Mar 95 USD(A&T) memorandum to pursue the interim hosted solution.

**(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 final integration and tests of Polar package 2. Integrated Polar package 3 with host vehicle. (Through the classified host contract)	5.190			
(U) Complete integration and test of Polar package 3 with host vehicle. (Through the classified host contract)		0.895		
(U) Conduct requirements analyses and design trade studies for Enhanced Polar packages. (Through the classified host)			2.185	
(U) Conduct design and development of Enhanced Polar packages (Through a classified host contract)				35.281
(U) Total Cost	5.190	0.895	2.185	35.281

**(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>Complete</u>							

(U) None.

The Navy has used its own PE(s) to modify control systems and terminals to work with Polar MILSATCOM.

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2005

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0603432F Polar MILSATCOM (Space)

PROJECT NUMBER AND TITLE

4052 Polar Satellite Communications

(U) **D. Acquisition Strategy**

The Air Force provides funds to the classified host program office to modify the host satellite system contract to include the Polar EHF package. The host program office has total acquisition responsibility for Interim Polar and Enhanced Polar.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2005**

BUDGET ACTIVITY				PE NUMBER AND TITLE							PROJECT NUMBER AND TITLE			
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				<b>0603432F Polar MILSATCOM (Space)</b>							<b>4052 Polar Satellite Communications</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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>														
Classified	Classified		293.510	5.190		0.895		2.185		35.281		Continuing	TBD	
N/A													0.000	
Subtotal Product Development			293.510	5.190		0.895		2.185		35.281		Continuing	TBD	0.000
Remarks:														
(U) <u>Support</u>														
N/A													0.000	
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 &amp; Evaluation</u>														
N/A													0.000	
N/A													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			293.510	5.190		0.895		2.185		35.281		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY

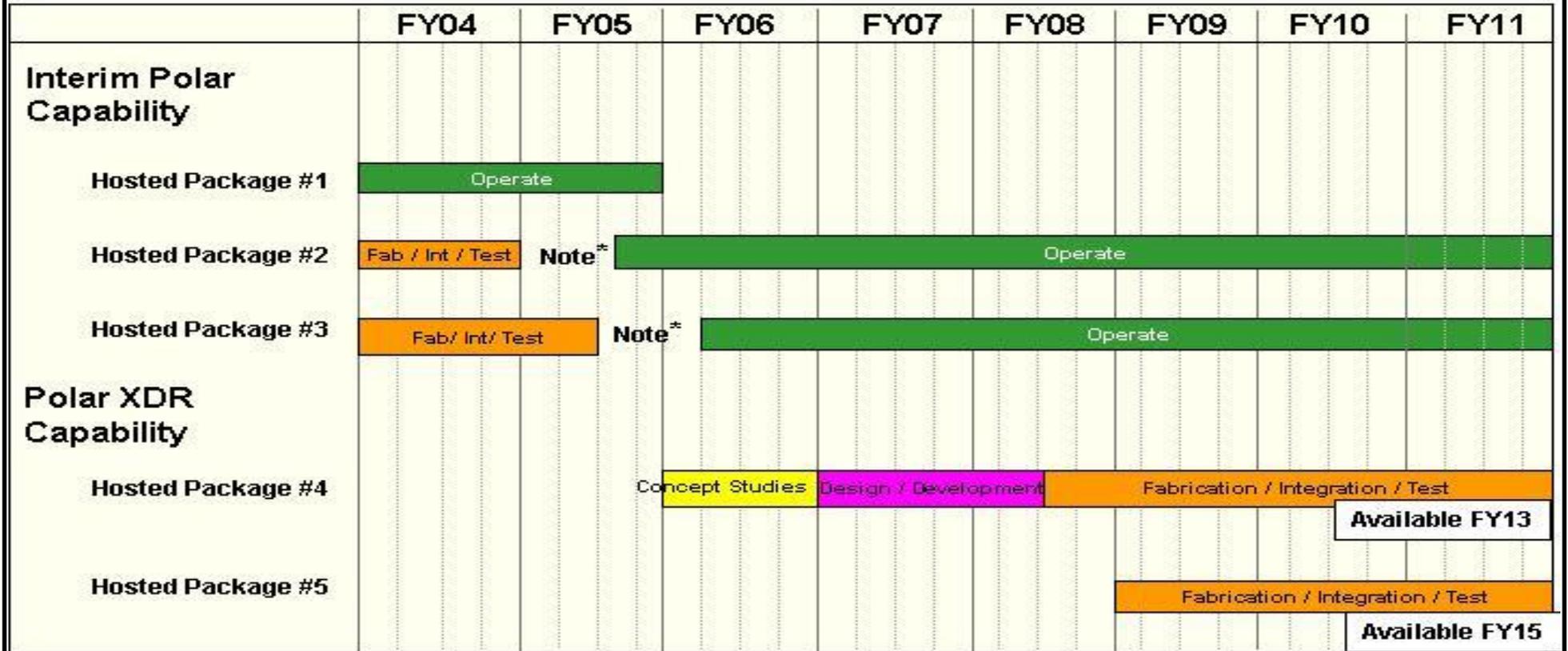
04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603432F Polar MILSATCOM (Space)

PROJECT NUMBER AND TITLE

4052 Polar Satellite Communications



Concept Studies
  Design / Development
  Fabrication / Integration / Test
  Operations / sustainment

**\* Note: Specific launch and availability dates are classified**

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2005</b>
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BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	PE NUMBER AND TITLE <b>0603432F Polar MILSATCOM (Space)</b>	PROJECT NUMBER AND TITLE <b>4052 Polar Satellite Communications</b>
--	--	--

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) <b><u>Schedule Profile</u></b>				
(U) Begin requirements analysis for Enhanced Polar packages			1Q	
(U) Begin design and development of Enhanced Polar packages				1Q

**UNCLASSIFIED**

PE NUMBER: 0603434F

PE TITLE: National Polar-Orbiting Operational Environmental Satellite System (NPOESS)

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0603434F National Polar-Orbiting Operational Environmental Satellite System (NPOESS)</b>
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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	265.483	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	922.221
4056 National Polar-orbiting Operational Env. Sat. Syst.	265.483	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	922.221

This table represents the RDT&E portion of the Air Force share of the NPOESS program, which is 50/50 funded by the Departments of Defense and Commerce. Total program funding is listed in section C, Other Program Funding Summary. In FY2005, Project 4056, PE 0603434F NPOESS, funding was transferred to Project 4056, PE 0305178F NPOESS, BA 04, in order to accomplish System Development and Demonstration (SDD). The NPOESS program was rebaselined in Dec 03 to reflect new schedule requirements.

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

Presidential Decision Directive/National Science and Technology Council-2 (PDD/NSTC-2) (May 1994) directs the Department of Defense (DoD), Department of Commerce (DOC), and the National Aeronautics and Space Administration (NASA) to establish a converged national polar-orbiting weather satellite program. The Air Force (DoD) and NOAA (DOC) fund NPOESS 50/50 (by year) at the total program level. However, apportionment of DoD and DOC funds to specific activities does not have to be 50/50 and is at the program office discretion. The converged program, the National Polar-orbiting Operational Environmental Satellite System (NPOESS), combines the follow-on to DoD's Defense Meteorological Satellite Program (DMSP) and the DOC's Polar-orbiting Operational Environmental Satellite (POES) program. A Tri-agency Integrated Program Office (IPO) was established on 1 Oct 94 to manage the acquisition and operations of the converged system. NPOESS will provide operational military commanders and civilian leaders timely, quality weather and environmental information to effectively employ weapon systems and protect national resources. On 13 Aug 2004, the Office of Science and Technology Policy directed the incorporation of a Landsat-type sensor on the first and fourth NPOESS spacecraft. Cost sharing requirements of the baseline NPOESS program do not apply to the integration of Landsat onto NPOESS. The converged program will be the nation's primary source of global weather and environmental data for operational military and civil use. It will provide visible and infrared cloud cover imagery and other atmospheric, oceanographic, terrestrial, and space environmental information. NPOESS will provide a combination of satellites in sun-synchronous 450 nautical mile (nm) polar-orbits at all times (sun synchronous means the satellites cross the equator at the same local sun time on each of their 14 orbits/day). The first NPOESS launch is scheduled for Nov 2009, with Initial Operational Capability (IOC) in Jul 2011 and Full Operational Capability (FOC) in Oct 2013. The remaining satellites will be fully funded with missile procurement funding. In Aug 2002, the NPOESS program was approved to enter Key Decision Point C (KDP-C) Acquisition & Operations (A&O) phase at the Defense Space Acquisition Board (DSAB). This PE has been consolidated with PE 0305178F, beginning in FY05.

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2005

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

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

(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	264.681	0.000	0.000	0.000
(U) Current PBR/President's Budget	265.483	0.000	0.000	0.000
(U) Total Adjustments	0.802	0.000		
(U) Congressional Program Reductions	-0.198	0.000		
Congressional Rescissions				
Congressional Increases				
Reprogrammings	1.000			
SBIR/STTR Transfer				
(U) <u>Significant Program Changes:</u>				
None.				

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2005

BUDGET ACTIVITY		PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE		
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>		<b>0603434F National Polar-Orbiting Operational Environmental Satellite System (NPOESS)</b>						<b>4056 National Polar-orbiting Operational Env. Sat. Syst.</b>		
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
4056 National Polar-orbiting Operational Env. Sat. Syst.	265.483	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	922.221
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

This table represents the RDT&E portion of the Air Force share of the NPOESS program, which is funded 50/50 by the Department of Defense and Department of Commerce. Total program funding is listed in section C, Other Program Funding Summary. In FY2005, Project 4056, PE 0603434F NPOESS, funding was transferred to Project 4056, PE 0305178F NPOESS, BA 04 in order to accomplish System Development and Demonstration.

The NPOESS program was rebaselined in Dec 03 to reflect new schedule requirements.

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

Presidential Decision Directive/National Science and Technology Council-2 (PDD/NSTC-2) (May 1994) directs the Department of Defense (DoD), Department of Commerce (DOC), and the National Aeronautics and Space Administration (NASA) to establish a converged national polar-orbiting weather satellite program. The Air Force (DoD) and NOAA (DOC) fund NPOESS 50/50 (by year) at the total program level. However, apportionment of DoD and DOC funds to specific activities does not have to be 50/50 and is at the program office discretion. The converged program, the National Polar-orbiting Operational Environmental Satellite System (NPOESS), combines the follow-on to DoD's Defense Meteorological Satellite Program (DMSP) and the DOC's Polar-orbiting Operational Environmental Satellite (POES) program. A Tri-agency Integrated Program Office (IPO) was established on 1 Oct 94 to manage the acquisition and operations of the converged system. NPOESS will provide operational military commanders and civilian leaders timely, quality weather and environmental information to effectively employ weapon systems and protect national resources. On 13 Aug 2004, the Office of Science and Technology Policy directed the incorporation of a Landsat-type sensor on the first and fourth NPOESS spacecraft. Cost sharing requirements of the baseline NPOESS program do not apply to the integration of Landsat onto NPOESS.

The converged program will be the nation's primary source of global weather and environmental data for operational military and civil use. It will provide visible and infrared cloud cover imagery and other atmospheric, oceanographic, terrestrial, and space environmental information. NPOESS will provide a combination of satellites in sun-synchronous 450 nautical mile (nm) polar-orbits at all times (sun synchronous means the satellites cross the equator at the same local sun time on each of their 14 orbits/day). The first NPOESS launch is scheduled for Nov 2009, with Initial Operational Capability (IOC) in Jul 2011 and Full Operational Capability (FOC) in Oct 2013. The remaining satellites will be fully funded with missile procurement funding. In Aug 2002, the NPOESS program was approved to enter Key Decision Point C (KDP-C) Acquisition & Operations (A&O) phase at the Defense Space Acquisition Board (DSAB). This PE has been consolidated with PE 0305178F, beginning in FY05.

**(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 DoD funded program office support for Acquisition and Operations (A&O) efforts.	0.668	0.000	0.000	0.000
(U) Continue System A&O effort including ground and space system development, design and fabrication for risk reduction missions.	263.615	0.000	0.000	0.000
(U) Windsat data analysis, refinement, calibration, modeling and retrieval algorithms	1.200			
(U) Total Cost	265.483	0.000	0.000	0.000

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2005

BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	PE NUMBER AND TITLE <b>0603434F National Polar-Orbiting Operational Environmental Satellite System (NPOESS)</b>	PROJECT NUMBER AND TITLE <b>4056 National Polar-orbiting Operational Env. Sat. Syst.</b>
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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>Complete</u>							
(U) Related NOAA PAC Funding: Polar Convergence*	273.789	300.501	323.742	344.020	346.607	299.969	376.616	408.667	740.027	4,066.517
(U) NPOESS RDT&E: PE 0603434F	265.483	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	265.483
(U) Related NPOESS RDT&E: PE 0305178F	0.000	303.784	323.665	350.516	216.277	163.236	136.052	87.760	0.000	1,581.290
(U) Related NPOESS MPAF: PE 0305178F	0.000	0.000	0.000	0.000	25.576	32.046	250.514	228.706	114.071	650.913
(U) Related EELV MPAF: PE 0305953F**	0.000	0.000	0.000	0.000	138.278	138.278	0.000	124.373	373.119	774.048
(U) Other operations and sustainment funding***	0.000	0.000	0.000	0.000	2.562	2.278	0.000	0.000	329.081	333.921
(U) Total NPOESS Air Force	265.483	303.784	323.665	350.516	382.693	335.838	386.566	440.839	816.271	4,262.393

\* National Oceanic and Atmospheric Administration Procurement, Acquisition, and Construction (NOAA PAC) appropriation. The Air Force (DoD) and NOAA (DOC) fund NPOESS 50/50. AF total cost includes prior-year amount of \$922.2M. Total NPOESS program cost is the sum of NPOESS RDT&E AF PE 0603434F/AF PE 0305178F, MPAF PE 0305178F, NPOESS portion of Evolved Expendable Launch Vehicle (EELV) MPAF PE 0305953F, and Polar Convergence NOAA PAC. The actual share of funding for specific program expenses is determined in the year of execution based on the availability of DoD and DOC funds.

\*\* NPOESS launch vehicle funding is budgeted entirely in EELV PE 0305953F and represents a portion of the DoD's 50% funding contribution.

\*\*\* Operations and Sustainment (O&S) after Initial Operational Capability (IOC) may be funded as either Operations & Maintenance AF, NOAA Operations Research and Facilities (ORF) or other appropriations, depending on the concept selected for post IOC O&S. Prior to IOC, O&S funding will be through a combination of RDT&E (AF) and NOAA PAC. These funds will be transferred to the specific appropriation as the budget enters the FYDP.

**(U) D. Acquisition Strategy**

Accomplish substantial risk reduction with a focus on developing payloads, enhancing data utility to users, and protecting maximum flexibility to ensure the best overall system design by pursuing a significant investment in the development and on-orbit testing of selected payload sensors; the first two satellites will be incrementally funded with RDT&E funding; the rest of the satellites will be fully funded with missile procurement funding.

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Exhibit R-3, RDT&E Project Cost Analysis											DATE February 2005			
BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)					PE NUMBER AND TITLE 0603434F National Polar-Orbiting Operational Environmental Satellite System (NPOESS)					PROJECT NUMBER AND TITLE 4056 National Polar-orbiting Operational Env. Sat. Syst.				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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>														
Syst. Arch. Studies	C/CPFF	Various	12.820										12.820	
TRW (PDRR)	C/FFP	Primary, Los Angeles, CA	27.705										27.705	
Lockheed Martin (PDRR)	C/FFP	Primary, Sunnyvale, CA	38.684										38.684	
Lockheed Martin	C/CPAF	Primary, Sunnyvale, CA	4.486										4.486	
Raytheon (VIIRS & CrIS)	C/CPFF	Sensor, Santa Barbara, CA	29.890										29.890	
Ball Aerospace (CMIS & OMPS)	C/CPFF	Sensor, Boulder, CO	30.599										30.599	
Ball Aerospace (OMPS)	C/CPAF	Sensor, Boulder, CO	35.730										35.730	
ITT Aerospace (VIIRS & CrIS)	C/CPFF	Sensor, Fort Wayne, IN	30.817										30.817	
Boeing (formerly Hughes) Space and Communications (CMIS)	C/CPFF	Sensor, El Segundo, CA	27.301										27.301	
Orbital Sciences (OMPS)	C/CPFF	Sensor, Baltimore, MD	2.610										2.610	
SAAB Ericsson (GPSOS)	C/CPFF	Sensor, Goteborg, Sweeden	2.386										2.386	
SAAB Ericsson (GPSOS)	SS/FFP	Sensor, Goteborg, Sweeden	9.168										9.168	
ITT Aerospace (CrIS)	C/CPAF	Sensor, Fort Wayne, IN	40.578										40.578	
Raytheon (VIIRS)	C/CPAF	Sensor, Santa Barbara, CA	51.170										51.170	
Boeing (CMIS)	C/CPAF	Sensor, El Segundo, CA	14.266										14.266	
Northrop Grumman (A&O)	C/CPAF	Primary, Redondo Beach, CA	231.286	256.646								0.000	487.932	

Project 4056

R-1 Shopping List - Item No. 44-5 of 44-8

Exhibit R-3 (PE 0603434F)

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2005**

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE			
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				<b>0603434F National Polar-Orbiting Operational Environmental Satellite System (NPOESS)</b>				<b>4056 National Polar-orbiting Operational Env. Sat. Syst.</b>			
Other Contracts	MISC	Various	21.975						21.975		
Government Led Studies	Gov. Orgs.	Various	29.571	8.169					37.740		
Subtotal Product Development			641.042	264.815	0.000	0.000	0.000	0.000	905.857	0.000	
Remarks:	FY05 funding consolidated in PE 0305178F										
(U) <u>Support</u>											
Integrated Program Office (IPO) Support	Various	Program Office, Silver Spring, MD	15.696	0.668					0.000	16.364	
Subtotal Support			15.696	0.668	0.000	0.000	0.000	0.000	0.000	16.364	0.000
Remarks:	FY05 funding consolidated in PE 0305178F										
(U) <u>Test &amp; Evaluation</u>											
Included in IPO Support										0.000	
Subtotal Test & Evaluation			0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Remarks:											
(U) <u>Management</u>											
Included in IPO Support										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			656.738	265.483	0.000	0.000	0.000	0.000	0.000	922.221	0.000

**Exhibit R-4, RDT&E Schedule Profile**

DATE

**February 2005**

BUDGET ACTIVITY

**04 Advanced Component Development and Prototypes (ACD&P)**

PE NUMBER AND TITLE

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

PROJECT NUMBER AND TITLE

**4056 National Polar-orbiting  
Operational Env. Sat. Syst.**

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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2005</b>
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BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	PE NUMBER AND TITLE <b>0603434F National Polar-Orbiting Operational Environmental Satellite System (NPOESS)</b>	PROJECT NUMBER AND TITLE <b>4056 National Polar-orbiting Operational Env. Sat. Syst.</b>
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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)				

**UNCLASSIFIED**

PE NUMBER: 0603438F  
 PE TITLE: Space Control Technology

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0603438F Space Control Technology</b>
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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	12.997	14.914	14.205	23.303	31.032	41.093	42.089	42.777	Continuing	TBD
2611 Technology Insertion Planning and Analysis	8.837	8.615	9.524	12.707	15.987	21.064	21.642	21.996	Continuing	TBD
A007 Space Range	4.160	6.299	4.681	10.596	15.045	20.029	20.447	20.781	Continuing	TBD

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

This program supports a range of activities including technology planning, development, demonstrations and prototyping, as well as modeling, simulations and exercises to support development of tactics and procedures in the Space Control mission area. The types of Space Control activities accomplished are Space Situational Awareness (SSA), Defensive Counterspace (DCS) , and Offensive Counterspace (OCS). For use in the Space Control mission area, SSA includes monitoring, detecting, identifying, tracking, assessing, verifying, categorizing, and characterizing, objects and events in space. DCS includes defensive activities to protect U.S. and friendly space-systems assets, resources, and operations from enemy attempts to negate or interfere and prevention activities that limit or eliminate an adversary's ability to use U.S. space systems and services for purposes hostile to U.S. national security interests. OCS activities disrupt, deny, degrade or destroy space systems, or the information they provide, which may be used for purposes hostile to U.S. national security interests. Consistent with DOD policy, the negation efforts of this program focus only on negation technologies which have temporary, localized, and reversible effects.

Also supported is the development of the system architecture for space control elements of the space range. This includes development and demonstration of test assets, special test equipment, capabilities and systems required to test, validate, and verify performance of integrated space control systems. Additionally, this program supports the development of test range assets required to support developmental and operational test, exercises, training, and tactics development for space control systems.

These two projects are in Budget Activity 4, Advanced Component Development and Prototypes, because they support the research, demonstration, component development and prototyping of Space Control technologies.

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2005

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603438F Space Control Technology

(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	14.547	15.046	14.129	22.869
(U) Current PBR/President's Budget	12.997	14.914	14.205	23.303
(U) Total Adjustments	-1.550	-0.132		
(U) Congressional Program Reductions		-0.132		
Congressional Rescissions				
Congressional Increases				
Reprogrammings	-1.000			
SBIR/STTR Transfer	-0.550			
(U) <u>Significant Program Changes:</u>				
FY 2004: \$1.000M reduction to support higher USAF priorities				

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>					PE NUMBER AND TITLE <b>0603438F Space Control Technology</b>			PROJECT NUMBER AND TITLE <b>2611 Technology Insertion Planning and Analysis</b>		
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
2611 Technology Insertion Planning and Analysis	8.837	8.615	9.524	12.707	15.987	21.064	21.642	21.996	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 supports a range of activities including technology planning, development, demonstrations and prototyping, as well as modeling, simulations and exercises to support development of tactics and procedures in the Space Control mission area. The types of Space Control activities accomplished are Space Situational Awareness (SSA), Defensive Counterspace (DCS), and Offensive Counterspace (OCS). For use in the Space Control mission area, SSA includes monitoring, detecting, identifying, tracking, assessing, verifying, categorizing, and characterizing objects and events in space. DCS includes defensive activities to protect U.S. and friendly space-systems assets, resources, and operations from enemy attempts to negate or interfere and prevention activities that limit or eliminate an adversary's ability to use U.S. space systems and services for purposes hostile to U.S. national security interests. OCS activities disrupt, deny, degrade or destroy an adversary's space systems, or the information they provide, which may be used for purposes hostile to U.S. national security interests. Consistent with DOD policy, the negation efforts of this program focus only on negation technologies which have temporary, localized, and reversible effects.

**Budget Activity Justification**

This project is in Budget Activity 4, Advanced Component Development and Prototypes because it supports the research, demonstration, component development and prototyping of Space Control 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) Space Situational Awareness efforts. Continue development of key space situational awareness enabling technologies for monitoring, detecting, identifying, tracking, assessing, verifying, categorizing, and characterizing objects and events in space for use in the Space Control mission area.	2.874	2.592	2.242	2.512
(U) Defensive Counterspace efforts. Continue vulnerability assessments. Includes vulnerabilities of space/link/ground segments of DoD space systems. Perform assessments on new DoD space systems. Continue looking at protection measures against optical jammers. Continue investigations in key technology areas such as data fusion, data mining, radiation effects, kinetic energy impacts, anomaly resolution. Continue development and demonstration of advanced techniques and technologies for space control prevention systems in the laboratory and field. Includes techniques and technologies for denying adversary use of blue systems on communications, sensor, and navigation platforms. Includes funding for architectural engineering leading to an overall Space Control architecture.	2.390	3.082	3.611	5.408
(U) Offensive Counterspace efforts. Continue development and demonstration of advanced counter-communications technologies and techniques, to include bandwidth on demand communications techniques. Continue exploring technologies leading to future generation counter-communications	2.695	1.463	2.664	3.529

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0603438F Space Control Technology</b>	<b>PROJECT NUMBER AND TITLE</b> <b>2611 Technology Insertion Planning and Analysis</b>
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systems and advanced target characteristics. Includes development of countermeasures for insertion into counter-communications weapons systems. Continue development of critical signal processing technology. Continue to develop, prototype, and demonstrate advanced counter surveillance, reconnaissance techniques. Continue technology development and demonstration of future generation counter surveillance and reconnaissance capabilities. Includes funding for architectural engineering leading to an overall Space Control architecture.

(U) Program Office and Other Technical Support	0.878	1.478	1.007	1.258
(U) Total Cost	8.837	8.615	9.524	12.707

(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>Complete</u>							

(U) None

(U) **D. Acquisition Strategy**

All contracts funded in this program element will be awarded using competitive procedures to the maximum extent possible. Program consists of numerous small projects. Most funding is either executed in-house by the program office or transferred via MIPR to other agencies for execution.

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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			
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				<b>0603438F Space Control Technology</b>								<b>2611 Technology Insertion Planning and Analysis</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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>															
SSA Development	Various	Various	4.220	2.874	Nov-03	2.592	Nov-04	2.242	Nov-05	2.512	Nov-06	Continuing	TBD	TBD	
DCS Activities	Various	Various	16.707	2.390	Nov-03	3.082	Nov-04	3.611	Nov-05	5.408	Nov-06	Continuing	TBD	TBD	
OCS Development	Various	Various	36.493	2.695	Nov-03	1.463	Nov-04	2.664	Nov-05	3.529	Nov-06	Continuing	TBD	TBD	
Subtotal Product Development			57.420	7.959		7.137		8.517		11.449		Continuing	TBD	TBD	
Remarks:															
(U) <u>Support</u>															
Program Office and Other Technical Support	Various	SMC- El Segundo, CA	3.978	0.878	Nov-03	1.478	Nov-04	1.007	Nov-05	1.258	Nov-06	Continuing	TBD	TBD	
None													0.000		
Subtotal Support			3.978	0.878		1.478		1.007		1.258		Continuing	TBD	TBD	
Remarks:															
(U) <u>Test &amp; 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)													0.000		
Subtotal			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000	
Remarks:															
(U) Total Cost			61.398	8.837		8.615		9.524		12.707		Continuing	TBD	TBD	

Exhibit R-4, RDT&E Schedule Profile

DATE

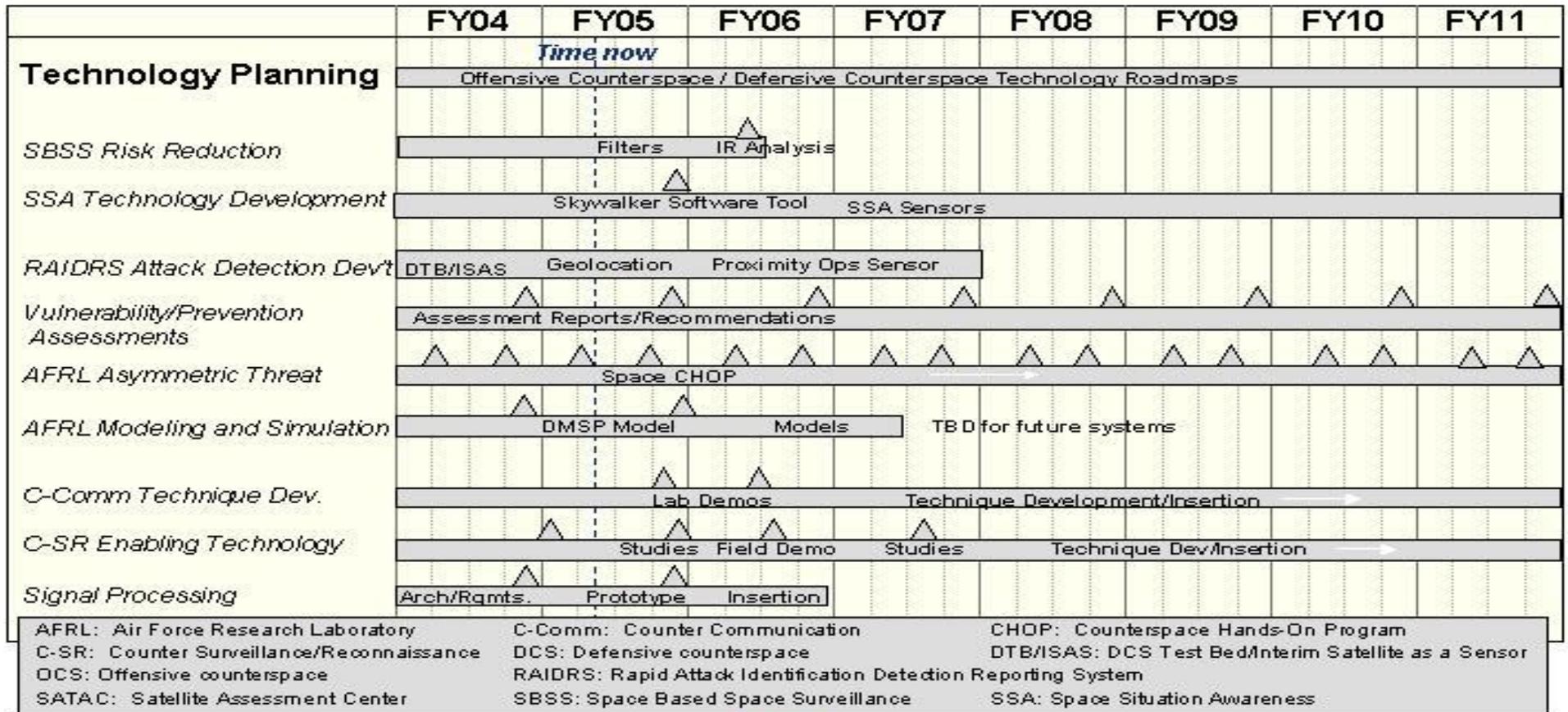
February 2005

BUDGET ACTIVITY  
04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE  
0603438F Space Control Technology

PROJECT NUMBER AND TITLE  
2611 Technology Insertion Planning and Analysis

# Space Control Technology Schedule



■ Concept activities

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0603438F Space Control Technology</b>	<b>PROJECT NUMBER AND TITLE</b> <b>2611 Technology Insertion Planning and Analysis</b>
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<b>(U) <u>Schedule Profile</u></b>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) OCS- Continue Counter Communications technique development and demonstration	1-4Q	1-4Q	1-4Q	1-4Q
(U) OCS- Continue Counter Surveillance/Reconnaissance technology development	1-4Q	1-4Q	1-4Q	1-4Q
(U) OCS- Continue Signal Processing development	1-4Q	1-4Q	1-4Q	1-4Q
(U) SSA- Continue SBSS Risk Reduction	1-4Q	1-4Q	1-4Q	
(U) SSA- Continue Sensor Development	1-4Q	1-4Q	1-4Q	1-4Q
(U) DCS- Continue Vulnerability and threat assessments	1-4Q	1-4Q	1-4Q	1-4Q
(U) Continue Technology Roadmaps	1-4Q	1-4Q	1-4Q	1-4Q

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>					PE NUMBER AND TITLE <b>0603438F Space Control Technology</b>			PROJECT NUMBER AND TITLE <b>A007 Space Range</b>		
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
A007 Space Range	4.160	6.299	4.681	10.596	15.045	20.029	20.447	20.781	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 supports the development of space test and training range assets required to support developmental and operational test, exercises, training, and tactics development for Space Control systems and related architecture.

**Budget Activity Justification**

This project is in Budget Activity 4, Advanced Component Development and Prototypes because it supports the research, demonstration, component development and prototyping of Space Test & Training Range technologies & infrastructure.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Threat Simulators	2.050	3.499	2.160	1.616
(U) Continue development of the system architecture and acquisition of Space Control elements of the Space Range. Continue demonstration of test assets, special test equipment, capabilities and systems required to test, validate, and verify performance of integrated Space Control systems.	1.874	1.954	1.397	6.597
(U) Program Office and Other Technical Support	0.236	0.846	1.124	2.383
(U) Total Cost	4.160	6.299	4.681	10.596

**(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>Complete</u>							
(U) None										

**(U) D. Acquisition Strategy**

All contracts funded in this program element will be awarded using competitive procedures to the maximum extent possible. Current contracts are Cost Plus Award Fee. Future contracts TBD.

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Exhibit R-3, RDT&E Project Cost Analysis											DATE February 2005			
BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)						PE NUMBER AND TITLE 0603438F Space Control Technology					PROJECT NUMBER AND TITLE A007 Space Range			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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>														
MAPIC	CPAF	Northrup Grumman, El Segundo, CA		1.874	Jan-04	1.954	Dec-04	1.685	Jan-06	4.813	Jan-07	Continuing	TBD	TBD
TMC	CPAF	Las Cruces, NM		2.050	Jan-04	3.499	Jan-05	1.872	Jan-06	3.400	Jan-07	Continuing	TBD	TBD
Subtotal Product Development			0.000	3.924		5.453		3.557		8.213		Continuing	TBD	TBD
Remarks:														
(U) <u>Support</u>														
Program Office and Other Technical Support	Various	SMC, El Segundo, CA		0.236	Jan-04	0.446	Jan-05	0.724	Dec-06	1.263	Dec-07	Continuing	TBD	TBD
Program Office and Other Technical Support	CPAF	MAPIC, Redondo Beach, CA				0.400	Jan-05	0.400	Dec-06	1.120	Dec-07	Continuing	TBD	TBD
Subtotal Support			0.000	0.236		0.846		1.124		2.383		Continuing	TBD	TBD
Remarks:														
(U) <u>Test &amp; 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			0.000	4.160		6.299		4.681		10.596		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

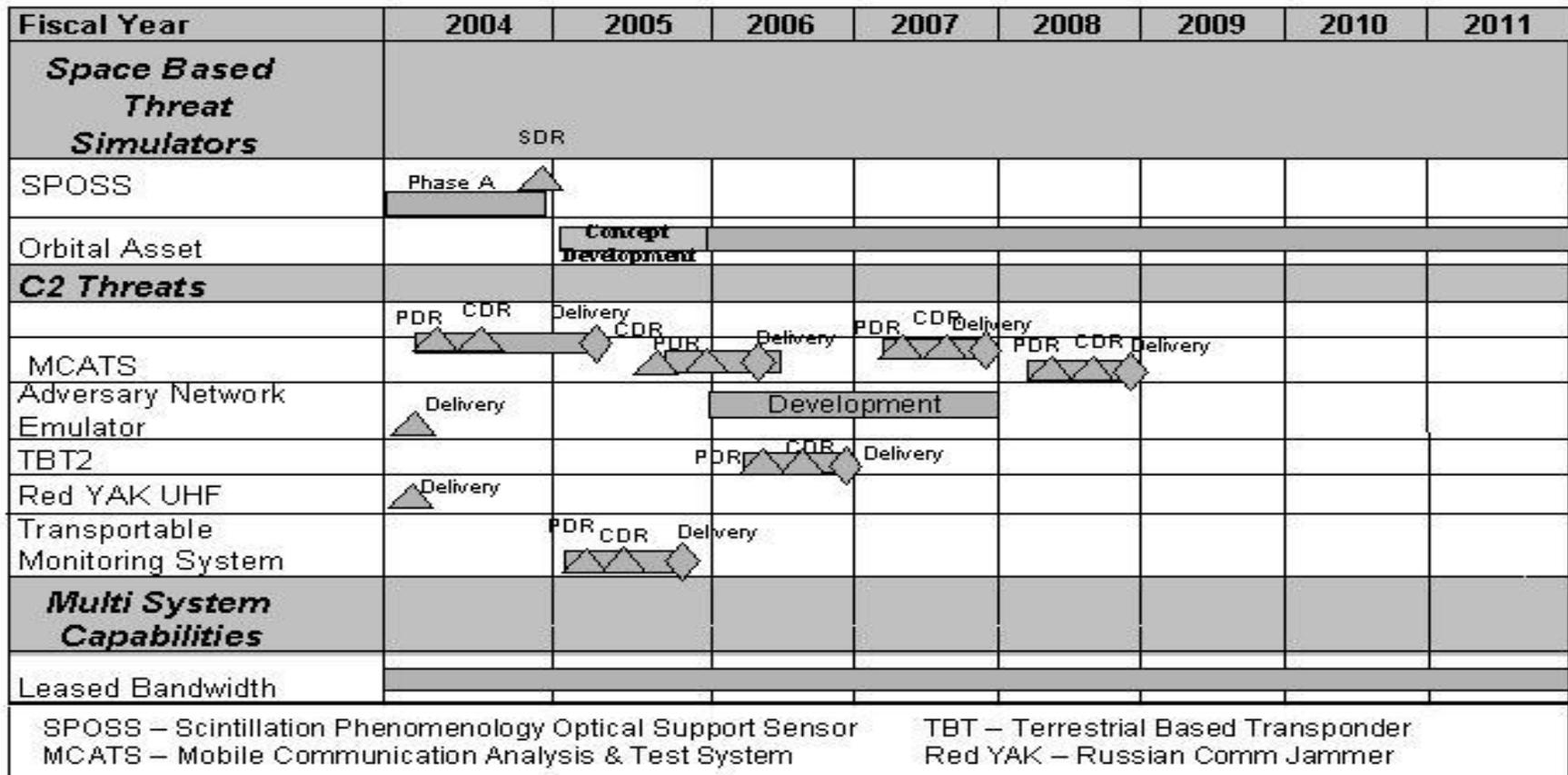
February 2005

BUDGET ACTIVITY  
04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE  
0603438F Space Control Technology

PROJECT NUMBER AND TITLE  
A007 Space Range

## Space Test and Training Range Schedule



<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0603438F Space Control Technology</b>	<b>PROJECT NUMBER AND TITLE</b> <b>A007 Space Range</b>
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	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) <b>Schedule Profile</b>				
(U) Develop STTR Architecture	1-4Q	1-4Q	1-4Q	1-4Q
(U) Continue with Scitillation Phenomonology Support Sensor (SPOSS) Development	2-4Q			
(U) Develop Orbital Asset			1-4Q	1-4Q
(U) Develop & Deliver Mobile Comm analysis and Test System	2-4Q	1-4Q	1-2Q	2-4Q
(U) Adversary Network Emulator	1Q		1-4Q	1-4Q
(U) Deliver Terrestrial Based Transponder			4Q	
(U) Red YAK UHF System	1Q			
(U) Deliver Transportable Monitoring System		4Q		
(U) Leased Bandwidth	1-4Q	1-4Q	1-4Q	

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PE NUMBER: 0603742F

PE TITLE: Combat Identification Technology

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0603742F Combat Identification Technology</b>
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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	25.949	19.404	51.893	26.662	20.772	21.146	21.595	21.914	Continuing	TBD
2597 Noncooperative Identification Subsystems	25.949	19.404	19.892	20.542	20.772	21.146	21.595	21.914	Continuing	TBD
2599 Cooperative Identification Techniques	0.000	0.000	32.001	6.120	0.000	0.000	0.000	0.000	0.000	38.121

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

U.S. Combat Air Forces have a critical requirement to positively identify enemy, friendly, and neutral aircraft, battlefield equipment and personnel in order to increase combat effectiveness and prevent fratricide. Numerous Joint needs statements, operational documents, lessons learned, and NATO requirements documents also state the need for positive combat identification (ID). High confidence combat ID in all weather and day/night enables combatant commanders to effectively command and control their forces. 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 Combat Identification (CID) Technology program analyzes, develops, and demonstrates promising target identification technologies in order to transition them into Systems Development/Demonstration (SD/D) programs. These technologies include both cooperative and non-cooperative techniques that will improve our ability to positively identify ground and air targets in both Air-to-Surface and Air-to-Air engagements.

Non-cooperative CID employs a number of sensing and signal processing techniques and compares the results against a database of known objects to determine identity. The non-cooperative CID techniques can be used for identifying surface or air threats from air platforms. Air-to-surface technologies include 1) Laser Vision, a 2-dimensional electro-optical imaging system that significantly increases ID ranges and other advanced laser sensing technologies; 2) Radar Vision, an air-to-ground radar imaging technique to identify objects using their radar signatures; and 3) algorithm maturation for supporting Automatic Target Cueing (ATC) and Automatic Target Recognition (ATR). Air-to-air technologies funded by this program include High Range Resolution (HRR) radar signals processing to increase ID range and confidence.

Cooperative CID techniques require a system that allows rapid identification of a friendly system. In an air-to-ground setting, this can be in the form of unique markings on a vehicle or a radio-based reply that is activated by a directed signal. In both an air-to-air and air-to-ground setting, this program element funds the development of Mode 5 of the NATO/Joint Mark XIIIA standard for Identification Friend or Foe (IFF). IFF performance was highlighted as a significant deficiency in Operation Iraqi Freedom. The Mode 5 capability will begin with the fielding of Mode S IFF hardware and software, which will later be upgraded to Mode 5 with the addition of software and cryptologic gear. The synchronization of Mode 5 with the Mode S deployment and crypto modernization is critical to enable Mode 5 across the Air Force fleet.

Current and future space-based systems can facilitate these processes leading ultimately to Automatic Target Recognition (ATR) fusion and net-centric warfare. ATR focuses on development, demonstration and integration of technologies drawing upon all available information data elements or platforms e.g. (national, tactical, fighter, bomber, ISR). The desired outcome would provide the operational-level decision maker a single, fused display of all threats or assets. These technologies must

**Exhibit R-2, RDT&E Budget Item Justification**

DATE

**February 2005**

BUDGET ACTIVITY

**04 Advanced Component Development and Prototypes (ACD&P)**

PE NUMBER AND TITLE

**0603742F Combat Identification Technology**

provide near-real time information, to include Special Compartmented Information (SCI) and classified data information, to the operational and tactical level decision makers for both ground and airborne systems. Efforts also focus on development and approval of new technologies so all this information can be shared across security levels, services and with foreign participants.

This program is in Budget Activity 4 - Advanced Component Development and Prototypes (ACD&P). The PE includes advanced technology demonstrations that help transition technologies from laboratory to 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	16.434	19.582	19.785	20.160
(U) Current PBR/President's Budget	25.949	19.404	51.893	26.662
(U) Total Adjustments	9.515	-0.178		
(U) Congressional Program Reductions				
Congressional Rescissions		-0.178		
Congressional Increases				
Reprogrammings	9.430			
SBIR/STTR Transfer	0.085			

**(U) Significant Program Changes:**

Between the time of the FY05 President's Budget and the development of the FY06 PB, the AF accelerated the ongoing Mode 5 IFF development program. Real-world operational requirements dictated the more secure and robust Mode 5 be developed more rapidly than planned to reduce fratricide and increase mission effectiveness. In addition, the National Security Agency decertified the encryption devices used by the previous version of IFF, Mode 4. This occurred too late in the programming and budgeting cycle to affect the FY05 PB request. However, the AF reprogrammed \$9.43M in FY04 to begin this acceleration and added \$32.5M of additional funds for FY06 as part of the regular budgeting process. The Air Force plans to reprogram funds to the appropriate level in FY05 creating a coherent funding stream bridging from FY04 to the FY06 PB.

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				<b>PE NUMBER AND TITLE</b> <b>0603742F Combat Identification Technology</b>				<b>PROJECT NUMBER AND TITLE</b> <b>2597 Noncooperative Identification Subsystems</b>		
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
2597 Noncooperative Identification Subsystems	25.949	19.404	19.892	20.542	20.772	21.146	21.595	21.914	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) **A. Mission Description and Budget Item Justification**  
 Non-cooperative CID employs a number of sensing and signal processing techniques and compares the results against a database of known objects to determine identity. The non-cooperative CID techniques can be used for identifying surface or air threats from air platforms. Air-to-surface technologies include 1) Laser Vision, a 2-dimensional electro-optical imaging system that significantly increases ID ranges and other advanced laser sensing technologies; 2) Radar Vision, an air-to-ground radar imaging technique to identify objects using their radar signatures; and 3) algorithm maturation for supporting Automatic Target Cueing (ATC) and Automatic Target Recognition (ATR). Air-to-air technologies funded by this program include High Range Resolution (HRR) radar signals processing to increase ID range and confidence.

This program is in Budget Activity 4 - Advanced Component Development and Prototypes (ACD&P). This project includes advanced technology demonstrations that help transition technologies from laboratory to operational use. Also, it will participate in the development, testing, and implementation of international standards (to include NATO standardization agreements) to ensure joint, Allied, and coalition interoperability.

<b>(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Continue the High Range Resolution (HRR) synthetic target database development in conjunction with National Air and Space Intelligence Center (NASIC). Implement enhancement techniques to improve the HRR algorithm and increase the fidelity of the HRR database. Prepare for the transition of database management and maintenance from the lab environment to a SPO.	6.958	7.454	2.999	1.674
(U) Transition verified air-to-ground and air-to-air identification capabilities for reduced battle space fratricide and enhanced mission performance and develop/demonstrate promising future capabilities. Program candidates include the integration of Laser Vision into designated platforms, development of 1st generation Electro Optical/Automatic Target Cueing/Automatic Target Recognition (EO/ATC/ATR) Laser Vision capability, development/demonstration of laser vibrometry, and insertion of mature/hardened camera technologies into alternate platforms. Radar Vision's air-to-ground radar imaging technology is in its second phase and will release its third spiral development during FY06 which will integrate selected algorithms, data sets, and enhanced technologies into designated platforms.	6.350	8.583	12.971	15.403
(U) Fund Air Traffic Control Radar Beacon Systems Identification Friend or Foe Mark XII/XIIA Systems (AIMS) Program Office support of Mark XII systems to include current and next generation IFF equipment integration, including Mode 5 documentation and individual IFF system/box certification.	0.773	0.824	0.863	0.906
(U) Continue funding the CID Integrated Management Team and other engineering support necessary for	1.507	2.276	2.589	2.534

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0603742F Combat Identification Technology</b>	<b>PROJECT NUMBER AND TITLE</b> <b>2597 Noncooperative Identification Subsystems</b>
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management of CID efforts. Includes support for Mode 5 IFF flight demonstration.				
(U) Conduct CID-related studies/demos and conferences. Execute Mode 5 IFF flight test preparations and demonstration to assess system operational capacity, interoperability, and equipment integration. Studies and demonstrations will include those directed by Joint Staff and OSD to research and evaluate a family of CID systems, linkage between airborne and ground-based non-cooperative CID technologies/systems, and quantify the relationship between CID and improved combat effectiveness.	0.456	0.267	0.470	0.025
(U) Continue Mode 5 development with an upgrade to the Combined Interrogator/Transponder (CIT), APX-113; Mode 5 upgrade to interrogator, UPX-39; AWACS risk mitigation prototype development/test for airborne interrogator APX-103C; fund the Mode 5 upgrade to transponder APX-119 and interrogator APX-114; as well as other planned platform integrations. Conduct integration and test. Fund Enterprise Management. Funding with all these efforts will continue in FY05 through reprogramming funds in Project number 2597 and in FY06 and beyond through the FY06 POM under Project number 2599, Cooperative Identification Techniques.	9.905			
(U) Total Cost	25.949	19.404	19.892	20.542

(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>Complete</u>							

(U) Not Applicable

(U) **D. Acquisition Strategy**

The acquisition strategy for CID programs is and will continue to be to investigate, develop, and transition CID capabilities via contract vehicles that provide the greatest benefit to the end-user in the areas of performance, value, and transition timeline.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2005**

<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0603742F Combat Identification Technology</b>	<b>PROJECT NUMBER AND TITLE</b> <b>2597 Noncooperative Identification Subsystems</b>
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(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>			
(U) <u>Product Development</u>														
Raytheon Co	C/CPFF	El Segundo CA	4.101	3.000	Dec-03	6.696	Nov-04	1.333	Nov-05	1.474	Nov-06	Continuing	TBD	TBD
General Dynamics	C/CPFF	Dayton OH	0.800	0.274	Nov-03	0.175	Dec-04	0.175	Nov-05				1.424	TBD
Simulation Support, Inc.	C/CP	Arlington VA	0.330										0.330	TBD
National Air Intel Center	MIPR	Dayton OH	4.329									0.000	4.329	TBD
Northrop Grumman Corp	C/CPFF	Baltimore MD	1.856	0.600	Mar-04	1.000	Apr-05	4.315	Nov-05	5.831	Nov-06	Continuing	TBD	TBD
ERASER-Raytheon	C/CPFF	Plano TX	0.462										0.462	TBD
Raytheon Co	C/TBD	El Segundo CA	0.150										0.150	TBD
Lockheed Martin	OTA	Orlando FL	13.624	2.021	Jan-04	0.200	Dec-04	0.200	Dec-05	0.200	Dec-06	Continuing	TBD	TBD
Northrop Grumman	CPFF	Rolling Meadows IL				2.800	Mar-05	3.400	Mar-06	3.500	Mar-07		9.700	
Northrop Grumman	OTA	Rolling Meadows IL	0.150										0.150	TBD
SAIC (Demaco, Inc)	SS/CPFF	Dayton OH	10.622	4.472	Jan-04	3.091	Dec-04						18.185	TBD
Cyberdynamics	SS/CPFF	Dayton OH	0.010										0.010	TBD
AIMS Program Office	MIPR	Warner Robins GA	1.627	0.773	Oct-03	0.824	Oct-04	0.863	Oct-05	0.906	Oct-06	Continuing	TBD	TBD
Air Force Research Laboratory (Camera & ATR development)	MIPR	Dayton OH						2.000	Jan-06				2.000	TBD
Air Force Research Laboratory (LV)	MIPR	Dayton OH						1.707	Nov-05	2.882	Nov-06	Continuing	TBD	TBD
Air Force Research Laboratory (Radar Vision)	MIPR	Dayton, OH						1.940	Nov-05	2.940	Nov-06	Continuing	TBD	TBD
Telephonics	C	Farmingdale, NY	0.586	0.305	Nov-03								0.891	TBD
NVESD	MIPR	Ft Belvoir, VA		0.167	Jun-04								0.167	TBD
MODE 5													0.000	
BAE (Mode 5 FY04 only)	C	Greenlawn, NY		6.220	Jun-04								6.220	TBD
Northrop Grumman (Mode 5 FY04 only)	C	Woodland Hills, CA		2.600	Jun-04								2.600	TBD
Boeing/Telephonics (Mode 5 FY04 only)	C	Farmingdale, NY		0.480	Jun-04								0.480	TBD
Veridian Engineering	C	Buffalo, NY		0.475	May-04	0.475	Apr-05						0.950	TBD
SVERDRUP Technology	C	Ft Walton Beach, FL		0.475	May-04	0.475	Apr-05						0.950	TBD
DOE - Sandia National Labs	MIPR	Albuquerque,		0.390	Nov-03								0.390	TBD

Project 2597

R-1 Shopping List - Item No. 46-6 of 46-15

Exhibit R-3 (PE 0603742F)

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Exhibit R-3, RDT&E Project Cost Analysis											DATE <b>February 2005</b>			
BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>					PE NUMBER AND TITLE <b>0603742F Combat Identification Technology</b>					PROJECT NUMBER AND TITLE <b>2597 Noncooperative Identification Subsystems</b>				
Battelle Memorial Institute	C	NM Columbus, OH	0.125	Jan-04							0.125	TBD		
Resource Consultants, INC	C	Vienna, VA	0.121	Jan-04							0.121	TBD		
Subtotal Product Development			38.647	22.498		15.736		15.933		17.733	Continuing	TBD	TBD	
Remarks:														
(U) <u>Support</u>														
USAF Combat ID IMT and Engineering Support	Various	Hanscom AFB MA	5.958	1.571	Nov-03	1.083	Oct-04	1.104	Dec-05	1.123	Dec-06	Continuing	TBD	
Air Force Research Laboratory (HRR)	MIPR	Dayton OH	2.848	0.154	Nov-03	0.200	Oct-04	0.200	Oct-05	0.250	Oct-06		3.652	
Air Force Research Laboratory (ERASER)	MIPR	Dayton OH		0.003	Mar-04	0.000							0.003	
MODE 5 Engineering Support	Various	Hanscom AFB MA/Robins AFB, GA		0.522	Jul-04								0.522	
IMT Studies and Analysis	Various	Various	0.271	0.456	Oct-03	0.267	Nov-04	0.470	Nov-05	0.025	Nov-06	Continuing	TBD	
Subtotal Support			9.077	2.706		1.550		1.774		1.398	Continuing	TBD	0.000	
Remarks:														
(U) <u>Test &amp; Evaluation</u>														
3246th Test Wing, Eglin AFB, FL 544th Range Group	MIPR	Eglin AFB FL / Nellis AFB NV	4.089										4.089	
412 Test Wing	MIPR	Edwards AFB CA	0.239	0.012	Oct-03	0.025	Dec-04	0.800	Nov-04				1.076	
552nd Air Control Wing	MIPR	Tinker AFB OK											0.000	
White Sands Missile Range	MIPR	WSMR, NM		0.110	Nov-03	0.100							0.210	
AFRL/DEB	MIPR	Kirtland, AFB, NM		0.033	Mar-04								0.033	
98 RANW	MIPR	Nellis AFB, NV		0.200	Apr-04	0.200							0.400	
422 Test	MIPR	Nellis AFB, NV				0.422	Nov-04						0.422	
Subtotal Test & Evaluation			4.328	0.355		0.747		0.800		0.000		0.000	6.230	
Remarks:														
(U) <u>Management</u>														
Subtotal Management			0.837	0.390		1.371		1.385		1.411		0.000	5.394	
Remarks:														
(U) Total Cost			52.889	25.949		19.404		19.892		20.542	Continuing	TBD	TBD	

Exhibit R-4, RDT&E Schedule Profile

DATE

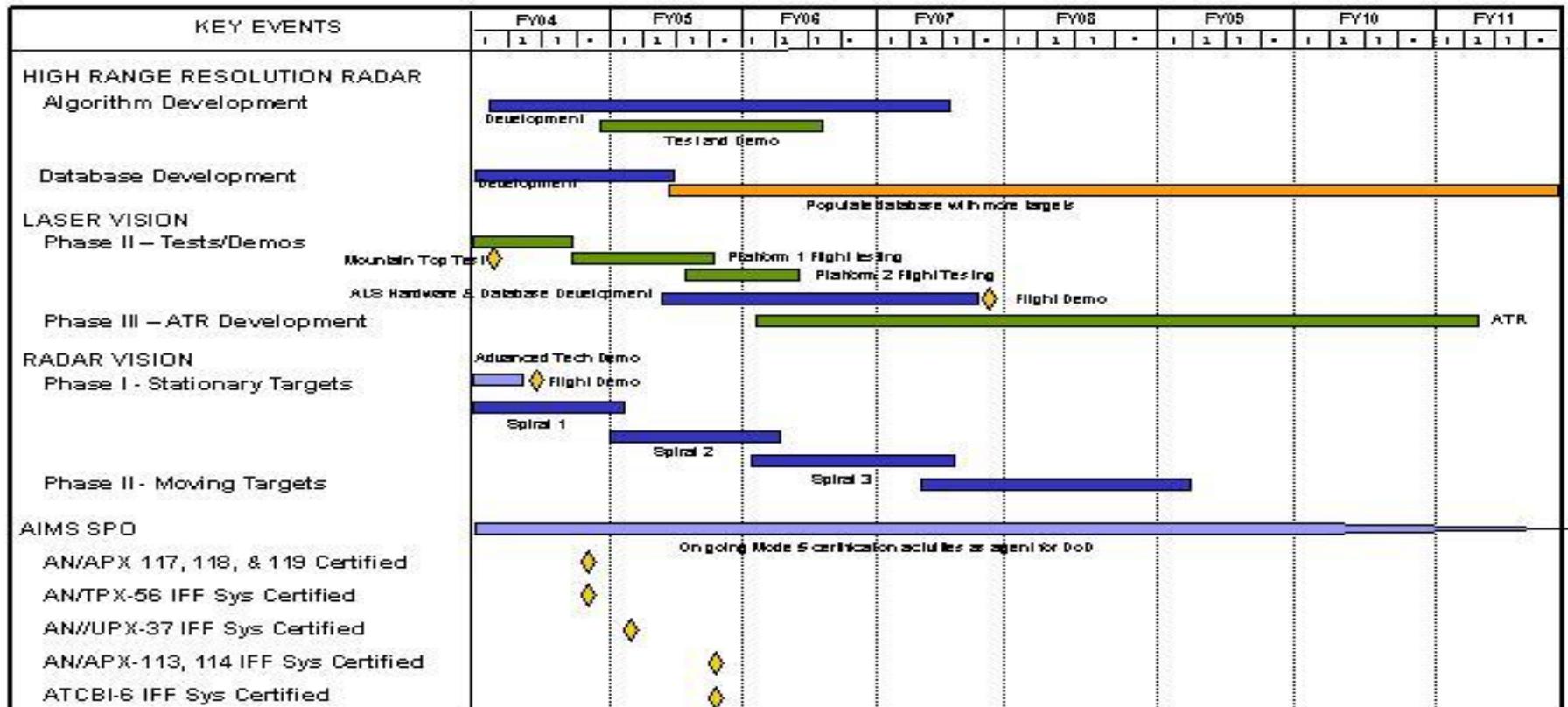
February 2005

BUDGET ACTIVITY  
04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE  
0603742F Combat Identification Technology

PROJECT NUMBER AND TITLE  
2597 Noncooperative Identification Subsystems

### Non-cooperative Identification Subsystems Schedule Profile



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Exhibit R-4a, RDT&E Schedule Detail		DATE <b>February 2005</b>		
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE		
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>0603742F Combat Identification Technology</b>	<b>2597 Noncooperative Identification Subsystems</b>		
<b>(U) Schedule Profile</b>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) 1. HRR Classifier Dev/Qual				1-2Q
(U) Algorithm Development		3Q		
(U) Database Transitions to SPO		1-4Q		
(U) Algorithm Flight Test		3Q		1-2Q
(U) Algorithm transitions to SPO				1Q
(U) 2. LASER VISION / ADVANCED LASER SENSING (ALS)		4Q		
(U) Completion of Lab Demos	1Q			
(U) Phase II, Part III Contract Modification	1Q			
(U) Tower Demonstrations	2Q			
(U) Mountaintop Demo	2Q			
(U) CID Flight Testing	4Q	1-2Q		
(U) Completion of Phase II		2Q		
(U) Start of CID SDD		2Q		
(U) LV ATR Development		3Q	1-4Q	1-4Q
(U) Laser Vibration Analysis		2-4Q		
(U) ALS Database Development	4Q	1-4Q	1-4Q	1-4Q
(U) ALS Hardware Development/Flight Demo		4Q	1-4Q	1-4Q
(U) 3. RADAR VISION (Development and transition of air-to-ground radar imaging automatic target recognition)		4Q		
(U) Phase 1 - Stationary Target Recognition	1-4Q	1-4Q	1-4Q	1-4Q
(U) Radar Vision Spiral 1	1-4Q	1Q		
(U) Radar Vision Spiral 2		1-4Q	1-2Q	
(U) Radar Vision Spiral 3			1-4Q	1-3Q
(U) Phase 2 - Moving Target Recognition				3-4Q
(U) 4. AIMSPO Integration and Certification Support		4Q		
(U) AN/APX-117, 118, & 119 IFF Systems Certified	4Q			
(U) AN/TPX-56 IFF System Certified	4Q			
(U) AN/UPX-37 IFF System Certified		1Q		
(U) Complete AN/APX-113, 114 Certification		3Q		
(U) Complete ATCBI-6 Certification		3Q		
(U) C-35, C-40 IFF Integration Support Completed	4Q			
(U) Mode 5 Engineering Specification Comp		1Q		

**UNCLASSIFIED**

Exhibit R-4a, RDT&E Schedule Detail		DATE <b>February 2005</b>
BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	PE NUMBER AND TITLE <b>0603742F Combat Identification Technology</b>	PROJECT NUMBER AND TITLE <b>2597 Noncooperative Identification Subsystems</b>
(U) F-35 IFF Integration Support Started		4Q
(U) F-15, F-16 IFF Integration Support Started		4Q
(U) F-22 IFF Integration Support Started		4Q
(U) 5. INTEGRATED MANAGEMENT TEAM		4Q
(U) Air-to-Air CID Tech Roadmap Update	1Q	
(U) Air-to-Ground CID Tech Roadmap Update	1Q	
(U) Complete Mode V Acquisition Strategy	4Q	
(U) Start Mode V Fielding Support		1Q
(U) Start Mode V IFF Flight Demo Planning and Support	2Q	
(U) 6. CID Studies and Demos		4Q
(U) AFSAA Analysis of Alternative Start	3Q	
(U) AFSAA AoA Completion		1Q
(U) 7. MODE 5 - Funding Received	2Q	
(U) Mode 5 RDT&E Contracts	3-4Q	
(U) UPX-39 M5 RDT&E	3-4Q	
(U) APX-113 M5 RDT&E	3-4Q	
(U) Airborne Interrogator Risk Reduction	3-4Q	
(U) Enterprise Management	2-4Q	

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				PE NUMBER AND TITLE <b>0603742F Combat Identification Technology</b>				PROJECT NUMBER AND TITLE <b>2599 Cooperative Identification Techniques</b>			
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	
2599 Cooperative Identification Techniques	0.000	0.000	32.001	6.120	0.000	0.000	0.000	0.000	0.000	38.121	
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0			

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

Cooperative CID techniques require a system that allows rapid identification of a friendly system. In an air-to-ground setting, this can be in the form of unique markings on a vehicle or a radio-based reply that is activated by a directed signal. In both an air-to-air and air-to-ground setting, this PE funds the development of Mode 5 of the NATO/Joint Mark XIIA standard for Identification Friend or Foe (IFF). IFF performance was highlighted as a significant deficiency in Operation Iraqi Freedom. The Mode 5 capability will begin with the fielding of Mode S IFF hardware and software, which will later be upgraded to Mode 5 with the addition of software and cryptologic gear. The synchronization of Mode 5 with the Mode S deployment and crypto modernization is critical to enable Mode 5 across the Air Force fleet.

This project is in Budget Activity 4 - Advanced Component Development and Prototypes (ACD&P). The PE includes advanced technology demonstrations that help transition technologies from laboratory to operational use. Also, the project 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 Mode 5 development with an upgrade to the Combined Interrogator/Transponder (CIT), APX-113; Mode 5 upgrade to interrogator, UPX-39; AWACS risk mitigation prototype development/test for airborne interrogator APX-103C; fund the Mode 5 upgrade to transponder APX-119 and interrogator APX-114; as well as other planned platform integrations. Conduct integration and test. Fund Enterprise Management. Funding in this project is a continuation of funds originally listed in FY04 under Project number 2597 and funding in FY05 through reprogramming efforts which will occur in the same project. Funding in FY06 and beyond is broken out separately in this project number to provide greater insight into the "cooperative" combat ID portion of the PE.			32.001	6.120

(U)				
(U)				
(U) Total Cost	0.000	0.000	32.001	6.120

**(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>Complete</u>							
(U) Not applicable										

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2005

BUDGET ACTIVITY

**04 Advanced Component Development and Prototypes (ACD&P)**

PE NUMBER AND TITLE

**0603742F Combat Identification  
Technology**

PROJECT NUMBER AND TITLE

**2599 Cooperative Identification  
Techniques****(U) D. Acquisition Strategy**

To demonstrate the Mode 5 capability in the digital Mark XII IFF equipment in or planned for use on AF platforms, and provide enterprise management in order to integrate into all AF mission design series (MDS), or platforms, and transition the AF cooperative ID capability to Mark XIII A.

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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					
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				<b>0603742F Combat Identification Technology</b>						<b>2599 Cooperative Identification Techniques</b>					
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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	C	Greenlawn, NY						6.000	Nov-05				6.000	TBD	
Northrop Grumman	C	Woodland Hills, CA						3.900	Nov-05				3.900	TBD	
Boeing / Telephonics	C	Farmingdale, NY						12.000	Dec-05				12.000	TBD	
TBD	TBD	TBD						4.000	Jan-06	5.370	Nov-06		9.370	TBD	
Subtotal Product Development			0.000	0.000		0.000		25.900		5.370		0.000	31.270	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 &amp; Evaluation</u>													0.000	TBD	
Integration and Test															
TBD	TBD	TBD						5.375	Dec-05				5.375	TBD	
Subtotal Test & Evaluation			0.000	0.000		0.000		5.375		0.000		0.000	5.375	TBD	
Remarks:															
(U) <u>Management</u>															
Enterprise Management	Various	Various						0.726	Nov-05	0.750	Nov-06	Continuing	TBD	TBD	
Subtotal Management			0.000	0.000		0.000		0.726		0.750		Continuing	TBD	TBD	
Remarks:															
(U) Total Cost			0.000	0.000		0.000		32.001		6.120		Continuing	TBD	TBD	

Exhibit R-4, RDT&E Schedule Profile

DATE

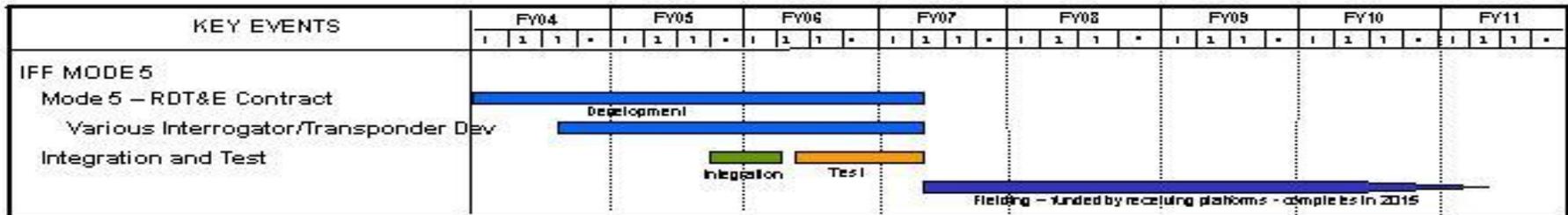
February 2005

BUDGET ACTIVITY  
04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE  
0603742F Combat Identification Technology

PROJECT NUMBER AND TITLE  
2599 Cooperative Identification Techniques

Cooperative Identification Techniques Schedule Profile



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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0603742F Combat Identification Technology</b>	<b>PROJECT NUMBER AND TITLE</b> <b>2599 Cooperative Identification Techniques</b>
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<b>(U) <u>Schedule Profile</u></b>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Mode 5 RDT&E Contracts		1-4Q	1-4Q	1Q
(U) UPX-39 M5 RDT&E	3-4Q	1-4Q	1Q	
(U) APX-113 M5 RDT&E	3-4Q	1-4Q	1Q	
(U) APX-119 M5 RDT&E		2-4Q	1-3Q	
(U) APX-114 M5 RDT&E		2-4Q	1-3Q	
(U) Other Transponder Task Order Award		2-4Q	1-4Q	1Q
(U) Airborne Interrogator Task Order	3-4Q	1-4Q	1-4Q	1Q
(U) Integration & Test		3-4Q	1-4Q	1Q
(U) Enterprise Management	3-4Q	1-4Q	1-4Q	1-4Q

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PE NUMBER: 0603790F  
 PE TITLE: NATO Cooperative R&D

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0603790F NATO Cooperative R&amp;D</b>
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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	3.605	3.895	3.973	4.048	4.171	4.246	4.345	4.418	Continuing	TBD
NATO Nato Coop R&D	3.605	3.895	3.973	4.048	4.171	4.246	4.345	4.418	Continuing	TBD

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

These funds will be used to help implement international cooperative research, development, and acquisition (ICRD&A) agreements with North Atlantic Treaty Organization (NATO) member states, major non-NATO allies (Argentina, Australia, Egypt, Israel, Japan, Jordan, and Rep. of Korea (South Korea), and friendly foreign countries (Austria, Brazil, Bulgaria, Finland, India, Singapore, South Africa, Sweden, Switzerland, and Ukraine). The program implements the provisions of Title 10 U.S. Code, Section 2350a on NATO Cooperative Research and Development (R&D). The program was established to improve cooperation among NATO nations, and later major non-NATO allies, in research, development, and acquisition. The legislation authorized funds to significantly improve United States (US) and allied conventional defense capabilities by leveraging the best defense technologies, eliminating costly duplication of R&D efforts, accelerating the availability of defense systems, and promoting US and allied interoperability or commonality. The program will be reported as required by Title 10 U.S. Code, Section 2350a(f). This program element funds the implementation of Air Force ICRD&A agreements in (1) Basic Research (2) Applied Research (3) Advanced Technology Development (4) Advanced Component Development and Prototypes (5) System Development and Demonstration and (6) RDT&E Management Support.

This PE is designated in Budget Activity 4 because most of the ICRD&A projects support specific systems, include all efforts necessary to evaluate integrated technologies in as realistic an operating environment as possible to assess the performance or cost reduction potential of advanced technology, and help expedite technology transition from the laboratory to 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	3.930	3.895	3.952	3.972
(U) Current PBR/President's Budget	3.605	3.895	3.973	4.048
(U) Total Adjustments	-0.325	0.000		
(U) Congressional Program Reductions	-0.044			
Congressional Rescissions	-0.281			
Congressional Increases				
Reprogrammings				
SBIR/STTR Transfer				

(U) Significant Program Changes:  
 Change Summary Explanation: N/A

Exhibit R-2a, RDT&E Project Justification

DATE  
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BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>					PE NUMBER AND TITLE <b>0603790F NATO Cooperative R&amp;D</b>			PROJECT NUMBER AND TITLE <b>NATO Nato Coop R&amp;D</b>		
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
NATO Nato Coop R&D	3.605	3.895	3.973	4.048	4.171	4.246	4.345	4.418	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

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

These funds will be used to help implement international cooperative research, development, and acquisition (ICRD&A) agreements with North Atlantic Treaty Organization (NATO) member states, major non-NATO allies (Argentina, Australia, Egypt, Israel, Japan, Jordan, and Rep. of Korea (South Korea), and friendly foreign countries (Austria, Brazil, Bulgaria, Finland, India, Singapore, South Africa, Sweden, Switzerland, and Ukraine). The program implements the provisions of Title 10 U.S. Code, Section 2350a on NATO Cooperative Research and Development (R&D). The program was established to improve cooperation among NATO nations, and later major non-NATO allies, in research, development, and acquisition. The legislation authorized funds to significantly improve United States (US) and allied conventional defense capabilities by leveraging the best defense technologies, eliminating costly duplication of R&D efforts, accelerating the availability of defense systems, and promoting US and allied interoperability or commonality. The program will be reported as required by Title 10 U.S. Code, Section 2350a(f). This program element funds the implementation of Air Force ICRD&A agreements in (1) Basic Research (2) Applied Research (3) Advanced Technology Development (4) Advanced Component Development and Prototypes (5) System Development and Demonstration and (6) RDT&E Management Support. This PE is designated in Budget Activity 4 because most of the ICRD&A projects support specific systems, include all efforts necessary to evaluate integrated technologies in as realistic an operating environment as possible to assess the performance or cost reduction potential of advanced technology, and help expedite technology transition from the laboratory to operational use.

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

FY 2004      FY 2005      FY 2006      FY 2007

- (U) ATLANTIC PAW (AFRL/ France, Germany, UK) - Ongoing cooperative project to develop a common waveform syntax allowing for joint allied communications that will be demonstrated on programmable radio systems in each of the participating nations. In FY03, the waveform interpreter design and the initial specifications of the waveform language will be completed, and rehosted on the US development equipment. The development environment will be completed and used for an international demonstration.
- (U) Cooperative Research and Development Efforts in Imaging Spectrometer Development (AEDC/ Canada) - Ongoing cooperative project to pool the spatial and spectral advances of both the US and Canada to produce a hyperspectral infrared (IR) imaging spectrometer. This high-resolution sensor system will be capable of characterizing signatures of rockets and aircraft for drug interdiction and for identifying trace quantities of a broad spectrum of gases in the environment. In FY03, work will continue to enhance the data acquisition and viewing software, instrument ruggedization will continue, and field testing will begin.
- (U) Distributed Mission Training (DMT) and Virtual Air Environment (VAE) Technologies (AFRL/ Australia) - Ongoing cooperative project to develop DMT and VAE technologies that will enhance allied simulator based training of US and Australian fighter aircrews and demonstrate proof of concept. DMT

Exhibit R-2a, RDT&E Project Justification		DATE
BUDGET ACTIVITY		February 2005
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE
	<b>0603790F NATO Cooperative R&amp;D</b>	<b>NATO Nato Coop R&amp;D</b>
<p>refers to a shared training environment comprised of live, virtual, and constructive simulations allowing warfighters to train individually or collectively at all levels of war. The Australian VAE program will establish a training capability for the Air Defence System using networked simulated and constructive forces. The cooperative project will merge efforts being conducted under these complementary programs. In FY03, the project will continue efforts to (1) develop Australian F-18 multi-task trainers, (2) conduct visual perception and engineering research efforts to specify design requirements for ultra-high resolution visuals for DMT flight simulators, and (3) initiate collaborative long-haul networking and constructive forces development activities.</p>		
(U)	Engine Component Life Extension (AFRL/ Australia) - Ongoing cooperative project to develop life extension techniques and strategies that can be applied to advanced military engines. The engines involved include the US Air Force F100, -220, -229 and F101 and Australia's TF30, F404 and T700. Much of the technology will be generic and flow from one engine to another. In FY03, development of NDE techniques for characterization of residual stress profiles will conclude; activities to address the shortfalls in life prediction capabilities will conclude, and; the final report will be written.	
(U)	Flight Test Demonstration of Miniature Munitions Release from Internal Weapons Bay Phase 2 (AFRL/ Australia) - Planned cooperative project to characterize the separation of asymmetric, less stable miniature munitions shapes from internal weapons bays at operational velocities. The Royal Australian Air Force (RAAF) F-111G is the only available operational fighter/bomber, with an internal bay, capable of dropping internally carried munitions at subsonic and supersonic velocities. Additionally, this project will examine emerging technologies for moderating the weapon separation aeroacoustic environment and collecting telemetry through miniature electronic systems rather than high-speed cameras. In FY03, the project team will conduct test planning and preparation, execute the testing, perform analyses, and document the results.	
(U)	Integrated Tactical Aircraft Control (ITAC) Program (AFRL/France) - Ongoing cooperative project to develop, integrate and demonstrate critical flight control and flight management technologies that enable cooperative flight operations of a package comprised of UCAVs. The cooperative control architecture enables management and control of an integrated strike package by the aircrews in the combat aircraft. In FY03, real-time operator in the loop simulations will be conducted.	
(U)	Materials and Technologies for Reverse Saturable Absorption (AFRL/ Australia) - Planned cooperative project to develop and characterize platinum poly-yenes materials for possible incorporation in broadband optical limiters in the visible and near infra-red spectral regions for eye and sensor protection from laser device. In FY03, development, testing, and analyses will begin.	0.300
(U)	Novel G Protection for Fighter Pilots (AFRL/ Germany) - Planned cooperative project to develop improvements to the Libelle liquid-filled anti-G suit. Efforts will focus on improved relaxed G tolerance, incorporation of positive pressure breathing, improved high altitude protection, and revised anti-G	0.100      0.050
Project NATO		

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Exhibit R-2a, RDT&E Project Justification			DATE <b>February 2005</b>	
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<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>0603790F NATO Cooperative R&amp;D</b>	<b>NATO Nato Coop R&amp;D</b>		
training. In FY03, development work will begin on improved relaxed G tolerance, incorporation of positive pressure breathing, improved high altitude protection, and revised anti-G training.				
(U) Optical Sensor Protection Development and Evaluation (AFRL/ UK) - Planned cooperative project to develop and assess promising electro-optic protection materials, devices, and configurations for laser hazard and threat protection for eyes and sensors. In FY03, development, testing, and analyses will begin.	0.152	0.000	0.698	
(U) Spatial Disorientation Countermeasures (AFRL/ The Netherlands) - Planned cooperative project to evaluate the spatial disorientation research device and trainer, called DESDEMONA, and develop improvements. Efforts will focus on assessment of DESDEMONA relative to current simulators, development of night vision goggle and helmet mounted display interfaces, and development of revised training approaches. In FY03, the comparative assessment will be conducted; and the development of night vision goggle and helmet mounted display interfaces, and the development of revised training approaches, will begin.	0.100	0.050		
(U) Strike Warrior (AFRL/ UK) - Ongoing cooperative project to develop, demonstrate, and test interface technology and concepts for future advanced strike aircraft. It is a follow-on to the Vista Warrior project. The Strike Warrior project will increase the pilot's tactical capabilities with improvements in two related aspects of interface design. First, the interface hardware will be developed to enable better presentation of a larger variety of mission data. This will include large area cockpit displays linked with advanced interface technologies. Second, new approaches to real-time human engineering will be developed to allow the pilot to manage the new display capabilities and information. In FY03, flight testing and trials will continue.	0.750	0.750		
(U) Assessment of C3 Team Performance in Sustained Operations (AFRL/ Sweden) - Planned cooperative project studying the effects of acute and chronic fatigue in complex decision-making and team performance. This project will use a platform called C3FIRE to assess the effects of fatigue on adaptive team response, agility, and versatility to unpredictable, time-critical and long-duration high-ops tempo events.	0.100	0.130		
(U) C-2 Warrior (AFRL/ Australia) - Planned cooperative project will develop advanced work-centered interface technologies to enhance ISR Collection Management and Air Space Control operations within an Air Operations Center (AOC). The work-centered interface systems will integrate stereoscopic visualization, speech control, head-eye based control, gesture recognition, intelligent interface agents, and face recognition. By combining technical components within a work-centered organizing framework, an interface client system can be developed that will improve information integration, decision making, and operational execution.	0.300	0.350	0.300	0.050
(U) Coalition Mission Training (AFRL/ Canada/ UK) - Planned cooperative project is being conducted to enable warfighters to train for coalition air operations while remaining at their home stations. Partner	0.155	0.300	0.245	0.300
Project NATO				

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Exhibit R-2a, RDT&E Project Justification		DATE <b>February 2005</b>	
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<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>0603790F NATO Cooperative R&amp;D</b>	<b>NATO Nato Coop R&amp;D</b>	
<p>nations will develop distributed simulation technologies, implement a multi-national distributed training network, and conduct a series of coalition force training exercises. Warfighters will use real-time virtual simulators to conduct readiness training for combined air operations within a common synthetic environment. The program will support incorporation of USAF simulators located outside the Continental US into Distributed Mission Training exercises and will provide the foundation for integrating coalition partners' simulation assets into future multi-national training readiness exercises.</p> <p>(U) Distributed Mission Training (DMT) Technologies (AFRL/ Canada) - Planned cooperative project to develop DMT technologies that will enhance allied simulator based training of fighter aircrews and demonstrate proof of concept. Project will complete research and development of next generation visual systems for DMT to include ultra-high resolution laser projector, image generator, and collimating display screen materials. 0.300 0.271 0.100</p> <p>(U) Enhanced C3 Team Training in Sustained Operations (AFRL / The Netherlands) - Planned cooperative project to evaluate team performance in advanced capabilities. This effort will evaluate the effects of fatigue on adaptive team performance in unpredictable, time-critical and long-duration high-ops tempo events. The primary goal will be to enhance a simulated environment for developing operational teamwork under wartime conditions characterized by mental fatigue, uncertainty, unexpected events, high-ops tempo, and/or sustained operations. 0.050 0.025</p> <p>(U) Fit and Accommodation Consulting Tools (AFRL / Canada, The Netherlands) - Planned cooperative project to develop web based, comprehensive, international data system on 3-D body size, shape, fit, and performance. The new data visualization tools will be used to make information more usable, and additional data on pilot performance will be more dynamic. 0.140 0.140 0.140</p> <p>(U) High-Power Microwave Narrowband Effects Investigations (AFRL / UK) - Planned cooperative project will conduct High-Power Microwave (HPM) electronics effects experiments in the UK. There is a need for HPM effects information on electronic systems in a statistically significant format with high confidence values in order to investigate the impact of future HPM systems on the battlefield. There is a need to perform test series in order to build up a library of electronic asset response distributions. This cooperative project will perform these needed experiments and tests. 0.075</p> <p>(U)</p> <p>(U)</p> <p>(U)</p> <p>(U) Programmable Integrated Ordnance Suite (PIOS) Phase II (AFRL/ UK) - Planned cooperative project to develop and demonstrate advanced missile ordnance technology. New ordnance suite capability will be achieved by coupling an ability to 'see' the target and select the best aimpoint with the ability to direct the warhead fragments to intercept the target at that specific aimpoint. This will be a continuation of Phase I PIOS. 0.350 0.464</p>			
Project NATO	R-1 Shopping List - Item No. 47-5 of 47-15	Exhibit R-2a (PE 0603790F)	

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<b>Exhibit R-2a, RDT&amp;E Project Justification</b>		<b>DATE</b> <b>February 2005</b>		
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<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>0603790F NATO Cooperative R&amp;D</b>	<b>NATO Nato Coop R&amp;D</b>		
(U) Engine Component Life Enhancement -- Program Continuation (AFRL / MLL/Australia) - Cooperative project that will enabled both country participants to mutually evaluate, develop, and share basic and applied research in materials, life prediction and nondestructive inspection technology areas. This has enabled both countries to attain a greater understanding of the effects of in-service aging of materials, necessary for each country to reach its respective turbine engine component life extension program objectives. The AECLE Program is integral to and directly supportive of AFRL Materials and Manufacturing Directorate's (AFRL / ML's) overarching Engine Rotor Life Extension (ERLE) Initiative. The overall ERLE objective is to safely double the life of fracture-critical turbine engine components, resulting in projected cost avoidances in excess of \$1B through 2020 when fully implemented. This FY05 ICR&D Project Nomination seeks ICR&D funding to leverage AFRL / MLL core resources that will be matched, in total, by Australia to implement this new proposal and facilitate continued development and validation of mutually beneficial life extension technologies.		0.300	0.500	0.400
(U) HPM Effects Testing and Analysis (AFL/DEH/UK) - Planned cooperative project that collect and analyze a body of HPM effects data for selected families of electronic systems and networks that will help to provide much more definitive answers to the questions that face the HPM source design community and the HPM applications designers. The Orion Facility that the UK MOD purchased in the US in 1995 has proved to be the best in the world at varying important parameters of the radiated narrowband, HPM waveforms. The data that is obtained from properly designed experiments in the Orion can be used with rigorous statistical techniques to generate HPM probability-of-effect predictions for the families of electronics that are tested. This information is badly needed to generate the optimum design parameters for future HPM sources.		0.075	0.100	0.100
(U) Refractive Turbulence and Transient Electronic Disconnectivity (AFRL/VS/Australia) - This Cooperative project falls within the AFRL/VS thrust areas of Surveillance and Force Projection, under which is the Optical Turbulence Program, a technical area driven by the operational requirements of the Airborne Laser (ABL) Program and the High Energy Laser-Joint Technology Office (HEL-JTO) AFRL/CC Memorandum for HQ AFMC/DR, stated requirement for stratospheric turbulence research and improved forecasting capability to support of U-2 and UAV operations. The projected use of directed energy weapons, high band-width laser communication (air-to-air, air-to-ground and air-to-space) and high resolution imagery from manned and unmanned aircraft requires knowledge of and the ability to forecast the location, severity, and duration of refractive turbulence structure that limit system performance.		0.050	0.075	0.075
(U) Turbine Engine Particulate Matter Emissions (AEDC / UK) - Planned cooperative project to jointly evaluate state-of-the-art particulate measurement instrumentation, modify the instrumentation for robust operation in turbine test cells, develop particulate characterization test procedures, and validate the performance during gas turbine engine (GTE) testing. The project will produce test protocol,	0.383	0.800		0.225

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Exhibit R-2a, RDT&E Project Justification		DATE <b>February 2005</b>	
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<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>0603790F NATO Cooperative R&amp;D</b>	<b>NATO Nato Coop R&amp;D</b>	
instrumentation and procedures, adequate to assess regulatory agency requirements for GTE particulate matter emissions.			
(U) Management and administrative support and travel	0.200	0.100	0.100
(U) Trophoseric Refraction and Propogation Modeling For Airborne Surveillance Systems (AFRL/Australia, UK) - Planned cooperative project to combine a low cost aircraft measurement platform for simultaneous measurements of refraction of Airborne Warning and Control System (AWACS) radar signal strength reduction with parabolic equation methods of microwave propogation modeling for evaluation and prediction of refraction conditions. In FY02, testing and validation were conducted to determine the adverse performace of microwave and infrared systems that perform surveillance, communication, signal intelligence, and direct energy functions in electronic battlespace.	0.150	0.040	
(U) Hypersonic Airbreathing Propulsion Test (ESC, Germany) - Planned cooperative project will involve complementary testing of a hypersonic engine at both Arnold Air Force Base and Germany Aerospace Center facilities. Ancillary activities will also involve diagnostic and computer model development, application and analysis. New hypersonic flight systems will be similar to conventional aerospace systems, but they will provide their services faster and more routine access to space. Military access to space is the compelling rationale for the hypersonic engine testing. The US is not the leader in hypersonics, and gaining insight from allies is beneficial and will promote commonality.			0.109
(U) US Theater Battle Management Core Systems (TBMCS) and NATO Air Command and Control System (ACCS) Interoperability analysis and demonstrations (HQ ESC/AFC2ISRC/DO/NATO Air Command and Control System) - Planned cooperative project to proactively design interoperability into te operational and technical architectures of the US Air Operations Center (AOC) and NATO's parallel Combined Air Operations Center (CAOC) construct, and to then develop, test and field middleware software that will begin with a comprehensive study to examine the Command and Control Systems which are the operational backbone of the US AOC (Theater Battle Management Core Systems) and NATO (Air Command and Control System) There is a USAFE need to have a operational requirement for a seamless, automated information exchange, or "plug and fight", between a US Air Operations Center and a static NATO Combined Air Operations Center or a deployed NATO AOC to allow real-time tasking, execution, and reporting to support joint/combined real-world operations and exercises"			0.550
(U) Digital Stand-in Jammer (ADRL/SNZW and AFRL/SNRW) and UK - Planned cooperative project to integrate the UK Digital RF Memory (DRFM) into the US Relocatable Jammer (RLJ) architecture, resulting in a significant capablity to quickly develop and demonstrate advanceed digital electronic attack techniques for transition into stand-in /IAV airborne electronic attack platform. Leveraging the critical enabling technologies of both nations would result in a Digital Stand-in Jammer (a"super RLJ") providing a powerful capacity to quickly program, laboratory test, and field test modern technique			0.400
Project NATO	R-1 Shopping List - Item No. 47-7 of 47-15	Exhibit R-2a (PE 0603790F)	

Exhibit R-2a, RDT&E Project Justification			DATE	
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BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE		
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>0603790F NATO Cooperative R&amp;D</b>	<b>NATO Nato Coop R&amp;D</b>		
<p>waverforms to counter enemy early warning and acquisition radar systems, and potentially leading to development of a joint flyable UAV payload. The goa of this effort is to leverage advance technologies from each nation to enable substantial, ongoing cooperative advance electronic attack technique collaboration with our closest ally.</p>				
(U) Network-Centric Strike Controller (AFRL/HECP) - Planned cooperative project to design and develop interface technologies to extend the effectiveness and capabilities of Air Battle Managers (ABMs) working within a network-centric framework. Using simulated AWACS and MC2A work environments, it will make use of networked data, advance data visualization tools, knowledge and context management systems, decision-aiding and automation algorithms, and advance collaboration interface technologies. This approach will enable greater shared battlespace awareness, more efficient and effective individual and team decision-making, increased speed of command, and adaptability. Cognitive engineering and user-centered design methodologies will be employed to identify the appropriate information and interface requirement for operators working within the domain.		0.225		0.656
(U) Policy Enabled Coalition Communication Environment (PECC) (AFRL/IDCP) and Australia, Canada, United Kingdom - Planned cooperative project that will allow overarching "on Paper" mission objectives to be translated into a set of rules/policies (and machine executable code) which dictate the control level of resources at any level. Initially, policies capable of altering the network posture will be implemented for each INFOCON level (Normal, Alpha, Bravo, Charlie, Delta). Other policies could address operational requirements (e.g. higher network precedence given to a specific application for a short-term mission). In all cases, the cyber commander has an understandable interface for making real-time decisions. The Command and Control Enterprise Management System (C2EMS) will also be integrated to provide: real-time readiness; and understanding of how nework degradation/failure impacts mission accomplishment.		0.310		0.270
(U) Material and Technologies for Laser Protection (AFRL/MLPJ) and Sweden - Planned cooperative agreement to conduct research, develop, and test passive and active laser protection materials. This will be accomplished by exchanging research expertise and novel nonlinear and electro-optic materials. Each country has specialized expertise in different aspects of passive and active laser protection materials. This exchange of materials, models and data obtained from characterization and testing experiments will facilitate the development of realistic laser protection devices. The US will provide expertise in the areas of nonlinear optical, electro-optical, and matrix materials, US developed materials, experimental facilities, data, and analysis. The Swedish Defence Research Agency) will provide expertise in the area of nonlinear optical, electro-optical, and matrix materials, experimental facilities, data, and analysis. Data gathered on provided samples will be shared. The results of this ICR&D project will be used by the participants, independently, in their own development of actual laser protection devices in future work.		0.121		0.251
(U) Total Cost		3.605	3.895	3.973 4.048
Project NATO	R-1 Shopping List - Item No. 47-8 of 47-15			Exhibit R-2a (PE 0603790F)

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>February 2005</b>
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BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	PE NUMBER AND TITLE <b>0603790F NATO Cooperative R&amp;D</b>	PROJECT NUMBER AND TITLE <b>NATO Nato Coop R&amp;D</b>
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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>Complete</u>	<u></u>						

(U) Not Applicable.

(U) **D. Acquisition Strategy**

A principal goal of the NATO Cooperative R&D program is to effectively utilize the aggregate resources invested by the US and our allies in conventional defense R&D. This program element provides the critical funding incentive needed to pursue ICRD&A agreements and helps to (a) leverage USAF and allied resources through cost sharing and economies of scale; (b) exploit the best US and allied technologies for equipping coalition forces; (c) demonstrate areas of commonality or interoperability with our allies; and (d) accelerate the availability of defense technology and systems. Candidate projects are reviewed and approved by the USD(AT&L). An international agreement defining project objectives, responsibilities and costs is required prior to release of funds. To obtain these funds and ensure service commitment, projects are selected from existing or new RDT&E programs funded in the Future Years Defense Plan (FYDP). Project offices must show matching funds and contributions from associated program elements and equitable allied funding. As appropriate, funding responsibility for out-year requirements and follow-on efforts are transferred to the project office and associated program elements. Most contracts are awarded after full and open competition.

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Exhibit R-3, RDT&E Project Cost Analysis											DATE February 2005			
BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)						PE NUMBER AND TITLE 0603790F NATO Cooperative R&D					PROJECT NUMBER AND TITLE NATO Nato Coop R&D			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &amp;</u> <u>Type</u>	<u>Performing</u> <u>Activity &amp;</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>														
Sytronics Dayton, OH	CPFF											Continuing	TBD	
Boston College Boston, MA	CFSR											Continuing	TBD	
RADEX Bedford, MA	CPFF											Continuing	TBD	
Pacific Sierra Research Santa Monica, CA	CPFF											Continuing	TBD	
CPI Fairfax, VA	CPFF											Continuing	TBD	
U of Massachusetts Lowell, MA	CR											Continuing	TBD	
KEO Consultants Brookline, MA	CPFF											Continuing	TBD	
NW Research Associates Bellevue, WA	CPFF											Continuing	TBD	
Visdyne Inc.	CPFF											Continuing	TBD	
U of Texas Austin, TX	CPFF											Continuing	TBD	
Applied Research Lab, U of Texas Austin, TX	CPFF											Continuing	TBD	
Lockheed Martin Orlando, FL	CPFF											Continuing	TBD	
Raytheon TI Systems	CPFF											Continuing	TBD	
Boeing Seattle, WA	CPFF											Continuing	TBD	
UES, Inc Dayton, OH	CPFF											Continuing	TBD	
Pratt & Whitney West Palm Beach, FL	CPFF											Continuing	TBD	
AFRL WPAFB, OH	TBD			3.159		3.030		3.302		3.372		Continuing	TBD	
Boeing Long Beach, CA	CPFF											Continuing	TBD	
Boeing Seattle, WA	CPFF											Continuing	TBD	
Lockheed Marietta, GA	CPFF											Continuing	TBD	
Northrop Hawthorne, CA	CPFF											Continuing	TBD	
Selectech Dayton, OH	CPFF											Continuing	TBD	
AFRL Eglin AFB, FL	TBD											Continuing	TBD	
AFRL Hanscom AFB, MA	TBD											Continuing	TBD	
AFRL Mesa, AZ	TBD											Continuing	TBD	
AFRL Rome, NY	TBD											Continuing	TBD	
None													0.000	
Subtotal Product Development			0.000	3.159		3.030		3.302		3.372		Continuing	TBD	0.000
Remarks:														
(U) <u>Support</u>														
AFRL Hanscom AFB, MA								0.550		0.500		Continuing	TBD	
AFRL WPAFB, OH												Continuing	TBD	
45th Space Wing Patrick AFB, FL	AF 185											Continuing	TBD	
AFRL Eglin AFB, FL												Continuing	TBD	
Pender Technology, TN	CR											Continuing	TBD	
Veridian Dayton, OH												Continuing	TBD	
None													0.000	
Subtotal Support			0.000	0.000		0.000		0.550		0.500		Continuing	TBD	0.000
Remarks:														
Project NATO														

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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			
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>		<b>0603790F NATO Cooperative R&amp;D</b>				<b>NATO Nato Coop R&amp;D</b>			
(U) <u>Test &amp; Evaluation</u>									
Air Force Development Test Center, FL	PO					Continuing	TBD		
Sverdrup Technology, Inc TN	CPAF					Continuing	TBD		
Naval Air Warfare CenterPoint Mugu, CA	MIPR					Continuing	TBD		
Fora Laser System	PO					Continuing	TBD		
Arnold Engineering Development Center, TN	TBD	0.248		0.800		Continuing	TBD		
Fora laser system	PO					0.000	0.000		
Subtotal Test & Evaluation		0.000	0.248	0.800	0.000	0.000	Continuing	TBD	0.000
Remarks:									
(U) <u>Management</u>			0.200	0.100	0.100	0.100		0.500	
Subtotal Management		0.000	0.200	0.100	0.100	0.100	0.000	0.500	0.000
Remarks:									
(U) Total Cost		0.000	3.607	3.930	3.952	3.972	Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603790F NATO Cooperative R&D

PROJECT NUMBER AND TITLE

NATO Nato Coop R&D

Name of ICR&D Project & In't Agreement Schedule	Start Date	END IA	PE			
Materials & Technologies for Reverse...	FY 03	FY 05	63790			
Novel G Protection	FY 03	FY 05	63790			
Optical Sensor Protection Development	FY 03	FY 04	63790			
Spatial Disorientation Countermeasures	FY 03	FY 05	63790			
Assessment of C3 Team Performance	FY 04	FY 07	63790			
C-2 Warrior	FY 04	FY 07	63790			
Coalition Mission Training	FY 04	FY 07	63790			
DMT Technologies	FY 04	FY 07	63790			
Enhanced C3 Team Training in Operations	FY 04	FY 07	63790			
Fit and Accommodation Consulting Tools	FY 04	FY 07	63790			
High-Power Microwave Narrowband Effects	FY 04	FY 07	63790			
Programmable Integrated Ordnance (PIOS)	FY 04	FY 07	63790			
Turbine Engine Particulate Matter	FY 04	FY 07	63790			
Engine Component Life Enhancement (Continuation)	FY 05	FY 07	63790			
HPM Effects Testing & Analysis	FY 05	FY 07	63790			
Refractive Turbulence & Transient Electronic Disconnectivity	FY 05	FY 07	63790			
Hyperspectral Data Exploitation	FY05	FY07	63790			
Digital Stand-in Jammer	FY06	FY08	63790			
Network Centric Strike Controller	FY06	FY08	63790			
Policy Enabled Coalition Comm. Environment	FY06	FY08	63790			
US Theater Battle Mgmt Core System & NATO	FY06	FY08	63790			
Material & Technology For Laser Protection	FY06	FY08	63790			

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603790F NATO Cooperative R&D

PROJECT NUMBER AND TITLE

NATO Nato Coop R&D

Name of ICR&D Project & In't Agreement Schedule	Start Date	END IA	PE			
Materials & Technologies for Reverse...	FY 03	FY 05	63790			
Novel G Protection	FY 03	FY 05	63790			
Optical Sensor Protection Development	FY 03	FY 04	63790			
Spatial Disorientation Countermeasures	FY 03	FY 05	63790			
Assessment of C3 Team Performance	FY 04	FY 07	63790			
C-2 Warrior	FY 04	FY 07	63790			
Coalition Mission Training	FY 04	FY 07	63790			
DMT Technologies	FY 04	FY 07	63790			
Enhanced C3 Team Training in Operations	FY 04	FY 07	63790			
Fit and Accommodation Consulting Tools	FY 04	FY 07	63790			
High-Power Microwave Narrowband Effects	FY 04	FY 07	63790			
Programmable Integrated Ordnance (PIOS)	FY 04	FY 07	63790			
Turbine Engine Particulate Matter	FY 04	FY 07	63790			
Engine Component Life Enhancement (Continuation)	FY 05	FY 07	63790			
HPM Effects Testing & Analysis	FY 05	FY 07	63790			
Refractive Turbulence & Transient Electronic Disconnectivity	FY 05	FY 07	63790			
Hyperspectral Data Exploitation	FY05	FY07	63790			
Digital Stand-in Jammer	FY06	FY08	63790			
Network Centric Strike Controller	FY06	FY08	63790			
Policy Enabled Coalition Comm. Environment	FY06	FY08	63790			
US Theater Battle Mgmt Core System & NATO	FY06	FY08	63790			
Material & Technology For Laser Protection	FY06	FY08	63790			

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Exhibit R-4a, RDT&E Schedule Detail		DATE <b>February 2005</b>		
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE		
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>0603790F NATO Cooperative R&amp;D</b>	<b>NATO Nato Coop R&amp;D</b>		
	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) <b>Schedule Profile</b>				
(U) Strike Warrior Project	2Q			
(U) Flights test and trials		4Q		
(U) Cooperative R&D Efforts in Imaging Spectrometer Development Project	4Q			
(U) - Field testing	4Q			
(U) - Test report	4Q			
(U) Material and Technologies for Reverse Saturable Absorption	1Q			
(U) - Project agreement signed	2Q			
(U) - Development, testing, and analyses	4Q			
(U) Novel G Protection for Fighter Pilots	2Q			
(U) - Improvements development	4Q			
(U) Optical Sensor Protection Development and Evaluation	2Q			
(U) - Project agreement signed	3Q			
(U) - Development, testing, and analyses	4Q			
(U) Spatial Disorientation Countermeasures	2Q			
(U) - Comparative assessment	4Q			
(U) - Development of improvements	4Q			
(U) Assessment of C3 Team Performance in Sustained Operations		3Q		
(U) Projec agreement signed	2Q			
(U) - Technology development		1Q		
(U) - Experimental studies and data analysis		4Q		
(U) C-2 Warrior		3Q		
(U) - Project agreement signed	3Q			
(U) - Development work-centered interface technologies		4Q		
(U) - Test ISR Collection Manager against new requirements and situation		4Q		
(U) Coalition Mission Training Using Distributed Mission Simulation		4Q		
(U) - Project agreement signed	2Q			
(U) - Develop and test basic systems for coalition operations	4Q			
(U) - Conduct and document coalition exercises in real-time simulators		4Q		
(U) Distributed Mission Training (DMT) Technologies	3Q			
(U) - Signed international agreement	3Q			
(U) - Technology development		4Q		
(U) Fit and Accommodation Consulting Tools		4Q		
(U) - Dynamic and performance data gathering		4Q		

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Exhibit R-4a, RDT&E Schedule Detail		DATE February 2005
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>0603790F NATO Cooperative R&amp;D</b>	<b>NATO Nato Coop R&amp;D</b>
(U) - Digital pilot profiles and injury potential		4Q
(U) Enhanced C3 Team Training in Sustained Operations		4Q
(U) - Project agreement signed	2Q	
(U) - Technology development		2Q
(U) - Experimental studies and data analysis		4Q
(U) High-Power Microwave Narrowband Effects Investigations		4Q
(U) - Develop detailed design baseline		2Q
(U) - Test high fidelity model and performance analysis		4Q
(U) - Report system performance results		4Q
(U) Turbine Engine Particulate Matter Emissions		4Q
(U) - Project agreement signed	2Q	
(U) - Technology development		4Q
(U) - Test and analysis		4Q
(U) Policy Enabled Coalition Communication Environment		3Q
(U) - Project agreement signed	3Q	
(U) - Technology development		1Q
(U) - Testing & Analysis		2Q
(U) Network-Centric Strike Controller		4Q
(U) - Project agreement signed	1Q	
(U) - Testing & Analysis		3Q
(U) Digital Stand-in Jammer		3Q
(U) - Project agreement signed		3Q
(U) - Technology Development		1Q
(U) - Testing & Analysis		4Q
(U) US Theater Battle Mgmt Core System and NATO ACCS signed		2Q
(U) - Pre-study coordination activities		1Q
(U) - Study contract award		1Q
(U) Material and Technologies for Laser Protection	1Q	
(U) - Project agreement signed	1Q	
(U) - Technology Development		3Q
(U) Hypersonic Airbreathing Propulsion Test	4Q	
(U) - Project agreement signed	4Q	
(U) - Development of computer software	4Q	
(U) - Data collection begins	4Q	

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PE NUMBER: 0603791F  
 PE TITLE: International Space Cooperative R&D

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	<b>DATE</b> <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0603791F International Space Cooperative R&amp;D</b>
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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	0.480	0.547	0.574	0.586	0.603	0.615	0.629	0.639	Continuing	TBD
5035 Intl Space Coop R&D	0.480	0.547	0.574	0.586	0.603	0.615	0.629	0.639	Continuing	TBD

In FY 2003, from PE 0603790F, 64NATO, NATO Coop R&D, space-related efforts transferred to PE 0603791F, 645035, Intl Space Coop R&D, in order to clearly identify space-related projects and funding.

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

These funds will be used to help implement space-related international cooperative research, development, and acquisition (ICRD&A) agreements with North Atlantic Treaty Organization (NATO) member states and major non-NATO allies (Argentina, Australia, Egypt, Israel, Japan, Jordan, and Rep. of Korea (South Korea)) and friendly foreign countries (Austria, Bulgaria, Finland, India, Singapore, South Africa, Sweden, Switzerland, and Ukraine). The program implements the provisions of Title 10 U.S. Code, Section 2350a on NATO Cooperative Research and Development (R&D). The program was established to improve cooperation among NATO nations, and later major non-NATO allies, in research, development, and acquisition. The legislation authorized funds to significantly improve United States (US) and allied conventional defense capabilities by leveraging the best defense technologies, eliminating costly duplication of R&D efforts, accelerating the availability of defense systems, and promoting US and allied interoperability or commonality. The program will be reported as required by Title 10 U.S. Code, Section 2350a(f). This program element funds the implementation of space-related Air Force ICRD&A agreements in (1) Basic Research (2) Applied Research (3) Advanced Technology Development (4) Advanced Component Development and Prototypes (5) System Development and Demonstration and (6) RDT&E Management Support. This PE is designated in Budget Activity 4 because most of the ICRD&A projects support specific systems, include all efforts necessary to evaluate integrated technologies in as realistic an operating environment as possible to assess the performance or cost reduction potential of advanced technology, and help expedite technology transition from the laboratory to 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	0.480	0.547	0.574	0.575
(U) Current PBR/President's Budget	0.480	0.547	0.574	0.586
(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 <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>						PE NUMBER AND TITLE <b>0603791F International Space Cooperative R&amp;D</b>		PROJECT NUMBER AND TITLE <b>5035 Intl Space Coop R&amp;D</b>			
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
5035	Intl Space Coop R&D	0.480	0.547	0.574	0.586	0.603	0.615	0.629	0.639	Continuing	TBD
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

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

These funds will be used to help implement space-related international cooperative research, development, and acquisition (ICRD&A) agreements with North Atlantic Treaty Organization (NATO) member states and major non-NATO allies (Argentina, Australia, Egypt, Israel, Japan, Jordan, and Rep. of Korea (South Korea)) and friendly foreign countries (Austria, Bulgaria, Finland, India, Singapore, South Africa, Sweden, Switzerland, and Ukraine). The program implements the provisions of Title 10 U.S. Code, Section 2350a on NATO Cooperative Research and Development (R&D). The program was established to improve cooperation among NATO nations, and later major non-NATO allies, in research, development, and acquisition. The legislation authorized funds to significantly improve United States (US) and allied conventional defense capabilities by leveraging the best defense technologies, eliminating costly duplication of R&D efforts, accelerating the availability of defense systems, and promoting US and allied interoperability or commonality. The program will be reported as required by Title 10 U.S. Code, Section 2350a(f). This program element funds the implementation of space-related Air Force ICRD&A agreements in (1) Basic Research (2) Applied Research (3) Advanced Technology Development (4) Advanced Component Development and Prototypes (5) System Development and Demonstration and (6) RDT&E Management Support. This PE is designated in Budget Activity 4 because most of the ICRD&A projects support specific systems, include all efforts necessary to evaluate integrated technologies in as realistic an operating environment as possible to assess the performance or cost reduction potential of advanced technology, and help expedite technology transition from the laboratory to 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) Hyperspectral Data Exploitation Algorithm Development and Assessment (Air Force Research Lab (AFRL)/ Australia) - Planned cooperative project to develop approaches and technologies for improved space-based hyperspectral sensors. In FY04, data collection, data analysis, and algorithm validation will begin.	0.019			
(U) Impacts of the Space Environment on Communications, Navigation, and Surveillance Systems (AFRL/ The United Kingdom (UK)) - Planned cooperative project to develop space weather specification, forecasting techniques, and data displays to provide reliable, timely warning of ionospheric disturbances that will seriously disrupt the performance of space-based communication, navigation and surveillance systems, as well as ground-based surveillance systems such as those employed for early missile warning and missile defense. In FY04, data collection will begin.	0.461	0.205		
(U) Space Vehicle Orbit Prediction (AFRL/ France) - Planned cooperative project to use data from a French accelerometer experiment currently on orbit to improve the accuracy of upper atmospheric aerodynamic drag models. This will include solving for short term geomagnetic activity variations. In FY03, modeling algorithms to use the new data will be developed.				
(U) Management and administrative support and travel.				

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Exhibit R-2a, RDT&E Project Justification		DATE <b>February 2005</b>		
BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	PE NUMBER AND TITLE <b>0603791F International Space Cooperative R&amp;D</b>	PROJECT NUMBER AND TITLE <b>5035 Intl Space Coop R&amp;D</b>		
(U) Measurement of High-Latitude Ionospheric Structures and System Effects from Northeast Greenland (AFRL/Denmark) - Planned cooperative project to accurately model, simulate, recognize, and forecast polar ionospheric conditions impacting DoD systems. The project will collect multi-instrument measurements of ionospheric conditions at Station Nord in Greenland for the purpose of furthering basic research into mechanisms creating ionospheric disturbances, improving high-latitude ionosphere models, simulations, and providing space weather situational awareness and forecast tools.		0.247	0.125	0.018
(U) Space Vehicle Orbit Prediction (AFRL/ France) - Ongoing cooperative project to use data from a French accelerometer experiment currently on orbit to improve the accuracy of upper atmospheric aerodynamic drag models. This will include solving for short term geomagnetic activity variations. In FY04, modeling algorithms to use the new data will be developed.				
(U) Cooperation In Navigation Warfare Technology Demonstrator and System Prototype Projects (PA) SMC/GP (GPS Joint Program Office) and ASD/NII/UK - Cooperative project to conduct collaborative studies and cooperatively develop advance counterSATNAV capabilities that can be employed from current and projected EA platforms. Developed technologies will be jointly tested to assure desired effects are achieved and that there is minimal fratricide impact on friendly forces. Additionally, an initial concept of employment or operations will be collectively developed and tested by the participants in order to assess optimal capabilities in varying threat situations.		0.095	0.143	0.357
(U) Forecasting Communication and Navigation Disruptions due to Inospheric Disturbance During Solar Mininum (AFRL/VSBX) and Australia - Planned cooperative project to collaborate with Australia to study ionospheric phenomena which impact communication, navigation and radio frequency (RF) surveillance systems. The key research focus will be on forecasting ionospheric disturbances and their impact on systems such as Ultra High Frequency (UHF) Satellite Communication (SATCOM) and GLOBAL Positioning System (GPS) navigation. Ionospheric phenomena had an adverse impact on DoD satellite communication and navigation systems in recent operations in Afghanistan and during Operation Iraqi Freedom (OIF); future military operations will almost certainly be conducted in regions where ionospheric disturbances occur and C31 systems may be vulnerable. The Communication/Navigation Outage Forecast System System (C/NOFS) Advance Concept Technical Demonstration (ACTD) is dedicated to providing space-based forecasts of the disturbances that cause impacts on radio frequency (RF) systems.	0.000		0.306	0.211
(U) Total Cost	0.480	0.547	0.574	0.586

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>February 2005</b>
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BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	PE NUMBER AND TITLE <b>0603791F International Space Cooperative R&amp;D</b>	PROJECT NUMBER AND TITLE <b>5035 Intl Space Coop R&amp;D</b>
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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>Complete</u>							

(U) N/A

(U) **D. Acquisition Strategy**

A principal goal of the International Space Cooperative R&D program is to effectively utilize the aggregate resources invested by the US and our allies in space-related R&D. This program element provides the critical funding incentive needed to pursue space-related ICRD&A agreements and helps to (a) leverage USAF and allied resources through cost sharing and economies of scale; (b) exploit the best US and allied technologies for equipping coalition forces; (c) demonstrate areas of commonality or interoperability with our allies; and (d) accelerate the availability of defense technology and systems. Candidate projects are reviewed and approved by the USD(AT&L). An international agreement defining project objectives, responsibilities and costs is required prior to release of funds. To obtain these funds and ensure service commitment, projects are selected from existing or new space-related RDT&E programs funded in the Future Years Defense Plan (FYDP). Project offices must show matching funds and contributions from associated program elements and equitable allied funding. As appropriate, funding responsibility for out-year requirements and follow-on efforts are transferred to the project office and associated program elements. Most contracts are awarded after full and open competition.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2005**

<b>BUDGET ACTIVITY</b>	<b>PE NUMBER AND TITLE</b>	<b>PROJECT NUMBER AND TITLE</b>
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>0603791F International Space Cooperative R&amp;D</b>	<b>5035 Intl Space Coop R&amp;D</b>

(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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>														
AFRL Hanscom AFB, MA	TBD											Continuing	TBD	TBD
AFRL, WPAFB				0.499		0.355		0.428		0.218			1.500	TBD
AEDC/DO						0.097							0.097	TBD
SMC, LAAFB, CA						0.100		0.143		0.357			0.600	TBD
Subtotal Product Development			0.000	0.499		0.552		0.571		0.575		Continuing	TBD	TBD
Remarks:														
(U) <u>Support</u>														
AFRL, WPAFB	TBD											Continuing	TBD	TBD
None													0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000		Continuing	TBD	TBD
Remarks:														
(U) <u>Test &amp; Evaluation</u>														
TBD	TBD											Continuing	TBD	TBD
None													0.000	
Subtotal Test & Evaluation			0.000	0.000		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
Remarks:														
(U) Total Cost			0.000	0.499		0.552		0.571		0.575		Continuing	TBD	TBD

## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0603791F International Space  
Cooperative R&D

PROJECT NUMBER AND TITLE

5035 Intl Space Coop R&amp;D

Name of ICR&D Project & In't Agreement Schedule	Start Date	END IA	PE
Hyperspectral Data Exploitation	FY 03	FY 05	63791
Impacts of the Space Environment	FY 03	FY 05	63791
Space Vehicle Orbit Prediction	FY 03	FY 05	63791
Hypersonic Airbreathing Propulsion Test	FY 04	FY 07	63791
Measurement of High-Latitude	FY 04	FY 07	63791
Cooperation in Navigation Warfare Technology	FY 05	FY 07	63791
Forecasting Communication and Navigation Disruptions due to Ionospheric Disturbance During Solar Minimum	FY06	FY08	63791

## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0603791F International Space  
Cooperative R&D

PROJECT NUMBER AND TITLE

5035 Intl Space Coop R&amp;D

Name of ICR&D Project & In't Agreement Schedule	Start Date	END IA	PE
Hyperspectral Data Exploitation	FY 03	FY 05	63791
Impacts of the Space Environment	FY 03	FY 05	63791
Space Vehicle Orbit Prediction	FY 03	FY 05	63791
Hypersonic Airbreathing Propulsion Test	FY 04	FY 07	63791
Measurement of High-Latitude	FY 04	FY 07	63791
Cooperation in Navigation Warfare Technology	FY 05	FY 07	63791
Forecasting Communication and Navigation Disruptions due to Ionospheric Disturbance During Solar Minimum	FY06	FY08	63791

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Exhibit R-4a, RDT&E Schedule Detail		DATE February 2005			
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE			
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>0603791F International Space Cooperative R&amp;D</b>	<b>5035 Intl Space Coop R&amp;D</b>			
<b>(U) <u>Schedule Profile</u></b>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	
(U) Hyperspectral Data Exploitation Algorithm Development and Assessment	1Q				
(U) - Project Agreement signed	1Q				
(U) - Data collection	2Q				
(U) - Data analysis and algorithm validation	3Q				
(U) - Interim report	4Q				
(U) Impacts of the Space Environment on Comm, Nav, and Surv Sys	3Q				
(U) - Project Agreement signed	3Q				
(U) - Data collection		2Q			
(U) Forecasting Comm. and Navigation Disruption due to Ionospheric Disturbances During Solar Minimum			1Q		
(U) - Project Agreement signed			1Q		
(U) Cooperation in Navigation Warfare Technology		1Q			
(U) - Data collection begins			3Q		
(U) Measurement of High-Latitude Ionospheric Structures and System Effects			4Q		
(U) - Project agreement signed			1Q		
(U) - Data collection begins				1Q	

**UNCLASSIFIED**

PE NUMBER: 0603845F  
 PE TITLE: Transformational SATCOM (TSAT)

Exhibit R-2, RDT&E Budget Item Justification									DATE February 2005	
BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)					PE NUMBER AND TITLE 0603845F Transformational SATCOM (TSAT)					
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	325.123	467.163	835.769	1,068.213	1,928.836	2,389.979	2,462.753	1,917.356	Continuing	TBD
4944 ADVANCED WIDEBAND SYSTEM	325.123	467.163	835.769	1,068.213	1,928.836	2,389.979	2,462.753	1,917.356	Continuing	TBD

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

The Transformational Satellite Communications (TSAT) System will provide DoD with high data rate Military Satellite Communications (MILSATCOM) and Internet-like services as defined in the Transformational Communications Architecture (TCA). TSAT is key to global net-centric operations. As the spaceborne element of the Global Information Grid (GIG), it will extend the GIG to users without terrestrial connections providing improved connectivity and data transfer capability, vastly improving satellite communications for the warfighter. The TSAT's Internet Protocol (IP) routing will connect thousands of users through networks rather than limited point-to-point connections. Additionally, TSAT will enable high data rate connections to Space and Airborne Intelligence, Surveillance, and Reconnaissance (SISR, AISR) platforms.

The TSAT program consists of a five satellite constellation (a sixth satellite is being procured to ensure mission availability), TSAT satellite operations centers (TSOC) for on-orbit control, TSAT Mission Operations Systems (TMOS) to provide network management, and ground gateways.

The TSAT portion of the TCA will incorporate radio frequency (RF) and laser communications links to meet defense and intelligence community requirements for high data rate, protected communications. The space segment will make use of key technology advancements where feasible to achieve a transformational leap in SATCOM capabilities. These technologies include but are not limited to: single and multi-access laser communications (to include wide field-of-view technology), packet switching, bulk and packet encryption/decryption, communications-on-the-move antennas, dynamic bandwidth and resource allocation techniques, and protected bandwidth efficient modulation. Technology maturation activities are on schedule with the prime contractors and numerous directed technology development contractors. FY06 will verify with subsystem hardware testing in a space-like environment, that technologies are mature. If a technology fails to mature, less-capable technology off-ramps exist and can be used to preserve schedule. Even the technology off-ramps will significantly enhance warfighter capabilities, and the advanced technology can be spiraled into a later spacecraft. First launch is scheduled for 2QFY13.

An Interim Program Review was held 22 Oct 2004; the Milestone Decision Authority (MDA) directed the TSAT program to continue as planned to achieve the Advanced Extremely High Frequency (AEHF) Full Operational Capability-equivalency with the delivery, launch, and on-orbit checkout of the first TSAT satellite. In Sept 2004, at the Senior Warfighters Forum (SWarF), the Combatant Commanders gave unanimous support for TSAT as a critical enabler for the warfighting community.

In order to ensure interoperability with the GIG integrated architecture, the TSAT program will participate in the GIG end-to-end test bed and systems engineering activities. TSAT will interoperate with elements of the net-centric GIG including, but are not limited to, Information Assurance, Network Operations, and Information Dissemination Management.

Exhibit R-2, RDT&E Budget Item Justification

DATE  
February 2005

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603845F Transformational SATCOM (TSAT)

Funds are in Budget Activity 4, Advanced Component Development and Prototypes, since it funds TSAT technology development and engineering design activities including risk reduction and system definition.

(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	335.430	774.836	1,192.437	1,346.687
(U) Current PBR/President's Budget	325.123	467.163	835.769	1,068.213
(U) Total Adjustments	-10.307	-307.673		
(U) Congressional Program Reductions		-307.673		
Congressional Rescissions				
Congressional Increases				
Reprogrammings				
SBIR/STTR Transfer	-10.307			

(U) **Significant Program Changes:**

A \$300M FY05 Congressional reduction resulted in a first launch delay from FY12 to FY13. In response to the Congressional reduction, the Air Force adjusted the FY06/07 budget.

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2005

BUDGET ACTIVITY		PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE		
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>		<b>0603845F Transformational SATCOM (TSAT)</b>						<b>4944 ADVANCED WIDEBAND SYSTEM</b>		
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
4944 ADVANCED WIDEBAND SYSTEM	325.123	467.163	835.769	1,068.213	1,928.836	2,389.979	2,462.753	1,917.356	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

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

The Transformational Satellite Communications (TSAT) System will provide DoD with high data rate Military Satellite Communications (MILSATCOM) and Internet-like services as defined in the Transformational Communications Architecture (TCA). TSAT is key to global net-centric operations. As the spaceborne element of the Global Information Grid (GIG), it will extend the GIG to users without terrestrial connections providing improved connectivity and data transfer capability, vastly improving satellite communications for the warfighter. The TSAT's Internet Protocol (IP) routing will connect thousands of users through networks rather than limited point-to-point connections. Additionally, TSAT will enable high data rate connections to Space and Airborne Intelligence, Surveillance, and Reconnaissance (SISR, AISR) platforms.

The TSAT program consists of a five satellite constellation (a sixth satellite is being procured to ensure mission availability), TSAT satellite operations centers (TSOC) for on-orbit control, TSAT Mission Operations Systems (TMOS) to provide network management, and ground gateways.

The TSAT portion of the TCA will incorporate radio frequency (RF) and laser communications links to meet defense and intelligence community requirements for high data rate, protected communications. The space segment will make use of key technology advancements where feasible to achieve a transformational leap in SATCOM capabilities. These technologies include but are not limited to: single and multi-access laser communications (to include wide field-of-view technology), packet switching, bulk and packet encryption/decryption, communications-on-the-move antennas, dynamic bandwidth and resource allocation techniques, and protected bandwidth efficient modulation. Technology maturation activities are on schedule with the prime contractors and numerous directed technology development contractors. FY06 will verify with subsystem hardware testing in a space-like environment, that technologies are mature. If a technology fails to mature, less-capable technology off-ramps exist and can be used to preserve schedule. Even the technology off-ramps will significantly enhance warfighter capabilities, and the advanced technology can be spiraled into a later spacecraft. First launch is scheduled for 2QFY13.

An Interim Program Review was held 22 Oct 2004; the Milestone Decision Authority (MDA) directed the TSAT program to continue as planned to achieve the Advanced Extremely High Frequency (AEHF) Full Operational Capability-equivalency with the delivery, launch, and on-orbit checkout of the first TSAT satellite. In Sept 2004, at the Senior Warfighters Forum (SWarF), the Combatant Commanders gave unanimous support for TSAT as a critical enabler for the warfighting community.

In order to ensure interoperability with the GIG integrated architecture, the TSAT program will participate in the GIG end-to-end test bed and systems engineering activities. TSAT will interoperate with elements of the net-centric GIG including, but are not limited to, Information Assurance, Network Operations, and Information Dissemination Management.

Funds are in Budget Activity 4, Advanced Component Development and Prototypes, since it funds TSAT technology development and engineering

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Exhibit R-2a, RDT&E Project Justification							DATE February 2005				
BUDGET ACTIVITY			PE NUMBER AND TITLE			PROJECT NUMBER AND TITLE					
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>			<b>0603845F Transformational SATCOM (TSAT)</b>			<b>4944 ADVANCED WIDEBAND SYSTEM</b>					
design activities including risk reduction and system definition.											
<b>(U)</b>	<b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>					<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>		
(U)	Continue System Definition (FY04 only) and technology development for key areas to include laser communications (including enhanced wide field-of-view multi access laser comm), antenna design, encryption technologies, dynamic bandwidth and resource allocation, bandwidth efficient modulation, network operations, and networking protocols (FY04-07).					163.854	113.673	143.298	134.053		
(U)	Provide Technical Support					24.669	28.988	33.071	37.108		
(U)	Provide Program Support					7.356	8.400	9.915	10.800		
(U)	Initiated engineering design activities including risk reduction and system definition for the first TSAT satellite.					129.244	240.992				
(U)	Continue engineering design activities including risk reduction, and complete system design for the first TSAT satellite.							519.177			
(U)	Develop preliminary design of the TSAT satellite system.							12.500	644.528		
(U)	Acquire the TSAT Mission Operations System ground segment and network management/operations management software.						39.500	77.848	198.574		
(U)	Continue systems engineering and integration support						35.610	39.960	43.150		
(U)	Total Cost					325.123	467.163	835.769	1,068.213		
<b>(U)</b>	<b><u>C. Other Program Funding Summary (\$ in Millions)</u></b>										
		<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)	RDT&E, AF										
(U)	PE 0603854, Project 644870, CCS-C, R-52	35.621	20.119	3.917	7.010	5.742	6.392	6.485	6.555	Continuing	TBD
(U)	PE 0603854, Project 644811, WGS, R-52		49.267	89.941	30.662						333.310
(U)	Other APPN										
(U)	MPAF, PE 0303600F, WGS, P-19,20	21.848	40.155	72.517	325.680	245.308	48.857	22.548	14.794	Continuing	TBD
(U)	MPAF, PE 0303602F, TSAT							156.749	1031.789	Continuing	TBD
(U)	OPAF, PE 0303602F, TSAT						26.058				26.058
(U)	OPAF, PE 0303600F, CCS-C	8.203	1.664	0.290							15.477
(U)	OPAF, PE 0303600F, WGS	11.622				21.515	7.169				55.448
(U)	MILCON, PE 0303602F,					2.847	26.086				28.933
Project 4944		R-1 Shopping List - Item No. 49-4 of 49-8									Exhibit R-2a (PE 0603845F)

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## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2005

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0603845F Transformational SATCOM  
(TSAT)

PROJECT NUMBER AND TITLE

4944 ADVANCED WIDEBAND  
SYSTEM(U) C. Other Program Funding Summary (\$ in Millions)

TSAT

(U) D. Acquisition Strategy

In Jun 03, the acquisition strategy for TSAT and Advanced Polar System (APS) was approved, as stated in the FY05 PB justification. Since that time, the APS requirements document was not validated by the Joint Requirements Oversight Council, and the program has been cancelled due to affordability/user requirements issues and replaced by additional enhanced polar hosted packages. On 20 Jan 04, the TSAT program entered Phase B, Risk Reduction and Design Development. Phase B space segment contracts (Cost Plus, Fixed Fee) were awarded to Lockheed Martin and Boeing in late Jan 04. In late FY05 the results of a full and open competition to select the final TSAT Mission Operations System segment development contractor will be announced. In late FY06 the results of a full and open competition to select the final space segment development contractor will be announced.

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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			
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				<b>0603845F Transformational SATCOM (TSAT)</b>							<b>4944 ADVANCED WIDEBAND SYSTEM</b>			
(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>														
Architecture Studies	CPAF	Various	14.900										14.900	
Lockheed Martin: Technology Maturation/Risk Reduction & Program System Definition	CPFF	Sunnyvale, CA		42.180	Jan-04	120.496	Oct-04	259.588	Nov-05				422.264	
Boeing: Technology Maturation/Risk Reduction & Program System Definition	CPFF	El Segundo, CA		42.180	Jan-04	120.496	Oct-04	259.588	Nov-05				422.264	
Space Design Development Contract	TBD	TBD						12.500	Sep-06	644.528	Nov-06	Continuing	TBD	
Booz Allen Hamilton: System Engineering & Integration	Time & Materials w/ IF	El Segundo, CA	0.850	26.555	Oct-03	35.610	Oct-04	39.961	Nov-05	43.150	Nov-06	Continuing	TBD	
TMOS PRDAs	FFP	Various	0.850	18.329	Oct-03	37.890	Oct-04						57.069	
TMOS Contract	TBD	TBD				1.610	Sep-05	77.848	Nov-05	198.574	Nov-06	Continuing	TBD	
Risk Reduction: Technology Maturation	Various	Various	80.504	108.552	Oct-03	113.673	Oct-04	143.298	Nov-05	134.053	Nov-06	Continuing	TBD	
Risk Reduction: Technology Maturation (Space Segment) Lockheed Martin	CPFF	Sunnyvale, CA		27.651	Jan-04								27.651	
Risk Reduction: Technology Maturation (Space Segment) Boeing	CPFF	El Segundo, CA		27.651	Jan-04								27.651	
Subtotal Product Development			97.104	293.098		429.775		792.783		1,020.305		Continuing	TBD	0.000
Remarks:														
(U) <u>Support</u>														
Technical Support	Various		9.316	24.669		28.988		33.071	Nov-05	37.108	Nov-06	Continuing	TBD	
Program Support	Various		4.400	7.356		8.400		9.915	Nov-05	10.800	Nov-06	Continuing	TBD	
Subtotal Support			13.716	32.025		37.388		42.986		47.908		Continuing	TBD	0.000
Remarks:														
(U) <u>Test &amp; 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>														
None													0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
(U) Total Cost			110.820	325.123		467.163		835.769		1,068.213		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

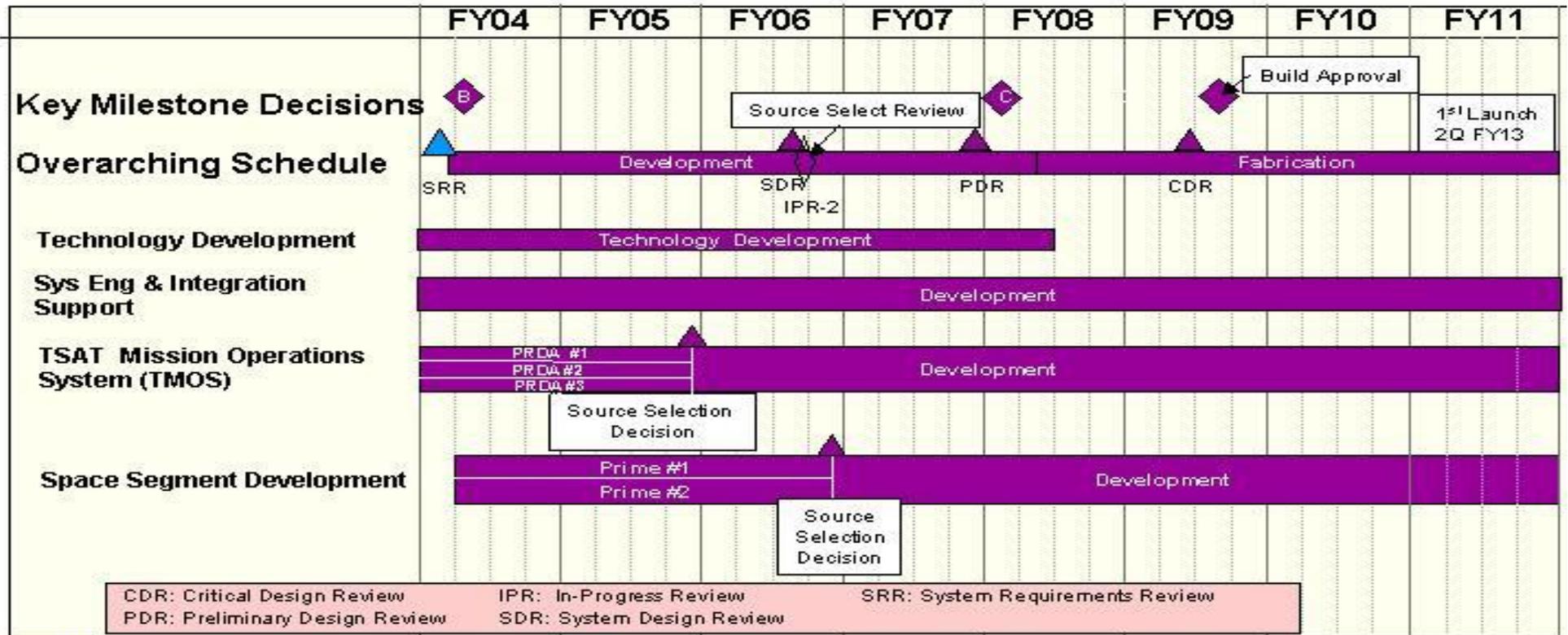
DATE

February 2005

BUDGET ACTIVITY  
04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE  
0603845F Transformational SATCOM (TSAT)

PROJECT NUMBER AND TITLE  
4944 ADVANCED WIDEBAND SYSTEM



CDR: Critical Design Review    IPR: In-Progress Review    SRR: System Requirements Review  
 PDR: Preliminary Design Review    SDR: System Design Review

Production / fielding    Design / development    Key events

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**Exhibit R-4a, RDT&E Schedule Detail**

DATE  
**February 2005**

BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	PE NUMBER AND TITLE <b>0603845F Transformational SATCOM (TSAT)</b>	PROJECT NUMBER AND TITLE <b>4944 ADVANCED WIDEBAND SYSTEM</b>
--	---	--

(U) <u>Schedule Profile</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Key Decision Point B	2Q			
(U) Space Segment Risk Reduction & System Def Contract Award	2Q			
(U) Interim Program Review I		1Q		
(U) TMOS Segment Design Development Contract Award		4Q		
(U) System Design Review			3Q	
(U) Interim Program Review II			3Q	
(U) Space Segment Design Development Contract Award			4Q	
(U) Preliminary Design Review				4Q

**UNCLASSIFIED**

PE NUMBER: 0603850F  
 PE TITLE: Integrated Broadcast Service (DEM/VAL)

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0603850F Integrated Broadcast Service (DEM/VAL)</b>
---	--

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	15.980	23.653	15.344	20.026	21.016	21.113	21.324	21.505	Continuing	TBD
4778 Integrated Broadcast Service	15.980	23.653	15.344	20.026	21.016	21.113	21.324	21.505	Continuing	TBD

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

The Integrated Broadcast Service (IBS) fulfills the warfighter's requirements for threat warning and situational awareness information with timely dissemination of intelligence and information. It also provides target tracking data to support threat avoidance, targeting, force protection, and situational awareness. This information is continually refined by data provided by strategic, operational and tactical sensors. IBS includes a Global IBS Network Server (GINS), an alternate GINS, and four (4) Theater Interface Nodes (TINs) to support the geographic Combatant Commanders; all built to validated warfighter requirements. This request funds the IBS system as described above, which includes spiral development of:

- A Common Interactive Broadcast (CIB) on Ultra High Frequency (UHF) satellite communications a military standard Demand Assigned Multiple Access (DAMA) compliant waveform and a Line of Sight (LOS) broadcast using the Wideband Networking Waveform (WNW) and Joint Tactical Radio System (JTRS).
- A centralized GINS that receives data from each theater and then integrates this data into a worldwide picture available to all network-connected users.
- A regional TIN, where out-of-theater (and local) users not directly receiving the broadcast can receive the information broadcast on the CIB. Additionally, the TIN will receive and inject data into the CIB for producers without access to the theater CIB.
- A Common Message Format (CMF) for broadcasting IBS information over available communications paths including the CIB and other Global Information Grid (GIG) networks.

This program is in budget activity 4 because it includes demonstrating and validating the use of technologies to create an operational integrated broadcast 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	16.229	23.927	20.155	20.814
(U) Current PBR/President's Budget	15.980	23.653	15.344	20.026
(U) Total Adjustments	-0.249	-0.274		
(U) Congressional Program Reductions				
Congressional Rescissions		-0.274		
Congressional Increases				
Reprogrammings	-0.249			
SBIR/STTR Transfer				
(U) <u>Significant Program Changes:</u>				
(N/A)				

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2005

BUDGET ACTIVITY		PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE		
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>		<b>0603850F Integrated Broadcast Service (DEM/VAL)</b>						<b>4778 Integrated Broadcast Service</b>		
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
4778 Integrated Broadcast Service	15.980	23.653	15.344	20.026	21.016	21.113	21.324	21.505	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

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

The Integrated Broadcast Service (IBS) fulfills the warfighter's requirements for threat warning and situational awareness information with timely dissemination of intelligence and information. It also provides target tracking data to support threat avoidance, targeting, force protection, and situational awareness. This information is continually refined by data provided by strategic, operational and tactical sensors. IBS includes a Global IBS Network Server (GINS), an alternate GINS, and four (4) Theater Interface Nodes (TINs) to support the geographic Combatant Commanders; all built to validated warfighter requirements. This request funds the IBS system as described above, which includes spiral development of:

- A Common Interactive Broadcast (CIB) on Ultra High Frequency (UHF) satellite communications a military standard Demand Assigned Multiple Access (DAMA) compliant waveform and a Line of Sight (LOS) broadcast using the Wideband Networking Waveform (WNW) and Joint Tactical Radio System (JTRS).
- A centralized GINS that receives data from each theater and then integrates this data into a worldwide picture available to all network-connected users.
- A regional TIN, where out-of-theater (and local) users not directly receiving the broadcast can receive the information broadcast on the CIB. Additionally, the TIN will receive and inject data into the CIB for producers without access to the theater CIB.
- A Common Message Format (CMF) for broadcasting IBS information over available communications paths including the CIB and other Global Information Grid (GIG) networks.

This program is in budget activity 4 because it includes demonstrating and validating the use of technologies to create an operational integrated broadcast service.

<b>(U) B. Accomplishments/Planned Program (\$ in Millions)</b>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Continue systems engineering, including development of architectures, system of systems management through the Joint Broadcast Configuration Control Board (JBCCB), and risk reduction studies using Simulation Based Acquisition (SBA) tools.	1.654	1.427	1.700	1.700
(U) Continue the Phase II/Engineering, Manufacturing, and Development of the GINS and TINs	6.124	15.801	8.644	12.426
(U) Continue Common Message Format (CMF) development	1.725	1.025	1.025	1.025
(U) Satellite Communications (SATCOM) Broadcast Waveform Development (DISA/SPAWAR)	2.450	0.750	1.200	0.700
(U) Joint Tactical Radio System (JTRS) Modular Advanced TRanslation and Interchange with XML (MATRIX) Reformatter	1.400	1.800	0.000	1.400
(U) Continue Test & Evaluation	1.027	1.000	0.925	0.925
(U) Maintain a Program Management Office, including program supervision, finance and acquisition strategy execution.	1.600	1.850	1.850	1.850
(U) Total Cost	15.980	23.653	15.344	20.026

Exhibit R-2a, RDT&E Project Justification

DATE

February 2005

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603850F Integrated Broadcast Service (DEM/VAL)

PROJECT NUMBER AND TITLE

4778 Integrated Broadcast Service

(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>Complete</u>							
(U) OPAF/PE0305179F	7.178	11.600	11.200	11.900	12.300	12.600	12.800	13.000	Continuing	TBD
(U) O&M/PE0305179F	18.221	15.430	11.700	12.500	13.200	13.100	13.400	13.500	Continuing	TBD

(U) **D. Acquisition Strategy**

IBS uses an evolutionary acquisition approach with a Program Definition/Risk Reduction phase (Spiral 1), followed by Engineering, Manufacturing, and Development (EMD) phase (Spiral 2-4), with full and open competition.

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Exhibit R-3, RDT&E Project Cost Analysis												DATE February 2005		
BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)						PE NUMBER AND TITLE 0603850F Integrated Broadcast Service (DEM/VAL)					PROJECT NUMBER AND TITLE 4778 Integrated Broadcast 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>														
Spiral I	C/FFP	Lockheed Martin (Gaithersburg, MD)	2.000									0.000	2.000	TBD
Spiral I	C/FFP	BTG, Inc. (Fairfax, VA)	2.000									0.000	2.000	TBD
Spiral I	C/FFP	TRW, Inc. (Fairfax, VA)	2.000									0.000	2.000	TBD
Spiral II	C/CPAF	BTG, Inc./Titan (Fairfax, VA)	43.708	6.124	Dec-03	15.801	Dec-04	8.644	Dec-05	12.426	Dec-06	Continuing	TBD	TBD
CMF Development	C/FFP	Raytheon E-Systems/L3Comm (Greenville, TX)	4.278									0.000	4.278	TBD
CMF Development	C/FFP	SAIC (Columbia, MD)	1.120	1.725	Feb-04	1.025	Dec-04	1.025	Dec-05	1.025	Dec-06	Continuing	TBD	TBD
SATCOM Broadcast Waveform Development	MIPR	Arlington, VA (Defense Information Systems Agency)		1.200	May-04			1.200	Feb-06	0.700	Feb-07	0.000	3.100	TBD
SATCOM Broadcast Waveform Development	MIPR	San Diego, CA (SPAWAR Systems)		1.250	May-04	0.750	Dec-04						2.000	TBD
JTRS MATRX Reformatter	C/FFP	L-3 Comm (Greenville, TX)		1.400	May-04	1.800	Mar-05			1.400	Dec-06	0.000	4.600	TBD
Subtotal Product Development			55.106	11.699		19.376		10.869		15.551		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 &amp; Evaluation</u>														
Interoperability and Developmental Testing	MIPR/Proj	JITC (Ft	0.980	1.027	Dec-03	1.000	Dec-04	0.925	Dec-05	0.925	Dec-06	Continuing	TBD	TBD
Project 4778														



Exhibit R-4, RDT&E Schedule Profile

DATE

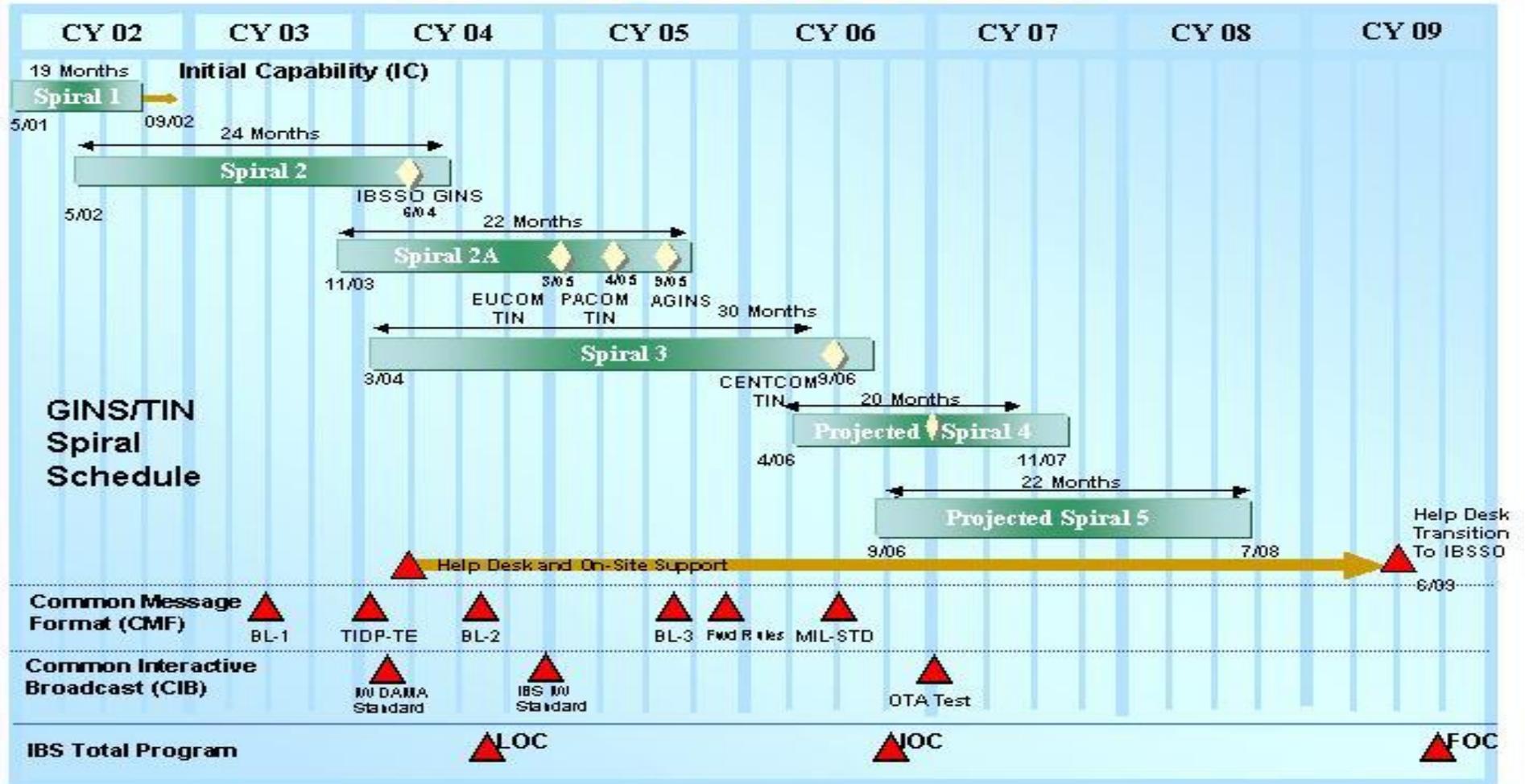
February 2005

BUDGET ACTIVITY  
04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE  
0603850F Integrated Broadcast Service (DEM/VAL)

PROJECT NUMBER AND TITLE  
4778 Integrated Broadcast Service

# IBS Program Schedule



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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0603850F Integrated Broadcast Service (DEM/VAL)</b>	<b>PROJECT NUMBER AND TITLE</b> <b>4778 Integrated Broadcast Service</b>
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<b>(U) <u>Schedule Profile</u></b>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Spiral II Integration Test	1Q			
(U) Spiral II LOC (Limited Operational Capability)	3Q			
(U) Spiral IIa European Command (EUCOM) Factory Acceptance Test (FAT)	4Q			
(U) Spiral IIa IBS Support Office (IBSSO) Partial FAT		1Q		
(U) Spiral IIa Pacific Command (PACOM) FAT		1Q		
(U) Spiral IIa EUCOM Site Acceptance Test (SAT)		2Q		
(U) Spiral IIa Alternate GINS (AGINS) FAT		3Q		
(U) Spiral IIa PACOM SAT		3Q		
(U) Spiral IIa AGINS SAT		4Q		
(U) Spiral III Preliminary Design Review		1Q		
(U) Spiral III Final Design Review		3Q		
(U) Spiral III Site Survey		2Q		
(U) Spiral III Integration and Test			1Q	
(U) Spiral III Site Integration Test (SIT)			2Q	
(U) Spiral III TINs Factory Acceptance Test			3Q	
(U) Spiral III Initial Operational Capability (IOC)			4Q	
(U) Spiral IV System Requirements Review			2Q	
(U) Spiral IV Preliminary Design Review			3Q	
(U) Global Interoperability Test			4Q	

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PE NUMBER: 0603851F  
 PE TITLE: ICBM - DEM/VAL

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	<b>DATE</b> <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0603851F ICBM - DEM/VAL</b>
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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	58.992	69.884	44.672	45.322	40.976	41.789	42.662	43.336	Continuing	TBD
1020 ICBM Guidance Applications	16.750	16.848	9.048	9.171	9.367	9.498	9.835	10.011	Continuing	TBD
1021 ICBM Propulsion Applications	16.812	30.151	23.949	24.313	24.344	24.913	25.309	25.664	Continuing	TBD
1022 ICBM Reentry Vehicle Applications	15.712	16.830	5.609	5.690	6.211	6.321	6.456	6.602	Continuing	TBD
1023 Rocket System Launch Program	1.029	0.033	0.033	0.035	0.036	0.036	0.037	0.037	Continuing	TBD
1024 ICBM Command & Control (C2) Applications	0.400	0.439	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.747
4209 Long Range Planning (LRP)	8.289	5.583	6.033	6.113	1.018	1.021	1.025	1.022	Continuing	TBD

In FY 2006 and beyond, Project 1024 ICBM Command & Control (C2) Applications is discontinued.

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.

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

This program's efforts identify methods to reduce life cycle costs, improve nuclear safety and surety, and ensure continued ICBM viability. Program includes demonstration and validation projects for ICBM guidance options, support for reentry vehicles beyond original design life, assessment of current and future ICBM propulsion systems, and development of enhancements to ensure command and control capabilities.

This program is in Budget Activity 04 - Advanced Component Development and Prototypes because the efforts demonstrate technology, component and subsystem maturity, and provide 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	60.117	72.503	79.186	94.734
(U) Current PBR/President's Budget	58.992	69.884	44.672	45.322
(U) Total Adjustments	-1.125	-2.619		
(U) Congressional Program Reductions		-2.619		
Congressional Rescissions				
Congressional Increases				
Reprogrammings				
SBIR/STTR Transfer	-1.125			

**(U) Significant Program Changes:**

FY 2006 and FY 2007: Program reductions to support higher Air Force priorities.

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>					PE NUMBER AND TITLE <b>0603851F ICBM - DEM/VAL</b>			PROJECT NUMBER AND TITLE <b>1020 ICBM Guidance Applications</b>		
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
1020 ICBM Guidance Applications	16.750	16.848	9.048	9.171	9.367	9.498	9.835	10.011	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

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

The ICBM Guidance Applications Project is required to meet on-going needs in applied strategic guidance systems and their subcomponents. This project ensures the continued readiness of our strategic deterrent forces in response to the Nuclear Posture Review, recommendations of the US Strategic Command (USSTRATCOM) Strategic Advisory Group, Commander, USSTRATCOM guidance, and the Defense Science Board Task Force on Nuclear Deterrence. Efforts within this project are focused on current and future requirements, reduced life cycle costs, and increased nuclear surety and safety. These activities leverage the efforts of the Science and Technology community. The efforts are coordinated with the Navy guidance applications efforts to avoid duplication while realizing maximum return on the invested dollars. The key elements of the Guidance Applications Project are the continued preservation of the minimum critical technical skills and capabilities needed to respond to unexpected problems in the Minuteman guidance system, the assessment and mitigation of any degradation of aging hardware, and the development and analysis of future strategic guidance hardware.

This program is in Budget Activity 04 - Advanced Component Development and Prototypes because the efforts demonstrate technology, component, and subsystem maturity, and provide 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) Continue development and prototype of concepts for future common strategic guidance system technology	5.174	2.793	4.524	4.586
(U) Continue assessment, evaluation and test of radiation hard electronics for strategic guidance applications	0.744	0.595	0.603	0.611
(U) Continue development and test of alternate instrument technologies (e.g., accelerometers, gyros, micro electromechanical systems)	5.278	11.676	3.921	3.974
(U) Complete assessment, development and implementation of flight test experiment options to demonstrate future strategic guidance system concepts	5.554	1.784	0.000	0.000
(U) Total Cost	16.750	16.848	9.048	9.171

**(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>Complete</u>							

(U) None.

**(U) D. Acquisition Strategy**

Accomplish studies, analyses, and limited engineering/pre-prototype hardware development; efforts will be conducted using contracting strategies deemed most appropriate.

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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				
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				<b>0603851F ICBM - DEM/VAL</b>							<b>1020 ICBM Guidance Applications</b>				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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> ICBM Prime Integration Contract	C/CPAF	Northrop Grumman, Clearfield UT	75.065	16.590	Jan-04	1.280	Dec-04	0.800	Dec-05	0.800	Dec-06	Continuing	TBD	TBD	
Component/Technology Development	Various	AFRL Kirtland AFB and others TBD	0.000	0.100	Jan-04	15.488	Jan-05	8.168	Jan-06	8.291	Jan-07	Continuing	TBD	TBD	
Subtotal Product Development Remarks:			75.065	16.690		16.768		8.968		9.091		Continuing	TBD	TBD	
(U) <u>Support</u> SPO/Other Program Support	Various	ICBM Program Office, Hill AFB	3.575	0.060	Jan-04	0.080	Jan-05	0.080	Jan-06	0.080	Jan-07	Continuing	TBD	TBD	
Subtotal Support Remarks:			3.575	0.060		0.080		0.080		0.080		Continuing	TBD	TBD	
(U) <u>Test &amp; Evaluation</u> Subtotal Test & Evaluation Remarks:			0.000	0.000		0.000		0.000		0.000			0.000	0.000	
(U) <u>Management</u> Program Management Subtotal Management Remarks:			0.000	0.000		0.000		0.000		0.000			0.000	0.000	
(U) Total Cost			78.640	16.750		16.848		9.048		9.171		Continuing	TBD	TBD	

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

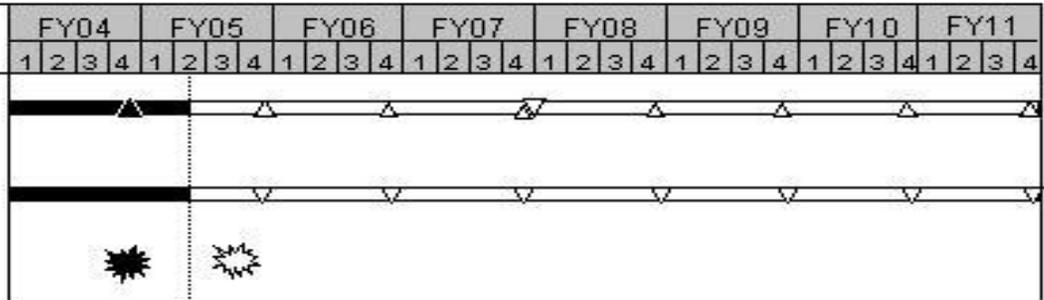
0603851F ICBM - DEM/VAL

PROJECT NUMBER AND TITLE

1020 ICBM Guidance Applications

**Guidance Applications**

- Analyze, evaluate, develop concepts
- Alternate instrument technologies
- Flight tests



 Major test event

 Report/Review/  
Analysis

 Prototype  
hardware delivery

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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0603851F ICBM - DEM/VAL</b>	<b>PROJECT NUMBER AND TITLE</b> <b>1020 ICBM Guidance Applications</b>
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	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
<b>(U) <u>Schedule Profile</u></b>				
(U) Development/Demonstration of Future Common System Concepts (Ongoing)	1-4Q	1-4Q	1-4Q	1-4Q
(U) -- Progress Reports	4Q	4Q	4Q	4Q
(U) -- Prototype Hardware Delivery				4Q
(U) Alternate Instrument Technology Development (Ongoing)	1-4Q	1-4Q	1-4Q	1-4Q
(U) -- Progress Report	4Q	4Q	4Q	4Q
(U) -- Engineering Demo/Prototype Hardware		4Q	4Q	4Q
(U) Radiation Hardened Parts Analysis (Ongoing)	1-4Q	1-4Q	1-4Q	1-4Q
(U) -- Progress Report	4Q	4Q	4Q	4Q
(U) Flight Test Options Analysis	1-4Q	1-4Q		
(U) -- Progress Report	4Q	4Q		
(U) -- Flight Test	4Q	3Q		

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>							PE NUMBER AND TITLE <b>0603851F ICBM - DEM/VAL</b>			PROJECT NUMBER AND TITLE <b>1021 ICBM Propulsion Applications</b>	
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	
1021 ICBM Propulsion Applications	16.812	30.151	23.949	24.313	24.344	24.913	25.309	25.664	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 ICBM Propulsion Application Program develops the ICBM strategic propulsion capability through projects exploring improvements and/or alternatives to current ICBM propulsion systems, conducting studies assessing application of new technologies to meet future ICBM propulsion system requirements, assessing opportunities for applying common materials and technology between the ICBM and submarine-launched ballistic missile (SLBM) propulsion systems, and demonstrating application of technology developed by the Science and Technology community to the ICBM strategic systems. This approach maintains critical design development and system engineering skills and capabilities for the future.

This program is in Budget Activity 04 - Advanced Component Development and Prototypes because the efforts demonstrate technology, component, and subsystem maturity, and provide 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) Continue evaluation and test of solid propulsion technologies for ICBM application through process development and stage manufacture leading to static fire testing	13.589	20.784	12.690	14.256
(U) Continue assessment and demonstration of ordnance and post-boost components technology developments	2.741	8.227	9.867	8.651
(U) Continue evaluation of test protocols in support of hazard classification methods for ICBM solid rocket motors	0.482	1.140	1.392	1.406
(U) Total Cost	16.812	30.151	23.949	24.313

**(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>Complete</u>							
(U) None										

**(U) D. Acquisition Strategy**

Studies, analyses, and motor ground test firings will be accomplished; efforts will be conducted using contracting strategies deemed most appropriate.

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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				
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				<b>0603851F ICBM - DEM/VAL</b>							<b>1021 ICBM Propulsion Applications</b>				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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> ICBM Prime Integration Contract	C/CPAF	Northrop Grumman, Clearfield UT	6.379	16.712	Dec-03	14.949	Dec-04	0.000	N/A	0.000	N/A	Continuing	TBD	TBD	
Component Development	Various	AFRL Edwards AFB, others TBD		0.000	N/A	15.102	Jan-05	23.849	Jan-06	24.213	Jan-07	Continuing	TBD	TBD	
Subtotal Product Development			6.379	16.712		30.051		23.849		24.213		Continuing	TBD	TBD	
Remarks:															
(U) <u>Support</u> SPO/Other Program Support	Various	ICBM Program Office, Hill AFB	0.086	0.100	Jan-04	0.100	Jan-05	0.100	Jan-06	0.100	Jan-07	Continuing	TBD	TBD	
Subtotal Support			0.086	0.100		0.100		0.100		0.100		Continuing	TBD	TBD	
Remarks:															
(U) <u>Test &amp; 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			6.465	16.812		30.151		23.949		24.313		Continuing	TBD	TBD	

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY

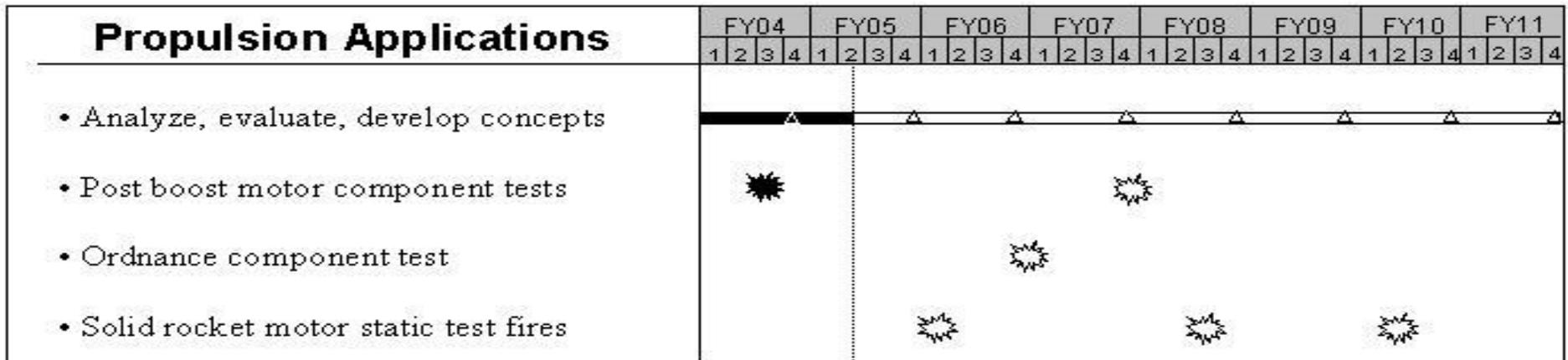
04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603851F ICBM - DEM/VAL

PROJECT NUMBER AND TITLE

1021 ICBM Propulsion Applications



Major test event



Report/Review/  
Analysis



Prototype hardware  
delivery

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0603851F ICBM - DEM/VAL</b>	<b>PROJECT NUMBER AND TITLE</b> <b>1021 ICBM Propulsion Applications</b>
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	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
<b>(U) <u>Schedule Profile</u></b>				
(U) Evaluate and test solid propulsion technologies for ICBM application	1-4Q	1-4Q	1-4Q	1-4Q
(U) -- Periodic Status Reports/Review	2-4Q	2-4Q	2-4Q	2-4Q
(U) -- Solid rocket motor static test fire			1Q	
(U) Assessment/demonstration of ordnance and post-boost components tech	1-4Q	1-4Q	1-4Q	1-4Q
(U) --Periodic Status Report/Reviews	2-4Q	2-4Q	2-4Q	2-4Q
(U) -- Ordnance component test			4Q	
(U) -- Post-boost component test	3Q			4Q
(U) Evaluate test protocols in support of hazard classification methods	1-4Q	1-4Q	1-4Q	1-4Q
(U) --Periodic Status Report/Reviews	2-4Q	2-4Q	2-4Q	2-4Q

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				PE NUMBER AND TITLE <b>0603851F ICBM - DEM/VAL</b>				PROJECT NUMBER AND TITLE <b>1022 ICBM Reentry Vehicle Applications</b>			
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	
1022 ICBM Reentry Vehicle Applications	15.712	16.830	5.609	5.690	6.211	6.321	6.456	6.602	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0			

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

ICBM Reentry Vehicle (RV) Applications efforts ensure the Minuteman force is equipped with the safest and most reliable RVs and explore options to meet future requirements. These efforts support RVs beyond their original design life by addressing problems with operational reentry systems, meeting real on-going needs, and ensuring the availability of long-lead components/materials. This project develops methods to better predict aging phenomena and identify life cycle cost reduction methods. A key element of the RV Applications efforts is the continued preservation of the minimum critical technical skills and capabilities needed to respond to unexpected problems, aging phenomena and future requirements. RV work under this program will leverage the Science & Technology community investments and coordinate with Navy RV applications program to eliminate duplication and realize synergistic cost savings. Program products are tested on a space available basis on Minuteman and Peacekeeper Force Development Evaluation (FDE) flights.

This program is in Budget Activity 04 - Advanced Component Development and Prototypes because the efforts demonstrate technology, component, and subsystem maturity, and provide 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) Continue evaluation of RV material subsystems, aging, and replacements through ground and flight tests	4.568	5.316	1.322	1.864
(U) Continue identification and ground testing of potential replacement options for critical RV components	1.333	2.953	0.878	1.158
(U) Continue evaluation of improved accuracy measurements and methodologies	0.779	0.817	0.106	0.000
(U) Continue evaluation of alternate flight test experiment options	2.555	1.604	0.412	0.000
(U) Continue evaluation of advanced common RV designs, applications, and technologies	3.219	1.352	1.394	1.447
(U) Continue development and assessment of RV Test & Evaluation methodologies and subsystems	2.234	2.024	0.815	0.257
(U) Continue design, development, and prototype flight testing of selected fuze assessment/measurement	1.024	2.764	0.682	0.964
(U) Total Cost	15.712	16.830	5.609	5.690

**(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>Complete</u>							
(U) None										

**(U) D. Acquisition Strategy**

Studies, analyses, limited engineering, and pre-prototype hardware development will be accomplished; efforts will be conducted using contracting strategies deemed most appropriate.

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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					
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				<b>0603851F ICBM - DEM/VAL</b>						<b>1022 ICBM Reentry Vehicle Applications</b>					
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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> ICBM Prime Integration Contract	C/CPAF	Northrop Grumman, Clearfield, UT	79.397	15.052	Dec-03	14.770	Dec-04	2.994	Dec-05	2.599	Dec-06	Continuing	TBD	TBD	
Component/materials development	Various	TBD		0.000	N/A	1.000	Jan-05	2.130	Feb-06	2.606	Feb-07	Continuing	TBD	TBD	
Subtotal Product Development			79.397	15.052		15.770		5.124		5.205		Continuing	TBD	TBD	
Remarks:															
(U) <u>Support</u> SPO/Other Program Support	Various	ICBM Program Office Hill AFB	1.156	0.060	Jan-04	0.060	Jan-05	0.060	Jan-06	0.060	Jan-07	Continuing	TBD	TBD	
Subtotal Support			1.156	0.060		0.060		0.060		0.060		Continuing	TBD	TBD	
Remarks:															
(U) <u>Test &amp; Evaluation</u> Materials	MIPR	AFRL Wright Lab, Wright-Patterson AFB	2.540	0.200	Jan-04	0.500	Jan-05	0.300	Jan-06	0.300	Jan-07	Continuing	TBD	TBD	
Ground Testing	PO	Arnold Engineering & Development Center	3.402	0.300	Jan-04	0.250	Jan-05	0.125	Jan-06	0.125	Jan-07	Continuing	TBD	TBD	
Flight Testing	PO	Vandenberg AFB	0.646	0.100	Jan-04	0.250	Jan-05	0.000		0.000		Continuing	TBD	TBD	
Subtotal Test & Evaluation			6.588	0.600		1.000		0.425		0.425		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			87.141	15.712		16.830		5.609		5.690		Continuing	TBD	TBD	

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

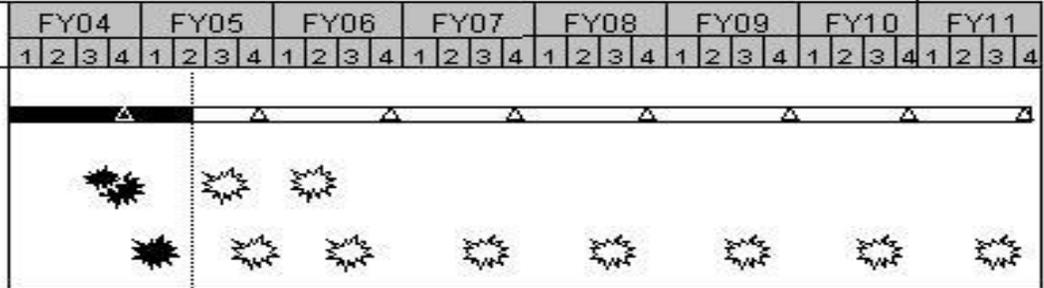
BUDGET ACTIVITY  
04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE  
0603851F ICBM - DEM/VAL

PROJECT NUMBER AND TITLE  
1022 ICBM Reentry Vehicle Applications

**Reentry Vehicle Applications**

- Analyze, evaluate, develop concepts
- Flight tests
- Component ground tests



☀ Major test event

△ Report/Review/Analysis

▽ Prototype hardware delivery

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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0603851F ICBM - DEM/VAL</b>	<b>PROJECT NUMBER AND TITLE</b> <b>1022 ICBM Reentry Vehicle Applications</b>
---	--	--

<b>(U) <u>Schedule Profile</u></b>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Materials Replacement & Aging Evaluations	1-4Q	1-4Q	1-4Q	1-4Q
(U) --Periodic Status Reports/Reviews	2-4Q	2-4Q	2-4Q	2-4Q
(U) Fuze Assessment/Measurement Tool Development	1-4Q	1-4Q	1-4Q	1-4Q
(U) --Periodic Status Reports/Reviews	2-4Q	2-4Q	2-4Q	2-4Q
(U) Critical Components Evaluations	1-4Q	1-4Q	1-4Q	1-4Q
(U) --Periodic Status Reports/Reviews	2-4Q	2-4Q	2-4Q	2-4Q
(U) RV Test & Evaluation Methodologies Development	1-4Q	1-4Q	1-4Q	1-4Q
(U) --Periodic Status Reports/Reviews	2-4Q	2-4Q	2-4Q	2-4Q
(U) Accuracy Assessment Methodologies Development	1-4Q	1-4Q	1-4Q	
(U) --Periodic Status Reports/Reviews	2-4Q	2-4Q	2-4Q	1-4Q
(U) Advanced Common RV Designs, Applications & Technologies Evaluations	1-4Q	1-4Q	1-4Q	2-4Q
(U) --Periodic Status Reports/Reviews	2-4Q	2-4Q	2-4Q	
(U) Alternate Flight Test Options Development	1-4Q	1-4Q	1-4Q	
(U) --Periodic Status Reports/Reviews	2-4Q	2-4Q	2-4Q	
(U) Flight Tests	4Q	3Q	2Q	
(U) Component Level Ground Tests		1-4Q	3Q	3Q

Exhibit R-2a, RDT&E Project Justification

DATE  
February 2005

BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				PE NUMBER AND TITLE <b>0603851F ICBM - DEM/VAL</b>				PROJECT NUMBER AND TITLE <b>1023 Rocket System Launch Program</b>		
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
1023 Rocket System Launch Program	1.029	0.033	0.033	0.035	0.036	0.036	0.037	0.037	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

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

This task supports studies/analyses on hardware for cost effective use of excess missile assets.

This program is in Budget Activity 04 - Advanced Component Development and Prototypes because the efforts demonstrate technology, component, and subsystem maturity, and provide 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) Continue on-going study/analysis for the adoption of low cost front-end systems for use on deactivated missile assets	0.029	0.033	0.033	0.035
(U) Conducted California Space Infrastructure Program	1.000			
(U) Total Cost	1.029	0.033	0.033	0.035

(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>Complete</u>							
(U) None										

(U) **D. Acquisition Strategy**

Studies and analyses will be performed primarily in-house augmented with contractor support as required. Special projects that might be funded under this project that require the development and/or evaluation of hardware along with the associated employment concepts will be awarded to qualified industry sources following open competition. Type contract used (e.g., CPIF, FPIF, etc) will be that deemed most advantageous to the government.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2005**

<b>BUDGET ACTIVITY</b>	<b>PE NUMBER AND TITLE</b>	<b>PROJECT NUMBER AND TITLE</b>
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>0603851F ICBM - DEM/VAL</b>	<b>1023 Rocket System Launch Program</b>

(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &amp;</u> <u>Type</u>	<u>Performing</u> <u>Activity &amp;</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> California Space Infrastructure Program	SS	California Spaceport Authority	0.000	1.000	Apr-04	0.000	N/A	0.000	N/A	0.000	N/A	0.000	1.000	1.000
Various	Various	Various	7.338	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	0.000	7.338	7.338
Subtotal Product Development			7.338	1.000		0.000		0.000		0.000		0.000	8.338	8.338
Remarks:														
(U) <u>Support</u> Engineering Support	SS/T&M	Northrop Grumman	8.403	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	0.000	8.403	8.403
Engineering Support	Various	SMC Det 12 Kirtland AFB	1.488	0.029	Jan-04	0.033	Jan-05	0.033	Jan-06	0.035	Jan-07	Continuing	TBD	TBD
Subtotal Support			9.891	0.029		0.033		0.033		0.035		Continuing	TBD	TBD
Remarks:														
(U) <u>Test &amp; 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			17.229	1.029		0.033		0.033		0.035		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603851F ICBM - DEM/VAL

PROJECT NUMBER AND TITLE

1023 Rocket System Launch Program

**Rocket System Launch Program**

- Analyze, evaluate concepts
- California Space Infrastructure

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
■				▲				▲				▲				▲				▲				▲							
■				▲																											



Major test event



Report/Review/  
Analysis



Prototype hardware  
delivery

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0603851F ICBM - DEM/VAL</b>	<b>PROJECT NUMBER AND TITLE</b> <b>1023 Rocket System Launch Program</b>
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	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) <b>Schedule Profile</b>				
(U) Start/Complete Annual Studies/Analysis	1-4Q	1-4Q	1-4Q	1-4Q
(U) California Space Infrastructure Contract Award	3Q			
(U) California Space Infrastructure Contract Complete		2Q		

Exhibit R-2a, RDT&E Project Justification

DATE  
February 2005

BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				PE NUMBER AND TITLE <b>0603851F ICBM - DEM/VAL</b>				PROJECT NUMBER AND TITLE <b>1024 ICBM Command &amp; Control (C2) Applications</b>			
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	
1024 ICBM Command & Control (C2) Applications	0.400	0.439	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.747	
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0			

In FY2006 and beyond, project is discontinued to support higher Air Force priorities.

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

To maintain the ICBM weapon systems as a credible deterrent to a hostile attack requires an extremely high confidence in the Command and Control (C2) systems providing connectivity to the President and Secretary of Defense. To ensure the ICBMs can be tasked in all manners of hostile environments requires assured, survivable, and secure channels of communication to the missile Launch Control Centers (LCCs). While assured connectivity is mandated for ICBMs, ways must be found to make the C2 systems more cost effective. Continuing studies are needed to identify existing and future technologies as well as concepts that exploit state-of-the-art communications and information transfer techniques that will guarantee the required C2 support to both the current ICBM mission and those ICBM systems and missions that will evolve in the 21st century. This program accomplishes studies, demonstrations, and tests to ensure future ICBM C2 architectures, networks, and systems evolve in a planned, orderly, and cost effective manner while meeting the stringent requirements of nuclear command and control.

This program is in Budget Activity 04 - Advanced Component Development and Prototypes because the efforts demonstrate technology, component, and subsystem maturity, and provide 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) Complete development of concepts for transformation of ICBM command, control, communications, computers, intelligence, surveillance, and reconnaissance (C4ISR) architecture for future ICBM missions, including analysis of requirements for modeling, simulation, demonstrations, and flight tests; complete development of plans for preserving unique strategic C2 skills and capabilities.	0.400	0.439	0.000	0.000
(U) Total Cost	0.400	0.439	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) None										

(U) **D. Acquisition Strategy**

Studies and analyses, and limited engineering and pre-prototype hardware development will be accomplished; efforts will be conducted using contracting strategies deemed most appropriate.

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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		
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				<b>0603851F ICBM - DEM/VAL</b>								<b>1024 ICBM Command &amp; Control (C2) Applications</b>		
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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> ICBM Prime Integration Contract	C/CPAF	Northrop Grumman, Clearfield UT	3.674	0.390	Dec-03	0.000	N/A	0.000	N/A	0.000	N/A	0.000	4.064	4.062
C4I technology/demonstration	TBD	TBD		0.000	N/A	0.429	Dec-04	0.000	N/A	0.000	N/A	0.000	0.429	0.433
Subtotal Product Development			3.674	0.390		0.429		0.000		0.000		0.000	4.493	4.495
Remarks:														
(U) <u>Support</u> SPO/other program support	Various	ICBM Program Office Hill AFB	0.042	0.010	Jan-04	0.010	Jan-05	0.000	N/A	0.000	N/A	0.000	0.062	0.062
Subtotal Support			0.042	0.010		0.010		0.000		0.000		0.000	0.062	0.062
Remarks:														
(U) <u>Test &amp; 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			3.716	0.400		0.439		0.000		0.000		0.000	4.555	4.557

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603851F ICBM - DEM/VAL

PROJECT NUMBER AND TITLE

1024 ICBM Command & Control (C2) Applications

**Command & Control Applications**

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
																															
																															

- Analyze, evaluate, develop concepts



Major test event



Report/Review/  
Analysis



Prototype hardware  
delivery

UNCLASSIFIED

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>		DATE <b>February 2005</b>
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BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	PE NUMBER AND TITLE <b>0603851F ICBM - DEM/VAL</b>	PROJECT NUMBER AND TITLE <b>1024 ICBM Command &amp; Control (C2) Applications</b>
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<b>(U) <u>Schedule Profile</u></b>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Future Concepts Study for Command & Control (Ongoing)	1-4Q	1-4Q		
(U) --Periodic Progress Reports/Reviews	4Q			
(U) --Final Report/Review		4Q		

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>					PE NUMBER AND TITLE <b>0603851F ICBM - DEM/VAL</b>			PROJECT NUMBER AND TITLE <b>4209 Long Range Planning (LRP)</b>		
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
4209 Long Range Planning (LRP)	8.289	5.583	6.033	6.113	1.018	1.021	1.025	1.022	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

In FY 2005, task "Continue Analysis of Alternatives (AoA) and pre-systems acquisition planning for follow on Land-Based Strategic Deterrent (LBSD)" is reduced by \$2.0M per Appropriations Act.

In FY 2006 and FY2007, project includes concept refinement and pre-Milestone A activities for follow on Land-Based Strategic Deterrent (LBSD) capability.

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

The Long Range Planning (LRP) task analyzes ICBM systems to identify potential modifications required to meet user objectives relative to long term sustainment, technology insertion, employment, and force structure. The studies focus on system supportability, operability, reliability, and maintainability. Options/concepts generated by these studies are evaluated for feasibility, system impacts, and cost. The LRP also lays the groundwork for analysis supporting future ICBM weapon systems development and deployment.

This program is in Budget Activity 04 - Advanced Component Development and Prototypes because the efforts demonstrate technology, component, and subsystem maturity, and provide 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) Continue support of the consolidated ICBM Master Plan	0.504	0.504	0.485	0.475
(U) Continue feasibility and life extension studies	2.348	0.000	0.515	0.525
(U) Complete Analysis of Alternatives (AoA) and pre-systems acquisition planning for follow on Land-Based Strategic Deterrent (LBSD) capability	5.437	5.079	0.000	0.000
(U) Begin LBSD capability concept refinement and pre-Milestone A activities	0.000	0.000	5.033	5.113
(U) Total Cost	8.289	5.583	6.033	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>Complete</u>							
(U) None										

**(U) D. Acquisition Strategy**

Studies and analyses will be accomplished; efforts will be conducted using contracting strategies deemed most appropriate.

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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			
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				<b>0603851F ICBM - DEM/VAL</b>								<b>4209 Long Range Planning (LRP)</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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> ICBM Prime Integration Contract	C/CPAF	Northrop Grumman, Clearfield UT	7.008	1.597	Dec-03	0.504	Dec-04	0.340	Jan-06	0.330	Jan-07	Continuing	TBD	TBD	
Studies	MIPR/PO	Various	0.000	1.110	Dec-03	0.000	N/A	0.515	Jan-06	0.525	Jan-07	0.000	2.150	0.560	
Land Based Strategic Deterrent (LBSD) AoA and pre-systems acquisition planning	Various	Various	0.000	5.437	Jan-04	4.934	Jan-05	0.000	N/A	0.000	N/A	0.000	10.371	11.529	
LBSD concept refinement and pre-Milestone A activities	Various	Various	0.000	0.000	N/A	0.000	N/A	5.033	Jan-06	5.113	Jan-06	0.000	10.146	10.000	
Subtotal Product Development			7.008	8.144		5.438		5.888		5.968		Continuing	TBD	TBD	
Remarks:															
(U) <u>Support</u> SPO/Other program support	Various	ICBM Program Office, Hill AFB UT	2.637	0.145	Jan-04	0.145	Jan-05	0.145	Jan-06	0.145	Jan-07	Continuing	TBD		
Subtotal Support			2.637	0.145		0.145		0.145		0.145		Continuing	TBD	0.000	
Remarks:															
(U) <u>Test &amp; 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> None													0.000		
Subtotal Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000	
Remarks:															
(U) Total Cost			9.645	8.289		5.583		6.033		6.113		Continuing	TBD	TBD	



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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0603851F ICBM - DEM/VAL</b>	<b>PROJECT NUMBER AND TITLE</b> <b>4209 Long Range Planning (LRP)</b>
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	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) <b>Schedule Profile</b>				
(U) Contract Award for Annual Studies/Analyses	2Q			
(U) --Program Reviews/ Reports Received	2-4Q			
(U) LBSD Analysis of Alternatives & pre-acquisition planning	1-4Q	1-4Q		
(U) -- AoA Report		4Q		
(U) LBSD Concept Refinement and pre-Milestone A activities			1-4Q	1-4Q
(U) -- Concept Refinement Contract Award			2Q	
(U) -- Milestone A				4Q

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PE NUMBER: 0603854F  
 PE TITLE: Wideband MILSATCOM (Space)

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0603854F Wideband MILSATCOM (Space)</b>
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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	35.621	69.386	93.858	37.672	5.742	6.392	6.485	6.555	Continuing	TBD
4811 Wideband Gapfiller	0.000	49.267	89.941	30.662	0.000	0.000	0.000	0.000	0.000	330.640
4870 Command & Control System Consolidated (CCSC)	35.621	20.119	3.917	7.010	5.742	6.392	6.485	6.555	Continuing	TBD

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

Provide the DoD with high data rate (Wideband) MILSATCOM services in accordance with the Joint Requirements Oversight Council (JROC), Joint Space Management Board approved MILSATCOM Architecture (Aug 96), the MILSATCOM Capstone Requirements Document (CRD) approved by the JROC in Oct 97, and JROC approved WGS Operational Requirements Document (May 00).

The Wideband Gapfiller System (WGS) will augment the DoD's Defense Satellite Communications System (DSCS) X-band and Global Broadcast Service (GBS) Ka-band capabilities. In addition, WGS will provide a new two-way Ka-band service. The first WGS launch is scheduled for Dec 05, launch of second satellite is scheduled for Aug 06, and launch of third satellite is scheduled for no later than Jan 07. In Dec 02, OSD directed the addition of two more WGS satellites as part of the transformational communications architecture; satellites 4 and 5 will support increased bandwidth requirements for the Airborne Intelligence, Surveillance and Reconnaissance mission. Launches for satellites 4-5 are scheduled for FY2009-2010.

The MILSATCOM Command and Control System-Consolidated (CCS-C) system is being acquired to provide integrated launch and on-orbit command and control (C-2) functionality for MILSATCOM satellites as the current capability provided by the Air Force Satellite Control Network (PE0305110F) for MILSATCOM satellites phases out according to plan. CCS-C will use modified commercial off the shelf hardware/software to control all emerging and legacy MILSATCOM systems to include Milstar, Defense Satellite Communications System (DSCS), WGS, and Advanced Extremely High Frequency (AEHF), at reduced operating and maintenance costs.

(U) Funding is in Budget Activity 4, Advanced Component Development and Prototypes to support:

- WGS: Leveraging commercial technology and practices by modifying commercial satellites to better support unique military requirements
- CCS-C: Development phase

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2005

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603854F Wideband MILSATCOM (Space)

(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	36.271	73.499	15.950	9.290
(U) Current PBR/President's Budget	35.621	69.386	93.858	37.672
(U) Total Adjustments	-0.650	-4.113		
(U) Congressional Program Reductions		-1.038		
Congressional Rescissions				
Congressional Increases				
Reprogrammings		-3.075		
SBIR/STTR Transfer	-0.650			

(U) **Significant Program Changes:**

FY06/07: Funds the cost growth and parts obsolescence redesign (Non Recurring Engineering) effort due to the three year production gap between WGS satellite 3 and satellites 4 /5.

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>					PE NUMBER AND TITLE <b>0603854F Wideband MILSATCOM (Space)</b>			PROJECT NUMBER AND TITLE <b>4811 Wideband Gapfiller</b>		
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
4811 Wideband Gapfiller	0.000	49.267	89.941	30.662	0.000	0.000	0.000	0.000	0.000	330.640
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

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

The Wideband Gapfiller System (WGS) will provide the DoD with high data rate military satellite communications (MILSATCOM) services in accordance with the Joint Space Management Board approved MILSATCOM Architecture dated Aug 96, the MILSATCOM Capstone Requirements Document approved by the Joint Requirements Oversight Council (JROC) in Oct 97, and the JROC approved WGS Operational Requirements Document (May 00). This program was conceived to augment the near term 'bandwidth gap' in Warfighter communications needs. The first WGS launch is scheduled for Dec 05, launch of second satellite is scheduled for Aug 06, and launch of third satellite is scheduled for no later than Jan 07. These dual frequency WGS satellites will augment the DoD's two-way Defense Satellite Communications System X-band service and one-way Global Broadcast Service Ka-band capabilities. In addition, WGS will provide a new high capacity two-way Ka-band service.

In Dec 02, OSD directed the addition of two more WGS satellites as part of the transformational communications architecture; satellites 4 and 5 will support increased bandwidth requirements for the Airborne Intelligence, Surveillance and Reconnaissance mission. Launches for satellites 4-5 are scheduled for FY2009-2010.

Funding is in Budget Activity 4, ACD&P, to support non-recurring engineering that maximizes commercial technology and practices to modify commercial satellites to better support military unique requirements.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Support Unmanned Aerial Vehicle (UAV) Bypass (Airborne Intelligence, Surveillance and Reconnaissance support) non-recurring engineering for satellites 4 and 5		14.000	0.350	0.150
(U) Perform payload/production studies related to parts obsolescence and non-recurring engineering for satellites 4 and 5 and support development of WGS control system		34.599	6.950	2.442
(U) Provide Program Office Support		0.668	0.860	0.479
(U) Perform parts obsolescence redesign for satellites 4 and 5			81.781	27.591
(U) Total Cost	0.000	49.267	89.941	30.662

**(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) MPAF, PE 0303600F, WGS, P-19,20	21.848	40.155	72.517	325.680	245.308	48.857	22.548	14.794	Continuing	TBD
(U) OPAF, PE 0303600F, WGS PIPs	11.622	0.000	0.000	0.000	21.515	7.169			0.000	55.448

Exhibit R-2a, RDT&E Project Justification

DATE

February 2005

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603854F Wideband MILSATCOM  
(Space)

PROJECT NUMBER AND TITLE

4811 Wideband Gapfiller

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

(U) OPAF, PE 0303600F, CCS-C	8.203	1.664	0.290	0.000	0.000	15.477
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(U) **D. Acquisition Strategy**

The WGS program will make maximum use of commercial practices and technology in its FAR Part 12, Firm Fixed Price (FFP) acquisition. The WGS received MS II/III approval in Nov 00 and awarded a FFP contract in Jan 2001. All five satellites will be purchased with Procurement funds, and the Non-Recurring Engineering (NRE) is funded with RDT&E.

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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			
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				<b>0603854F Wideband MILSATCOM (Space)</b>								<b>4811 Wideband Gapfiller</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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>															
Parts Obsolescence Redesign	FFP							81.781	Dec-05	27.591	Dec-06		109.372		
WGS Satellite EMD	FFP		143.008										143.008		
UAV Bypass NRE	FFP					14.000	Jan-05	0.350	Dec-05	0.150	Dec-06		14.500		
Payload/Production Studies	Various					34.599	Dec-04	6.950	Dec-05	2.442	Dec-06		43.991		
Subtotal Product Development			143.008	0.000		48.599		89.081		30.183		0.000	310.871	0.000	
Remarks:															
(U) <u>Support</u>															
JTEO	PR		6.618										6.618		
Pre-EMD	Form 277		5.579										5.579		
Program Support	Various		8.235			0.668	Jan-05	0.860	Jan-06	0.479	Jan-07		10.242		
Subtotal Support			20.432	0.000		0.668		0.860		0.479		0.000	22.439	0.000	
Remarks:															
(U) <u>Test &amp; 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			163.440	0.000		49.267		89.941		30.662		0.000	333.310	0.000	

Exhibit R-4, RDT&E Schedule Profile

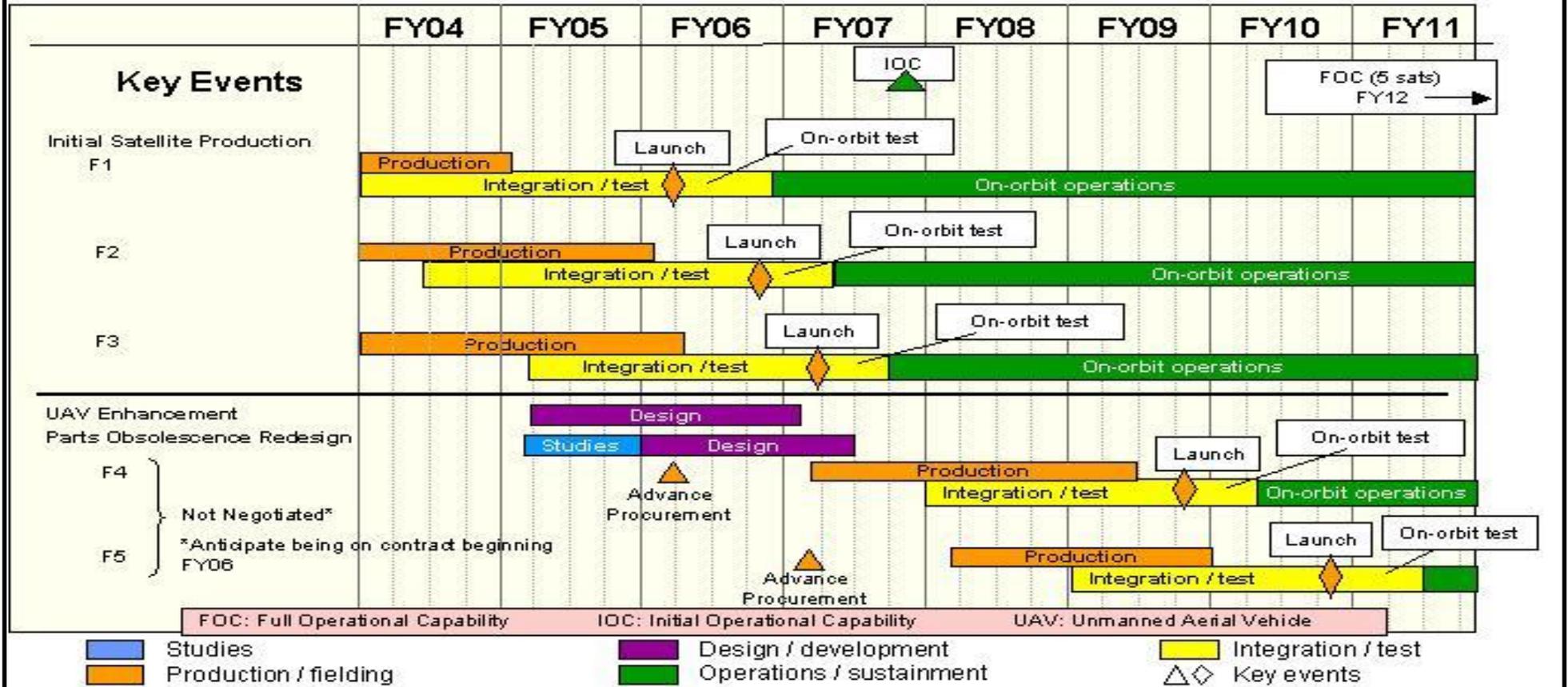
DATE

February 2005

BUDGET ACTIVITY  
04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE  
0603854F Wideband MILSATCOM  
(Space)

PROJECT NUMBER AND TITLE  
4811 Wideband Gapfiller



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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>		DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0603854F Wideband MILSATCOM (Space)</b>	<b>PROJECT NUMBER AND TITLE</b> <b>4811 Wideband Gapfiller</b>
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<b>(U) <u>Schedule Profile</u></b>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Initiate Unmanned Aerial Vehicle (UAV) Bypass (AISR support) for Sats 4 and 5		2Q		
(U) Initiate parts obsolescence redesign			1Q	
(U) Launch satellite 1			1Q	
(U) Launch satellite 2			4Q	
(U) Launch satellite 3				1Q
(U) Initial Operational Capability (Threshold)				4Q

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>					PE NUMBER AND TITLE <b>0603854F Wideband MILSATCOM (Space)</b>			PROJECT NUMBER AND TITLE <b>4870 Command &amp; Control System Consolidated (CCSC)</b>		
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
4870 Command & Control System Consolidated (CCSC)	35.621	20.119	3.917	7.010	5.742	6.392	6.485	6.555	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) Command and Control System -Consolidated (CCS-C) system is being acquired to provide integrated launch and on-orbit command and control (C2) functionality, and backup operations at Vandenberg AFB, for MILSATCOM satellites as the current capability provided by the Air Force Satellite Control Network (PE 0305110F) phases out according to plan. CCS-C will use modified commercial off the shelf hardware/software to control all emerging and legacy MILSATCOM systems including Milstar, Defense Satellite Communications System (DSCS), Wideband Gapfiller System (WGS), and Advanced Extremely High Frequency (AEHF), at reduced operating and maintenance costs.

Funding is in Budget Activity 4, ACD&P to support software development and activation of the CCS-C installation and test facility.

**(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 development of command and control functionality for WGS, Milstar, and AEHF satellites.	31.181			
(U) Completed command and control functionality for DSCS.				
(U) Continue development of command and control functionality for WGS and AEHF satellites. Complete command and control functionality Milstar.		14.665	2.756	4.648
(U) Continue Program Office and other related support activities	4.440	5.454	1.161	2.362
(U) Total Cost	35.621	20.119	3.917	7.010

**(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) Other APPN										
(U) OPAF, PE 030600F, CCS-C	8.203	1.664	0.290	0.000	0.000	0.000	0.000	0.000	0.000	15.477
(U) BA-11 Line-66										

**(U) D. Acquisition Strategy**

Competitive contracts with cost plus award fee options, were awarded in Feb 01 to two teams to demonstrate capabilities - the concept demonstration phase. A downselect to a single team was awarded in Mar 02 to develop the system for the development phase.

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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		
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				<b>0603854F Wideband MILSATCOM (Space)</b>								<b>4870 Command &amp; Control System Consolidated (CCSC)</b>		
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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>														
Demonstration Contractors	FFP		6.800									0.000	6.800	
Development Contractor: Integral Systems, Inc.	CPAF	Lanham, MD	26.765	31.181	Oct-03	14.665	Oct-04	2.756	Oct-05	4.648	Oct-06	Continuing	TBD	
Subtotal Product Development			33.565	31.181		14.665		2.756		4.648		Continuing	TBD	0.000
Remarks:														
(U) <u>Support</u>														
CCSC Program Support Cost			9.165	4.440	Oct-03	5.454	Oct-04	1.161	Oct-05	2.362	Oct-06	Continuing	TBD	
Subtotal Support			9.165	4.440		5.454		1.161		2.362		Continuing	TBD	0.000
Remarks:														
(U) <u>Test &amp; 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>														
None													0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
(U) Total Cost			42.730	35.621		20.119		3.917		7.010		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE  
February 2005

BUDGET ACTIVITY  
04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE  
0603854F Wideband MILSATCOM  
(Space)

PROJECT NUMBER AND TITLE  
4870 Command & Control System  
Consolidated (CCSC)

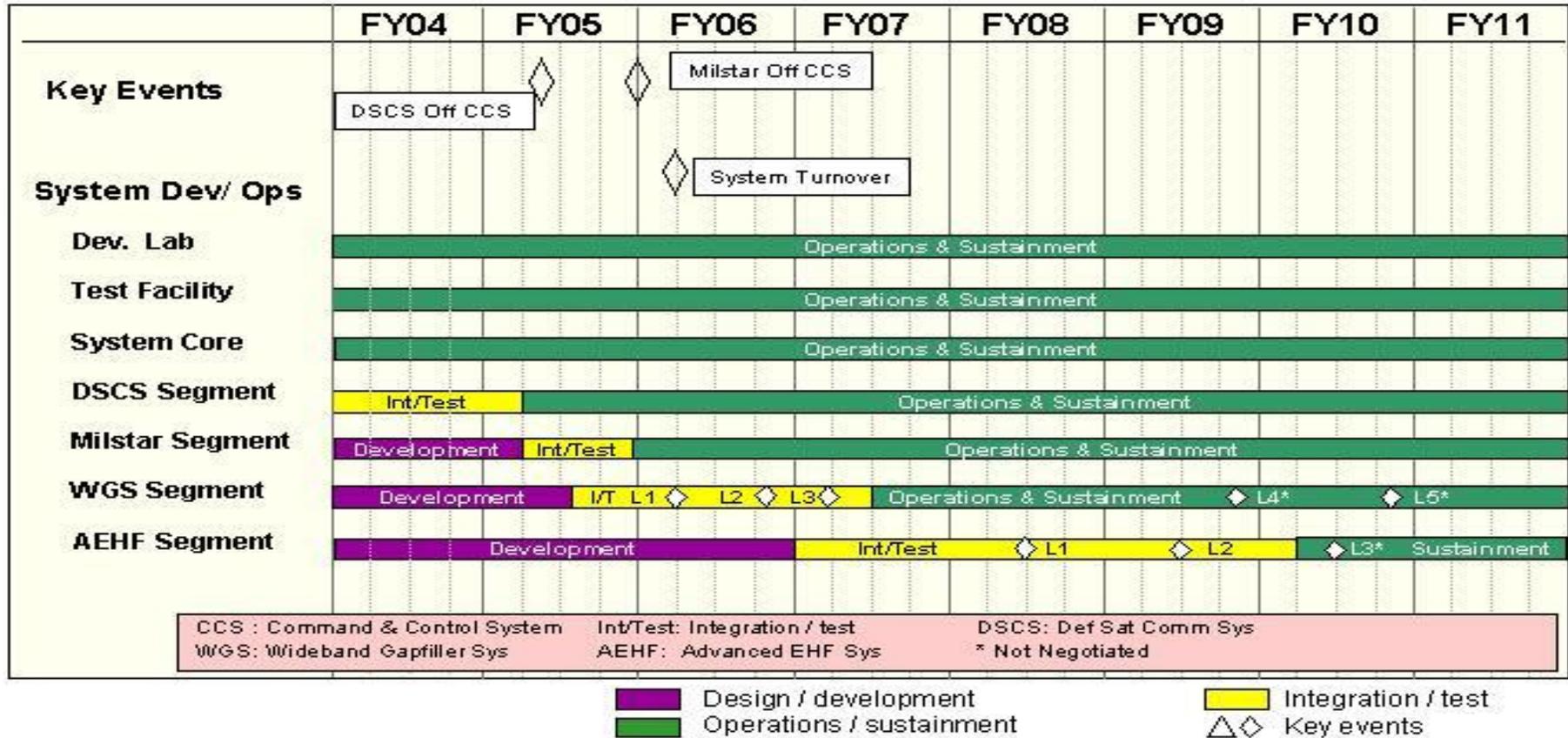


Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2005

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603854F Wideband MILSATCOM (Space)

PROJECT NUMBER AND TITLE

4870 Command & Control System Consolidated (CCSC)

(U) **Schedule Profile**

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Complete Defense Satellite Communications System (DSCS) command and control functionality		2Q		
(U) Begin Wideband Gapfiller System (WGS) Integration & Test		3Q		
(U) Complete Milstar command and control functionality		4Q		
(U) Transition MILSATCOM legacy systems (DSCS and Milstar) to CCS-C		4Q		
(U) Continue WGS Integration & Test			1-4Q	
(U) Begin AEHF Integration & Test				1Q
(U) Complete WGS command and control functionality				2Q

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PE NUMBER: 0603858F  
 PE TITLE: Space-Based Radar Dem/Val

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0603858F Space-Based Radar Dem/Val</b>
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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	165.125	73.847	225.839	356.178	568.485	1,068.368	1,315.760	1,410.736	Continuing	TBD
A004 SBR Concept and Technology Development	165.125	73.847	225.839	356.178	568.485	1,068.368	1,315.760	1,410.736	Continuing	TBD

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

Space Based Radar (SBR) name was changed to Space Radar (SR) to represent the fundamental restructure of joint DoD and intelligence community (IC) program. DoD and National users have agreed on a path to converge to a single common space radar system that affordably meets the nation's needs. The SR program mission partners are committed to deliver an affordable, capabilities-driven system as part of a horizontally integrated system-of-systems designed to meet National Intelligence and Joint Commanders requirements by providing high-volume, readily taskable Synthetic Aperture Radar (SAR) imaging; Surface Moving Target Indications (SMTI); and High-Resolution Terrain Information (HRTI). Designed to be tightly integrated with present and planned intelligence systems, the resultant Space Radar will provide transformational capabilities to both the National Intelligence Community and Warfighting agencies alike through agile, responsive intelligence collections using near-real time tasking and data dissemination. The SR system will allow a 'deep look' into denied areas of interest in all weather, day or night, without risk to personnel or equipment. SR's on-demand intelligence capability will have global utility across the spectrum of conflict.

The 2006 program focuses on overall program affordability by stressing innovation through program risk reduction and technology maturation. The program will leverage National Reconnaissance Office (NRO), National Geospatial-Intelligence Agency (NGA), Defense Advanced Research Projects Agency (DARPA), and Air Force Research Laboratory (AFRL) activities to ensure both DoD and Intelligence Community requirements are satisfied in the baseline SR effort. In addition, an on orbit demonstration will be developed to validate Space Radar costs and technology maturity.

This program is in Budget Activity 4, Advanced Component Development and Prototypes (ACDP), because it involves evaluating integrated technologies in as realistic an operating environment as possible to assess the performance or cost reduction potential of advanced technology.

**(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	172.625	327.732	466.189	502.738
(U) Current PBR/President's Budget	165.125	73.847	225.839	356.178
(U) Total Adjustments	-7.500	-253.885		
(U) Congressional Program Reductions		-252.732		
Congressional Rescissions				
Congressional Increases				
Reprogrammings				
SBIR/STTR Transfer	-7.500	-1.153		
(U) <u>Significant Program Changes:</u>				

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2005

BUDGET ACTIVITY

**04 Advanced Component Development and Prototypes (ACD&P)**

PE NUMBER AND TITLE

**0603858F Space-Based Radar Dem/Val**

The FY 2005 Appropriations Bill reduced the President's Budget from \$327M to \$75M, and redirected the Air Force's development efforts "towards technologies and concepts that would lead to program costs far lower than currently conceived" and "breakthroughs that fundamentally change the cost-benefit equation for a space based radar system."

To address Congressional concerns and to arrive at a technically feasible solution, the Air Force placed increased emphasis on innovation and affordability on the SR concept exploration efforts. This emphasis has resulted in significant changes to the SR program. While continuing to be dual-use to meet Department of Defense (DoD) and IC needs, the SR is focused on smaller constellations of high performance, more affordable satellites. This move to smaller, more affordable constellations was driven by the realization that it is ultimately unaffordable for a single system to provide global continuous target tracking capability. The resulting more affordable system concepts remain highly effective by leveraging advanced technologies and increased levels of horizontal integration with other ISR platforms, national infrastructure and DoD weapon systems.

Air Force and OSD leadership will further address Congressional concerns through an on orbit demonstration that will validate Space Radar costs and technology maturity. The program will also shift focus towards payload maturation, a robust technology risk reduction and system-of-systems engineering program, and a structured revalidation of requirements. In addition, leadership commissioned an Independent Technology Assessment to look at alternative technologies to reduce cost and improve utility.

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>					PE NUMBER AND TITLE <b>0603858F Space-Based Radar Dem/Val</b>			PROJECT NUMBER AND TITLE <b>A004 SBR Concept and Technology Development</b>		
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
A004 SBR Concept and Technology Development	165.125	73.847	225.839	356.178	568.485	1,068.368	1,315.760	1,410.736	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

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

Space Based Radar (SBR) name was changed to Space Radar (SR) to represent the fundamental restructure of joint DoD and intelligence community (IC) program. DoD and National users have agreed on a path to converge to a single common space radar system that affordably meets the nation's needs. The SR program mission partners are committed to deliver an affordable, capabilities-driven system as part of a horizontally integrated system-of-systems designed to meet National Intelligence and Joint Commanders requirements by providing high-volume, readily taskable Synthetic Aperture Radar (SAR) imaging; Surface Moving Target Indications (SMTI); and High-Resolution Terrain Information (HRTI). Designed to be tightly integrated with present and planned intelligence systems, the resultant Space Radar will provide transformational capabilities to both the National Intelligence Community and Warfighting agencies alike through agile, responsive intelligence collections using near-real time tasking and data dissemination. The SR system will allow a 'deep look' into denied areas of interest in all weather, day or night, without risk to personnel or equipment. SR's on-demand intelligence capability will have global utility across the spectrum of conflict.

The 2006 program focuses on overall program affordability by stressing innovation through program risk reduction and technology maturation. The program will leverage National Reconnaissance Office (NRO), National Geospatial-Intelligence Agency (NGA), Defense Advanced Research Projects Agency (DARPA), and Air Force Research Laboratory (AFRL) activities to ensure both DoD and Intelligence Community requirements are satisfied in the baseline SR effort. In addition, an on orbit demonstration will be developed to validate Space Radar costs and technology maturity.

This program is in Budget Activity 4, Advanced Component Development and Prototypes (ACDP), because it involves evaluating integrated technologies in as realistic an operating environment as possible to assess the performance or cost reduction potential of advanced technology.

**(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 Technology Risk Reduction activities on Electronically Scanned Array (ESA) and on-board processing efforts that included end-to-end payload testbeds and development of alternative signal processing algorithms, expanded Battle Management Command, Control, Communications (BMC3) effort that included interface identification and definition, and provided Advanced Concept Technology Demonstration (ACTD) support.	66.120			
(U) Concept Definition continued with the award of two Phase A Concept Development contracts.	85.003			
(U) Invest in technology and concept definition activities to include but not limited to up-front, in-depth system engineering, risk reduction activities. Continue Technology Risk Reduction activities on Electronically Scanned Array (ESA) and on-board processing efforts that included end-to-end payload test beds and prototype development of high-risk signal processing algorithms, expanded tactical integration effort that includes interface identification and definition, support an Advanced Concept		66.376	210.782	320.560

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0603858F Space-Based Radar Dem/Val</b>	<b>PROJECT NUMBER AND TITLE</b> <b>A004 SBR Concept and Technology Development</b>
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Technology Demonstration (ACTD) and on-orbit demonstrations. Additional near term efforts include technology risk reduction demonstrations as well as, system-of-systems engineering activities, wargames and experiments, and Modeling & Simulation (M&S) capability, to include access to operational C4ISR systems for enhanced data exploitation.

(U) Program Support activities include but are not limited to acquisition planning, schedule management, requirements development, source selection, and financial management.	14.002	7.471	15.057	35.618
(U) Total Cost	165.125	73.847	225.839	356.178

**(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>Complete</u>							
(U) Other APPN- MILCON							3.000	32.500	Continuing	TBD

**(U) D. Acquisition Strategy**

The Air Force will lead the SR Joint Program Office (JPO) with the National Reconnaissance Office (NRO) and National Geospatial- Intelligence Agency (NGA) as the principal partners with other Service, DoD, and Intelligence Community participation. The SR JPO has awarded two contracts for Concept Definition and plans to select a single contractor after KDP-B.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2005**

<b>BUDGET ACTIVITY</b>					<b>PE NUMBER AND TITLE</b>					<b>PROJECT NUMBER AND TITLE</b>				
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>					<b>0603858F Space-Based Radar Dem/Val</b>					<b>A004 SBR Concept and Technology Development</b>				

(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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>														
Technology Risk Reduction Efforts	Various Contracts	Various	9.980	66.120									76.100	
Requirements Development	FFRDC/S ETA and GSA Contracts	Various	10.939										10.939	
Concept Definition	Competitive	Various	17.779	85.003	Apr-04								102.782	
Phase A Concept Development/Technology Risk Reduction Activities	Various Contracts	Various				66.376	Oct-04	210.782		320.560		Continuing	TBD	
Subtotal Product Development			38.698	151.123		66.376		210.782		320.560		Continuing	TBD	0.000
Remarks:														
(U) <u>Support</u>														
SMC, ESC, AFSPC, NRO & NGA	Various Contracts	Various	6.704	14.002		7.471		15.057		35.618		Continuing	TBD	
Subtotal Support			6.704	14.002		7.471		15.057		35.618		Continuing	TBD	0.000
Remarks:														
(U) <u>Test &amp; Evaluation</u>														
N/A													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>														
N/A													0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
(U) Total Cost			45.402	165.125		73.847		225.839		356.178		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

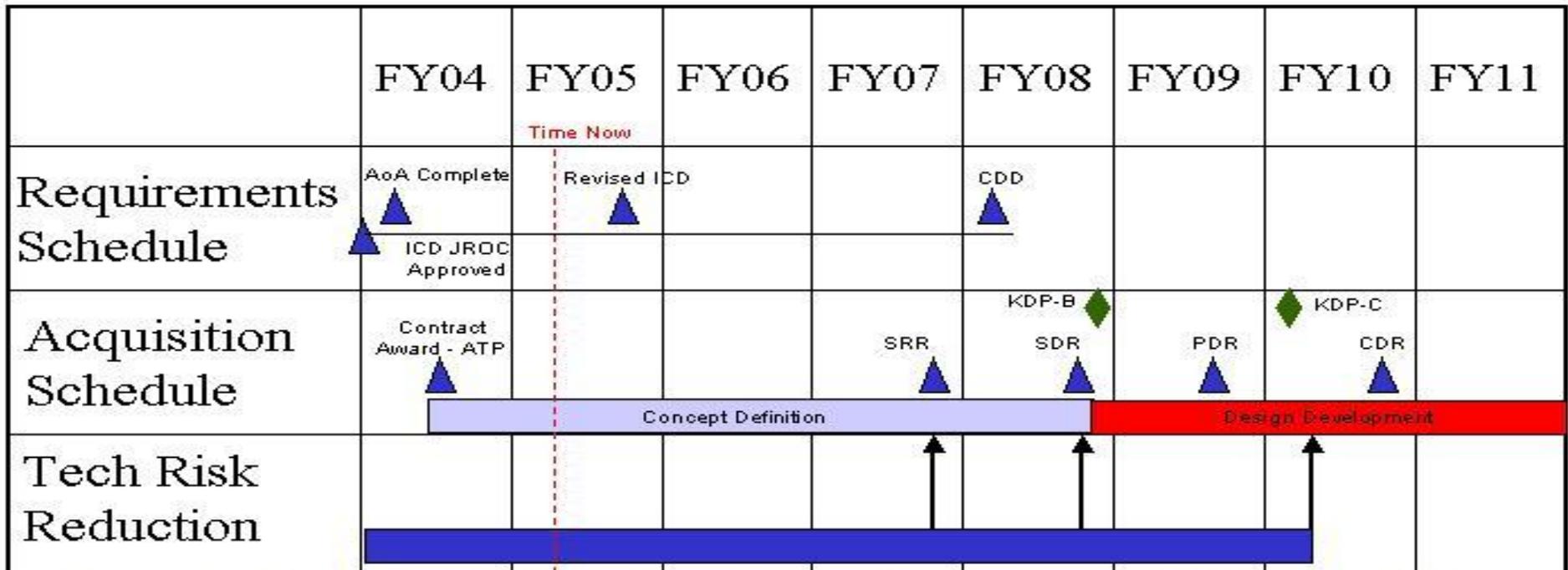
DATE  
February 2005

BUDGET ACTIVITY  
04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE  
0603858F Space-Based Radar  
Dem/Val

PROJECT NUMBER AND TITLE  
A004 SBR Concept and Technology  
Development

# SR Schedule



AoA: Analysis of Alternatives    CDR: Critical Design Review    ICD: Initial Capabilities Document    CDD: Capabilities Dev Doc  
 PDR: Preliminary Design Rev    SDR: System Design Review    SRR: System Requirements Review    D/S: Down Select

Concept Definition   
  Design Development   
  Tech Risk Reduction   
 
 Key Events

Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2005

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603858F Space-Based Radar  
Dem/Val

PROJECT NUMBER AND TITLE

A004 SBR Concept and Technology  
Development

(U) Schedule Profile

(U) AoA Completion

(U) Award Phase A Concept Development Contracts

(U) JROC MRB Approved Revised ICD

(U) System Requirements Review (SRR)

FY 2004

1Q

2Q

FY 2005

4Q

FY 2006

FY 2007

4Q

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PE NUMBER: 0603859F  
 PE TITLE: Pollution Prevention

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0603859F Pollution Prevention</b>
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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	4.579	5.445	2.735	2.821	2.766	2.818	2.884	2.934	Continuing	TBD
4852 Pollution Prevention	4.579	5.445	2.735	2.821	2.766	2.818	2.884	2.934	Continuing	TBD

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

Funds will be used to target R&D activities that demonstrate and prototype alternative weapon system painting/depainting, maintenance processes that reduce compliance burden associated with National Emissions Standards for Hazardous Air Pollutants (Clean Air Act driven), and other hazardous waste reduction development/prototype requirements. Specifically, funds will target pollution prevention technologies, including replacement of chromate conversion coating on aluminum and magnesium based metals, nonchromated primers to replace zinc chromate, and environmentally safe replacements for cadmium and chrome plating. This program is Budget Activity (BA) 4, Advanced Component Development and Prototypes, because this account is primarily for development and prototyping of pollution prevention technologies to eliminate/reduce hazardous materials/waste and overall total ownership costs to the Air 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	2.281	5.445	2.735	2.821
(U) Current PBR/President's Budget	4.579	5.445	2.735	2.821
(U) Total Adjustments	2.298	0.000		
(U) Congressional Program Reductions	0.000			
Congressional Rescissions	-0.041			
Congressional Increases	2.500			
Reprogrammings	-0.161			
SBIR/STTR Transfer	0.000			

**(U) Significant Program Changes:**

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>							PE NUMBER AND TITLE <b>0603859F Pollution Prevention</b>		PROJECT NUMBER AND TITLE <b>4852 Pollution Prevention</b>	
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
4852 Pollution Prevention	4.579	5.445	2.735	2.821	2.766	2.818	2.884	2.934	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

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

Funds will be used to target R&D activities that demonstrate and prototype alternative weapon system painting/depainting, maintenance processes that reduce compliance burden associated with National Emissions Standards for Hazardous Air Pollutants (Clean Air Act driven), and other hazardous waste reduction development/prototype requirements. Specifically, funds will target pollution prevention technologies, including replacement of chromate conversion coating on aluminum and magnesium based metals, nonchromated primers to replace zinc chromate, and environmentally safe replacements for cadmium and chrome plating. This program is Budget Activity (BA) 4, Advanced Component Development and Prototypes, because this account is primarily for development and prototyping of pollution prevention technologies to eliminate/reduce hazardous materials/waste and overall total ownership costs to the Air 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) Resource Conservation and Recovery Act (RCRA) Subtitle C - Hazardous Waste Compliance Burden Reduction	0.841	1.985	0.996	1.014
(U) Demonstrate Painting & Coating P2 for Defense Facilities (Congressional Insert)	1.000	0.000	0.000	0.000
(U) Clean Air Act Compliance Burden Reduction	0.838	2.067	1.077	1.097
(U) O2 Diesel Air Quality Improvement (Congressional Insert)	1.500	0.000	0.000	0.000
(U) Clean Water Act Compliance Burden Reduction	0.200	0.947	0.196	0.251
(U) Hazardous Material Use Reduction	0.150	0.344	0.348	0.354
(U) Other	0.050	0.102	0.118	0.105
(U) Total Cost	4.579	5.445	2.735	2.821

**(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>Complete</u>							
(U) Not Applicable										

**(U) D. Acquisition Strategy**

Pollution Prevention activities are level of effort and use time and materials support contracts.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2005**

BUDGET ACTIVITY				PE NUMBER AND TITLE							PROJECT NUMBER AND TITLE				
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				<b>0603859F Pollution Prevention</b>							<b>4852 Pollution Prevention</b>				
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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>															
Air Force Research Lab	Various	Various	Apr04	1.007		1.960	Apr-05	0.768	Apr-06	0.783	Apr-07	Continuing	TBD	TBD	
Subtotal Product Development			0.000	1.007		1.960		0.768		0.783		Continuing	TBD	TBD	
Remarks:															
(U) <u>Support</u>															
Air Force Research Lab	Various	Various	Apr04	0.796		1.342	Apr-05	0.645	Apr-06	0.709	Apr-07	Continuing	TBD	TBD	
Subtotal Support			0.000	0.796		1.342		0.645		0.709		Continuing	TBD	TBD	
Remarks:															
(U) <u>Management</u>															
Air Force Research Lab	Various	Various	Sep04	0.257	0.15	0.150	Sep-05	0.165	Sep-06	0.150	Sep-07	Continuing	TBD	TBD	
Subtotal Management			0.000	0.257		0.150		0.165		0.150		Continuing	TBD	TBD	
Remarks:															
(U) <u>Prototype</u>															
Air Force Research Lab	Various	Various	Apr04	2.519	1.8-66	1.993	Apr-05	1.157	Apr-06	1.179	Apr-07	Continuing	TBD	TBD	
Subtotal Prototype			0.000	2.519		1.993		1.157		1.179		Continuing	TBD	TBD	
Remarks:															
(U) Total Cost			0.000	4.579		5.445		2.735		2.821		Continuing	TBD	TBD	

**Exhibit R-4, RDT&E Schedule Profile**

DATE

**February 2005**

BUDGET ACTIVITY

**04 Advanced Component Development and Prototypes (ACD&P)**

PE NUMBER AND TITLE

**0603859F Pollution Prevention**

PROJECT NUMBER AND TITLE

**4852 Pollution Prevention**

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Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2005

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603859F Pollution Prevention

PROJECT NUMBER AND TITLE

4852 Pollution Prevention

(U) Schedule Profile

(U) Development

(U) Prototype

(U) Contract Completion

FY 2004

1Q

2-3Q

4Q

FY 2005

1Q

2-3Q

4Q

FY 2006

1Q

2-3Q

4Q

FY 2007

1Q

2-3Q

4Q

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PE NUMBER: 0603860F

PE TITLE: Joint Precision Approach and Landing Systems - Dem/Val

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>									<b>DATE</b> <b>February 2005</b>	
<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>					<b>PE NUMBER AND TITLE</b> <b>0603860F Joint Precision Approach and Landing Systems - Dem/Val</b>					
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	12.861	16.784	11.211	18.684	18.993	19.535	5.507	5.072	Continuing	TBD
4652 Precision Landing Systems	12.861	16.784	11.211	18.684	18.993	19.535	5.507	5.072	Continuing	TBD

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

Joint Precision Approach and Landing System (JPALS) is a joint effort among the USAF, Navy, and Army. The AF is designated as the lead service to develop the common system architecture. JPALS will define the future precision approach and landing system for the Department of Defense (DoD) to provide a joint operational capability for U.S. forces to perform assigned conventional and special operations missions from fixed-base, tactical, shipboard, and special mission environments under a wide range of meteorological conditions. Also, JPALS will enhance DoD's ability to obtain civil interoperability with current and projected Federal Aviation Administration (FAA) and North Atlantic Treaty Organization (NATO) member country landing systems. 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. When complete, this effort will replace aging shipboard and ground-based precision landing systems (Instrument Landing System, Precision Approach Radar, Microwave Landing System, and Instrument Carrier Landing Systems). JPALS will facilitate DoD missions and training by enabling US forces to land on any airfield worldwide (land and sea) under peacetime and hostile conditions. JPALS also decreases the time required for deploying forces to a theater by providing an assured landing capability. JPALS provides increased inter- and intra-theater logistics throughput and the ability to fight at night and in inclement weather. Furthermore, JPALS will provide a precision landing capability where none currently exists. It will enhance interoperability for naval aircraft landing at shore-based fields operated by other services and provide interoperability for the Civil Reserve Air Fleet at DoD airfields, especially in the expeditionary environment. The JPALS Analysis of Alternatives (AOA) reflected Local Area Differential Global Positioning System (LDGPS) as the most promising technology to meet the mission need. Development activities are initially focused on reducing technical risks. First, JPALS will employ quality guidance in the presence of Global Positioning System (GPS) jamming. Second, its architecture will be developed to integrate and synchronize with related Communication, Navigation and Surveillance/Air Traffic Management (CNS/ATM) and GPS modernization initiatives. Third, JPALS will develop and integrate encrypted data links and antenna sets. Finally, JPALS will harmonize with U.S. and international civil satellite navigation and ground navigation systems development. This effort will result in avionics modifications to over 15,000 DoD aircraft. Because JPALS will result in a family of systems, other technologies will be monitored and evaluated such as an Autonomous Landing Capability (ALC) and the FAA local and wide area differential GPS alternatives.

This program is in budget activity 4, Demonstration and Validation, Research Category 6.4B, because supportability and manufacturing process design considerations must be identified and integrated into the precision landing architecture.

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2005

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0603860F Joint Precision Approach and Landing Systems - Dem/Val

(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	13.847	18.385	25.781	21.260
(U) Current PBR/President's Budget	12.861	16.784	11.211	18.684
(U) Total Adjustments	-0.986	-1.601		
(U) Congressional Program Reductions	-0.108			
Congressional Rescissions	-0.118	-0.601		
Congressional Increases				
Reprogrammings	-0.355	-1.000		
SBIR/STTR Transfer	-0.405			

(U) **Significant Program Changes:**

FY06: Reduction due to program restructure. Milestone B moved from 1QFY05 to 3QFY06 to accomodate development of Initial Capabilities Document (ICD), Capabilities Development Document (CDD), and update of Analysis of Alternatives (AoA).

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>						PE NUMBER AND TITLE <b>0603860F Joint Precision Approach and Landing Systems - Dem/Val</b>		PROJECT NUMBER AND TITLE <b>4652 Precision Landing Systems</b>		
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
4652 Precision Landing Systems	12.861	16.784	11.211	18.684	18.993	19.535	5.507	5.072	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

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

Joint Precision Approach and Landing System (JPALS) is a joint effort among the USAF, Navy, and Army. The AF is designated as the lead service to develop the common system architecture. JPALS will define the future precision approach and landing system for the Department of Defense (DoD) to provide a joint operational capability for U.S. forces to perform assigned conventional and special operations missions from fixed-base, tactical, shipboard, and special mission environments under a wide range of meteorological conditions. Also, JPALS will enhance DoD's ability to obtain civil interoperability with current and projected Federal Aviation Administration (FAA) and North Atlantic Treaty Organization (NATO) member country landing systems. 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. When complete, this effort will replace aging shipboard and ground-based precision landing systems (Instrument Landing System, Precision Approach Radar, Microwave Landing System, and Instrument Carrier Landing Systems). JPALS will facilitate DoD missions and training by enabling US forces to land on any airfield worldwide (land and sea) under peacetime and hostile conditions. JPALS also decreases the time required for deploying forces to a theater by providing an assured landing capability. JPALS provides increased inter- and intra-theater logistics throughput and the ability to fight at night and in inclement weather. Furthermore, JPALS will provide a precision landing capability where none currently exists. It will enhance interoperability for naval aircraft landing at shore-based fields operated by other services and provide interoperability for the Civil Reserve Air Fleet at DoD airfields, especially in the expeditionary environment. The JPALS Analysis of Alternatives (AOA) reflected Local Area Differential Global Positioning System (LDGPS) as the most promising technology to meet the mission need. Development activities are initially focused on reducing technical risks. First, JPALS will employ quality guidance in the presence of Global Positioning System (GPS) jamming. Second, its architecture will be developed to integrate and synchronize with related Communication, Navigation and Surveillance/Air Traffic Management (CNS/ATM) and GPS modernization initiatives. Third, JPALS will develop and integrate encrypted data links and antenna sets. Finally, JPALS will harmonize with U.S. and international civil satellite navigation and ground navigation systems development. This effort will result in avionics modifications to over 15,000 DoD aircraft. Because JPALS will result in a family of systems, other technologies will be monitored and evaluated such as an Autonomous Landing Capability (ALC) and the FAA local and wide area differential GPS alternatives.

This program is in budget activity 4, Demonstration and Validation, Research Category 6.4B, because supportability and manufacturing process design considerations must be identified and integrated into the precision landing architecture.

**(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 LDGPS test bed	3.396			
(U) Continue aircraft risk (anti-jam) and integration analyses	3.332			
(U) Continue studies and analyses to refine LDGPS architecture	3.823			
(U) Continue modeling & simulation	2.310			
(U) Complete modeling & simulation		2.476		
(U) Complete aircraft risk (anti-jam) and integration analysis		3.932		

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0603860F Joint Precision Approach and Landing Systems - Dem/Val</b>	<b>PROJECT NUMBER AND TITLE</b> <b>4652 Precision Landing Systems</b>
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(U) Continue studies and analyses to refine LDGPS architecture	0.528			
(U) Begin and complete land-based specifications development	4.187			
(U) Begin and complete JPALS common documents development	1.226			
(U) Begin and complete JPALS CONOPS development	0.750			
(U) Begin MS B preparation	0.700			
(U) Begin demonstration system preparation	0.670			
(U) Begin aircraft integration studies	1.515			
(U) Begin test program development	0.800			
(U) Complete MS B preparation		0.275		
(U) Complete demonstration system preparation		0.500		
(U) Complete aircraft integration studies		0.500		
(U) Complete studies and analyses to refine LDGPS architecture		0.100		
(U) Continue test program development		0.775		
(U) Begin development of JPALS ground & air segments		9.061		
(U) Complete test program development			2.064	
(U) Continue development of JPALS ground & air segments			14.799	
(U) Begin demonstration airborne system upgrade			1.821	
(U) Total Cost	12.861	16.784	11.211	18.684

**(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>Complete</u>							
(U) Other APPN										

**(U) D. Acquisition Strategy**

For Demonstration and Validation, award multiple contracts, Time and Materials (T&M), up to Milestone B (Apr 06) followed by a competitive award to single SDD contractor (CPAF).

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Exhibit R-3, RDT&E Project Cost Analysis												DATE February 2005		
BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)					PE NUMBER AND TITLE 0603860F Joint Precision Approach and Landing Systems - Dem/Val					PROJECT NUMBER AND TITLE 4652 Precision Landing 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>													0.000	
NAVY PM and Eng Support	Reimbursable	Navy OMA21381, NAS Pax River, MD	16.421	0.078	Jan-04	0.100	Jan-05	0.105	Jan-06	0.107	Jan-07	Continuing	TBD	TBD
ESC FFRDC Engineering Support	C/CPAF	MITRE Corporation, Bedford, MA	4.121	0.931	Oct-03	1.477	Jan-05	1.099	Jan-06	1.415	Jan-07	0.000	9.043	9.043
Specialized Cost Services	C/IDIQ	MCR, Lexington, MA	0.710	0.323	May-04	0.250	May-05	0.338	May-06	0.086	May-07	Continuing	TBD	TBD
Various LDGPS Technology Development	Various C/T&M	Various ARINC Eng Services, LLC, California, MD	5.625	0.675	Oct-03	11.181	3.988	Dec-03				0.000	6.300	6.300
Initial Capabilities Document (ICD) Prep/Capabilities Description Document (CDD) Prep	C/T&M	Whitney, Bradley & Brown Inc., Vienna, VA		1.100	Sep-04	0.300	Apr-05					0.000	1.400	1.100
Air Force EGI Studies	SS/T&M	Honeywell, Clearwater, FL	1.000	1.357	Jun-04							0.000	2.357	2.357
Common Documents Task	C/T&M	AES, California, MD				1.226	Aug-04					0.000	1.226	2.226
Common Architecture Task	C/T&M	AES, California, MD				0.528	Sep-04					0.000	0.528	1.129
Modeling & Simulation	C/T&M	AES, California, MD				0.769	Jan-05					0.000	0.769	0.769
Finalize Land-Based Specifications	C/T&M	TBD				4.794	Nov-04					0.000	4.794	5.094
POE Software Sizing	C/T&M	TBD				0.500	Apr-05					0.000	0.500	0.500
Develop JPALS CONOPS	C/T&M	TBD				0.750	Feb-05					0.000	0.750	0.750
Aircraft Integration Studies	C/T&M	TBD				1.515	Apr-05					0.000	1.515	1.515
Develop JPALS Ground & Air Segments	TBD	TBD						5.298	May-06	10.331	May-07	Continuing	TBD	TBD
Demonstration Airborne System Upgrade	TBD	TBD								1.821	Jan-07	Continuing	TBD	TBD

Project 4652

R-1 Shopping List - Item No. 55-6 of 55-9

Exhibit R-3 (PE 0603860F)

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Exhibit R-3, RDT&E Project Cost Analysis											DATE <b>February 2005</b>				
BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				PE NUMBER AND TITLE <b>0603860F Joint Precision Approach and Landing Systems - Dem/Val</b>					PROJECT NUMBER AND TITLE <b>4652 Precision Landing Systems</b>						
Subtotal Product Development				39.058	8.452		12.209	6.840		13.760	Continuing	TBD	TBD		
Remarks:															
(U)	<u>Test &amp; Evaluation</u>														
	Responsible Test Organization	Reimburse	Navy-NAWC	1.041							0.000	1.041	1.041		
		ble	AD, NATC, Pax River, MD												
	Flight Test Support	Reimburse	46TG/XPRF, Holloman, NM	0.606	0.512	Mar-04	0.800	Mar-05	0.775	Mar-06	2.064	Mar-07	0.000	4.757	4.757
Subtotal Test & Evaluation				1.647	0.512		0.800		0.775		2.064		0.000	5.798	5.798
Remarks:															
(U)	<u>Management</u>														
	ESC FFRDC	C/T&M	MITRE Corp, Bedford, MA	1.086	0.200	Oct-03	0.285	Jan-05	0.290	Jan-06	0.295	Jan-07	Continuing	TBD	TBD
	Program Management Support	C/T&M	ESC/ITSP II (Various), Bedford, MA	10.426	2.403	May-04	2.203	May-05	1.995	May-06	2.033	May-07	Continuing	TBD	TBD
	GA SPO Operations	Various	Various	0.725	1.294	May-04	1.287	May-05	1.311	May-06	0.532	May-07	Continuing	TBD	TBD
Subtotal Management				12.237	3.897		3.775		3.596		2.860		Continuing	TBD	TBD
Remarks:															
(U)															
	Subtotal			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:															
(U)	Total Cost			52.942	12.861		16.784		11.211		18.684		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603860F Joint Precision Approach and Landing Systems - Dem/Val

PROJECT NUMBER AND TITLE

4652 Precision Landing Systems

Fiscal Year	FY04				FY05				FY06				FY07				FY08				FY09				FY10				FY11											
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4								
Acquisition Milestone							☆				☆																													
ALC Studies	■	■																																						
LDGPS Test Bed	▲																																							
A/C Risk & Integration Analyzes	■	■	■	■	■	■	■	■	■	■	■	■																												
LDGPS Architecture	■	■	■	■	■	■	■	■	■	■	■	■																												
Modeling and Simulation	■	■	■	■	■	■	■	■	■	■	■	■																												
Systems Demonstration & Development													■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■												
Milestone B Preparation																																								
LRIP																																								

☆ Acquisition Strategy Review (ASR)   
 ☆ MS B   
 ★ MS C  
■ Planned Ongoing Activity  
■ Ongoing Activity that is Complete  
▲ Completed Event

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0603860F Joint Precision Approach and Landing Systems - Dem/Val</b>	<b>PROJECT NUMBER AND TITLE</b> <b>4652 Precision Landing Systems</b>
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	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
<b>(U) <u>Schedule Profile</u></b>				
(U) Complete Autonomous Landing Capability (ALC) Studies	1Q			
(U) Complete LDGPS Test Bed Development	2Q			
(U) Begin Milestone B prep work		2Q		
(U) Acquisition Strategy Review (ASR)		3Q		
(U) Complete aircraft risk (anti-jam) and integration analyses			1Q	
(U) Complete LDGPS architecture studies and analyses			1Q	
(U) Complete modeling and simulation			1Q	
(U) Complete Milestone B prep work			2Q	
(U) Milestone B			3Q	
(U) Begin Systems Development and Design (SDD)			3Q	

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PE NUMBER: 0604015F  
 PE TITLE: NEXT GENERATION BOMBER

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>									DATE <b>February 2005</b>	
<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>					<b>PE NUMBER AND TITLE</b> <b>0604015F NEXT GENERATION BOMBER</b>					
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	44.156	29.735	25.135	69.799	182.768	241.170	326.941	440.102	Continuing	TBD
3308 Next Generation Bomber	44.156	29.735	25.135	69.799	182.768	241.170	326.941	440.102	Continuing	TBD

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

This program develops and demonstrates a next generation Long Range Strike capability in support of Air Force Global Strike and Global Persistent Attack Concept of Operations. This program will provide capability improvements in the areas of strike responsiveness, persistence, survivability, lethality, connectivity, and affordability. A wide variety of concept options are being considered for a Long Range Strike air platform. Funding supports Capability Needs Assessment, Analysis of Alternatives, operational and system architectures, maturation and risk reduction of advanced Long Range Strike technologies, and integrated system concept development and demonstration. Note: In FY 2005, Congress added \$30M for Congressional Add Bomber Development. This program is categorized as Budget Activity 4, Advanced Component Development and Prototypes, since advanced technologies will be explored and integrated for demonstration in a realistic operating environment applicable to Long Range Strike.

**(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	44.618	0.000	0.000	0.000
(U) Current PBR/President's Budget	44.156	29.735	25.135	69.799
(U) Total Adjustments	-0.462	29.735		
(U) Congressional Program Reductions				
Congressional Rescissions			-0.265	
Congressional Increases			30.000	
Reprogrammings				
SBIR/STTR Transfer	-0.462			

**(U) Significant Program Changes:**

Congressionally directed program in FY 2004 and FY 2005. In FY 2006 and out, the Air Force added funding to continue next generation Long Range Strike efforts in support of Air Force Concept of Operations.

C. Performance Metrics  
 Under Development.

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>					PE NUMBER AND TITLE <b>0604015F NEXT GENERATION BOMBER</b>			PROJECT NUMBER AND TITLE <b>3308 Next Generation Bomber</b>		
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
3308 Next Generation Bomber	44.156	29.735	25.135	69.799	182.768	241.170	326.941	440.102	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 and demonstrates a next generation Long Range Strike capability in support of Air Force Global Strike and Global Persistent Attack Concept of Operations. This program will provide capability improvements in the areas of strike responsiveness, persistence, survivability, lethality, connectivity, and affordability. A wide variety of concept options are being considered for a Long Range Strike air platform. Funding supports Capability Needs Assessment, Analysis of Alternatives, operational and system architectures, maturation and risk reduction of advanced Long Range Strike technologies, and integrated system concept development and demonstration. Note: In FY 2005, Congress added \$30M for Congressional Add Bomber Development. This program is categorized as Budget Activity 4, Advanced Component Development and Prototypes, since advanced technologies will be explored and integrated for demonstration in a realistic operating environment applicable to Long Range Strike.

**(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: Develop and refine Long Range Strike requirements based on the Air Force Global Strike and Global Persistent Attack Concept of Operations.	0.000	0.000	25.135	69.799
(U) In FY 2004: Not Applicable.				
(U) In FY 2005: Not Applicable.				
(U) In FY 2006: Refine system concepts and operational/system architectures, and prepare Technology Development Strategy. Conduct Analysis of Alternatives to identify preferred Long Range Strike option. Develop radio frequency/electro-optical/infrared sensor technology for rapid and accurate target detection and identification capability. Develop data fusion algorithms and crew interface techniques for multi-platform sensor cueing/management and net-centric operations. Develop blended wing aero-control and structural load databases to characterize aero-propulsive efficiency. Determine large-scale composite airframe manufacturing approaches. Demonstrate acoustic suppression and enhanced weapon separation technology. Develop lightweight thermal structures components for air platform concepts. Conduct small-scale wind tunnel experiments of tailless aero-configurations. Validate performance of engine inlet and nozzle flowpath components for variable cycle propulsion. Demonstrate high temperature engine core components.				
(U) In FY 2007: Continue refinement of system concepts and operational/system architectures, and continue preparation of Technology Development Strategy. Continue Analysis of Alternatives to identify preferred Long Range Strike option. Continue development of radio frequency/electro-optical/infrared sensor technology for rapid and accurate target detection and identification capability. Continue development of data fusion algorithms and crew interface techniques for multi-platform sensor				

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Exhibit R-2a, RDT&E Project Justification		DATE <b>February 2005</b>	
BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	PE NUMBER AND TITLE <b>0604015F NEXT GENERATION BOMBER</b>	PROJECT NUMBER AND TITLE <b>3308 Next Generation Bomber</b>	
<p>cueing/management and net-centric operations. Complete analysis of blended wing aero-control and structural load databases to characterize aero-propulsive efficiency. Complete demonstration of acoustic suppression and enhanced weapon separation technology. Continue development of lightweight thermal structures. Conduct large-scale high fidelity wind tunnel experiments of tailless aero-configurations. Continue to validate performance of engine inlet and nozzle flowpath components and vehicle installation for variable cycle propulsion. Continue demonstration of high temperature engine core components.</p>			
(U)			
(U) CONGRESSIONAL ADD: Next Generation Bomber	44.156	0.000	0.000 0.000
<p>(U) In FY 2004: Prepared Analysis of Alternatives plan and performed Capability Needs Assessment. Performed manufacturing/performance feasibility testing of large-scale composites applicable to common airframes. Identified materials for performance at high temperatures associated with high-speed platforms. Designed engine inlet and nozzle flowpath components for high-speed variable cycle propulsion. Designed high temperature engine core components required for high-speed stealth. Developed fuel-cooled turbine concept for improved range capability of stand off weapons.</p>			
(U) In FY 2005: Not Applicable.			
(U) In FY 2006: Not Applicable.			
(U) In FY 2007: Not Applicable.			
(U)			
(U) CONGRESSIONAL ADD: Bomber Development.	0.000	29.735	0.000 0.000
(U) In FY 2004: Not Applicable.			
<p>(U) In FY 2005: Refine system concepts and operational/system architectures. Perform Joint Capabilities Analysis. Formulate integrated concept for auto-target recognition, data fusion, and crew interface technologies. Test materials and structures for performance at high temperatures associated with high-speed platforms. Develop engine inlet and nozzle flowpath components for high-speed variable cycle propulsion. Develop fuel-cooled turbine components for improved range.</p>			
(U) In FY 2006: Not Applicable.			
(U) In FY 2007: Not Applicable.			
(U) Total Cost	44.156	29.735	25.135 69.799

**Exhibit R-2a, RDT&E Project Justification**

DATE

**February 2005**

BUDGET ACTIVITY

**04 Advanced Component Development and Prototypes (ACD&P)**

PE NUMBER AND TITLE

**0604015F NEXT GENERATION BOMBER**

PROJECT NUMBER AND TITLE

**3308 Next Generation Bomber**

(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>Complete</u>							

(U) PE 63211F, Aerospace  
Technology Dev/Demo.

(U) **D. Acquisition Strategy**

Acquisition strategy will be approved at the Concept Decision.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2005**

BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	PE NUMBER AND TITLE <b>0604015F NEXT GENERATION BOMBER</b>	PROJECT NUMBER AND TITLE <b>3308 Next Generation Bomber</b>
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(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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>Long Range Strike</u>														
Concept Exploration and Refinement	TBD	TBD	0.000	44.156		29.735		25.135		69.799		Continuing	TBD	
Subtotal Long Range Strike			0.000	44.156		29.735		25.135		69.799		Continuing	TBD	0.000
Remarks:														
(U) Total Cost			0.000	44.156		29.735		25.135		69.799		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0604015F NEXT GENERATION BOMBER

PROJECT NUMBER AND TITLE

3308 Next Generation Bomber

Fiscal Year	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 Decision									▲																							
Concept Refinement																																
Milestone A																																
Integrated Concept Development and Demonstration																																

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Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2005

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0604015F NEXT GENERATION  
BOMBER

PROJECT NUMBER AND TITLE

3308 Next Generation Bomber

(U) Schedule Profile

FY 2004

FY 2005

FY 2006

FY 2007

(U) Concept Decision

1Q

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PE NUMBER: 0604327F  
 PE TITLE: Hardened Target Munitions

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0604327F Hardened Target Munitions</b>
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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	9.089	6.327	0.000	0.000	0.000	0.000	0.000	0.000	0.000	22.425
4641 Hard and Deeply Buried Target Defeat System (HDBTDS)	9.089	6.327	0.000	0.000	0.000	0.000	0.000	0.000	0.000	22.425

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

This program is an effort designed to hold at risk those highest priority assets essential to the enemy's war fighting ability, which are heavily defended and protectively hardened. The Air Force is improving capability to attack hardened and/or deeply buried targets during adverse environmental conditions. The performance of the current 4,700-lb BLU-122, used on the GBU-28 GPS/laser-guided bomb, is being greatly enhanced through the design modification of the BLU-122 warhead, improving its penetration, lethality, and survivability. This modification will increase the number of deeply buried targets held at risk. In addition, some existing targets held at risk will require fewer weapons, therefore reducing the number of missions necessary to defeat a target. The MIL-STD 1760 conduit will also be extended to connect the guidance system to the fuze to support a future in-flight fuze reprogramming capability. The existing GBU-28 B/B--B-2 interface will be maintained and the GBU-28 will also be integrated onto the F-15E through the Joint Direct Attack Munition (JDAM) Smart Unknown Weapon Interface. This program was a NEW START in FY03. The program is in Budget Activity 04 (BA 04) because the program will develop and demonstrate a hard target munition capability to defeat hard and deeply buried targets not currently held at risk. This program enters initial production during the last two quarters of FY05.

**(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	9.551	6.383	0.000	0.000
(U) Current PBR/President's Budget	9.089	6.327	0.000	0.000
(U) Total Adjustments	-0.462	-0.056		
(U) Congressional Program Reductions	0.000	-0.056		
Congressional Rescissions	0.000	0.000		
Congressional Increases	0.000	0.000		
Reprogrammings	-0.173	0.000		
SBIR/STTR Transfer	-0.289	0.000		

**(U) Significant Program Changes:**

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>					PE NUMBER AND TITLE <b>0604327F Hardened Target Munitions</b>			PROJECT NUMBER AND TITLE <b>4641 Hard and Deeply Buried Target Defeat System (HDBTDS)</b>		
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
4641 Hard and Deeply Buried Target Defeat System (HDBTDS)	9.089	6.327	0.000	0.000	0.000	0.000	0.000	0.000	0.000	22.425
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

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

This program is an effort designed to hold at risk those highest priority assets essential to the enemy's war fighting ability, which are heavily defended and protectively hardened. The Air Force is improving capability to attack hardened and/or deeply buried targets during adverse environmental conditions. The performance of the current 4,700-lb BLU-122, used on the GBU-28 GPS/laser-guided bomb, is being greatly enhanced through the design modification of the BLU-122 warhead, improving its penetration, lethality, and survivability. This modification will increase the number of deeply buried targets held at risk. In addition, some existing targets held at risk will require fewer weapons, therefore reducing the number of missions necessary to defeat a target. The MIL-STD 1760 conduit will also be extended to connect the guidance system to the fuze to support a future in-flight fuze reprogramming capability. The existing GBU-28 B/B--B-2 interface will be maintained and the GBU-28 will also be integrated onto the F-15E through the Joint Direct Attack Munition (JDAM) Smart Unknown Weapon Interface. This program was a NEW START in FY03. The program is in Budget Activity 04 (BA 04) because the program will develop and demonstrate a hard target munition capability to defeat hard and deeply buried targets not currently held at risk. This program enters initial production during the last two quarters of FY05.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Design warhead, integrate explosive and upgrade case material	0.638	0.404		
(U) Weapon system and aircraft integration	2.919	0.925		
(U) Plan, prepare, and test for redesigned of warhead	3.784	4.471		
(U) Perform field agency activities, including project office and computer support to manage the Hardened Target Munitions program	0.356	0.260		
(U) System Engineering and Technical Analysis (SETA) support including independent analysis and evaluation of prototype warhead designs	1.392	0.267		
(U) Total Cost	9.089	6.327	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>Complete</u>							
(U) Procurement of Ammunition, Air Force (PE 0208030F)		19.600	32.000	32.000					0.000	83.600

**(U) D. Acquisition Strategy**

The warhead design contract was awarded competitively and the weapon system modification and integration contract was awarded sole source because the GBU-28 was developed at contractor expense and the government does not own the technical data package.

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Exhibit R-3, RDT&E Project Cost Analysis												DATE February 2005		
BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)					PE NUMBER AND TITLE 0604327F Hardened Target Munitions					PROJECT NUMBER AND TITLE 4641 Hard and Deeply Buried Target Defeat System (HDBTDS)				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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 Dynamics Ordnance and Tactical Systems	CPFF/PI	Niceville, FL	4.414	0.638		0.404						0.000	5.456	5.720
Raytheon Company	T&M	Tucson, AZ	0.317	0.015								0.000	0.332	0.332
Raytheon Company	CPIF	Tucson, AZ	0.915	2.761	Jan-04	0.925							4.601	4.953
Subtotal Product Development			5.646	3.414		1.329		0.000		0.000		0.000	10.389	11.005
Remarks:	Contract award to General Dynamics in June 2003													
(U) <u>Support</u>														
Laboratory Support (AFRL Eglin AFB,FL)			0.500	0.000		0.000							0.500	
Air Armament Center SPO (AAC/YU)	MIPR	Various	0.159	0.356		0.260						0.000	0.775	
Warhead Pallets (AAC/YEC Eglin AFB, FL)	Various	Eglin AFB, FL	0.000	0.143		0.000						0.000	0.143	
Support Contracts	AFMC Form 277	Eglin AFB, FL	0.127	1.392	Oct-03	0.267	Oct-04					0.000	1.786	
Subtotal Support			0.786	1.891		0.527		0.000		0.000		0.000	3.204	0.000
Remarks:														
(U) <u>Test &amp; Evaluation</u>														
Eglin Ground Test Support			0.017	1.322		0.463								1.802
Eglin Flight Test Support	AFMC Form 277	Eglin AFB, FL	0.000	0.494	Jun-04	1.559	Dec-04					0.000	2.053	
Defense Threat Reduction Agency (DTRA)	MIPR	White Sands Missile Range, NM	0.150	0.218	Jul-04	0.000	Dec-04					0.000	0.368	
B-2 SPO	MIPR	Edwards AFB, CA	0.000	0.874		1.424							2.298	
Applied Research Associates - Test Design Support	MIPR	Albuquerque, NM	0.360	0.000		0.000							0.360	
Naval Weapons Center - Arena and IM Testing	MIPR	China Lake, CA	0.000	0.349		0.000							0.349	
B-2 System Program Office (SPO)/SK Test Support	MIPR	Wright Patterson AFB, OH	0.050	0.527		1.025							1.602	
Subtotal Test & Evaluation			0.577	3.784		4.471		0.000		0.000		0.000	8.832	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			7.009	9.089		6.327		0.000		0.000		0.000	22.425	11.005
Project 4641	R-1 Shopping List - Item No. 57-4 of 57-6												Exhibit R-3 (PE 0604327F)	

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

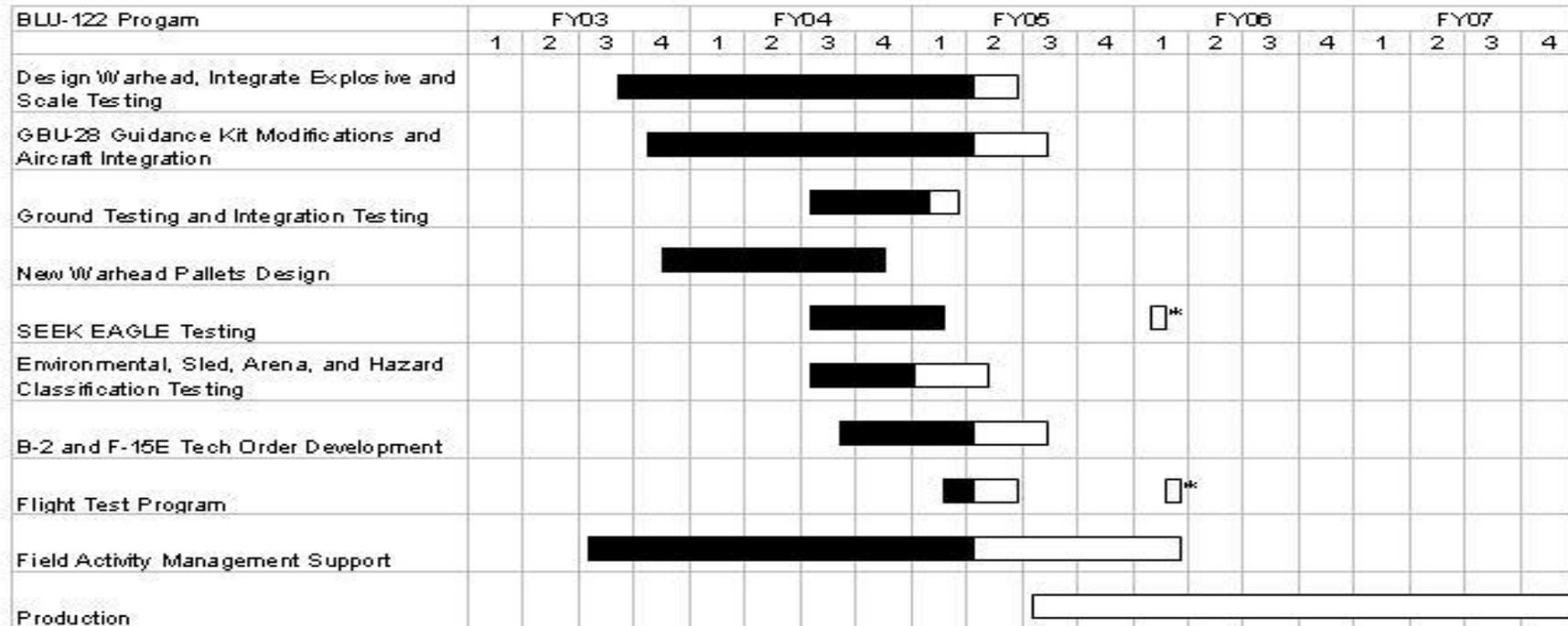
PE NUMBER AND TITLE

0604327F Hardened Target Munitions

PROJECT NUMBER AND TITLE

4641 Hard and Deeply Buried Target Defeat System (HDBTDS)

# BLU-122 Program



\*B-2 Flight Test Demo Delayed until 1QFY06.

As Of: Jan 05

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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0604327F Hardened Target Munitions</b>	<b>PROJECT NUMBER AND TITLE</b> <b>4641 Hard and Deeply Buried Target Defeat System (HDBTDS)</b>
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<b>(U) <u>Schedule Profile</u></b>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Design Warhead, Integrate Explosive and Scale Testing (3Q FY03)		1-2Q		
(U) GBU-28 Guidance Kit Modifications and Aircraft Integration (4Q FY03)		1-3Q		
(U) Ground Testing and Integration Testing	3Q	1Q		
(U) New Warhead Pallets Design (4Q FY03)	1Q			
(U) B-2 SEEK EAGLE Testing*			1Q	
(U) Environmental, Sled, Arena, and Hazard Classification Testing	3Q	1-2Q		
(U) B-2 and F-15E Tech Order Development	3Q	1-2Q		
(U) Flight Test Program**		1-4Q	1Q	
(U) Field Activity Management Support (3Q FY03) Production 3Q FY2005 through 4Q FY2007		1-4Q	1Q	

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PE NUMBER: 0604400F

PE TITLE: Joint Unmanned Combat Air System (J-UCAS)

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0604400F Joint Unmanned Combat Air System (J-UCAS)</b>
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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	272.300	400.100	554.100	780.500	955.200	1,064.100	0.000	0.000
5058 Unmanned Combat Air Vehicle (UCAV)	0.000	0.000	272.300	400.100	554.100	780.500	955.200	1,064.100	0.000	0.000

Note: In FY06 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.

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

The Joint Unmanned Combat Air Systems (J-UCAS) program is a joint effort to develop and demonstrate unmanned combat capabilities for high-threat Suppression of Enemy of Air Defense (SEAD), Information Operations/ Electronic Attack, Persistent Intelligence, Surveillance, Reconnaissance (ISR), and persistent ground attack missions within the emerging global command and control architecture for the warfighting community. The program is focused on demonstrating capabilities that support both Services and enable an operational system development decision by the end of the decade.

FY04 program guidance established the J-UCAS Program Office and funding for both Air Force (PEs 0207256F and 0604731F) and Navy (PE 0603114N) programs. Efforts previously conducted under the DARPA/Air Force and DARPA/Navy programs were combined into the J-UCAS program. FY05 program guidance directed FY05 and outyear funding for DARPA and both Services moved into Defense-wide Program Elements (0603400D8Z and 0604400D8Z). FY06 program guidance directed a reduction of funds in FY06-FY09, an increase in FY10/11, and realignment of funds from OSD to Air Force (PEs 0603400F and 0604400F).

The J-UCAS program combines and expands the efforts that were previously conducted under the DARPA/Air Force Unmanned Combat Air Vehicle (UCAV) program and the DARPA/Navy Naval UCAV (UCAV-N) program. Although these efforts were targeted towards service-specific needs, the Department recognized the potential for significant synergy by combining the programs. The accomplishments and ongoing efforts of the X-45A technology demonstrator, as well as the development of the X-47A demonstrator, are reducing the risk of the "operationalized" demonstration system being developed for a joint early operational assessment (OA) planned for the FY07-10 timeframe. The J-UCAS concept incorporates the next generation family of demonstrator air vehicles, together with common subsystems (e.g. sensors, payloads, communications) and a Common Operating System to achieve the system's diverse mission functionality. These common system elements will maximize mission flexibility and operational versatility while reducing overall costs and maintaining schedule toward a joint early OA.

This is a BA 04 program, Advanced Component Development and Prototypes, for development of the common systems and technologies as well as the Boeing and Northrop Grumman demonstrator programs. These funds will also cover the cost of conducting the joint operational assessment, including modeling, simulation, and flight testing.

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2005

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0604400F Joint Unmanned Combat Air System (J-UCAS)

(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	272.300	400.100
(U) Total Adjustments	0.000	0.000		
(U) Congressional Program Reductions				
Congressional Rescissions				
Congressional Increases				
Reprogrammings				
SBIR/STTR Transfer				

(U) **Significant Program Changes:**

FY06: 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.

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				<b>PE NUMBER AND TITLE</b> <b>0604400F Joint Unmanned Combat Air System (J-UCAS)</b>				<b>PROJECT NUMBER AND TITLE</b> <b>5058 Unmanned Combat Air Vehicle (UCAV)</b>			
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	
5058 Unmanned Combat Air Vehicle (UCAV)	0.000	0.000	272.300	400.100	554.100	780.500	955.200	1,064.100	0.000	0.000	
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0			

Note: In FY06 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.

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

The Joint Unmanned Combat Air Systems (J-UCAS) program is a joint effort to develop and demonstrate unmanned combat capabilities for high-threat Suppression of Enemy of Air Defense (SEAD), Information Operations/ Electronic Attack, Persistent Intelligence, Surveillance, Reconnaissance (ISR), and persistent ground attack missions within the emerging global command and control architecture for the warfighting community. The program is focused on demonstrating capabilities that support both Services and enable an operational system development decision by the end of the decade.

FY04 program guidance established the J-UCAS Program Office and funding for both Air Force (PEs 0207256F and 0604731F) and Navy (PE 0603114N) programs. Efforts previously conducted under the DARPA/Air Force and DARPA/Navy programs were combined into the J-UCAS program. FY05 program guidance directed FY05 and outyear funding for DARPA and both Services moved into Defense-wide Program Elements (0603400D8Z and 0604400D8Z). FY06 program guidance directed a reduction of funds in FY06-FY09, an increase in FY10/11, and realignment of funds from OSD to Air Force (PEs 0603400F and 0604400F).

The J-UCAS program combines and expands the efforts that were previously conducted under the DARPA/Air Force Unmanned Combat Air Vehicle (UCAV) program and the DARPA/Navy Naval UCAV (UCAV-N) program. Although these efforts were targeted towards service-specific needs, the Department recognized the potential for significant synergy by combining the programs. The accomplishments and ongoing efforts of the X-45A technology demonstrator, as well as the development of the X-47A demonstrator, are reducing the risk of the "operationalized" demonstration system being developed for a joint early operational assessment (OA) planned for the FY07-10 timeframe. The J-UCAS concept incorporates the next generation family of demonstrator air vehicles, together with common subsystems (e.g. sensors, payloads, communications) and a Common Operating System to achieve the system's diverse mission functionality. These common system elements will maximize mission flexibility and operational versatility while reducing overall costs and maintaining schedule toward a joint early OA.

This is a BA 04 program, Advanced Component Development and Prototypes, for development of the common systems and technologies as well as the Boeing and Northrop Grumman demonstrator programs. These funds will also cover the cost of conducting the joint operational assessment, including modeling, simulation, and flight 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) Continue development of J-UCAS systems, specifically the Boeing and Northrop Grumman demonstrator programs, as well as the common operating system and sensors			272.300	400.100
(U) Prepare for joint Operational Assessment (OA)				

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0604400F Joint Unmanned Combat Air System (J-UCAS)</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5058 Unmanned Combat Air Vehicle (UCAV)</b>
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(U)					
(U) Total Cost		0.000	0.000	272.300	400.100

(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) DARPA (PE0603285E)	41.385	0.000	0.000	0.000	0.000	0.000	0.000	0.000		
(U) NAVY RDT&E (PE0603114N)	117.865	0.000	0.000	0.000	0.000	0.000	0.000	0.000		
(U) AF RDT&E (PE0604731F)	160.551	0.000	0.000	0.000	0.000	0.000	0.000	0.000		
(U) AF RDT&E (PE0207256F)	2.300	0.000	0.000	0.000	0.000	0.000	0.000	0.000		
(U) Defense-Wide RDT&E (PE0603400D8Z)	0.000	354.794	0.000	0.000	0.000	0.000	0.000	0.000		
(U) Defense-Wide RDT&E (PE0604400D8Z)	0.000	217.401	0.000	0.000	0.000	0.000	0.000	0.000		
(U) AF RDT&E (PE0603400F)	0.000	0.000	77.800	0.000	0.000	0.000	0.000	0.000		

(U) **D. Acquisition Strategy**

The J-UCAS Advanced Component and Prototype Development acquisition strategy is to build on the work being conducted under PE 0603400D8Z (J-UCAS Advanced Technology Development and Risk Reduction) and prove the operational value of the J-UCAS concept in the joint operational assessment. The J-UCAS program blends the advantages of both the Advanced Technology Demonstration (ATD) and the Advanced Concept Technology Demonstration (ACTD) concepts to facilitate rapid development and integration of advanced technologies in an experimental system that addresses operational needs. Using the next generation of demonstrator air vehicle families, together with common subsystems and a Common Operating System, this nontraditional approach also incorporates key acquisition considerations (i.e., user requirements, comprehensive system lifecycle perspective, and rigorous risk mitigation processes) to provide the necessary insights, operational data and identified options for the services to make an informed decision for accelerated acquisition near the end of the decade.

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Exhibit R-3, RDT&E Project Cost Analysis											DATE <b>February 2005</b>			
BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>						PE NUMBER AND TITLE <b>0604400F Joint Unmanned Combat Air System (J-UCAS)</b>					PROJECT NUMBER AND TITLE <b>5058 Unmanned Combat Air Vehicle (UCAV)</b>			
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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> X-45; X-47; Common Operating System Integrator/Broker	Section 845, OTA Agreement	Boeing Phantom Works, St. Louis, MO; Northrop Grumman, El Segundo, CA; Johns Hopkins Applied Physics Lab, Balt. MD.						272.300		400.100			672.400	
Subtotal Product Development			0.000	0.000		0.000		272.300		400.100		0.000	672.400	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 &amp; 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>(U) Total Cost</u>			0.000	0.000		0.000		272.300		400.100		0.000	672.400	0.000

## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0604400F Joint Unmanned Combat  
Air System (J-UCAS)

PROJECT NUMBER AND TITLE

5058 Unmanned Combat Air Vehicle  
(UCAV)

N/A -- These funds cover the development of the common systems and technologies as well as the Boeing and Northrop Grumman demonstrator programs. In addition, these funds cover the cost of conducting the joint operational assessment, including modeling, simulation, and flight testing.

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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>		DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0604400F Joint Unmanned Combat Air System (J-UCAS)</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5058 Unmanned Combat Air Vehicle (UCAV)</b>
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<b>(U) <u>Schedule Profile</u></b>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) J-UCAS Demonstrator Development Begins	1Q			
(U) Common System Development Begins	3Q			
(U) X-45A Flight Demonstrations Conclude		2Q		
(U) Common Operating System Build 0			1Q	
(U) Joint Operational Assessment Begins				4Q

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PE NUMBER: 0604855F  
 PE TITLE: Operationally Responsive Launch

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>									<b>DATE</b> <b>February 2005</b>	
<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>					<b>PE NUMBER AND TITLE</b> <b>0604855F Operationally Responsive Launch</b>					
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	21.544	33.068	23.480	35.504	41.321	74.924	76.327	77.411	Continuing	TBD
A013 Small Launch Vehicle	21.544	33.068	23.480	35.504	41.321	74.924	76.327	77.411	Continuing	TBD

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

The 2002 Operationally Responsive Spacelift (ORS) Mission Needs Statement (MNS) established the requirement for responsive, on-demand access to, through and from space. This requirement encompasses the spacelift missions of delivering payloads to, or from, mission orbit and changing the orbit of existing systems to better satisfy new mission requirements. It also requires on-demand, flexible, and cost effective operations.

In December 2002 the DepSecDef directed the Air Force and the Defense Advanced Research Projects Agency (DARPA) to establish a joint program office to accelerate the Operationally Responsive Space (ORS) effort to meet portions of this requirement. This joint technology development program has been named Falcon and is focused on the development and transition of more mature technologies into a future weapon system capable of delivering and deploying conventional payloads worldwide from and through space such as Joint Warfighting Space satellites. Concept development, risk reduction and technology maturation are the key elements in the ORS program; and demonstrations, modeling and simulations are the critical tools. Although Falcon is a joint program, the Air Force is funding the ORS portion; DARPA is sharing the Hypersonic Technology Vehicle costs with the Air Force.

In July 2004 the Air Force Requirements for Operational Capabilities Council (AFROCC) reviewed the ORS Analysis of Alternatives (AoA), and approved the following recommendations: (1.) Leverage lessons learned from AF-DARPA Falcon demo (2.) Conduct Architecture Studies -- Responsive spacecraft: size and functions study, -- Integration and technology needs (3.) Pursue a Hybrid (part reusable, part expendable) launch vehicle: spiral development approach, Step one: Small scale hybrid integration demonstrator, Step two: Full scale operational hybrid demonstrator, Step three: Vehicle production /operations. The AoA evolutionary approach begins with a starting point Hybrid Demonstrator to reduce risk and uncertainties.

This program is Budget Activity 4, Advanced Component Development and Prototypes (ACDP), because it involves evaluating integrated technologies in as realistic an operating environment as possible to assess the performance or cost reduction potential of advanced technology.

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2005

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0604855F Operationally Responsive Launch

(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	25.844	35.362	23.354	35.484
(U) Current PBR/President's Budget	21.544	33.068	23.480	35.504
(U) Total Adjustments	-4.300	-2.294		
(U) Congressional Program Reductions		-5.000		
Congressional Rescissions		-0.294		
Congressional Increases		3.000		
Reprogrammings	-4.300			
SBIR/STTR Transfer				

(U) **Significant Program Changes:**

FY04: \$4.3M reallocated to higher DoD priorities; FY05: Congressional adjustments of +\$2M for Blue MAJIC, +\$1M for Advanced Rocket Components, and -\$5M program reduction

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2005

BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>							PE NUMBER AND TITLE <b>0604855F Operationally Responsive Launch</b>		PROJECT NUMBER AND TITLE <b>A013 Small Launch Vehicle</b>	
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
A013 Small Launch Vehicle	21.544	33.068	23.480	35.504	41.321	74.924	76.327	77.411	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

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

The 2002 Operationally Responsive Spacelift (ORS) Mission Needs Statement (MNS) established the requirement for responsive, on-demand access to, through and from space. This requirement encompasses the spacelift missions of delivering payloads to, or from, mission orbit and changing the orbit of existing systems to better satisfy new mission requirements. It also requires on-demand, flexible, and cost effective operations.

In December 2002 the DepSecDef directed the Air Force and the Defense Advanced Research Projects Agency (DARPA) to establish a joint program office to accelerate the Operationally Responsive Space (ORS) effort to meet portions of this requirement. This joint technology development program has been named Falcon and is focused on the development and transition of more mature technologies into a future weapon system capable of delivering and deploying conventional payloads worldwide from and through space such as Joint Warfighting Space satellites. Concept development, risk reduction and technology maturation are the key elements in the ORS program; and demonstrations, modeling and simulations are the critical tools. Although Falcon is a joint program, the Air Force is funding the ORS portion; DARPA is sharing the Hypersonic Technology Vehicle costs with the Air Force.

In July 2004 the Air Force Requirements for Operational Capabilities Council (AFROCC) reviewed the ORS Analysis of Alternatives (AoA), and approved the following recommendations: (1.) Leverage lessons learned from AF-DARPA Falcon demo (2.) Conduct Architecture Studies -- Responsive spacecraft: size and functions study, -- Integration and technology needs (3.) Pursue a Hybrid (part reusable, part expendable) launch vehicle: spiral development approach, Step one: Small scale hybrid integration demonstrator, Step two: Full scale operational hybrid demonstrator, Step three: Vehicle production /operations. The AoA evolutionary approach begins with a starting point Hybrid Demonstrator to reduce risk and uncertainties.

This program is Budget Activity 4, Advanced Component Development and Prototypes (ACDP), because it involves evaluating integrated technologies in as realistic an operating environment as possible to assess the performance or cost reduction potential of advanced technology.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Initiated SLV system definition, systems engineering and flight test planning for Phase I	3.490			
(U) Initiate SLV system design and development, systems engineering and flight test planning for Phase II	8.140	22.196	21.000	10.500
(U) Initiate Phase III flight tests				3.020
(U) Support early demonstration flights and launch/test facilities evaluation and improvement	6.254	5.804		
(U) Modified Space Launch Complex-3W at Vandenberg AFB, CA	1.700			
(U) Perform analysis, costing and assess utility for operationally responsive space concepts/requirements and Program Management support	1.960	2.068	2.480	2.947
(U) Begin Hybrid Launch vehicle development				19.037
(U) Blue MAJIC		2.000		

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0604855F Operationally Responsive Launch</b>	<b>PROJECT NUMBER AND TITLE</b> <b>A013 Small Launch Vehicle</b>
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(U) Advanced Rocket Components		1.000		
(U) Total Cost	21.544	33.068	23.480	35.504

(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>Complete</u>							
(U) AF RDT&E, PE 0604856F, CAV (R-61) Defensewide RDT&E,		17.025	16.464	27.394	32.529	31.651	39.756	92.711	94.074	Continuing	TBD
(U) DARPA, PE 0603285E, Falcon		17.500	12.500	40.000						Continuing	TBD
(U) NASA funding provided to support multiple contractors		0.350	2.000								2.350

(U) **D. Acquisition Strategy**

Efforts will be executed by the joint AF/DARPA Falcon Program Office. Nine Phase I contracts were awarded in November 2003, Firm Fixed Price (FFP) with a duration of 6 months. An open competition was held for Phase II contracts in August 04, resulting in four awards in September 04 using an Other Transactions contract vehicle. At the completion of Phase II, a third phase will be considered to conduct additional developmental flight testing.

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2005**

<b>BUDGET ACTIVITY</b>	<b>PE NUMBER AND TITLE</b>	<b>PROJECT NUMBER AND TITLE</b>
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>0604855F Operationally Responsive Launch</b>	<b>A013 Small Launch Vehicle</b>

(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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) <u>Product Development</u>														
Nine Phase I contractors	FFP	various		3.490	Nov-03								3.490	3.490
Phase II contractors:														
Air Launch	OTA	Reno, NV		4.140	Sep-04	2.000	Sep-05	21.000	Oct-05	10.500	Oct-06	Continuing	TBD	TBD
Lockheed Martin	OTA	New Orleans, LA			Sep-04	6.083	Oct-04					Continuing	TBD	TBD
Microcosm	OTA	El Segundo			Sep-04	4.540	Oct-04					Continuing	TBD	TBD
Space-X	OTA	El Segundo		4.000	Sep-04	4.000	Oct-04					Continuing	TBD	TBD
TBD Phase III contractors	TBD	TBD								3.020	Aug-07	Continuing	TBD	TBD
Hybrid Design and Development	TBD	TBD								19.037	Dec-06		19.037	
Subtotal Product Development			0.000	11.630		22.196		21.000		32.557		Continuing	TBD	TBD
Remarks:														
(U) <u>Test &amp; Evaluation</u>														
Test Stand 2A Modification	MIPR	Edwards AFB, CA				3.804	Jan-05						3.804	3.804
Range Services	MIPR	Army-Huntsville, AL				2.000	Mar-05					Continuing	TBD	TBD
Flight Demo Support	MIPR	SMC Det 12/RP/Kirtland AFB NM		6.254	Apr-04							Continuing	TBD	TBD
SLC-3W Modification	MIPR	Naval Research Lab/Wash DC		1.700	Jun-04								1.700	1.700
Blue MAJIC	TBD	TBD				2.000	Mar-05						2.000	2.000
Advanced Rocket Components	TBD	TBD				1.000	Mar-05						1.000	1.000
Subtotal Test & Evaluation			0.000	7.954		8.804		0.000		0.000		Continuing	TBD	TBD
Remarks:														
(U) <u>Development Support and Management</u>														
Perform analysis and assess alternative concepts/requirements & program support	various	various		1.960	Feb-04	2.068	Oct-04	2.480	Oct-05	2.947	Oct-06	Continuing	TBD	TBD
Subtotal Development Support and Management			0.000	1.960		2.068		2.480		2.947		Continuing	TBD	TBD
Remarks:														
(U) Total Cost			0.000	21.544		33.068		23.480		35.504		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY  
04 Advanced Component Development and Prototypes (ACD&P)

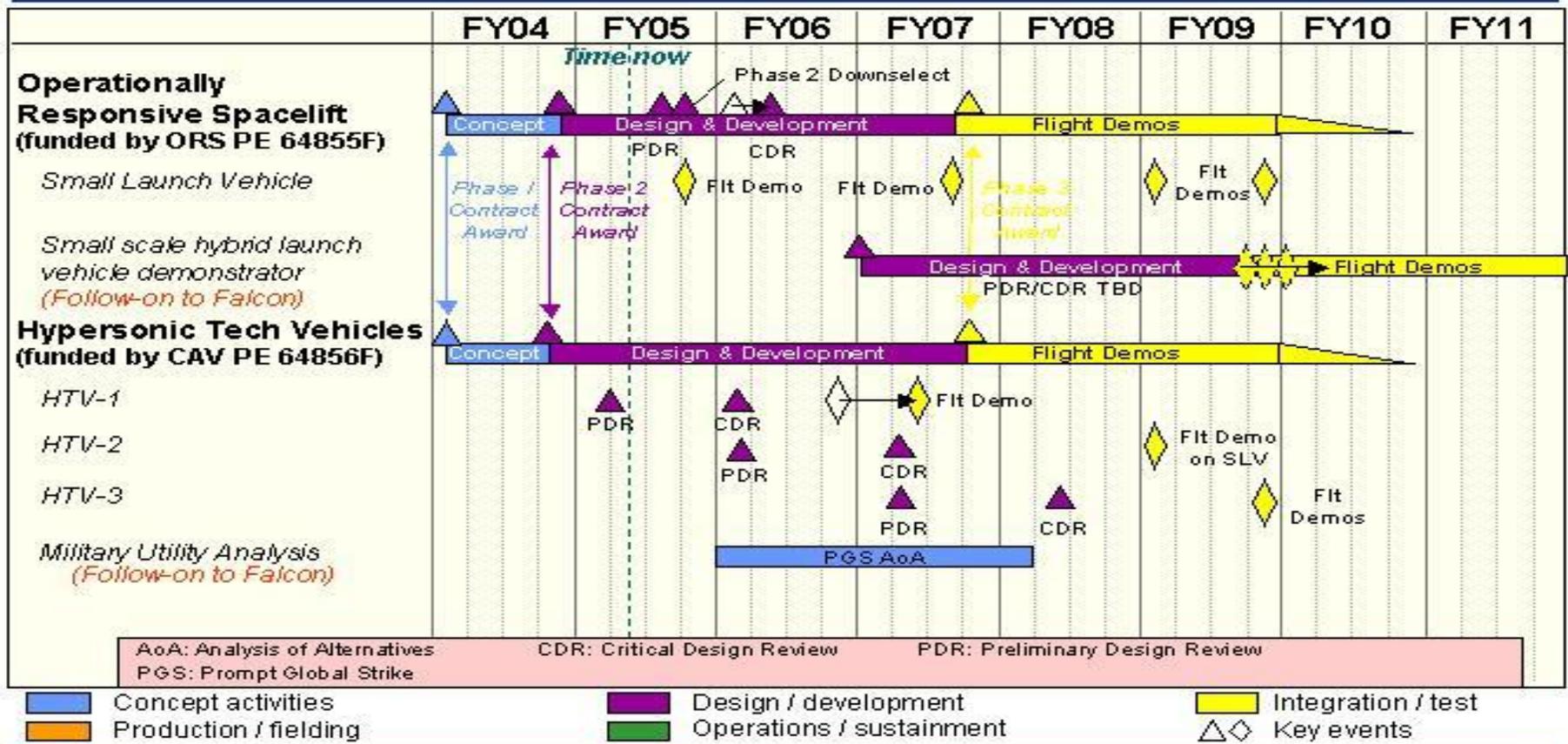
PE NUMBER AND TITLE  
0604855F Operationally Responsive Launch

PROJECT NUMBER AND TITLE  
A013 Small Launch Vehicle



# ORS/CAV Schedule

U.S. AIR FORCE



FY06 Staffer Brief

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2005</b>
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BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	PE NUMBER AND TITLE <b>0604855F Operationally Responsive Launch</b>	PROJECT NUMBER AND TITLE <b>A013 Small Launch Vehicle</b>
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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 Definition (Phase I)	1-4Q			
(U) Design and Development (Phase II) Contract Award	4Q			
(U) Phase II Preliminary Design Review		3Q		
(U) Phase II Critical Design Review			2Q	
(U) Phase II Test Launch		4Q		3Q
(U) Phase II Contract Complete				4Q
(U) Flight Demonstrations (Phase III) Contract Award				1Q
(U) Hybrid Design and Development Contract Award				1Q

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0604856F Common Aero Vehicle</b>
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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	17.025	16.464	27.394	32.529	31.651	39.756	92.711	94.074	Continuing	TBD
A012 Common Aerospace Vehicle	17.025	16.464	27.394	32.529	31.651	39.756	92.711	94.074	Continuing	TBD

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

The Prompt Global Strike (PGS) Mission Needs Statement (MNS) established the requirement for rapid conventional strike worldwide to counter the proliferation of weapons of mass destruction and provide a forward presence without forward deployment. In December 2002 the DepSecDef directed the Air Force and Defense Advanced Research Projects Agency (DARPA) to establish a joint program office to accelerate the Common Aero Vehicle (CAV) effort to meet this requirement. This joint program has been named Falcon and was focused on the development and transition of more mature technologies into a future weapon system capable of delivering and deploying conventional payloads worldwide from and through space. As a result of FY05 Congressional language, the Falcon portion of the CAV program was restructured by DARPA and the Air Force to ensure it meets the intent of Congress. Within the Falcon program, CAV has been redesignated the Hypersonic Technology Vehicle and all weaponization activities have been excluded from Falcon.

This program is Budget Activity 4, Advanced Component Development and Prototypes (ACDP), because it involves evaluating integrated technologies in as realistic an operating environment as possible to assess the performance or cost reduction potential of advanced technology.

**(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	17.025	21.610	27.247	32.564
(U) Current PBR/President's Budget	17.025	16.464	27.394	32.529
(U) Total Adjustments	0.000	-5.146		
(U) Congressional Program Reductions		-10.000		
Congressional Rescissions		-0.146		
Congressional Increases		5.000		
Reprogrammings				
SBIR/STTR Transfer				

**(U) Significant Program Changes:**

FY05 Congressional reduction: Net -\$5.0M. \$10M plus up, -\$5M reduction and directed that no funds be used to develop, integrate or test a CAV variant that includes weapons, nor use CAV on an Intercontinental Ballistic Missile or Submarine Launched Ballistic Missile. Congressional language stated that Congress will consider expanding this program if safeguards are negotiated among our international partners. The CAV portion was restructured to meet Congress' intent and redesignated Hypersonic Technology Vehicle (HTV) which excludes weaponization of CAV.

Exhibit R-2a, RDT&E Project Justification

DATE  
February 2005

BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>							PE NUMBER AND TITLE <b>0604856F Common Aero Vehicle</b>		PROJECT NUMBER AND TITLE <b>A012 Common Aerospace Vehicle</b>	
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
A012 Common Aerospace Vehicle	17.025	16.464	27.394	32.529	31.651	39.756	92.711	94.074	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

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

The Prompt Global Strike (PGS) Mission Needs Statement (MNS) established the requirement for rapid conventional strike worldwide to counter the proliferation of weapons of mass destruction and provide a forward presence without forward deployment. In December 2002 the DepSecDef directed the Air Force and Defense Advanced Research Projects Agency (DARPA) to establish a joint program office to accelerate the Common Aero Vehicle (CAV) effort to meet this requirement. This joint program has been named Falcon and was focused on the development and transition of more mature technologies into a future weapon system capable of delivering and deploying conventional payloads worldwide from and through space. As a result of FY05 Congressional language, the Falcon portion of the CAV program was restructured by DARPA and the Air Force to ensure it meets the intent of Congress. Within the Falcon program, CAV has been redesignated the Hypersonic Technology Vehicle and all weaponization activities have been excluded from Falcon.

This program is Budget Activity 4, Advanced Component Development and Prototypes (ACDP), because it involves evaluating integrated technologies in as realistic an operating environment as possible to assess the performance or cost reduction potential of advanced technology.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Initiated CAV system definition, systems engineering and flight test planning for Phase I	4.293			
(U) Continue Hypersonic Technology Vehicle (HTV) system design and development, systems engineering and flight test planning/support for Phase II	3.000	11.464	23.147	13.250
(U) Initiate HTV systems engineering and flight test planning/support for Phase III				13.553
(U) Supported early CAV/penetrator demonstration flights	3.000			
(U) Perform analysis and assess alternative HTV concepts/requirements and program management support	4.232	5.000		
(U) Perform Prompt Global Strike Analysis of Alternatives			4.247	5.726
(U) Prepared hypersonics test corridor	0.500			
(U) Developed critical CAV technology	2.000			
(U) Total Cost	17.025	16.464	27.394	32.529

(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, PE 0604855F, ORL (R-60)	21.544	33.068	23.480	35.504	41.321	74.924	76.327	77.411	Continuing	TBD
(U) Other APPN										
(U) Defensewide RDT&E, DARPA, PE 0603285E,	17.500	12.500	40.000						Continuing	TBD

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2005

BUDGET ACTIVITY

**04 Advanced Component Development and Prototypes (ACD&P)**

PE NUMBER AND TITLE

**0604856F Common Aero Vehicle**

PROJECT NUMBER AND TITLE

**A012 Common Aerospace Vehicle****(U) C. Other Program Funding Summary (\$ in Millions)**

Falcon

**(U) D. Acquisition Strategy**

Efforts will be executed by the joint AF/DARPA Falcon Program Office. Four Phase I contracts were awarded in November 2003, Other Transaction Agreements, with a duration of 6 months. A downselect between the four Phase I contractors occurred in August 2004 for Phase II with a single 36 month award using an Other Transaction Agreements contract vehicle. Phase II develops and launches the first HTV. Phase III is scheduled for one contractor with award set for 4QtrFY07. Phase III will fabricate and launch the succeeding HTV demonstrations in the Falcon program.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2005**

BUDGET ACTIVITY										PE NUMBER AND TITLE		PROJECT NUMBER AND TITLE			
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>										<b>0604856F Common Aero Vehicle</b>		<b>A012 Common Aerospace Vehicle</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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>															
Four Phase I contracts	OTA	various		4.293	Nov-03								4.293	4.293	
Phase II contract	OTA	Lockheed-Martin, Palmdale, CA		3.000	Aug-04	11.464	Feb-05	23.147	Dec-05	13.250	Oct-06		50.861	50.860	
Phase III contract	TBD	TBD								13.553		Continuing	TBD	TBD	
Subtotal Product Development			0.000	7.293		11.464		23.147		26.803		Continuing	TBD	TBD	
Remarks:															
(U) <u>Test &amp; Evaluation</u>															
CAV/Penetrator Flight Support	MIPR	SMC Det 12/RP, Kirtland AFB NM		3.000	Mar-04								3.000	3.000	
Prepare hypersonic test corridor	MIPR	AF Flt Test Center, Edwards AFB CA		0.500	Mar-04								0.500	0.500	
Subtotal Test & Evaluation			0.000	3.500		0.000		0.000		0.000		0.000	3.500	3.500	
Remarks:															
(U) <u>Development Support and Management</u>															
Perform analysis and assess alternative HTV concepts/requirements & program support	various	various		4.232	Feb-04	5.000	Oct-04					Continuing	TBD	TBD	
Perform PGS AoA	TBD	TBD						4.247	Oct-05	5.726	Oct-06	Continuing	TBD		
Develop critical CAV technology	MIPR	AFRL, Kirtland AFB, NM		2.000	Feb-04								2.000	2.000	
Subtotal Development Support and Management			0.000	6.232		5.000		4.247		5.726		Continuing	TBD	TBD	
Remarks:															
(U) Total Cost			0.000	17.025		16.464		27.394		32.529		Continuing	TBD	TBD	

Exhibit R-4, RDT&E Schedule Profile

DATE  
February 2005

BUDGET ACTIVITY  
04 Advanced Component Development and Prototypes (ACD&P)

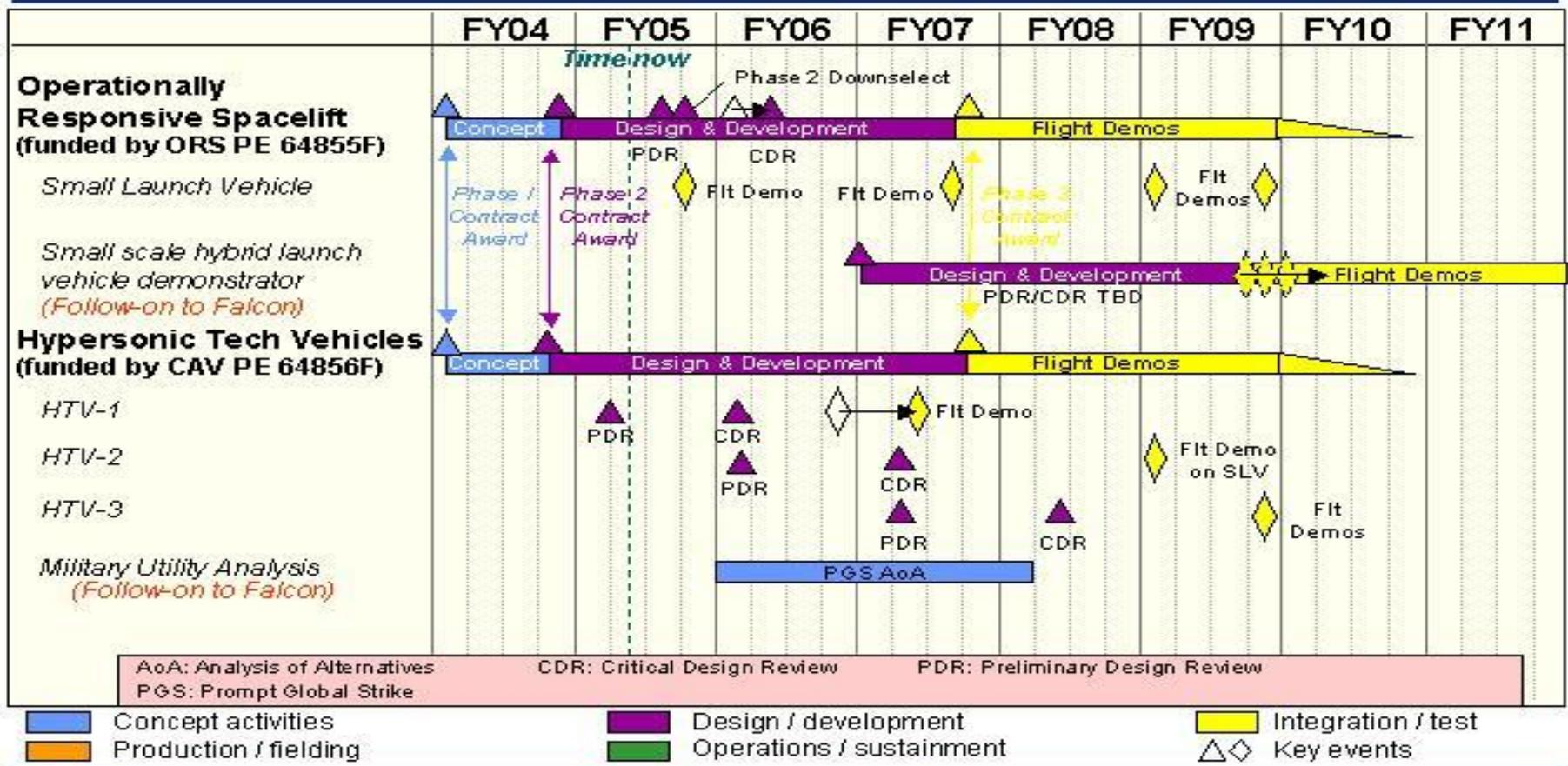
PE NUMBER AND TITLE  
0604856F Common Aero Vehicle

PROJECT NUMBER AND TITLE  
A012 Common Aerospace Vehicle



# ORS/CAV Schedule

U.S. AIR FORCE



FY06 Staffer Brief

**Exhibit R-4a, RDT&E Schedule Detail**

DATE

**February 2005**

BUDGET ACTIVITY

**04 Advanced Component Development and Prototypes (ACD&P)**

PE NUMBER AND TITLE

**0604856F Common Aero Vehicle**

PROJECT NUMBER AND TITLE

**A012 Common Aerospace Vehicle**

**(U) Schedule Profile**

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) System Definition (Phase I)	1-4Q			
(U) Design and Development (Phase II) Contract Award	4Q			
(U) Phase II Preliminary Design Review		2Q		
(U) Phase II Critical Design Review			1Q	
(U) Initial HTV Test Launch				2Q
(U) Complete Phase II				4Q
(U) System Engineering and Test (Phase III) Contract Award				4Q

**UNCLASSIFIED**

PE NUMBER: 0207423F  
 PE TITLE: Advanced Communications Systems

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0207423F Advanced Communications Systems</b>
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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	0.969	0.987	0.000	0.000	0.000	0.000	0.000	0.000
5084 AJCN	0.000	0.000	0.969	0.987	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) <b><u>Significant Program Changes:</u></b>				

Exhibit R-2a, RDT&E Project Justification

DATE  
**February 2005**

BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>					PE NUMBER AND TITLE <b>0207423F Advanced Communications Systems</b>			PROJECT NUMBER AND TITLE <b>5084 AJCN</b>		
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
5084 AJCN	0.000	0.000	0.969	0.987	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)										
(U)										
(U)										
(U)										
(U)	Total Cost					0.000	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>Actual</u>	<u>Estimate</u>	<u>Complete</u>							

(U)

(U) **D. Acquisition Strategy**

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2005**

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT NUMBER AND TITLE				
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>			<b>0207423F Advanced Communications Systems</b>							<b>5084 AJCN</b>				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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 &amp; 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**

DATE

**February 2005**

BUDGET ACTIVITY

**04 Advanced Component Development and Prototypes (ACD&P)**

PE NUMBER AND TITLE

**0207423F Advanced Communications  
Systems**

PROJECT NUMBER AND TITLE

**5084 AJCN**

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Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2005

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0207423F Advanced Communications Systems

PROJECT NUMBER AND TITLE

5084 AJCN

(U) Schedule Profile

FY 2004

FY 2005

FY 2006

FY 2007

(U)

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**UNCLASSIFIED**

PE NUMBER: 0305178F  
 PE TITLE: National Polar-Orbiting Op Env Satellite

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0305178F National Polar-Orbiting Op Env Satellite</b>
---	--

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	303.784	323.665	350.516	216.277	163.236	136.052	87.760	0.000	1,581.290
4056 National Polar-orbiting Operational Env. Sat. Syst.	0.000	303.784	323.665	350.516	216.277	163.236	136.052	87.760	0.000	1,581.290

This table represents the RDT&E portion of the Air Force share of the NPOESS program, which is funded 50/50 by the Department of Defense and Department of Commerce. Total program funding is listed in section C, Other Program Funding Summary. In FY2005, Project 4056, PE 0603434F NPOESS, BA 04, funding was transferred to Project 4056, PE 0305178 NPOESS, BA 04 Advanced Component Development and Prototypes.

The NPOESS program was rebaselined in Dec 03 to reflect new schedule requirements.

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

Presidential Decision Directive/National Science and Technology Council-2 (PDD/NSTC-2) (May 1994) directs the Department of Defense (DoD), Department of Commerce (DOC), and the National Aeronautics and Space Administration (NASA) to establish a converged national polar-orbiting weather satellite program. The Air Force (DoD) and NOAA (DOC) fund NPOESS 50/50 (by year) at the total program level. Note: part of the Air Force share also resides in the launch vehicle PE MPAF 0305953F. However, apportionment of DoD and DOC funds to specific activities does not have to be 50/50 and is at the program office discretion. The converged program, the National Polar-orbiting Operational Environmental Satellite System (NPOESS), combines the follow-on to DoD's Defense Meteorological Satellite Program (DMSP) and the DOC's Polar-orbiting Operational Environmental Satellite (POES) program. A Tri-agency Integrated Program Office (IPO) was established on 1 Oct 94 to manage the acquisition and operations of the converged system. NPOESS will provide operational military commanders and civilian leaders timely, quality weather and environmental information to effectively employ weapon systems and protect national resources. On 13 Aug 2004, the Office of Science and Technology Policy directed the incorporation of a Landsat-type sensor on the first and fourth NPOESS spacecraft. Cost sharing requirements of the baseline NPOESS program do not apply to the integration of Landsat onto NPOESS. No DoD funds are used to procure/integrate Landsat-type sensors onto NPOESS. The converged program will be the nation's primary source of global weather and environmental data for operational military and civil use. It will provide visible and infrared cloud cover imagery and other atmospheric, oceanographic, terrestrial, and space environmental information. NPOESS will provide a combination of satellites in sun synchronous 450 nautical miles (nm) polar-orbits at all times (sun synchronous means the satellites cross the equator at the same local sun time on each of their 14 orbits/day). The first NPOESS launch is scheduled for Nov 2009, with Initial Operational Capability (IOC) in Jul 2011 and Full Operational Capability (FOC) in Oct 2013. The remaining satellites will be fully funded with Missile Procurement funding. In Aug 02, the NPOESS program was approved to enter Key Decision Point C (KDP-C) Acquisition & Operations (A&O) phase at the Defense Space Acquisition Board (DSAB). This PE has been consolidated with PE 0603434F, beginning in FY05. Program remains in BA 04 because near-term efforts focus on Engineering, Manufacturing, and Development portion of the contract.

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2005

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0305178F National Polar-Orbiting Op Env Satellite

(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		307.668	236.563	224.503
(U) Current PBR/President's Budget	0.000	303.784	323.665	350.516
(U) Total Adjustments	0.000	-3.884		
(U) Congressional Program Reductions		-3.884		
Congressional Rescissions				
Congressional Increases				
Reprogrammings				
SBIR/STTR Transfer				

(U) **Significant Program Changes:**

The additional funds in FY06 and FY07 reflect changes to match DOC funding levels (AF meets 50/50 funding commitment) and to maintain the FY10 launch schedule, as a result of replan efforts.

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				<b>PE NUMBER AND TITLE</b> <b>0305178F National Polar-Orbiting Op Env Satellite</b>				<b>PROJECT NUMBER AND TITLE</b> <b>4056 National Polar-orbiting Operational Env. Sat. Syst.</b>		
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
4056 National Polar-orbiting Operational Env. Sat. Syst.	0.000	303.784	323.665	350.516	216.277	163.236	136.052	87.760	0.000	1,581.290
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

This table represents the RDT&E portion of the Air Force share of the NPOESS program, which is funded 50/50 by the Department of Defense and Department of Commerce. Total program funding is listed in section C, Other Program Funding Summary. In FY2005, Project 4056, PE 0603434F NPOESS, BA 04, funding was transferred to Project 4056, PE 0305178F NPOESS, BA 04 Advanced Component Development and Prototypes.

The NPOESS program was rebaselined in Dec 03 to reflect new schedule requirements.

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

Presidential Decision Directive/National Science and Technology Council-2 (PDD/NSTC-2) (May 1994) directs the Department of Defense (DoD), Department of Commerce (DOC), and the National Aeronautics and Space Administration (NASA) to establish a converged national polar-orbiting weather satellite program. The Air Force (DoD) and NOAA (DOC) fund NPOESS 50/50 (by year) at the total program level. Note: part of the Air Force share also resides in the launch vehicle PE MPAF 0305953F. However, apportionment of DoD and DOC funds to specific activities does not have to be 50/50 and is at the program office discretion. The converged program, the National Polar-orbiting Operational Environmental Satellite System (NPOESS), combines the follow-on to DoD's Defense Meteorological Satellite Program (DMSP) and the DOC's Polar-orbiting Operational Environmental Satellite (POES) program. A Tri-agency Integrated Program Office (IPO) was established on 1 Oct 94 to manage the acquisition and operations of the converged system. NPOESS will provide operational military commanders and civilian leaders timely, quality weather and environmental information to effectively employ weapon systems and protect national resources. On 13 Aug 2004, the Office of Science and Technology Policy directed the incorporation of a Landsat-type sensor on the first and fourth NPOESS spacecraft. Cost sharing requirements of the baseline NPOESS program do not apply to the integration of Landsat onto NPOESS. No DoD funds are used to procure/integrate Landsat-type sensors onto NPOESS. The converged program will be the nation's primary source of global weather and environmental data for operational military and civil use. It will provide visible and infrared cloud cover imagery and other atmospheric, oceanographic, terrestrial, and space environmental information. NPOESS will provide a combination of satellites in sun synchronous 450 nautical miles (nm) polar-orbits at all times (sun synchronous means the satellites cross the equator at the same local sun time on each of their 14 orbits/day). The first NPOESS launch is scheduled for Nov 2009, with Initial Operational Capability (IOC) in Jul 2011 and Full Operational Capability (FOC) in Oct 2013. The remaining satellites will be fully funded with Missile Procurement funding. In Aug 02, the NPOESS program was approved to enter Key Decision Point C (KDP-C) Acquisition & Operations (A&O) phase at the Defense Space Acquisition Board (DSAB). This PE has been consolidated with PE 0603434F, beginning in FY05. Program remains in BA 04 because near-term efforts focus on Engineering, Manufacturing, and Development portion of the contract.

**(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 DoD funded program office support for Acquisition and Operations (A&O) efforts.		0.989	1.006	1.023
(U) Continue System A&O effort including ground and space system development, design and fabrication for risk reduction missions.		293.355	322.659	349.493

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0305178F National Polar-Orbiting Op Env Satellite</b>	<b>PROJECT NUMBER AND TITLE</b> <b>4056 National Polar-orbiting Operational Env. Sat. Syst.</b>
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(U) Windsat data analysis, refinement, calibration, modeling and retrieval algorithms		1.854			
(U) SBIR Transfer		7.586			
(U) Total Cost	0.000	303.784	323.665	350.516	

**(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>Complete</u>							
(U) Related NOAA PAC funding: Polar Convergence*	273.789	300.501	323.742	344.020	346.607	299.969	376.616	408.667	740.027	4,066.517
(U) Related NPOESS RDT&E: PE 0603434F	265.483	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	922.221
(U) NPOESS RDT&E: PE 0305178F	0.000	303.784	323.665	350.516	216.277	163.236	136.052	87.760	0.000	1,581.290
(U) Related NPOESS MPAF: PE 0305178F	0.000	0.000	0.000	0.000	25.576	32.046	250.514	228.706	114.071	650.913
(U) Related EELV MPAF: PE 0305953F**	0.000	0.000	0.000	0.000	138.278	138.278	0.000	124.373	373.119	774.048
(U) Other operations and sustainment funding***	0.000	0.000	0.000	0.000	2.562	2.278	0.000	0.000	329.081	333.921
(U) Total NPOESS Air Force	265.483	303.784	323.665	350.516	382.693	335.838	386.566	440.839	816.271	4,262.393

\* National Oceanic and Atmospheric Administration Procurement, Acquisition, and Construction (NOAA PAC) appropriation. The Air Force (DoD) and NOAA (DoC) fund NPOESS 50/50. AF total cost includes prior-year amount of \$922.2M (included in PE 0603434F). Total NPOESS program cost is the sum of NPOESS RDT&E AF PE 0603434F/AF PE 0305178F, MPAF PE 0305178F, NPOESS portion of Evolved Expendable Launch Vehicle (EELV) MPAF PE 0305953F, and Polar Convergence NOAA PAC. The actual share of funding for specific program expenses is determined in the year of execution based on the availability of DoD and DOC funds. Due to higher EELV launch service costs, NOAA will work to adjust funds during launch years to match AF funding.

\*\* NPOESS launch vehicle funding is budgeted entirely in EELV PE 0305953F, and represents a portion of the DoD's 50% funding contribution.

\*\*\* Operations and Sustainment (O&S) after Initial Operational Capability (IOC) may be funded as either Operations & Maintenance AF, NOAA Operations Research and Facilities (ORF) or other appropriations depending on the concept selected for post IOC O&S. Prior to IOC, O&S funding will be through a combination of RDT&E (AF) and NOAA PAC. These funds will be transferred to the specific appropriation as the budget enters the FYDP.

**(U) D. Acquisition Strategy**

Accomplish substantial risk reduction with a focus on payload development, enhancing data utility to users, and protecting maximum flexibility to ensure the best overall system design by pursuing a significant investment in the development and on-orbit testing of selected payload sensors; the first two satellites will be incrementally funded with RDT&E funding; the rest of the satellites will be fully funded with Missile Procurement funding.

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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			
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				<b>0305178F National Polar-Orbiting Op Env Satellite</b>							<b>4056 National Polar-orbiting Operational Env. Sat. Syst.</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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> Northrop Grumman (A&O)	C/CPAF	Primary, Redondo Beach, CA				293.355	Oct-04	322.659	Oct-05	349.493	Oct-06	588.008	1,553.515	
Government Led Studies	Gov. Orgs.	Various				1.854	Oct-04						1.854	
Subtotal Product Development			0.000	0.000		295.209		322.659		349.493		588.008	1,555.369	0.000
Remarks:	FY05 funding consolidated in PE 0305178F. Prior year costs included in PE 0603434F.													
(U) <u>Support</u> Integrated Program Office (IPO) Support	Various	Program Office, Silver Spring, MD				0.989	Oct-04	1.006	Oct-05	1.023	Oct-06	15.317	18.335	
SBIR Transfer						7.586							7.586	
Subtotal Support			0.000	0.000		8.575		1.006		1.023		15.317	25.921	0.000
Remarks:	FY05 funding consolidated in PE 0305178F. Prior year costs included in PE 0603434F.													
(U) <u>Test &amp; Evaluation</u> Included in IPO Support													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> Included in IPO Support													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		303.784		323.665		350.516		603.325	1,581.290	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY  
04 Advanced Component Development and Prototypes (ACD&P)

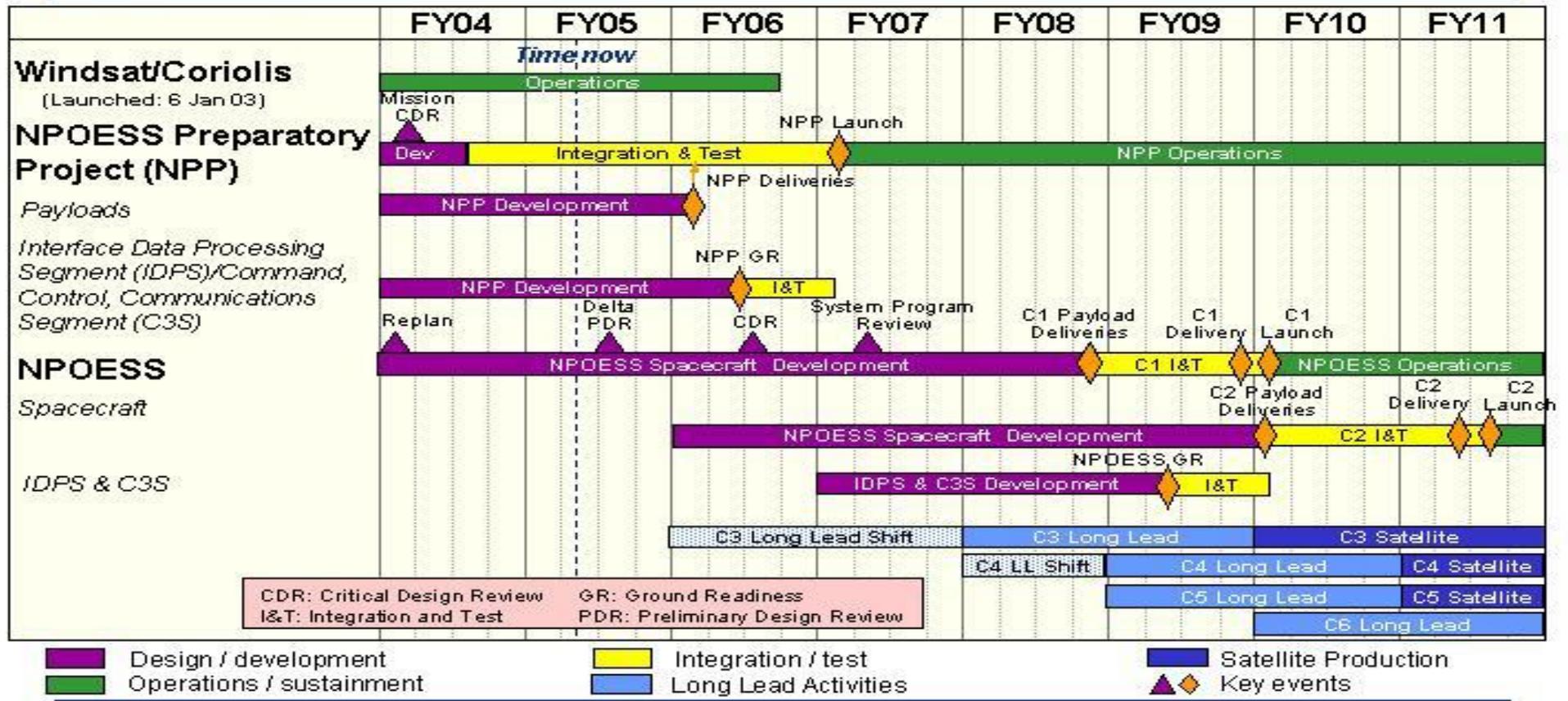
PE NUMBER AND TITLE  
0305178F National Polar-Orbiting Op  
Env Satellite

PROJECT NUMBER AND TITLE  
4056 National Polar-orbiting  
Operational Env. Sat. Syst.



U.S. AIR FORCE

# NPOESS Schedule



<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0305178F National Polar-Orbiting Op Env Satellite</b>	<b>PROJECT NUMBER AND TITLE</b> <b>4056 National Polar-orbiting Operational Env. Sat. Syst.</b>
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	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) <b>Schedule Profile</b>				
(U) NPOESS Replan	1Q			
(U) NPOESS Preparatory Project (NPP) Delta Critical Design Review	1Q			
(U) NPOESS System Delta Preliminary Design Review		3Q		
(U) NPP Sensor Delivery			1Q	
(U) NPP Ground Ready			2Q	
(U) NPOESS System Critical Design Review			3Q	
(U) NPP Launch				1Q
(U) NPOESS System Program Review				2Q

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PE NUMBER: 0604731F

PE TITLE: Joint Unmanned Combat Air System (J-UCAS)

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604731F Joint Unmanned Combat Air System (J-UCAS)</b>
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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	160.551	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5058 Unmanned Combat Air Vehicle (UCAV)	160.551	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

Note: In FY06 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.

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

The Joint Unmanned Combat Air Systems (J-UCAS) program is a joint effort to develop and demonstrate unmanned combat capabilities for high-threat Suppression of Enemy of Air Defense (SEAD), Information Operations/ Electronic Attack, Persistent Surveillance/Reconnaissance, and related strike missions within the emerging global command and control architecture for the warfighting community.

The J-UCAS program combines and expands the efforts that were previously conducted under the DARPA/Air Force Unmanned Combat Air Vehicle (UCAV) program and the DARPA/Navy Naval UCAV (UCAV-N) program. Although these efforts were targeted towards service-specific needs, the Department recognized the potential for significant synergy by combining the programs. The accomplishments and ongoing efforts of the X-45A technology demonstrator, as well as the development of the X-47A demonstrator, are reducing the risk of the "operationalized" demonstration system being developed for a joint early operational assessment (OA) planned for the FY07-10 timeframe. The J-UCAS concept incorporates the next generation family of demonstrator air vehicles, together with common subsystems (e.g. sensors, payloads, communications) and a Common Operating System to achieve the system's diverse mission functionality. These common system elements will maximize mission flexibility and operational versatility while reducing overall costs and maintaining schedule toward a joint early OA.

The J-UCAS Office operates in close coordination with Service users and other operational components. The program is focused on demonstrating capabilities that support both Services and enable an operational system development decision by the end of the decade.

This PE only has FY 2004 funding. In FY 2005 funding was moved to PEs 0603400D8Z and 0604400D8Z. The program will be moving to PEs 0603400F and 0604400F in FY 2006.

This is a BA 05 program, System Development and Demonstration, to develop and demonstrate unmanned combat air system capabilities.

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2005

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604731F Joint Unmanned Combat Air System (J-UCAS)

(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	174.449			
(U) Current PBR/President's Budget	160.551	0.000		
(U) Total Adjustments	-13.898	0.000		
(U) Congressional Program Reductions				
Congressional Rescissions	-15.000			
Congressional Increases				
Reprogrammings	6.373			
SBIR/STTR Transfer	-5.271			

(U) **Significant Program Changes:**

FY06: 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.

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604731F Joint Unmanned Combat Air System (J-UCAS)</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5058 Unmanned Combat Air Vehicle (UCAV)</b>
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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
5058 Unmanned Combat Air Vehicle (UCAV)	160.551	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: In FY06 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.

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

The Joint Unmanned Combat Air Systems (J-UCAS) program is a joint effort to develop and demonstrate unmanned combat capabilities for high-threat Suppression of Enemy of Air Defense (SEAD), Information Operations/ Electronic Attack, Persistent Surveillance/Reconnaissance, and related strike missions within the emerging global command and control architecture for the warfighting community.

The J-UCAS program combines and expands the efforts that were previously conducted under the DARPA/Air Force Unmanned Combat Air Vehicle (UCAV) program and the DARPA/Navy Naval UCAV (UCAV-N) program. Although these efforts were targeted towards service-specific needs, the Department recognized the potential for significant synergy by combining the programs. The accomplishments and ongoing efforts of the X-45A technology demonstrator, as well as the development of the X-47A demonstrator, are reducing the risk of the "operationalized" demonstration system being developed for a joint early operational assessment (OA) planned for the FY07-10 timeframe. The J-UCAS concept incorporates the next generation family of demonstrator air vehicles, together with common subsystems (e.g. sensors, payloads, communications) and a Common Operating System to achieve the system's diverse mission functionality. These common system elements will maximize mission flexibility and operational versatility while reducing overall costs and maintaining schedule toward a joint early OA.

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This is a BA 05 program, System Development and Demonstration, to develop and demonstrate unmanned combat air system 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) Continuation of Spiral 0 and Spiral 1 of the Unmanned Combat Air Vehicle (UCAV) System Demonstration Program				
- Design and initial component fabrication of the UCAV demonstrator air vehicle and mission control system				
- Development/integration of the UCAV demonstrator's advanced avionics and communications				

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Exhibit R-2a, RDT&E Project Justification							DATE <b>February 2005</b>			
BUDGET ACTIVITY			PE NUMBER AND TITLE			PROJECT NUMBER AND TITLE				
<b>05 System Development and Demonstration (SDD)</b>			<b>0604731F Joint Unmanned Combat Air System (J-UCAS)</b>			<b>5058 Unmanned Combat Air Vehicle (UCAV)</b>				
- Requirements definition and development of advanced system software (U) Other Government Cost - Mission Support of the SPO; travel, computer costs, misc contracts, etc. (U) Continuation of Joint Unmanned Combat Air System (J-UCAS) Demonstration Program 148.660 - Continue design and component fabrication of the J-UCAS demonstrator air vehicle and mission control system - Continue development/integration of the J-UCAS demonstrator's advanced avionics and communications - Continue development of advanced system software (U) Early Operational Assessment System planning and design (formerly referred to as Spiral 2) 5.894 (U) Other Government Cost 5.997 - Mission Support of the SPO, travel, computer costs, misc contracts, test, etc. (U) Total Cost 160.551 0.000 0.000 0.000										
<b>(U) C. Other Program Funding Summary (\$ in Millions)</b>										
	<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 S&T (PE0603333F)										
(U) DARPA (PE0603765E)										
(U) DARPA (PE0603285E)	41.385	0.000								
(U) AF (PE0207256F)	2.300	0.000	0.000	0.000	0.000	0.000	0.000	0.000		TBD
(U) Navy RDT&E (PE0603114N)	117.865	0.000	0.000	0.000	0.000	0.000	0.000	0.000		TBD
(U) Navy RDT&E (PE0604731N)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		TBD
(U) Navy RDT&E (PE0603111N)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		TBD
(U) Aircraft Procurement (PE0207255F)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		TBD
(U) Defense-wide RDT&E (PE0603400D8Z)	0.000	354.794	0.000	0.000	0.000	0.000	0.000	0.000		TBD
(U) Defense-wide RDT&E (PE0604400D8Z)	0.000	217.401	0.000	0.000	0.000	0.000	0.000	0.000		TBD
(U) AF (PE0603400F)	0.000	0.000	77.800	0.000	0.000	0.000	0.000	0.000		
(U) AF (PE0604400F)	0.000	0.000	272.300	400.100	554.100	785.500	955.200	1064.100	Continuing	TBD
<b>(U) D. Acquisition Strategy</b>										
The J-UCAS program blends the advantages of both the Advanced Technology Demonstration (ATD) and the Advanced Concept Technology Demonstration (ACTD)										
Project 5058			R-1 Shopping List - Item No. 59-5 of 59-9				Exhibit R-2a (PE 0604731F)			

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2005

BUDGET ACTIVITY

**05 System Development and Demonstration (SDD)**

PE NUMBER AND TITLE

**0604731F Joint Unmanned Combat  
Air System (J-UCAS)**

PROJECT NUMBER AND TITLE

**5058 Unmanned Combat Air Vehicle  
(UCAV)**

concepts to facilitate rapid development and integration of advanced technologies in an experimental system that addresses operational needs. Using the next generation of demonstrator air vehicle families, together with common subsystems and a Common Operating System, this nontraditional approach also incorporates key acquisition considerations (i.e., user requirements, comprehensive system lifecycle perspective, and rigorous risk mitigation processes) to provide the necessary insights, operational data, and identified options for the services to make an informed decision for accelerated acquisition near the end of the decade.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2005**

BUDGET ACTIVITY				PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE				
<b>05 System Development and Demonstration (SDD)</b>				<b>0604731F Joint Unmanned Combat Air System (J-UCAS)</b>						<b>5058 Unmanned Combat Air Vehicle (UCAV)</b>				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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 Phantom Works, St. Louis, MO.	Section 845, Other Transactions Authority (OTA) Agreement	Boeing Phantom Works, St. Louis, MO.		154.554	Dec-04							Continuing	TBD	TBD
Subtotal Product Development			0.000	154.554		0.000		0.000		0.000		Continuing	TBD	TBD
Remarks:														
(U) <u>Support</u> Various				5.997								Continuing	TBD	
Subtotal Support			0.000	5.997		0.000		0.000		0.000		Continuing	TBD	0.000
Remarks:														
(U) <u>Test &amp; 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	160.551		0.000		0.000		0.000		Continuing	TBD	TBD

<b>Exhibit R-4, RDT&amp;E Schedule Profile</b>		DATE <b>February 2005</b>
BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0604731F Joint Unmanned Combat Air System (J-UCAS)</b>	PROJECT NUMBER AND TITLE <b>5058 Unmanned Combat Air Vehicle (UCAV)</b>

N/A – This PE provides funds to develop and demonstrate unmanned combat capabilities for high-threat missions.

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2005</b>
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BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0604731F Joint Unmanned Combat Air System (J-UCAS)</b>	PROJECT NUMBER AND TITLE <b>5058 Unmanned Combat Air Vehicle (UCAV)</b>
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(U) <b>Schedule Profile</b> (U) Common Systems development begins (U) J-UCAS Demonstrator begins This PE only has FY 2004 funding. In FY06 program funding is being realigned from PEs 0603400D8Z and 0604400D8Z to PEs 0603400F and 0604400F, respectively. The program is undergoing a restructure and will realign the adjusted resources in the next budget cycle to advance the J-UCAS program.	<u>FY 2004</u> 3Q 1Q	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
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**UNCLASSIFIED**

PE NUMBER: 0603840F  
 PE TITLE: Global Broadcast Service (GBS)

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>									<b>DATE</b> <b>February 2005</b>	
<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>					<b>PE NUMBER AND TITLE</b> <b>0603840F Global Broadcast Service (GBS)</b>					
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	35.823	25.527	18.283	25.234	19.306	5.443	5.447	5.525	Continuing	TBD
4887 Global Broadcast Service (GBS)	35.823	25.527	18.283	25.234	19.306	5.443	5.447	5.525	Continuing	TBD

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

Global Broadcast Service provides DoD with an efficient, high data rate broadcast provided by distributed information sources to dispersed warfighters who receive the broadcast directly on small, inexpensive user terminals in accordance with the GBS Operational Requirements Document (ORD), validated by the Joint Requirements Oversight Council in Apr 1997 and updated (with limits) in May 01 and Jan 05. GBS Broadcast data includes imagery, logistics and weather data, maps, operational orders, and video. GBS space segment includes packages on Navy operational satellites UFO 8, 9, and 10 providing near-worldwide service, augmentation by commercial leased Ku-band packages, and throughput on future wideband satellites. GBS Satellite Broadcast Management (SBM) and Terminal segments include uplink sites and receive equipment which integrate with Service fixed- and tactical-network equipment through standard commercial interfaces. Service production Receive Suite and integration into service networks are funded in other PEs.

The program was rebaselined to incorporate a commercial-of-the-shelf (COTS)-based Internet Protocol (IP) architecture that will facilitate satisfaction of IOC2 and 3 requirements. The IP architecture will provide enhanced throughput (capacity), and greatly reduce operational and maintainability liabilities that would have resulted from continuation of the previous architecture that required significant use of obsolete and proprietary software and computer hardware.

Beginning FY06, the GBS program element funds analysis of alternatives and development of IPv6 Transition Plans required to support net-centric operations and warfare, satisfying OSD/NII Jun 03 policy mandate to complete transition from IP version 4 (IPv4) to IPv6 by FY08. This includes the development of a SBM design supporting both IPv4 and IPv6 network protocols, and provides for required equipment at the three operational GBS Transmit Suites. This also includes the development of an IPv6 technology refresh design for existing & planned Receive Broadcast Managers.

Funding is in Budget Activity 5, System Development and Demonstration, since program is fielding pre-production equipment.

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2005

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0603840F Global Broadcast Service (GBS)

(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	37.823	33.447	9.685	2.441
(U) Current PBR/President's Budget	35.823	25.527	18.283	25.234
(U) Total Adjustments	-2.000	-7.920		
(U) Congressional Program Reductions		-7.920		
Congressional Rescissions				
Congressional Increases				
Reprogrammings	-2.000			
SBIR/STTR Transfer				

(U) **Significant Program Changes:**

The FY06 and FY07 adjustments fund development effort required to transition from IPv4 to IPv6 by FY08.

FY05: Congress reduced GBS FY05 funding by \$7M.

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>					PE NUMBER AND TITLE <b>0603840F Global Broadcast Service (GBS)</b>			PROJECT NUMBER AND TITLE <b>4887 Global Broadcast Service (GBS)</b>		
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
4887 Global Broadcast Service (GBS)	35.823	25.527	18.283	25.234	19.306	5.443	5.447	5.525	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

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

Global Broadcast Service provides DoD with an efficient, high data rate broadcast provided by distributed information sources to dispersed warfighters who receive the broadcast directly on small, inexpensive user terminals in accordance with the GBS Operational Requirements Document (ORD), validated by the Joint Requirements Oversight Council in Apr 1997 and updated (with limits) in May 01 and Jan 05. GBS Broadcast data includes imagery, logistics and weather data, maps, operational orders, and video. GBS space segment includes packages on Navy operational satellites UFO 8, 9, and 10 providing near-worldwide service, augmentation by commercial leased Ku-band packages, and throughput on future wideband satellites. GBS Satellite Broadcast Management (SBM) and Terminal segments include uplink sites and receive equipment which integrate with Service fixed- and tactical-network equipment through standard commercial interfaces. Service production Receive Suite and integration into service networks are funded in other PEs.

The program was rebaselined to incorporate a commercial-of-the-shelf (COTS)-based Internet Protocol (IP) architecture that will facilitate satisfaction of IOC2 and 3 requirements. The IP architecture will provide enhanced throughput (capacity), and greatly reduce operational and maintainability liabilities that would have resulted from continuation of the previous architecture that required significant use of obsolete and proprietary software and computer hardware.

Beginning FY06, the GBS program element funds analysis of alternatives and development of IPv6 Transition Plans required to support net-centric operations and warfare, satisfying OSD/NII Jun 03 policy mandate to complete transition from IP version 4 (IPv4) to IPv6 by FY08. This includes the development of a SBM design supporting both IPv4 and IPv6 network protocols, and provides for required equipment at the three operational GBS Transmit Suites. This also includes the development of an IPv6 technology refresh design for existing & planned Receive Broadcast Managers.

Funding is in Budget Activity 5, System Development and Demonstration, since program is fielding pre-production equipment.

**(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 Development and Test	21.213	14.502	10.729	14.951
(U) Continue Phase 2 Government System Integration	10.241	6.465	4.183	5.828
(U) Continue System Test & Evaluation Support	1.617	1.292	0.909	1.267
(U) Continue Program Office and other related support activities	2.752	3.268	2.462	3.188
(U) Total Cost	35.823	25.527	18.283	25.234

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>		DATE <b>February 2005</b>
BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0603840F Global Broadcast Service (GBS)</b>	PROJECT NUMBER AND TITLE <b>4887 Global Broadcast Service (GBS)</b>

**(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>Complete</u>							
(U) Other APPN OPAF, PE 0303600F, WGS PIPs	11.622	0.000	0.000	0.000	21.515	7.169	0.000	0.000		55.448
(U) OPAF, PE 0303601F, Receive Suites/TIPs	19.334	8.178	14.874	0.529	2.600	1.570	1.600	1.600	Continuing	TBD

Note: All the Services and several DoD agencies have many programs which interface with or support GBS. Examples include: Defense Information System Network (DISN); DISA Information Dissemination Management Program; ARPA Battlefield Awareness and Data Dissemination (BADD) Advanced Concept Technology Demonstration (ACTD); Navy UFO Program; Army Ground Terminal Programs; Navy SATCOM Ship Terminal Program; and Air Force MILSATCOM Terminals (PE 0303601F): AF GBS Receive Terminals (WSC 836780, line P-66, PE 0303601F, Milstar Satellite Comm Sys, Other Procurement; AF Ground Multiband Terminal (GMT) Development; and AF Wideband Terminal (AWT) Development).

**(U) D. Acquisition Strategy**

The acquisition strategy has been revised to a spiral development/incremental build approach using Integrated Product Development (IPD)/Integrated Product Team (IPT) approach. Program will maintain a single integration contractor for the GBS Phase 2 system while incorporating cross program/system IPTs for total system performance.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2005**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>										PE NUMBER AND TITLE <b>0603840F Global Broadcast Service (GBS)</b>			PROJECT NUMBER AND TITLE <b>4887 Global Broadcast Service (GBS)</b>		
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(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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) <u>Product Development</u>														
Raytheon System Corp	CPAF		39.460	21.213	Oct-03	14.502	Nov-04	2.229	Oct-05				77.404	
IPv6 Migration	CPAF							8.500	Jan-06	14.951	Jan-07	Continuing	TBD	
Phase 2 Government System Integration	Various		6.039	10.241	Nov-03	6.465	Nov-04	4.183	Jan-06	5.828	Jan-07	Continuing	TBD	
Subtotal Product Development			45.499	31.454		20.967		14.912		20.779		Continuing	TBD	0.000
Remarks:														
(U) <u>Support</u>														
Program Support - Various			5.386	2.752	Oct-03	3.268	Dec-04	2.462	Nov-05	3.188	Nov-06	Continuing	TBD	
Fielding - Various			1.200										1.200	
Sustainment (Vendor TBD)			0.000										0.000	
Subtotal Support			6.586	2.752		3.268		2.462		3.188		Continuing	TBD	0.000
Remarks:														
(U) <u>Test &amp; Evaluation</u>														
Various			2.860	1.617	Dec-03	1.292	Dec-04	0.909	Oct-05	1.267	Oct-06	Continuing	TBD	
Subtotal Test & Evaluation			2.860	1.617		1.292		0.909		1.267		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			54.945	35.823		25.527		18.283		25.234		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

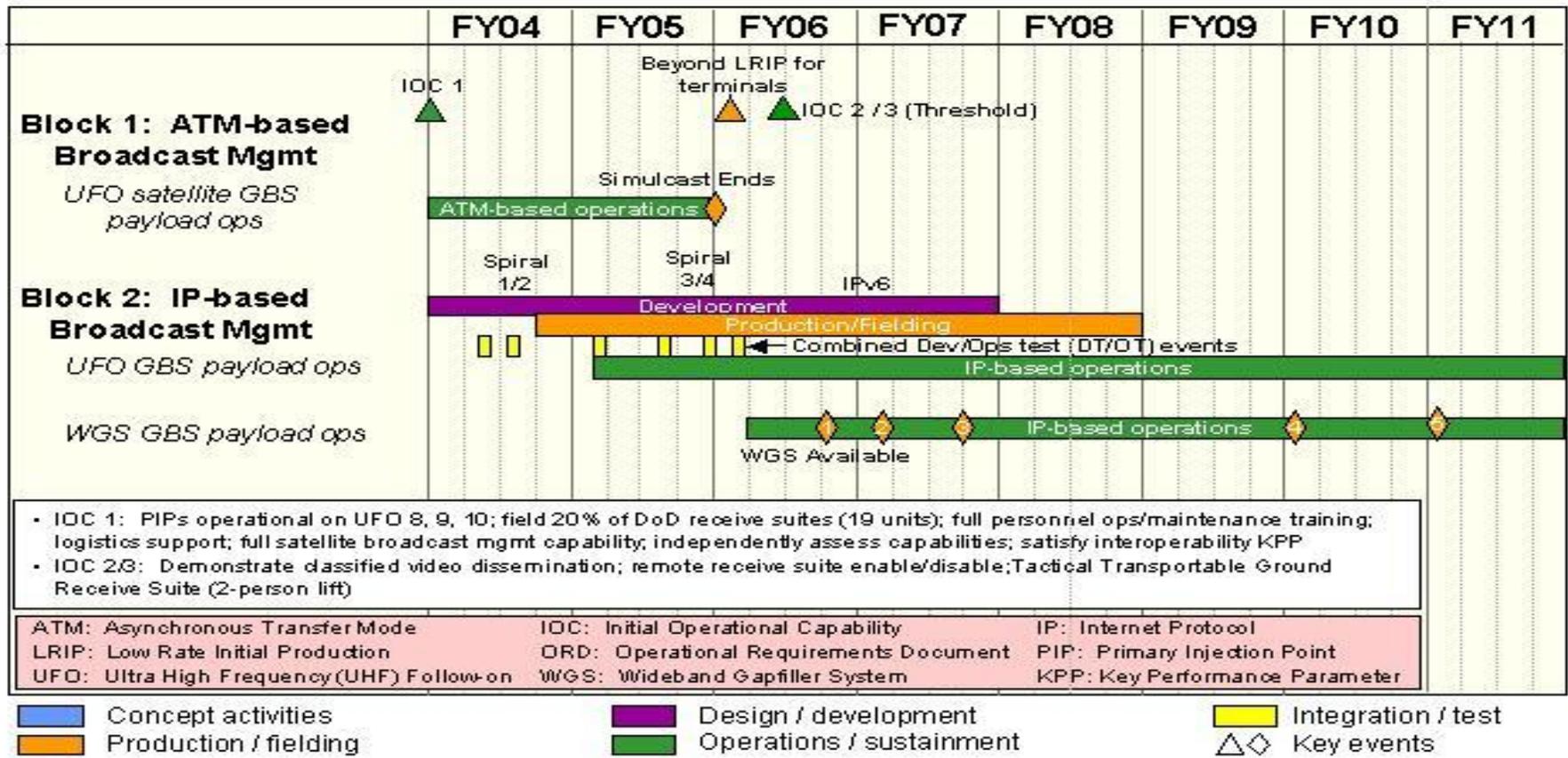
DATE

February 2005

BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE  
0603840F Global Broadcast Service (GBS)

PROJECT NUMBER AND TITLE  
4887 Global Broadcast Service (GBS)



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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2005</b>
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BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0603840F Global Broadcast Service (GBS)</b>	PROJECT NUMBER AND TITLE <b>4887 Global Broadcast Service (GBS)</b>
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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) IOC 1	1Q			
(U) Beyond Low Rate Initial Production (LRIP) decision		3Q		
(U) IOC 2 and 3			2Q	
(U) Begin development of Internet Protocol Version 6 (IPv6) capability			2Q	
(U) IPv6 capability demonstrated on orbit				3Q

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PE NUMBER: 0604012F

PE TITLE: Joint Helmet Mounted Cueing System (JHMCS)

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604012F Joint Helmet Mounted Cueing System (JHMCS)</b>
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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	0.796	2.841	2.912	2.261	3.839	3.096	2.492	2.500	Continuing	TBD
4789 Joint Helmet Mounted Cueing System (JHMCS)	0.796	2.841	2.912	2.261	3.839	3.096	2.492	2.500	Continuing	TBD

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

This joint Air Force/Navy program (Air Force is the lead service) develops a helmet display system capable of depicting aircraft heading data, pilot's viewing perspective, target indication tracking/cueing, and other information on the aircrew visor to enhance pilot situational awareness. This display allows the pilot to quickly align platform sensors and weapons on targets, and engage threats using high off-boresight (HOBS) weapons such as the AIM-9X.

Milestone III was successfully approved in Jan 04, and correspondingly, the first Full Rate Production (FRP) contract was awarded May 04. A cost reduction analysis team was formed in FY04 and briefed potential cost savings to the PEO's in May 04, which are being pursued for the upcoming FRP 2 award. Continued activities include Electronic Unit Software update, resolution of deficiencies identified during Operational Testing (OT), a night display and tracking/cueing implementation and integration, improvements to Reliability and Maintainability (R&M), system upgrade studies/analysis, obsolescence upgrades, improved magnetic mapping processes to reduce maintenance manhours and life cycle costs, and alpha contracting efforts in support of FRP 2/3/4 contracts.

This program is in budget activity 5 - System Design and Development (SDD).

**(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	0.836	2.867	2.896	2.939
(U) Current PBR/President's Budget	0.796	2.841	2.912	2.261
(U) Total Adjustments	-0.040	-0.026		
(U) Congressional Program Reductions		-0.026		
Congressional Rescissions				
Congressional Increases				
Reprogrammings	-0.015			
SBIR/STTR Transfer	-0.025			
(U) <u>Significant Program Changes:</u>				
None.				

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>				<b>PE NUMBER AND TITLE</b> <b>0604012F Joint Helmet Mounted Cueing System (JHMCS)</b>				<b>PROJECT NUMBER AND TITLE</b> <b>4789 Joint Helmet Mounted Cueing System (JHMCS)</b>		
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
4789 Joint Helmet Mounted Cueing System (JHMCS)	0.796	2.841	2.912	2.261	3.839	3.096	2.492	2.500	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

JHMCS PE change request approved for FY07 BES: 27170F

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

This joint Air Force/Navy program (Air Force is the lead service) develops a helmet display system capable of depicting aircraft heading data, pilot's viewing perspective, target indication tracking/cueing, and other information on the aircrew visor to enhance pilot situational awareness. This display allows the pilot to quickly align platform sensors and weapons on targets, and engage threats using high off-boresight (HOBS) weapons such as the AIM-9X.

Milestone III was successfully approved in Jan 04, and correspondingly, the first Full Rate Production (FRP) contract was awarded May 04. A cost reduction analysis team was formed in FY04 and outbriefed potential cost savings to the PEO's in May 04, which are being pursued for the upcoming FRP 2 award. Continued activities include Electronic Unit Software update, resolution of deficiencies identified during Operational Testing (OT), a night display and tracking/cueing implementation and integration, improvements to Reliability and Maintainability (R&M), system upgrade studies/analysis, obsolescence upgrades, improved magnetic mapping processes to reduce maintenance manhours and life cycle costs, and alpha contracting efforts in support of FRP 2/3/4 contracts.

This program is in budget activity 5 - System Design and Development (SDD).

**(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 deficiencies resolution, reliability improvements, P3I activities, obsolescence upgrades, analysis/studies, and night vision integration	0.710	2.566	2.623	1.958
(U) Continue program management support	0.086	0.275	0.289	0.303
(U) Total Cost	0.796	2.841	2.912	2.261

**(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>Complete</u>							
RDT&E, BA 5, PE 0604201F,										
(U) Integrated Avionics Planning and Development										45.151

Note: Prior to FY01 JHMCS was funded as part of PE 0604201F.

**(U) D. Acquisition Strategy**

JHMCS is an ACAT III joint USAF/USN program (USAF - executive service). The development contract structure is a Cost Plus Award Fee (CPAF). The CPAF contract

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2005

BUDGET ACTIVITY

**05 System Development and Demonstration (SDD)**

PE NUMBER AND TITLE

**0604012F Joint Helmet Mounted  
Cueing System (JHMCS)**

PROJECT NUMBER AND TITLE

**4789 Joint Helmet Mounted Cueing  
System (JHMCS)**

is through Boeing - St. Louis for development and integration into the F-15 and F/A-18 aircraft. All other aircraft integration will be handled by the respective platform prime contractors. 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 05 System Development and Demonstration (SDD)						PE NUMBER AND TITLE 0604012F Joint Helmet Mounted Cueing System (JHMCS)					PROJECT NUMBER AND TITLE 4789 Joint Helmet Mounted Cueing System (JHMCS)			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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> Development and Integration, Reliability Improvements, P3I, Obsolescence Upgrades, Analysis/Studies, and Night Vision Integration	SS, CPFF	Boeing Co, St Louis, MO		0.710		2.466		2.513		1.958			7.647	
Subtotal Product Development			0.000	0.710		2.466		2.513		1.958		0.000	7.647	0.000
Remarks:														
(U) <u>Support</u> Cost Reduction Analysis	C, T&M	Various				0.100		0.110		0.000			0.210	
Subtotal Support			0.000	0.000		0.100		0.110		0.000		0.000	0.210	0.000
Remarks:														
(U) <u>Test &amp; Evaluation</u> Various	Various	Various						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> Program Management and Administration	C, T&M	Various		0.086		0.275		0.289		0.303			0.953	
Subtotal Management			0.000	0.086		0.275		0.289		0.303		0.000	0.953	0.000
Remarks:														
(U) Total Cost			0.000	0.796		2.841		2.912		2.261		0.000	8.810	0.000

Exhibit R-4, RDT&E Schedule Profile

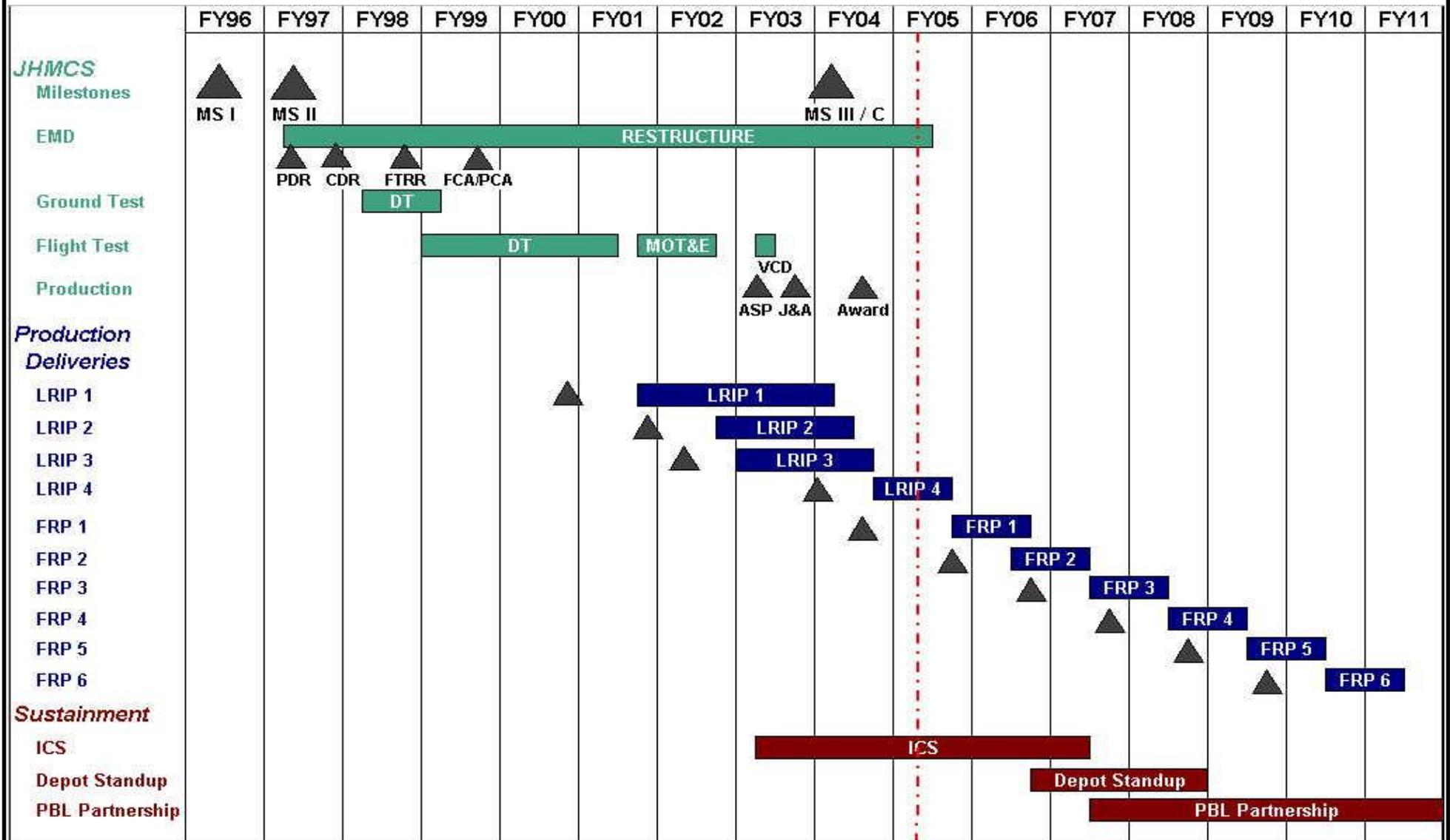
DATE

February 2005

BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE  
0604012F Joint Helmet Mounted  
Cueing System (JHMCS)

PROJECT NUMBER AND TITLE  
4789 Joint Helmet Mounted Cueing  
System (JHMCS)



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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604012F Joint Helmet Mounted Cueing System (JHMCS)</b>	<b>PROJECT NUMBER AND TITLE</b> <b>4789 Joint Helmet Mounted Cueing System (JHMCS)</b>
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<b>(U) <u>Schedule Profile</u></b>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Full Rate Production (FRP) decision (MS C)	2Q			
(U) LRIP 4 Contract Award	2Q			
(U) Continue R&M Fixes/Software Updates/P3I	2-4Q	2-4Q	2-4Q	2-4Q
(U) Completion of Cost Reduction Analysis	2Q			
(U) FRP-1 Contract Award	3Q			
(U) Injection Molded Optics Contract Award		1Q		
(U) FRP-2 Contract Award		3Q		
(U) Class I ECP's		2-4Q	2-4Q	
(U) FRP-3 Contract Award			3Q	
(U) FRP-4 Contract Award				3Q

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604222F Nuclear Weapons Support</b>
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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	12.916	13.185	15.154	11.923	20.276	20.196	20.226	20.163	Continuing	TBD
4236 Engineering Analysis	1.896	3.102	4.153	3.437	6.875	6.770	6.709	6.616	Continuing	TBD
4807 Nuclear Weapons & CP Technologies	5.036	5.669	5.931	3.995	6.278	6.395	6.544	6.655	Continuing	TBD
5708 Nuclear Weapons Support	5.984	4.414	5.070	4.491	7.123	7.031	6.973	6.892	Continuing	TBD

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

The Air Force Nuclear Weapons & Counterproliferation Agency (AFNWCA) and the Air Armament Center's Nuclear Weapons Directorate (AAC/NW) are tasked with maintaining and providing the core Air Force (AF) nuclear weapons, nuclear weapon systems and counterproliferation expertise. These organizations provide technical and programmatic guidance and independent analyses for all Air Force nuclear weapon, nuclear weapon systems activities including weapons development/sustainment, interoperability, safety/security/reliability, stockpile management/retirement, counterforce counterproliferation acquisitions and assessments, nuclear certification and nuclear certification management.

Specific mission tasking includes:

--- Support AF, Department of Defense (DoD) and Joint DoD/Department of Energy (DOE) weapons acquisition activities for the sustainment and/or development of nuclear weapons, delivery systems, logistics/handling support systems, weapon storage facilities, maintenance/trainer/test equipment, and technical orders to include nuclear certification as required

--- Analyze and document nuclear weapons issues related to risk assessment, data collection, model development, and weapon effectiveness in support of the Joint DoD/DOE Surety Plan, DOE Stockpile Stewardship plan, DoD/DOE Long Range Planning Assessment, and the DoD/DOE Annual Weapon Assessment.

--- Identify, evaluate, and assess current and projected counterproliferation systems operating in joint environments to include participating in the pre-acquisition process as appropriate for those projects identified or planned for development and/or supporting current operations regarding Chemical, Biological, Radiological, and Nuclear (CBRN) counterforce strikes.

This program is essential to maintaining the current and future safety, security, and reliability of weapons in the AF nuclear stockpile as well as their delivery systems and support systems. This program also addresses current and future Air Force nuclear deterrence and counterproliferation needs.

These efforts are Budget Activity 5, System Development and Demonstration, because they include system specific programs leading to approved life extension programs for and/or modifications to AF nuclear weapons, weapon systems, and support systems as well as developing new weapons or modifications to existing weapons and/or weapon systems to meet evolving counterforce and/or counterproliferation mission requirements.

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2005

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604222F Nuclear Weapons 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	13.244	13.301	14.150	14.807
(U) Current PBR/President's Budget	12.916	13.185	15.154	11.923
(U) Total Adjustments	-0.328	-0.116		
(U) Congressional Program Reductions				
Congressional Rescissions		-0.116		
Congressional Increases				
Reprogrammings	-0.010			
SBIR/STTR Transfer	-0.318			

(U) **Significant Program Changes:**

--- FY 2006 reflects revised civilian pay repricing lay-in.

--- FY 2007 reflects cumulative effect of revised civilian pay repricing lay-in and other adjustments to meet higher Air Force needs.

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>					PE NUMBER AND TITLE <b>0604222F Nuclear Weapons Support</b>			PROJECT NUMBER AND TITLE <b>4236 Engineering Analysis</b>		
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	1.896	3.102	4.153	3.437	6.875	6.770	6.709	6.616	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

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

Perform engineering analysis for all Air Force (AF) nuclear weapons, delivery systems, support systems, and counterproliferation/counterforce efforts. Provide the engineering and technical management expertise required in critical areas of nuclear weapons surety, operations, technical order development and management, testing, certification, and counterproliferation/counterforce.

Budget Activity Justification: These efforts are Budget Activity 5, System Development and Demonstration, because they include system specific programs to identify and develop life extension programs for as well as solutions to problems and/or deficiencies in Air Force nuclear weapons, nuclear weapon systems, and the supporting infrastructure.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Nuclear Weapons Systems Support. Provided nuclear weapon system unique engineering/technical expertise necessary for performing independent nuclear safety and/or security studies/analyses; managed the AF Nuclear Certification Program, nuclear hardness database, the nuclear weapon technical order system, and nuclear weapons integration on US and non-US aircraft systems. [This effort transferred to Project 655708 beginning in FY 2005.]	0.563			
(U) Nuclear Weapons Program Support. Provide leadership to and management of the AF-led Project Officers Groups for the nuclear weapons in AF stockpile to include the technical analysis to support life extension options for nuclear weapons in the AF stockpile, inactive stockpile issues, use control, long term storage, and retirement/dismantlement issues. [This effort includes efforts accomplished in Project 655708 prior to FY 2005.]	1.046	2.049	2.711	2.261
(U) Counterproliferation Support. Provide technical, engineering, and management support for joint DoD/DOE pre-acquisition activities for candidate weapons for countering future threats such as hard and deeply buried targets (HDBT) or weapons of mass destruction to include conducting counterproliferation operational and assessment efforts as well as developing new analytical methodologies needed to conduct these assessments, and/or support AF operations. [This effort includes efforts accomplished in Project 655708 prior to FY 2005.]	0.287	1.053	1.442	1.176
(U) Total Cost	1.896	3.102	4.153	3.437

**(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>Complete</u>							

(U) Not Applicable

Exhibit R-2a, RDT&E Project Justification

DATE

February 2005

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604222F Nuclear Weapons Support

PROJECT NUMBER AND TITLE

4236 Engineering Analysis

(U) **D. Acquisition Strategy**

Multiple small, firm fixed price contracts for contractors and Military Interdepartmental Purchase Requests (MIPRs) to government labs for technical analyses and technical support in safety, operations and counterproliferation assessments.

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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				
<b>05 System Development and Demonstration (SDD)</b>				<b>0604222F Nuclear Weapons Support</b>							<b>4236 Engineering Analysis</b>				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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>	
<b>(U) Product Development</b>															
In-House Studies/Analysis and Engineering Activities*	Civil Service	AFNWCA (Kirtland AFB, NM)	0.000	0.000		0.777		1.284		1.300		Continuing	TBD	TBD	
Studies, Analysis, & Evaluations Engineering & Technical Services	FFP	Multiple** RhinoCorps (Albuquerque, NM)	3.128	0.572	Mar-04	0.232	Feb-05	0.584	Feb-06	0.001	Jan-07	Continuing	TBD	TBD	
Subtotal Product Development			4.547	1.516		2.240		3.284		2.738		Continuing	TBD	TBD	
Remarks:	* - These activities funded in Project 655708, Nuclear Weapons Support, prior to FY 2005 ** - ITT Systems (Albuquerque, NM), Applied Sciences Labs (Albuquerque, NM); SAIC (Arlington, VA)														
<b>(U) Support</b>															
Management & Professional Support Services	FFP	ANSER (Arlington, VA)	0.930	0.330	Dec-03	0.445	Feb-05	0.475	Jan-06	0.475	Jan-07	Continuing	TBD	TBD	
Subtotal Support			0.930	0.330		0.445		0.475		0.475		Continuing	TBD	TBD	
Remarks:															
<b>(U) Test &amp; Evaluation</b>															
Various AFMC Test Centers	MIPR	Multiple	1.610	0.050	Mar-04	0.283	Mar-05	0.250	Mar-06	0.078	Mar-07	Continuing	TBD	TBD	
Subtotal Test & Evaluation			1.610	0.050		0.283		0.250		0.078		Continuing	TBD	TBD	
Remarks:															
<b>(U) Management</b>															
In-House Programmatic/Financial Management*	Civil Service	AFNWCA (Kirtland AFB, NM)				0.134		0.144		0.146		Continuing	TBD	TBD	
Subtotal Management			0.000	0.000		0.134		0.144		0.146		Continuing	TBD	TBD	
Remarks:	* - These activities funded in Project 655708, Nuclear Weapons Support, prior to FY 2005														
<b>(U) Total Cost</b>			<b>7.087</b>	<b>1.896</b>		<b>3.102</b>		<b>4.153</b>		<b>3.437</b>		<b>Continuing</b>	<b>TBD</b>	<b>TBD</b>	

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604222F Nuclear Weapons Support

PROJECT NUMBER AND TITLE

4236 Engineering Analysis

FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11
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**Nuclear Weapons Program Support**

**Lead Project Officer/Project Officers Group Management (Joint DoD/DOE)**



**Weapons Surveillance, Sustainment, Modernization, & Life Extension Activities**

Gravity Bombs (B61/B83) Life Extension Programs



ICBM Warhead (W62/W78/W87) Life Extension Program

Modernization/Life Extension Programs

Nuclear Surety Enhancements

Land-Based Strategic Nuclear Deterrent

Cruise Missile Warheads (W80/W84)

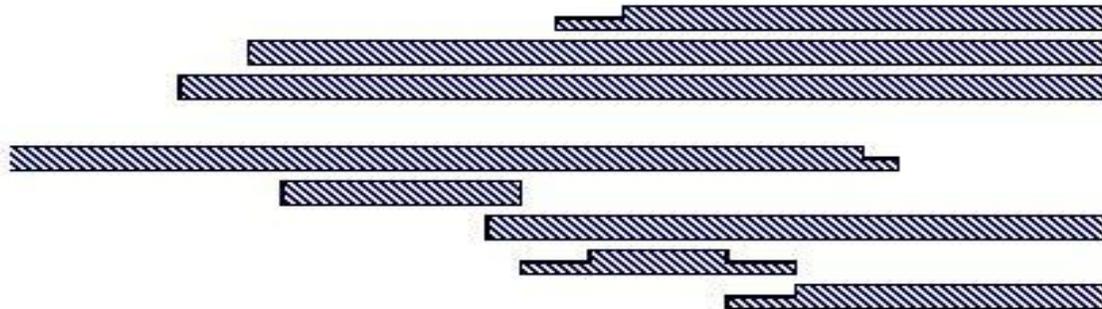
Modernization/Life Extension Programs

W84 Advanced Study

W80 Advanced Study

W80 Integration Analysis

ACM HiFi Guidance System Analysis



**Annual Nuclear Weapon Assessments (All Weapons) (Joint DoD/DOE)**



**Nuclear Weapons Council Directed Special Studies & Analyses (as required)**



**Nuclear Weapons & Counterproliferation Technologies**

Pre-Acquisition Activities

Advanced Technology Analyses/Evaluations



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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604222F Nuclear Weapons Support</b>	<b>PROJECT NUMBER AND TITLE</b> <b>4236 Engineering Analysis</b>
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	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) <b>Schedule Profile</b>				
(U) Nuc Wpm Mgmt Sys/Data Management Reviews*	1-4Q			
(U) Nuclear Certification Management Reviews*	1-4Q			
(U) Engineering Support Progress Reviews*	1-4Q			
(U) Logistics Program Management Progress Reviews*	1-4Q			
(U) Project Officers Group (POG) Management/Engineering & Technical Analysis	1-4Q	1-4Q	1-4Q	1-4Q
(U) Nuclear Weapon Life Extension Programs (LEP) [B61/B83, W80/W84, and W62/W78/W87]	1-4Q	1-4Q	1-4Q	1-4Q
(U) Annual Weapon Assessment [B61/83, W80/84, and W62/W78/W87]	1-4Q	1-4Q	1-4Q	1-4Q
(U) Minuteman III Safety Enhanced Reentry Vehicle Support		1-4Q	1-4Q	1-4Q
(U) Mk12A/Mk21 Fuze Component Replacement Program		3-4Q	1-4Q	1-4Q
(U) Start/Complete W84 Study			2Q	3Q
(U) W80 Advanced Feature Proof of Concept Flight			3Q	
(U) W80 Warhead Integration Analysis				2-4Q
(U) Start W80 Advanced Feature Development				2Q
(U) ICBM Flight Test Study		1-4Q		
(U) ICBM Warhead Force Structure Study		2-4Q	1-4Q	1-4Q
(U) W78/W87 Nuclear Surety Program			1-4Q	1-4Q
(U) B61 Flight Test Program	2-4Q	2-4Q	2-4Q	1-4Q
(U) B83 Special Developmental Flight Tests				1-4Q
(U) Gravity Weapon Software/Hardware Analysis				1-4Q
(U) Counterproliferation Support	1-4Q	1-4Q	1-4Q	1-4Q

\* - These activities moved to Project 655708 beginning in FY 2005

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>					PE NUMBER AND TITLE <b>0604222F Nuclear Weapons Support</b>			PROJECT NUMBER AND TITLE <b>4807 Nuclear Weapons &amp; CP Technologies</b>		
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
4807 Nuclear Weapons & CP Technologies	5.036	5.669	5.931	3.995	6.278	6.395	6.544	6.655	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

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

Perform engineering analyses of counterforce systems and operations against asymmetric threats (e.g., chemical, biological, radiological, and nuclear (CBRN); and hard and deeply buried targets (HDBT)), prepare recommended solutions resulting from these analyses and related efforts for entry into acquisition. Plan for and transition counterforce selected concepts into either an acquisition or advanced concept technology demonstration (ACTD) program to include identifying funding, technical, schedule, and programmatic content. Prepare the necessary acquisition-related documentation to support program and/or decision reviews. Develop, utilize and evaluate tools required for the employment of current inventoried and new counterforce weapons, including intelligence, surveillance, and reconnaissance; battle damage assessment; and target defeat/collateral effects predictions for current and future operations.

Budget Activity Justification: These efforts are Budget Activity 5, System Development and Demonstration, because they are system specific programs that result in identifying and developing or modifying weapons to meet new and evolving counterforce and counterproliferation mission requirements. Efforts also include developing and/or validating target planning software for existing/new counterforce and/or counterproliferation weapons.

**(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 pre-acquisition strategies/studies of conventional and advanced alternatives for counterproliferation/counterforce technologies & capabilities against chemical, biological, radiological, and nuclear (CBRN) targets	1.748	1.650	1.807	1.323
(U) Perform studies of Counterproliferation Advanced Concept Research and Development (R&D) to support advanced conventional and nuclear capabilities.	1.403	1.690	2.164	1.823
(U) Perform studies and analysis of feasibility, definition, and cost as part of the joint DoD/DOE Robust Nuclear Earth Penetrator (RNEP) concept as approved/ directed by the Nuclear Weapons Council (NWC)	1.000	1.000	1.000	
(U) Develop and/or research and improve the fidelity and utility (to include verification, validation, and assessment (VV&A)) of counterproliferation/ counterforce target planning tools	0.885	1.037	0.820	0.717
(U) Provide Operational Support to the Joint Chiefs of Staff, Major Commands and Combatant Commanders for evaluating counter strike operations against CBRN facilities (e.g., intelligence analysis and support, weapon effectiveness, collateral damage, etc.)		0.292	0.140	0.132
(U) Total Cost	5.036	5.669	5.931	3.995

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604222F Nuclear Weapons Support</b>	<b>PROJECT NUMBER AND TITLE</b> <b>4807 Nuclear Weapons &amp; CP Technologies</b>
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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>								
Perform studies/analysis of feasibility, definition, and cost of navigation/guidance/control (NG&C) concepts and										
(U) B-2 integration as part of the joint DoD/DOE RNEP concept as approved/ directed by the NWC (APPN 3400, O&M-AF, PE 0208030F)			3.500	3.500						7.000

**(U) D. Acquisition Strategy**

Firm/fixed price (FFP) contracts and/or MIPRs will be used to contract for advanced analyses and development of selected alternatives leading to, or associated with, DoD pre-Milestone B and/or joint DoD/DOE Phase 0/6.1 through Phase 2A/6.2A activities.

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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			
<b>05 System Development and Demonstration (SDD)</b>				<b>0604222F Nuclear Weapons Support</b>								<b>4807 Nuclear Weapons &amp; CP Technologies</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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>	
<b>(U) Product Development</b>															
Technology Assessments & Demonstrations	MIPR	Multiple*	7.616	2.344	Feb-04	2.138	Jan-05	2.260	Jan-06	1.309	Jan-07	Continuing	TBD	TBD	
Modeling and Simulation Development/Verification	FFP/CP	Multiple**		0.881	Feb-04	0.989	Jan-05	0.956	Jan-06	0.710	Jan-07	Continuing	TBD	TBD	
Studies, Analyses, & Evaluations	FFP/CP	Multiple**	11.015	1.461	Mar-04	1.527	Dec-04	2.120	Dec-05	1.606	Dec-06	Continuing	TBD	TBD	
Subtotal Product Development			18.631	4.686		4.654		5.336		3.625		Continuing	TBD	TBD	
Remarks:	* - ASC (Wright-Patterson AFB, OH), AAC (Eglin AFB, FL) ** - RhinoCorp (Albuquerque, NM), ITT (Colorado Springs, CO)														
<b>(U) Support</b>															
Management & Professional Support Services	FFP/CP	Multiple***	3.419	0.350	Apr-04	1.015	Dec-04	0.595	Dec-05	0.370	Dec-06	Continuing	TBD	TBD	
Subtotal Support			3.419	0.350		1.015		0.595		0.370		Continuing	TBD	TBD	
Remarks:	* - ITT Systems (Albuquerque, NM), ANSER (Arlington, VA)														
<b>(U) Test &amp; Evaluation</b>															
TBD	TBD	TBD											0.000	TBD	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000			0.000	TBD	
Remarks:															
<b>(U) Management</b>															
N/A													0.000		
Subtotal Management			0.000	0.000		0.000		0.000		0.000			0.000	0.000	
Remarks:															
<b>(U) Total Cost</b>			22.050	5.036		5.669		5.931		3.995		Continuing	TBD	TBD	

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604222F Nuclear Weapons Support

PROJECT NUMBER AND TITLE

4807 Nuclear Weapons & CP Technologies

FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11
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**Advanced Technologies**

Pre-Acquisition Activities



Advanced Technology Analyses/Evaluations



Advanced Technologies Activities

Agent Defeat Weapon Technology Demos



Agent Defeat Weapon Concept Studies



Advanced Nuclear Concept Studies



Counter-CBRNE Technology Demos



**Counterproliferation Planning Tools Development**

Agent Defeat Weapon Prediction Tools



Counter-CBRNE Operations



Nuclear Weapons Effects/Vulnerability



**Warfighter Operational Reachback Support (as Required)**



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Exhibit R-4a, RDT&E Schedule Detail		DATE February 2005		
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE		
<b>05 System Development and Demonstration (SDD)</b>	<b>0604222F Nuclear Weapons Support</b>	<b>4807 Nuclear Weapons &amp; CP Technologies</b>		
<b>(U) Schedule Profile</b>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Effects Modeling Tools				
(U) ---Release Beta-Version	3Q			
(U) ---Begin/Complete Initial Validation		2Q	3Q	
(U) ---Complete Initial Releasable Version			3Q	
(U) Chemical Biological (CB) Agent Neutralization Calculator				
(U) ---Release Beta-Version	4Q			
(U) ---Complete Initial Release Version		3Q		
(U) ---Issue Update			3Q	3Q
(U) Nuclear Weapons Effects/Vulnerability Prediction Tools - Begin Development		1Q		
(U) Robust Nuclear Earth Penetrator (RNEP) - Complete Phase 6.2/6.2A study				4Q
(U) Enhanced Cruise Missile (ECM)				
(U) ---Begin/Complete Phase 6.1 Study		1Q	1Q	
(U) ---Begin Phase 6.2 Study (Tentative)			3Q	
(U) Anti-Biological/Chemical (ABC) Weapon				
(U) ---Begin/Complete Phase 1 Study		2Q	3Q	
(U) ---Begin Phase 2 Study (Tentative)				1Q
(U) Agent Defeat Weapon (ADW)				
(U) ---Complete Acquisition Documentation		1Q		
(U) ---Assess Shredder Concept	4Q	2Q		
(U) ---Begin/Complete Bulk Neutralization Proof-of-Concept Demonstration	3Q	4Q		
(U) ---Begin/Complete Delivery System Autonomous Operation Demonstration	2Q		2Q	
(U) Nuclear Weapon Data Link Architecture - Begin/Complete Demonstration	1Q	1Q		
(U) Land Based Strategic Deterrent - Begin/Complete Analysis of Alternatives	3Q	2Q		

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>					PE NUMBER AND TITLE <b>0604222F Nuclear Weapons Support</b>			PROJECT NUMBER AND TITLE <b>5708 Nuclear Weapons Support</b>		
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
5708 Nuclear Weapons Support	5.984	4.414	5.070	4.491	7.123	7.031	6.973	6.892	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 Armament Center's Nuclear Weapons Directorate (AAC/NW) provides direct technical and engineering support for all Air Force (AF) nuclear weapon systems, support systems, facilities, and special procedures. Perform studies and analysis for nuclear capable aircraft and missile systems to include ground and maintenance support equipment required to meet certification, safety, security, reliability, operational, and other requirements; oversees and manages the AF nuclear certification process; interfaces with the Department of Defense (DoD), Department of Energy (DOE) to include their national laboratories, the Air Staff, operational commands, and AF nuclear weapon system related System Program Offices (SPOs) to accomplish weapon sustainment/life extension programs

Budget Activity Justification: These efforts are Budget Activity 5, System Development and Demonstration, because they are system specific programs to identify and develop life extension programs for as well as solutions to problems and/or deficiencies in AF nuclear weapons, weapon systems and the supporting infrastructure.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Nuclear Delivery System Support. Prepare nuclear surety design criteria, standards, specifications, and related requirements documents for all AF ground-launched missile systems; provide nuclear surety design guidance to program office/contractors for weapon system modifications and upgrade programs; perform independent nuclear surety analyses for nuclear safety design certification of weapon system modifications; administer technical order review and validation/verification process; update/publish general nuclear weapons technical guidance; and perform nuclear certification oversight functions; and develop/maintain web-based master certification database/list.	2.769	2.319	4.241	4.327
(U) Nuclear Weapons/Systems Assessments. Develop and update as appropriate joint Department of Defense (DoD)/Department of Energy (DOE) nuclear surety assessment methodologies; conduct safety assessment of warhead maintenance operation in AF facilities; conduct fault tree analyses of nuclear weapons and weapon systems; evaluate safety implications of modifications of Air Force storage and maintenance facilities; and provide other assessments as required; provide nuclear surety support for all support equipment, facilities and special procedures; and develop and manage nuclear facility design criteria.	1.295	1.083	0.432	0.129
(U) Nuclear Weapons Program Support. Accomplish nuclear weapon safety, reliability, mission analysis and compatibility studies; support AF nuclear weapon stockpile activities, weapon use control analyses, and environmental and intrinsic radiation studies. Perform advanced weapons and weapon systems studies as directed by the Air Staff. [Some activities in this Project funded in Project 654236 beginning in FY 2005.]	1.209	1.012	0.397	0.035
(U) Counterproliferation Assessments. Provided counterproliferation-related analyses/expertise/program	0.711			



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Exhibit R-3, RDT&E Project Cost Analysis											DATE February 2005			
BUDGET ACTIVITY 05 System Development and Demonstration (SDD)					PE NUMBER AND TITLE 0604222F Nuclear Weapons Support					PROJECT NUMBER AND TITLE 5708 Nuclear Weapons Support				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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>														
In-house Studies/Analysis & Other Government Activities	Civil Service	AAC/NW (Kirtland AFB, NM)	14.503	2.469		2.178		2.698		2.736		Continuing	TBD	TBD
In-house Studies/Analysis & Other Government Activities*	Civil Service	AFNWCA (Kirtland AFB, NM)	9.153	1.174								0.000	10.327	10.367
Studies, Analyses, & Evaluations	FFP/CPFF	TEAS IV (Ft Walton Beach, FL)	0.500	0.341	Dec-04	0.369	Mar-05	0.375	Jan-06			Continuing	TBD	TBD
Engineering & Technical Services	FFP/CPFF	TEAS IV (Ft Walton Beach, FL), Applied Sciences Laboratory (Albuquerque, NM)	1.050	1.065	Jan-04	1.124	Mar-05	1.157	Jan-06	0.899	Jan-07	Continuing	TBD	TBD
Subtotal Product Development			25.206	5.049		3.671		4.230		3.635		Continuing	TBD	TBD
Remarks:	* - These activities funded in Project 654236, Engineering Analysis, beginning in FY 2005													
(U) <u>Support</u>														
Management & Professional Support Services	FFP	TAMS-McCauley Brown (Ft Walton Beach, FL)	1.085	0.350	Jan-04	0.355	Jan-05	0.360	Jan-06	0.375	Jan-07	Continuing	TBD	TBD
Subtotal Support			1.085	0.350		0.355		0.360		0.375		Continuing	TBD	TBD
Remarks:														
(U) <u>Test &amp; Evaluation</u>														
None														
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
(U) <u>Management</u>														
In-House Programmatic/Financial Management	Civil Service	AAC/NW (Kirtland AFB, NM)	2.541	0.450		0.388		0.480		0.481		Continuing	TBD	TBD
In-House Programmatic/Financial Management*	Civil Service	AFNWCA (Kirtland AFB, NM)	1.017	0.135								0.000	1.152	1.152
Subtotal Management			3.558	0.585		0.388		0.480		0.481		Continuing	TBD	TBD
Remarks:	* - These activities funded in Project 654236, Engineering Analysis, beginning in FY 2005													
(U) <u>TAMS</u>														
Project 5708														

Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2005

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604222F Nuclear Weapons Support

PROJECT NUMBER AND TITLE

5708 Nuclear Weapons Support

(U) Total Cost	29.849	5.984	4.414	5.070	4.491	Continuing	TBD	TBD
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Remarks:

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604222F Nuclear Weapons Support

PROJECT NUMBER AND TITLE

5708 Nuclear Weapons Support

FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11
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**Nuclear Weapons System Project Officers Group Activities (Joint DoD/DOE)**



**Nuclear Weapons System Certification**

Studies & Analyses



Testing Support



**Tech Order Development & Management**



**Data Base Development & Management**



**Facility & Weapon System Design/Evaluation**

Criteria Development



Implementation Guidance



**Nuclear Weapons Program Acquisition Support (Joint DoD/DOE)**

Pre-Acquisition Concept Studies



Weapon Sustainment Activities



Weapon Retirement Activities



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Exhibit R-4a, RDT&E Schedule Detail		DATE <b>February 2005</b>		
BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0604222F Nuclear Weapons Support</b>	PROJECT NUMBER AND TITLE <b>5708 Nuclear Weapons Support</b>		
	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) <b>Schedule Profile</b>				
(U) Weapon System Project Officers Group (POG) Activities	1-4Q	1-4Q	1-4Q	1-4Q
(U) Nuclear Weapons Certification Analyses				
(U) ---Nuclear Certification Management Meetings	2-4Q	2-4Q	2-4Q	2-4Q
(U) ---Independent Surety Analysis	1-4Q	1-4Q	1-4Q	1-4Q
(U) ---Compatibility Analysis	1-4Q	1-4Q	1-4Q	1-4Q
(U) ---Surveillance Tests	1-4Q	1-4Q	1-4Q	1-4Q
(U) ---Aircraft Monitor & Control (AMAC) Tests	3-4Q	4Q	1Q	2Q
(U) ---Land Based Strategic Nuclear Deterrence Analysis			1-4Q	1-4Q
(U) ---Intercontinental Ballistic Missile (ICBM) Security Mod Program			1-4Q	1-4Q
(U) ---ICBM Crypto Upgrade Program			1-4Q	1-4Q
(U) Data Base Development & Management	1-4Q	1-4Q	1-4Q	1-4Q
(U) Tech Order (TO) Development & Management	1-4Q	1-4Q	1-4Q	1-4Q
(U) ---Joint Strike Fighter (JSF) TO Development		1-4Q	1-4Q	1-4Q
(U) Studies, Analyses, & Assessments				
(U) ---Airborne Launch Control System (ALCS) Operational Safety Review	4Q			
(U) ---Safety Enhanced Reentry Vehicle (SERV) Safety Study		1-2Q		
(U) ---Strike Aircraft Operational Safety Review		3Q		
(U) ---Primary Nuclear Airlift Force (PNAF) Safety Study			1Q	
(U) ---ICBM Operational Safety Review			3Q	
(U) ---Long Term Storage Operational Safety Review				2Q
(U) ---Technical Nuclear Safety Analysis (TNSA)		4Q	1Q	
(U) ---Weapons Maintenance Program Safety	1-4Q	1-4Q	1-4Q	1-4Q
(U) ---Facilities Utilization/Design Studies	1-4Q	1-4Q	1-4Q	1-4Q
(U) Nuclear Weapons Program Support				
(U) ---Pre Acquisition Concept Studies (Phase 6.1/6.2/6.2A) (as requested)	1-4Q	1-4Q	1-4Q	1-4Q
(U) ---Nuclear Weapon Sustainment Activities (Phase 6/6.6)	1-4Q	1-4Q	1-4Q	1-4Q
(U) ---Nuclear Weapon Retirement Activities (Phase 7)	4Q	2-4Q	2-4Q	2-4Q
(U) Information Technology Activities	1-4Q	1-4Q	1-4Q	1-4Q

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PE NUMBER: 0604226F

PE TITLE: B-1B

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2005</b>
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BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0604226F B-1B</b>
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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	82.330	83.719	132.496	120.485	88.748	55.152	85.684	5.000	Continuing	TBD
4596 Conventional Mission Upgrades	82.330	83.719	132.496	120.485	88.748	55.152	85.684	5.000	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**

This program provides RDT&E funding for the B-1B Conventional Mission Upgrade Program (CMUP). Funding in the FYDP includes integration of advanced conventional weapons, including (but not limited to) variants of the Joint Direct Attack Munition (JDAM), Wind Corrected Munitions Dispenser (WCMD), Joint Stand-Off Weapon (JSOW), and Joint Air to Surface Stand-Off Missile (JASSM). FYDP funding also includes upgrades to the Electronic Countermeasures (ECM) suite. Additional efforts include an upgrade to the avionics computers to enable simultaneous carriage of multiple weapon types, provide growth capability, and reduce support costs; development of the B-1B mission planning interface to the Air Force Mission Support System (AFMSS) and related mission planning systems; and upgrades to the B-1B training systems to keep them current with the aircraft's configuration. Funding is provided for development efforts to improve the display of threat situational awareness (S/A) information (to include datalink) to the aircrew and to record mission information. ALQ-161 defensive system upgrades to address reliability, maintainability, diminishing manufacturing sources (DMS) and performance deficiencies on selected line replaceable units (LRUs) are also included. Reliability and DMS deficiencies and performance improvements to the Central Integrated Test System (CITS), Inertial Navigation System/Gyro Stabilization System (INS/GSS), Vertical Situation Display (VSD), and weapons radar subsystem are addressed in this program also. Funding is provided for engineering efforts and engineering and planning studies for potential future weapon system enhancements (weapons, targeting, sensors, and avionics) and for weapon system operational/safety, supportability, maintainability, reliability, and Total Ownership Cost (TOC) improvements. Also included are the B-1 platform unique development items for integration of Link 16 and Beyond Line of Sight Datalinks, and associated weapons management enhancements. The Defensive System Upgrade Program (DSUP) has been terminated.

(U) The B-1 CMUP program is included in Budget Activity 5, System Demonstration and Development. The CMUP program provides new capabilities to the B-1B weapon system, including GPS, Near-Precision Weapons, enhanced computers, datalink, and upgraded ECM. These capabilities require significant software development and testing.

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2005

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604226F B-1B

(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	87.933	59.462	107.061	74.751
(U) Current PBR/President's Budget	82.330	83.719	132.496	120.485
(U) Total Adjustments	-5.603	24.257		
(U) Congressional Program Reductions		-0.743		
Congressional Rescissions				
Congressional Increases		25.000		
Reprogrammings	-2.946			
SBIR/STTR Transfer	-2.657			

(U) **Significant Program Changes:**

FY04 realigned to match Congressional Program Reductions. Current efforts for Computer upgrade; and WCMD; JSOW/JASSM weapons integration, are ending, with new development efforts beginning in FY05 and later in the FYDP.

FY06: (-\$8.5M) 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 Support; Increased funding for Radar R&M effort (+\$16.8M); and increased development funding to correct B-1 critical systems (avoid grounding aircraft).

FY07: Increased funding for Radar R&M effort (+\$48.8M); and increased development funding to correct B-1 critical systems (avoid grounding aircraft)

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2005

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE			
<b>05 System Development and Demonstration (SDD)</b>				<b>0604226F B-1B</b>				<b>4596 Conventional Mission Upgrades</b>			
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	
4596 Conventional Mission Upgrades	82.330	83.719	132.496	120.485	88.748	55.152	85.684	5.000	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 RDT&E funding for the B-1B Conventional Mission Upgrade Program (CMUP). Funding in the FYDP includes integration of advanced conventional weapons, including (but not limited to) variants of the Joint Direct Attack Munition (JDAM), Wind Corrected Munitions Dispenser (WCMD), Joint Stand-Off Weapon (JSOW), and Joint Air to Surface Stand-Off Missile (JASSM). FYDP funding also includes upgrades to the Electronic Countermeasures (ECM) suite. Additional efforts include an upgrade to the avionics computers to enable simultaneous carriage of multiple weapon types, provide growth capability, and reduce support costs; development of the B-1B mission planning interface to the Air Force Mission Support System (AFMSS) and related mission planning systems; and upgrades to the B-1B training systems to keep them current with the aircraft's configuration. Funding is provided for development efforts to improve the display of threat situational awareness (S/A) information (to include datalink) to the aircrew and to record mission information. ALQ-161 defensive system upgrades to address reliability, maintainability, diminishing manufacturing sources (DMS) and performance deficiencies on selected line replaceable units (LRUs) are also included. Reliability and DMS deficiencies and performance improvements to the Central Integrated Test System (CITS), Inertial Navigation System/Gyro Stabilization System (INS/GSS), Vertical Situation Display (VSD), and weapons radar subsystem are addressed in this program also. Funding is provided for engineering efforts and engineering and planning studies for potential future weapon system enhancements (weapons, targeting, sensors, and avionics) and for weapon system operational/safety, supportability, maintainability, reliability, and Total Ownership Cost (TOC) improvements. Also included are the B-1 platform unique development items for integration of Link 16 and Beyond Line of Sight Datalinks, and associated weapons management enhancements. The Defensive System Upgrade Program (DSUP) has been terminated.

(U) The B-1 CMUP program is included in Budget Activity 5, System Demonstration and Development. The CMUP program provides new capabilities to the B-1B weapon system, including GPS, Near-Precision Weapons, enhanced computers, datalink, and upgraded ECM. These capabilities require significant software development and 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) Continued Conventional Mission Upgrade Program (CMUP) contractual efforts	57.284	65.424	118.425	113.684
(U) Government Furnished Equipment (GFE)	0.000	0.000	0.000	0.000
(U) Government Flight Test, Live Fire Test & Evaluation and General Test Support	15.504	13.155	7.735	5.028
(U) Continuing Mission Support	5.414	4.640	5.178	1.743
(U) Modeling & Simulation / Studies & Analyses	4.128	0.500	1.158	0.030
(U) Total Cost	82.330	83.719	132.496	120.485

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**Exhibit R-2a, RDT&E Project Justification**

DATE

**February 2005**

BUDGET ACTIVITY

**05 System Development and Demonstration (SDD)**

PE NUMBER AND TITLE

**0604226F B-1B**

PROJECT NUMBER AND TITLE

**4596 Conventional Mission Upgrades**

**(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>Complete</u>							
(U) Appn 10, PE 0101126F, B-1B, Aircraft Procurement BP11, Mods	99.427	8.689	27.875	59.839	81.417	104.112	162.193	92.306	777.525	1,413.383
(U) Appn 10, PE 0101126F, B-1B, Aircraft Procurement BP16, Initial Spares	5.839	1.463	3.523	6.681	13.395	3.476	5.790	6.125	61.866	108.158
(U) Appn 10, PE 0101126F, B-1B, Aircraft Procurement BP12, Common Support Equipment	24.743	4.893	2.423	2.438	2.613	2.616	2.681	2.713	0.000	45.120
(U) Appn 10, PE 0101126F, B-1B, Aircraft Procurement BP13, Post Production Charges	8.157	11.553	13.466	10.151	0.000	0.000	0.000	0.000	10.000	53.327
(U) Appn 10, PE 0207423F, Adv Com Sys BP11	0.000	0.000	0.000	20.761	19.472	20.315	25.532	20.289	84.325	190.694
(U) Appn 36, PE 0207446F, Bomber TDL Core Related RDT&E:	12.049	66.098	77.988	32.292	0.000	0.000	0.000	0.000	0.000	188.427
(U) Program Element 0205164F, Global Positioning System (GPS)										
(U) Program Element 0207325F, Joint Air to Surface Standoff Missile (JASSM)										
(U) Program Element 0604727F/N, Joint Stand-Off Weapon (JSOW)										
(U) Program Element 0604600F, Wind Corrected Munitions Dispenser (WCMD)										
(U) Program Element 0208006F, Air Force Mission Support System (AFMSS)										
(U) Program Element 0604270F, Electronic Warfare (EW) Development										

**(U) D. Acquisition Strategy**

(U) Key elements of the overall CMUP acquisition strategy include: use of a sole source contract with a prime/integrating contractor (Boeing); assignment of Total System Installed Performance Responsibility (TSIPR) to the integrating contractor; use of cost plus award fee (CPAF) and cost plus incentive fee (CPIF) development contracts; and combining developmental upgrades with software sustainment blocks to minimize the number of software releases, aircraft downtime and differences in fielded configurations.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2005**

<b>BUDGET ACTIVITY</b>	<b>PE NUMBER AND TITLE</b>	<b>PROJECT NUMBER AND TITLE</b>
<b>05 System Development and Demonstration (SDD)</b>	<b>0604226F B-1B</b>	<b>4596 Conventional Mission Upgrades</b>

<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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) DSUP*													0.000	
(U) TBC	SS/CPAF		31.918										31.918	
(U) TBC	SS/CPAF		217.727										217.727	
* FY03 funds to be applied to DSUP termination													0.000	
(U) Mission Planning System													0.000	
(U) Lockheed-Sanders	C/CPAF		0.545										0.545	
(U) Northrup Grumman	C/CPAF		56.954	2.753	Jan-05								59.707	
(U) Training Systems													0.000	
(U) Lockheed-Martin	C/CPAF		13.248										13.248	
(U) INLX	C/CPAF		27.089	3.752	Feb-05	0.945	Jan-06						31.786	
(U) TBD	TBD							0.760	Jan-07				0.760	
(U) Weapons													0.000	
(U) TBC - CBU's	SS/CPFF		4.960										4.960	
(U) TBC - CBU's	SS/CPFF		16.314										16.314	
(U) TBC - FWEP	SS/T&M		3.866										3.866	
(U) TBC - EFX	SS/T&M		5.727										5.727	
(U) TBC- JDAM/GPS Pre-SDD	SS/CPFF		75.099	2.890	Dec-04								77.989	
(U) TBD - INS/GSS	TBD							14.681	Jan-06	9.425	Nov-06	56.466	80.572	
(U) TBD - RADAR Improvements	TBD							42.189	Jan-06	67.079	Dec-06	78.956	188.224	
(U) AIL - ALQ-161 R&M/DMS	SS/CPFF		9.413	18.660	Feb-04	12.362	Feb-05	14.095	Jan-06	10.944	Dec-06	44.734	110.208	
(U) TBC - TSAS/AVTR Improvements	SS/CPFF		26.396	8.645	Feb-05								35.041	
(U) TBD - VSD Upgrade	TBD							15.571	Jan-06	7.554	Jan-07		23.125	
(U) TBD - CITS/R&M/DMS	TBD					6.895	Apr-05	12.234	Nov-05	15.079	Nov-06		34.208	
(U) TBC -FIDL Pre-SDD	SS/CPFF			1.038	May-04	3.746	Feb-05						4.784	
(U) TBD -FIDL SDD	TBD					20.732	Apr-05	18.895	Nov-05	3.603	Nov-06	2.295	45.525	
(U) TBC- JDAM/ GPS SDD	SS/CPAF		272.404										272.404	
(U) TBC-ACBM	SS/CPAF		1.900										1.900	
(U) TBC-Wing Sweep	SS/T&M		1.089										1.089	
(U) TBC- Computer	SS/CPAF		173.340										173.340	
(U) TBC-WCMD	SS/CPAF		41.325										41.325	
(U) Lockheed-Martin - WCMD	SS/CPAF		1.801										1.801	
(U) TBC- JSOW/ JASSM	SS/CPAF		34.537	19.546	Feb-05								54.083	
(U) Lockheed- Martin - JASSM	SS/T&M		9.499										9.499	
(U) Raytheon -JSOW	SS/T&M		2.510										2.510	
(U) TBD-EO/IR Targeting Pod (Congressional Add)						20.744	Mar-05					78.955	99.699	
(U) TBD - Future CMUP Related SDD	TBD											Continuing	TBD	
Subtotal Product Development			1,027.661	57.284		65.424		118.425		113.684		Continuing	TBD	0.000
Remarks:														

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Exhibit R-3, RDT&E Project Cost Analysis											DATE <b>February 2005</b>			
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
<b>05 System Development and Demonstration (SDD)</b>					<b>0604226F B-1B</b>					<b>4596 Conventional Mission Upgrades</b>				
<u>(U) Support</u>														
(U) A&AS	Various	32.976	5.414	Jun-04	4.640	Jun-05	5.178	Jun-06	1.743	Jun-07	10.066	60.017		
(U) Studies & Analyses / Modeling & Sim	Various	25.074	4.128	Feb-05	0.500	Dec-05	1.158	Dec-06	0.030	Dec-07	1.384	32.274		
(U) Program Mgmt & Admin	Various											0.000		
Subtotal Support		58.050	9.542		5.140		6.336		1.773		11.450	92.291	0.000	
Remarks:														
<u>(U) Test &amp; Evaluation</u>														
(U) Modernization/DataLinks												0.000		
(U) AFFTC	P.O.											0.000		
(U) DSUP*												0.000		
* FY03 funds to be applied to DSUP termination												0.000		
(U) AFFTC	P.O.	17.761										17.761		
(U) Weapons												0.000		
(U) AFFTC	P.O.	118.752	15.504	Jul-04	13.155	Jul-05	7.735	Jul-06	5.028	Jul-07	14.160	174.334		
Subtotal Test & Evaluation		136.513	15.504		13.155		7.735		5.028		14.160	192.095	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		1,222.224	82.330		83.719		132.496		120.485		Continuing	TBD	0.000	

Exhibit R-4, RDT&E Schedule Profile

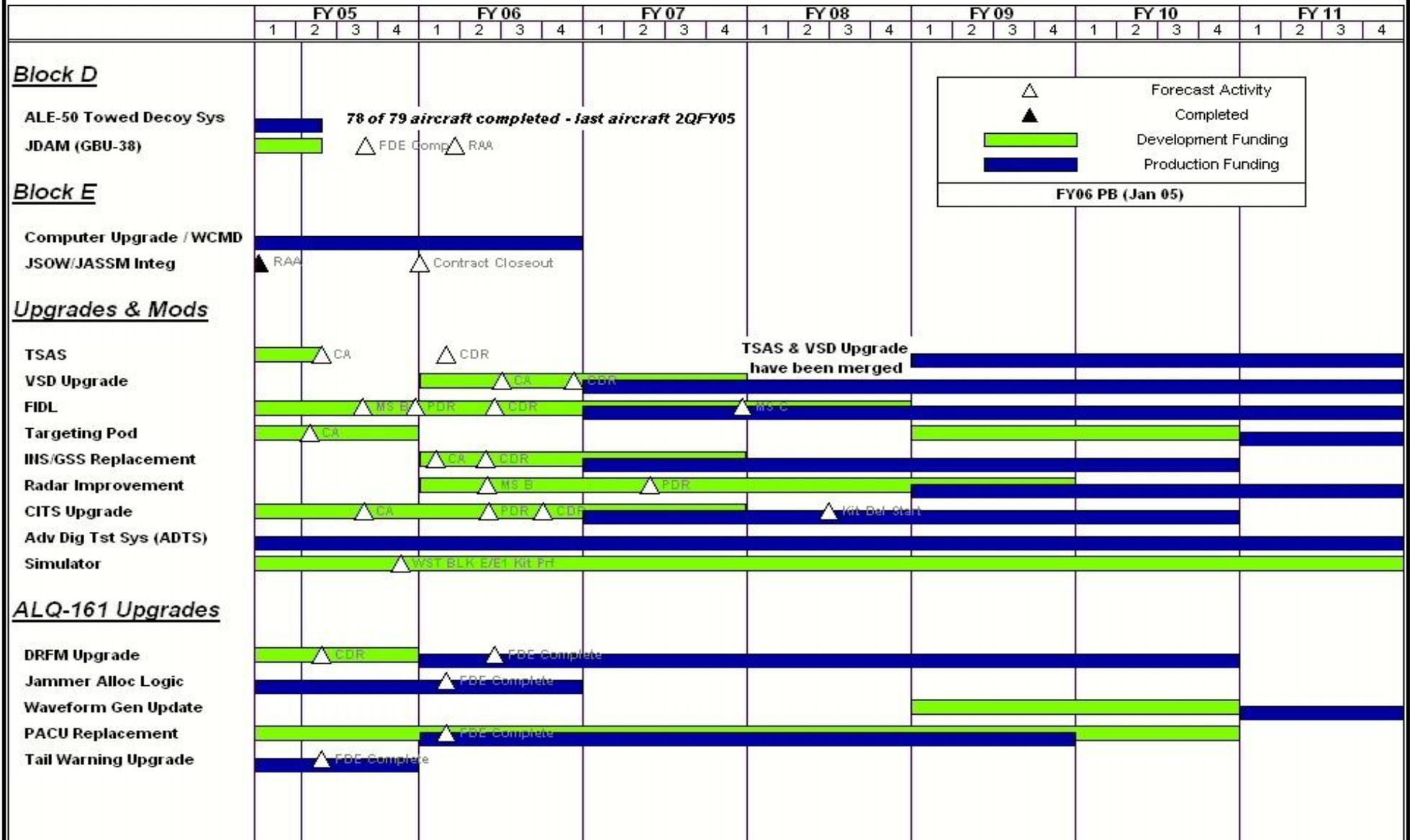
DATE

February 2005

BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE  
0604226F B-1B

PROJECT NUMBER AND TITLE  
4596 Conventional Mission Upgrades



## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2005

BUDGET ACTIVITY	PE NUMBER AND TITLE		PROJECT NUMBER AND TITLE		
<b>05 System Development and Demonstration (SDD)</b>	<b>0604226F B-1B</b>		<b>4596 Conventional Mission Upgrades</b>		
<b>(U) Schedule Profile</b>	<b>FY 2004</b>	<b>FY 2005</b>	<b>FY 2006</b>	<b>FY 2007</b>	
(U) JSOW/JASSM Integration-- FCA/PCA		1Q			
(U) JSOW/JASSM Integration -- Software Fielding Decision	4Q				
(U) JSOW/JASSM Integration (T&E)-- DT/OT Complete	4Q				
(U) JSOW/JASSM Integration (T&E)-- FDE Complete	3Q				
(U) JSOW/JASSM Integration-- RAA		1Q			
(U) JSOW/JASSM Integration-- EOC		1Q			
(U) JSOW/JASSM Integration-- Award Fee Period #13	4Q		1Q		
(U) JSOW/JASSM Integration-- Delivery Order 007 Complete			1Q		
(U) JSOW/JASSM Integration-- Contract -2075 CLIN 16 Closeout			1Q		
(U) Mission Planning System-- S/W Release 2.10 Delivery	3Q				
(U) Mission Planning System-- S/W Release 2.20 Delivery		2Q			
(U) Mission Planning System-- In-Flight Replanner (IFR) Spiral 1 Delivery	1Q				
(U) Mission Planning System-- IFR Spiral 2 Delivery	2Q				
(U) Mission Planning System-- IFR Spiral 3 Delivery		1Q			
(U) Mission Planning System-- IFR Spiral 4 Delivery		3Q			
(U) Mission Planning System-- Award Fee Period 10		2Q			
(U) Mission Planning System (T&E)-- S/W Release 2.10 DT/OT	2Q				
(U) Mission Planning System (T&E)-- IFR Spiral 3 DT/OT	4Q				
(U) Mission Planning System (T&E)-- S/W Release 2.20 DT/OT		1Q			
(U) Mission Planning System (T&E)-- IFR Spiral 4 DT/OT		2Q			
(U) Trainer/Simulator System-- WST Rehost FCA/PCA		2Q			
(U) Trainer/Simulator System-- SB-10 SSR		1Q			
(U) Trainer/Simulator System-- CPT E1 FCA/PCA		2Q			
(U) Trainer/Simulator System-- WST Blk E/E1 FCA/PCA		3Q			
(U) Trainer/Simulator System (T&E) -- WST Rehost FMT Kit-Proof		1Q			
(U) Trainer/Simulator System (T&E) -- CPT E1 Kit-Proof FMT		3Q			
(U) Trainer/Simulator System (T&E) -- WST Blk E/E1 Kit-Proof FMT		4Q			
(U) Trainer/Simulator System (T&E) -- Mission Trainer Blk E/E1 Kit-Proof FMT		4Q			
(U) Trainer/Simulator System (Contract) -- Award Fee (FY03)	2Q				
(U) Trainer/Simulator System (Contract) -- Award Fee (FY04)		3Q			
(U) ALQ-161A Digital Radio Frequency Memory (DRFM)-- PDR		1Q			
(U) ALQ-161A Digital Radio Frequency Memory (DRFM)-- CDR		2Q			
(U) ALQ-161A Digital Radio Frequency Memory (DRFM)-- QT&E/FDE Start		4Q			

Project 4596

R-1 Shopping List - Item No. 67-8 of 67-10

Exhibit R-4a (PE 0604226F)

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Exhibit R-4a, RDT&E Schedule Detail		DATE
		<b>February 2005</b>
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE
<b>05 System Development and Demonstration (SDD)</b>	<b>0604226F B-1B</b>	<b>4596 Conventional Mission Upgrades</b>
(U) ALQ-161A Digital Radio Frequency Memory (DRFM)-- QT&E/FDE Complete		2Q
(U) ALQ-161A Jammer Allocation Logic Sys (JALS)-- QT&E/FDE		1Q
(U) ALQ-161A Tail Warning Function (TWF)-- QT&E/FDE		2Q
(U) ALQ-161A Preprocessor Avionics Control Unit (PACU)-- PDR/CDR	3Q	1Q
(U) ALQ-161A Preprocessor Avionics Control Unit (PACU)-- QT&E/FDE Flight Test Start		4Q
(U) ALQ-161A Preprocessor Avionics Control Unit (PACU)-- QT&E/FDE Flight Test Complete		1Q
(U) Threat Situational Awareness System (TSAS)-- PDR		3Q
(U) Threat Situational Awareness System (TSAS)-- SDD Contract Award		2Q
(U) Threat Situational Awareness System (TSAS)-- CDR		1Q
(U) Fully Integrated Data Link (FIDL)-- FIDL Pre-SDD Contract Award	3Q	
(U) Fully Integrated Data Link (FIDL)-- FIDL Pre-SDD Complete		3Q
(U) Fully Integrated Data Link (FIDL)-- FIDL Milestone B		3Q
(U) Fully Integrated Data Link (FIDL)-- FIDL SDD Contract Award		3Q
(U) Fully Integrated Data Link (FIDL)-- PDR		4Q
(U) Fully Integrated Data Link (FIDL)-- CDR		2Q
(U) Fully Integrated Data Link (FIDL)-- DT&E Flight Test Start		3Q
(U) Central Integrated Test System (CITS)-- SDD Contract Award		1Q
(U) Central Integrated Test System (CITS)-- PDR		4Q
(U) Central Integrated Test System (CITS)-- CDR		4Q
(U) Central Integrated Test System (CITS)-- DT/OT Flight Test		2Q
(U) Vertical Situation Displays (VSD) Upgr-- SDD Contract Award		2Q
(U) Vertical Situation Displays (VSD) Upgr-- PDR		4Q
(U) Vertical Situation Displays (VSD) Upgr-- CDR		1Q
(U) Vertical Situation Displays (VSD) Upgr-- DT/OT Flight Test		2Q
(U) JDAM/GPS -- DT/OT Complete		2Q
(U) JDAM/GPS -- Kit Proof Complete		2Q
(U) JDAM/GPS -- FDE Complete		3Q
(U) JDAM/GPS -- FCA/PCA Complete		3Q
(U) JDAM/GPS -- RAA		1Q
(U) JDAM/GPS -- Delivery Order 0030 Complete		2Q
(U) Inertial Nav Sys/Guro Stab Sys (INS/GSS)-- SDD Contract Award		2Q
(U) Inertial Nav Sys/Guro Stab Sys (INS/GSS)-- PDR		4Q
(U) Inertial Nav Sys/Guro Stab Sys (INS/GSS)-- CDR		1Q

Project 4596

R-1 Shopping List - Item No. 67-9 of 67-10

Exhibit R-4a (PE 0604226F)

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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>		DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604226F B-1B</b>	<b>PROJECT NUMBER AND TITLE</b> <b>4596 Conventional Mission Upgrades</b>
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(U) Inertial Nav Sys/Guro Stab Sys (INS/GSS)-- DT/OT Flight Test			2Q
(U) RADAR Improvement Upgrade -- Milestone B		2Q	
(U) RADAR Improvement Upgrade -- SDD Contract Award		2Q	
(U) RADAR Improvement Upgrade -- PDR			2Q

**UNCLASSIFIED**

PE NUMBER: 0604233F  
 PE TITLE: Specialized Undergraduate Pilot Training

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	<b>DATE</b> <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604233F Specialized Undergraduate Pilot Training</b>
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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	3.099	3.330	8.593	2.181	6.792	2.249	2.302	2.340	Continuing	TBD
4102 Joint Primary Aircraft Training System (JPATS)	1.799	1.926	7.141	2.181	2.213	2.249	2.302	2.340	Continuing	TBD
4376 T-38 Avionics Upgrade Program (AUP)	1.300	1.404	1.452	0.000	4.579	0.000	0.000	0.000	Continuing	TBD

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

Supports Air Education and Training Command's (AETC) implementation of Specialized Undergraduate Pilot Training (SUPT) and the Department of Defense initiative for joint pilot training. The Joint Primary Aircraft Training System (JPATS) is a joint USAF/USN venture to replace the Services' fleets of primary trainer aircraft (T-37 and T-34 respectively) and associated Ground Based Training Systems (GBTS). The Air Force is the Executive Service. For FY2006 only, Project 4102, JPATS, includes funding for an upgrade to the Simulator for Electronic Combat Training (SECT), a one-of-a-kind simulator at Randolph AFB TX used to train electronic warfare officers. The T-38 AUP is an integrated modernization of the T-38A and AT-38B cockpits to support mission ready fighter and bomber training. Additionally, there are funds in this project for Phase I testing of propulsion enhancements for the T-38 aircraft and to update T-38 flight performance models, Technical Orders, and AUP software for both aircraft and Aircrew Training Devices for changes brought about by the T-38 Propulsion Modernization Program (PMP). T-38 FY2002 and FY 2004 - FY2009 funding is for software block updates driven by FAA-mandated changes, National Aerospace System (NAS) requirements, and enhancements identified during test and evaluation. FY2008 - FY2009 includes development funding for improved T-38 brakes.

This program element is in Budget Activity 5, System Development and Demonstration (SDD) because it primarily involves the missionization of commercial derivative aircraft, equipment, and components.

**(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	3.267	3.359	8.548	3.629
(U) Current PBR/President's Budget	3.099	3.330	8.593	2.181
(U) Total Adjustments	-0.168	-0.029		
(U) Congressional Program Reductions	-0.028			
Congressional Rescissions		-0.029		
Congressional Increases				
Reprogrammings	-0.056			
SBIR/STTR Transfer	-0.084			

**(U) Significant Program Changes:**

Reductions in FY2004 for Congressional General Reductions, Small Business Innovation Research, and Below Threshold Reprogrammings. Reduction in FY2005 for Congressional Rescissions. FY2005 reduced for Congressional rescissions. FY2006 and out increased due to inflation rate changes. FY 2007 and out funding for Project

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2005

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604233F Specialized Undergraduate Pilot Training

4376, T-38 Avionics Upgrade Program, reduced.

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>					PE NUMBER AND TITLE <b>0604233F Specialized Undergraduate Pilot Training</b>			PROJECT NUMBER AND TITLE <b>4102 Joint Primary Aircraft Training System (JPATS)</b>		
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
4102 Joint Primary Aircraft Training System (JPATS)	1.799	1.926	7.141	2.181	2.213	2.249	2.302	2.340	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 Primary Aircraft Training System (JPATS) is a joint USAF/USN venture to replace the Services' fleets of primary trainer aircraft (T-37 and T-34, respectively) and associated Ground Based Training Systems (GBTS). The aircraft and GBTS will be used to train entry-level student aviators in the fundamentals of flying so they can transition into advanced training tracks leading to qualification as military pilots, navigators, and naval flight officers. The program includes the purchase of aircraft, simulators, and other associated ground-based training devices, Training Integration Management System (TIMS), instructional courseware, and logistics support.

Supports Air Education and Training Command's (AETC) implementation of Joint Undergraduate Navigator Training. The T25 Simulator for Electronic Combat Training (SECT) is used to train all USAF Electronic Warfare Officers. The SECT was designed in the early 1990s as a proprietary based trainer using mini-computers and workstations. Most hardware is now obsolete and is no longer supported by the vendor. Secondary sources do not exist for some hardware items, and secondary sources are also becoming scarce for other hardware items. Future reliability is questionable. Per AETC Test 99-02F T25 Force Development Evaluation Report, the SECT is "not operationally effective" because of inadequate memory, disk space and processing power. Existing hardware memory and processing power cannot be increased to build complex, realistic, up-to-date training scenarios. A non-proprietary, open-architecture trainer would provide reliability and required growth capability to accommodate dynamic EW training environment.

Budget Activity Justification: This program element is in Budget Activity 5, System Development and Demonstration (SDD) because it primarily involves the missionization of commercial derivative aircraft, equipment, and components.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) JPATS studies & development efforts.	1.799	1.926	1.760	2.181
(U) SECT software/hardware upgrade	0.000	0.000	5.381	0.000
(U) Total Cost	1.799	1.926	7.141	2.181

**(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) AF RDT&E	1.799	1.926	7.141	2.181	2.213	2.249	2.302	2.340	Continuing	TBD
(U) Other APPN										
(U) Aircraft Procurement, Air Force, BA-3										

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604233F Specialized Undergraduate Pilot Training</b>	<b>PROJECT NUMBER AND TITLE</b> <b>4102 Joint Primary Aircraft Training System (JPATS)</b>
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**(U) C. Other Program Funding Summary (\$ in Millions)**

(U) JPATS	271.171	302.373	333.307	306.074	237.446	2.901	2.871	2.780	6.400	2,495.044
(U) JPATS, BA-6	6.925	7.509	0.000	0.000	0.000	0.000	0.000	0.000	0.000	25.757
(U) JPATS Mod Funding	4.660	3.792	6.143	6.063	16.632	20.833	17.135	11.654	94.798	181.110
(U) Military Construction, Air Force	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
(U) PE 0804741F, JPATS	2.240	0.000	3.013	0.000	0.000	0.000	0.000	0.000	0.000	19.253
(U) RDT&E, Navy, BA-7 PE 0603208N, Training										
(U) System Aircraft, H1150, JPATS	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	11.300
(U) Aircraft Procurement, Navy, BA-3	24.291	2.034	2.356	159.916	305.906	327.623	349.750	351.530	499.469	2,221.467
(U) JPATS										
(U) APN 5 Mod Funding	0.530	0.648	0.714	1.640	1.305	1.490	1.520	1.550	15.704	25.101
(U) APN 6 Spares	0.000	0.000	0.000	3.838	7.818	7.146	7.194	4.912	15.670	58.025
(U) Military Construction, Navy	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	13.400

**(U) D. Acquisition Strategy**

JPATS was competitively awarded with the intent of maximizing the use of commercially available equipment and best commercial practices. Initially, the JPATS Program competitively awarded two contracts: a Firm Fixed Price Contractor Logistics Support (CLS) - Operations and Maintenance funds - contract and a Fixed Price Incentive Firm Target (FPIF) manufacturing development (MD)/production contract with seven options. The FY2002 (Lots 9-13) production contract for both the air vehicle and GBTS is Firm Fixed Price, FAR Part 12 (commercial).

For SECT, the intent is to compete contract to maximize use of commercially available equipment and best commercial practices. Daily operations and maintenance is provided via a separate, competitively awarded Firm Fixed Price Contractor Logistics Support (CLS) contract, originally awarded in FY2000 for 1 year plus nine one-year options.

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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					
<b>05 System Development and Demonstration (SDD)</b>				<b>0604233F Specialized Undergraduate Pilot Training</b>						<b>4102 Joint Primary Aircraft Training System (JPATS)</b>					
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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 Aircraft Company (RAC) */****	C/FPI	RAC, Wichita KS	215.790	1.799	Feb-04	1.926	Aug-05	1.760	May-06	2.181	May-07	Continuing	TBD	TBD	
SECT Upgrade	TBD	TBD	0.000	0.000		0.000		5.381	Oct-05	0.000		0.000	5.381	TBD	
Subtotal Product Development			215.790	1.799		1.926		7.141		2.181		Continuing	TBD	TBD	
Remarks:	* RAC contract Total Program includes contract value, 'to ceiling,' Engineering Change Order (ECO), and Production Incentive RAC EAC includes subcontracted GBTS effort, which is not individually reported ****EACs based on GBTS Only: Lots 1, 6, 7 and 8.														
(U) <u>Support</u>															
Various	Various		44.210	0.000								Continuing	TBD		
Subtotal Support			44.210	0.000		0.000		0.000		0.000		Continuing	TBD	0.000	
Remarks:															
(U) <u>Test &amp; Evaluation</u>															
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000			0.000	0.000	
Remarks:															
(U) <u>Management</u>															
Subtotal Management			0.000	0.000		0.000		0.000		0.000			0.000	0.000	
Remarks:															
(U) Total Cost			260.000	1.799		1.926		7.141		2.181		Continuing	TBD	TBD	

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604233F Specialized Undergraduate Pilot Training

PROJECT NUMBER AND TITLE

4102 Joint Primary Aircraft Training System (JPATS)

ID	Task Name	'04				'05				'06				'07			
		Q1	Q2	Q3	Q4												
1	Aircraft RM&A Verification																
2	ISS Development																
3	Cockpit Upgrade Development																
4	ASV Development																
5	LWARS Development																
6	TAS Development																

Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2005

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0604233F Specialized Undergraduate Pilot Training</b>	PROJECT NUMBER AND TITLE <b>4102 Joint Primary Aircraft Training System (JPATS)</b>
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(U) <b>Schedule Profile</b>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) JPATS Begin FOT&E	1Q			
(U) JPATS Begin RM & A Verification	2Q			
(U) JPATS Complete RM & A Verification	3Q			
(U) JPATS Complete FOT&E		1Q		
(U) SECT Request for Information		3Q		
(U) SECT Request for Proposal		4Q		
(U) SECT Contract Award			1Q	
(U) SECT Software and Hardware Design/Development			2-4Q	1Q
(U) SECT Software and Hardware Design/Development Complete				2Q
(U) SECT System Integration Complete				3Q
(U) SECT System Acceptance				4Q

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>					PE NUMBER AND TITLE <b>0604233F Specialized Undergraduate Pilot Training</b>			PROJECT NUMBER AND TITLE <b>4376 T-38 Avionics Upgrade Program (AUP)</b>		
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
4376 T-38 Avionics Upgrade Program (AUP)	1.300	1.404	1.452	0.000	4.579	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 T-38 Avionics Upgrade Program (AUP) is an integrated modernization of the T-38A and AT-38B cockpits to support mission-ready fighter training and converts all T-38A and AT-38B aircraft to T-38C configuration. The modernized digital cockpit will include Global Positioning System (GPS), Head-Up Display (HUD), Inertial Navigation System (INS), Multi-Function Displays (MFDs), Up-Front Control Panel (UFCP), Data Transfer System (DTS), No-Drop Bombing System (NDBS), and Hands-On Throttle and Stick (HOTAS) switchology. HUD symbology is the new USAF standard recently certified as a primary flight reference. Also included is the acquisition of three types of Aircrew Training Devices (ATDs) to replace the existing T-51 simulators. The program includes the design, integration, test, and installation of the cockpit prototype in aircraft, ATDs, and other training devices, as well as engineering services, studies, analysis and support to determine the feasibility of incorporating changes for purposes of making informed life-cycle cost business decisions. FY2004 - FY2011 funding is required for AUP block software updates driven by FAA-mandated changes; National Aerospace System (NAS) requirements such as Global Air Traffic Management (GATM), Joint Precision Approach and Landing System (JPALS), GPS, GPS Embedded Module (GEM) issues (Selective Availability Anti-Spoofing Module (SAASM), precision and GPS approaches); and/or enhancements identified during Development Testing, Operational Testing and Force Development Evaluation (FDE), and AETC operations such as scratch pad, improvements to UFCP, HUD, Built In Test (BIT), mechanization of menus/modes and mission planning/debriefing system, ATD HUD projectors, and Companion Aircraft Model (CAM) operations. FY2008 - FY2009 includes development funding for improved T-38 brakes.

Budget Activity Justification. This project is in Budget Activity 5, System Development and Demonstration (SDD) because it primarily involves the missionization of commercial derivative aircraft, equipment, and components.

**(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 and test Block 4 T-38C AUP aircraft and ATD software for requirements driven by FAA/NAS mandates and/or improvements identified during Test and Evaluation and AETC operations.	1.264	0.000	0.000	0.000
(U) Develop and test Block 5 T-38C AUP aircraft and ATD software for requirements driven by FAA/NAS mandates and/or improvements identified during Test and Evaluation and AETC operations.	0.000	1.354	0.000	0.000
(U) Develop and test Block 6 T-38C aircraft and ATD software Block Upgrade	0.000	0.000	1.402	0.000
(U) Future software Block Upgrades	0.000	0.000	0.000	0.000
(U) Other Government Cost and Test	0.036	0.050	0.050	0.000
(U) Total Cost	1.300	1.404	1.452	0.000

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**Exhibit R-2a, RDT&E Project Justification**

DATE

**February 2005**

BUDGET ACTIVITY

**05 System Development and Demonstration (SDD)**

PE NUMBER AND TITLE

**0604233F Specialized Undergraduate Pilot Training**

PROJECT NUMBER AND TITLE

**4376 T-38 Avionics Upgrade Program (AUP)**

**(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>Complete</u>							
(U) AF RDT&E	1.300	1.404	1.452	1.487	10.027	5.068	1.599	1.631	Continuing	TBD
(U) Other APPN										
(U) PE 0804741F, T-38 Avionics Upgrade, BP 1100	69.177	52.465	45.949	39.262	30.470	0.000	0.000	0.000	0.000	558.514
(U) PE 0804741F, T-38 Propulsion Modification, BP 1100	59.432	101.210	113.354	50.391	71.482	62.867	55.634	56.747	139.409	855.387
(U) PE 0804741F, T-38 Improved Brakes, BP 1100	0.000	0.000	0.000	0.000	0.000	9.398	0.165	5.500	26.837	50.900

**(U) D. Acquisition Strategy**

The T-38 AUP competitively awarded three contracts to a single prime: a) a cost plus award fee EMD contract with six firm fixed price production options; b) a firm fixed price CLS contract for avionics including Contractor Owned and Maintained Base Supply (COMBS) (O&M funds); and c) a fixed price award fee maintenance contract for the current and new Aircrew Training Devices (ATDs). During FY2004 new firm fixed priced contract were negotiated to complete the AUP modification, and unpriced delivery orders for the period FY2005-2008 were negotiated for the aircraft CLS contract. FY2002 and FY2004 software block updates were changes to existing contracts, and FY2005-2009 block updates will be performed on the new contract.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2005**

<b>BUDGET ACTIVITY</b>	<b>PE NUMBER AND TITLE</b>	<b>PROJECT NUMBER AND TITLE</b>
<b>05 System Development and Demonstration (SDD)</b>	<b>0604233F Specialized Undergraduate Pilot Training</b>	<b>4376 T-38 Avionics Upgrade Program (AUP)</b>

(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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) <u>Product Development</u> The Boeing Corporation	C/CPAF	The Boeing Corporation St. Louis MO		1.284	Dec-03	1.384	Jan-05	1.432		0.000		Continuing	TBD	TBD
ASC/YT	Various	ASC/YT WPAFB OH		0.016		0.020		0.020		0.000		Continuing	TBD	TBD
Subtotal Product Development Remarks:			0.000	1.300		1.404		1.452		0.000		Continuing	TBD	TBD
(U) <u>Support</u>													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 &amp; Evaluation</u>	PO												0.000	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	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	1.300		1.404		1.452		0.000		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

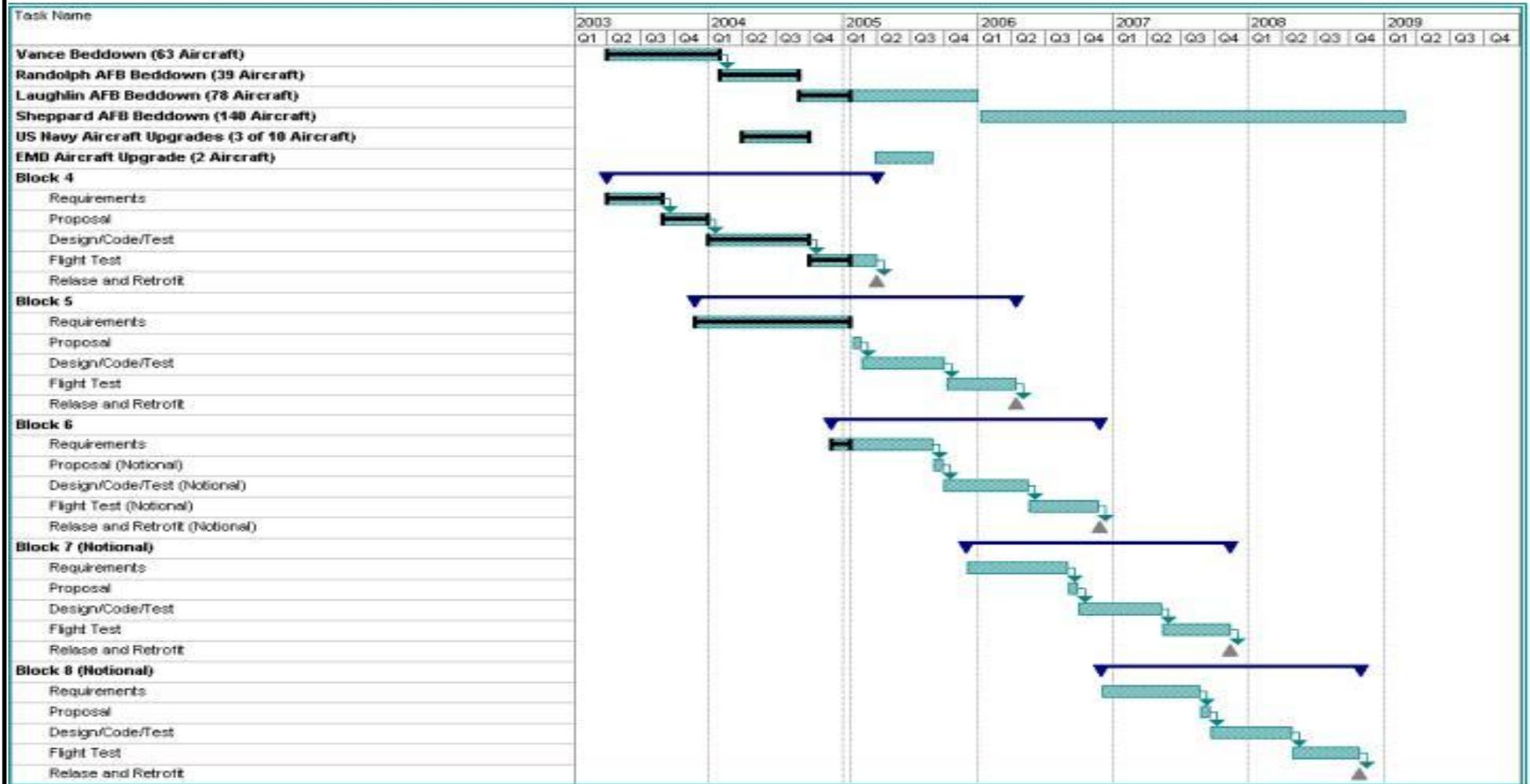
DATE

February 2005

BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE  
0604233F Specialized Undergraduate  
Pilot Training

PROJECT NUMBER AND TITLE  
4376 T-38 Avionics Upgrade Program  
(AUP)



<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604233F Specialized Undergraduate Pilot Training</b>	<b>PROJECT NUMBER AND TITLE</b> <b>4376 T-38 Avionics Upgrade Program (AUP)</b>
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<b>(U) <u>Schedule Profile</u></b>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Required Assets Available (RAA), Vance AFB	1Q			
(U) Initiate Software Block 4 on AUP	1Q			
(U) Required Assets Available (RAA), Randolph AFB	3Q			
(U) Field Software Block 4		4Q		
(U) Required Assets Available (RAA), Laughlin AFB		2Q		
(U) Initiate Software Block 5 on AUP		2Q		
(U) Field Software Block 5			4Q	
(U) Initiate Software Block 6			2Q	
(U) Field Software Block 6				4Q
(U) Post Deployment Support 4 (PDS 4)		2Q		
(U) PDS 5			2Q	
(U) PDS 6				2Q

**UNCLASSIFIED**

PE NUMBER: 0604239F  
 PE TITLE: F-22 EMD

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	<b>DATE</b> <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604239F F-22 EMD</b>
--	--

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	615.467	208.143	76.203	0.000	0.000	0.000	0.000	0.000	0.000	24,084.062
4069 Advanced Tactical Fighter FSD	615.467	208.143	76.203	0.000	0.000	0.000	0.000	0.000	0.000	24,084.062

(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 program is in Budget Activity 5, System Development and Demonstration, 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	615.467	210.000	75.794	0.000
(U) Current PBR/President's Budget	615.467	208.143	76.203	0.000
(U) Total Adjustments	0.000	-1.857		
(U) Congressional Program Reductions		-1.857		
Congressional Rescissions				
Congressional Increases				
Reprogrammings				
SBIR/STTR Transfer				
(U) <b><u>Significant Program Changes:</u></b>				
None				

**Exhibit R-2a, RDT&E Project Justification**

DATE

**February 2005**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>				PE NUMBER AND TITLE <b>0604239F F-22 EMD</b>				PROJECT NUMBER AND TITLE <b>4069 Advanced Tactical Fighter FSD</b>		
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
4069 Advanced Tactical Fighter FSD	615.467	208.143	76.203	0.000	0.000	0.000	0.000	0.000	0.000	24,084.062
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

\* Total Cost includes \$3,779,811,000 of Demonstration and Validation funding prior to FY 1992 funded in PE 0603230F.

**(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 program is in Budget Activity 5, System Development and Demonstration, 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) Air Vehicle	231.438			
- Continue full-scale airframe structural fatigue testing and analysis. (NSP)				
- Continue structural certification analysis activities. (NSP)				
- Continue EMD flight test and flight test support. (NSP)				
(U) Avionics	222.362			
- Complete Avionics Integration Lab Block 3.1.2 Integration. (NSP)				
- Complete Block 3.1.2 FTB testing				
- Complete EMD OFP development and testing. (NSP)				
- Initiate and complete IOT&E OFP FTB flight testing. (NSP)				
- Initiate Avionics Integration Lab Block 3.1.3 Integration. (NSP)				
- Continue DMS redesign, requalification and retesting activities. (NSP)				
(U) Engine	24.700			
- Continue support and test of flight test engines (25 total). (NSP)				
(U) Other Government Cost	136.967			
- Support flight test and flight test support at Edwards AFB.				
- Mission support of the SPO; travel, computer costs, misc contracts, etc.				
(U) Air Vehicle		72.063	41.794	
- Complete full-scale airframe structural fatigue testing and analysis. (NSP)				
- Complete structural certification analysis activities. (NSP)				
- Complete EMD flight test and flight test support. (NSP)				

**UNCLASSIFIED**

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604239F F-22 EMD</b>	<b>PROJECT NUMBER AND TITLE</b> <b>4069 Advanced Tactical Fighter FSD</b>
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<ul style="list-style-type: none"> <li>- Complete life extension NRE (early aircraft getting modified to get "full life"). (NSP)</li> <li>- Initiate and complete technical support for Force Development Evaluation and Follow-on Operational Test and Evaluation (NSP)</li> </ul>				
(U) Avionics		66.228	31.409	
<ul style="list-style-type: none"> <li>- Complete Avionics Integration Lab Block 3.1.3 Integration. (NSP)</li> <li>- Complete DMS redesign, requalification and retesting activities. (NSP)</li> <li>- Complete EMD OFP development and testing. (NSP)</li> <li>- Initiate and complete technical support for Force Development Evaluation and Follow-on Operational Test and Evaluation (NSP)</li> </ul>				
(U) Engine		10.800		
<ul style="list-style-type: none"> <li>- Complete support and test of flight test engines (25 total). (NSP)</li> </ul>				
(U) Other Government Cost		59.052	3.000	
<ul style="list-style-type: none"> <li>- Complete flight test and flight test support at Edwards AFB.</li> <li>- Mission support of the SPO; travel, computer costs, misc contracts, etc.</li> </ul>				
(U) Total Cost		615.467	208.143	76.203 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>Complete</u>							
(U) PRTV II (6)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1,580.580
(U) F/A-22 Squadrons RDT&E (PE 0207138F)		303.201	362.394	403.517	582.512	636.687	556.124	606.045	597.913	Continuing	TBD
(U) F/A-22 Squadrons (3010) Procurement (PE 0207138F)		39.532	95.654	79.547	258.601	295.928	281.894	168.202	392.018	Continuing	TBD
(U) F/A-22 Squadrons (3080) Procurement (PE 0207138F)		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	65.000
(U) Military Construction (PE 0207219F)		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	31,847.94 4

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>February 2005</b>
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BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0604239F F-22 EMD</b>	PROJECT NUMBER AND TITLE <b>4069 Advanced Tactical Fighter FSD</b>
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(U) **C. Other Program Funding Summary (\$ in Millions)**

(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 Adv Comm Sys Procurement (PE 27445F)				16.658	31.130	32.811	34.139	16.901	Continuing	TBD
(U) F/A-22 Tactical Data Link RDT&E (PE 27445F)	36.418	49.951	96.939	66.504	22.321					300.997

PE 0207138F includes manpower authorizations, peculiar and common support equipment, necessary facilities and the associated costs specifically identified and measurable to the following: Operation, maintenance, and logistical support of the F/A-22 fighter

\*\* NOTE: Includes BP 10, 11, 16, 19 and Advance Buy.

(U) **D. Acquisition Strategy**

The EMD contract is Cost Plus Award Fee with Lockheed Martin Aeronautical Systems (LMAS) to produce the F/A-22 air vehicle and Pratt & Whitney (P&W) to produce the F119 engines. The engines are provided to LMAS as GFE.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2005**

<b>BUDGET ACTIVITY</b>	<b>PE NUMBER AND TITLE</b>	<b>PROJECT NUMBER AND TITLE</b>
<b>05 System Development and Demonstration (SDD)</b>	<b>0604239F F-22 EMD</b>	<b>4069 Advanced Tactical Fighter FSD</b>

<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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 (Air Veh)	C/CPAF	Lockheed Martin, Marietta, GA	15,857.377	453.800	Aug-91	138.291	Aug-91	73.203	Aug-91			0.000	16,522.671	14,727.198
Pratt & Whitney	C/CPFF	Pratt & Whitney, Hartford, CT	2,464.217	24.700	Aug-91	10.800	Aug-91					0.000	2,499.717	2,388.171
GFE	Various		60.609	5.290	Aug-91	0.400						0.000	66.299	
Subtotal Product Development			18,382.203	483.790		149.491		73.203		0.000		0.000	19,088.687	17,115.369
Remarks:														
<u>(U) Support</u> Support Contracts	Various		18.104	1.500		1.500						0.000	21.104	
In House Support	Various		140.096	5.500		2.000		3.000				0.000	150.596	
Subtotal Support			158.200	7.000		3.500		3.000		0.000		0.000	171.700	0.000
Remarks:														
<u>(U) Test &amp; Evaluation</u> AEDC	PO	Arnold AFB, TN	158.000	0.000								0.000	158.000	
AFFTC	PO	Edwards AFB, CA	605.160	124.477	Nov-03	55.152	Nov-04					0.000	784.789	
All Other Tests	Various		100.875	0.200		0.000				0.000		0.000	101.075	
Not Applicable												0.000	0.000	
Subtotal Test & Evaluation			864.035	124.677		55.152		0.000		0.000		0.000	1,043.864	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) Total Cost</u>			19,404.438	615.467		208.143		76.203		0.000		0.000	20,304.251	17,115.369

NOTE: Total program cost for Engineering and Manufacturing Development only. Does not include \$3,779,811,000 of Demonstration and Validation funding prior to FY92.

Exhibit R-4, RDT&E Schedule Profile

DATE

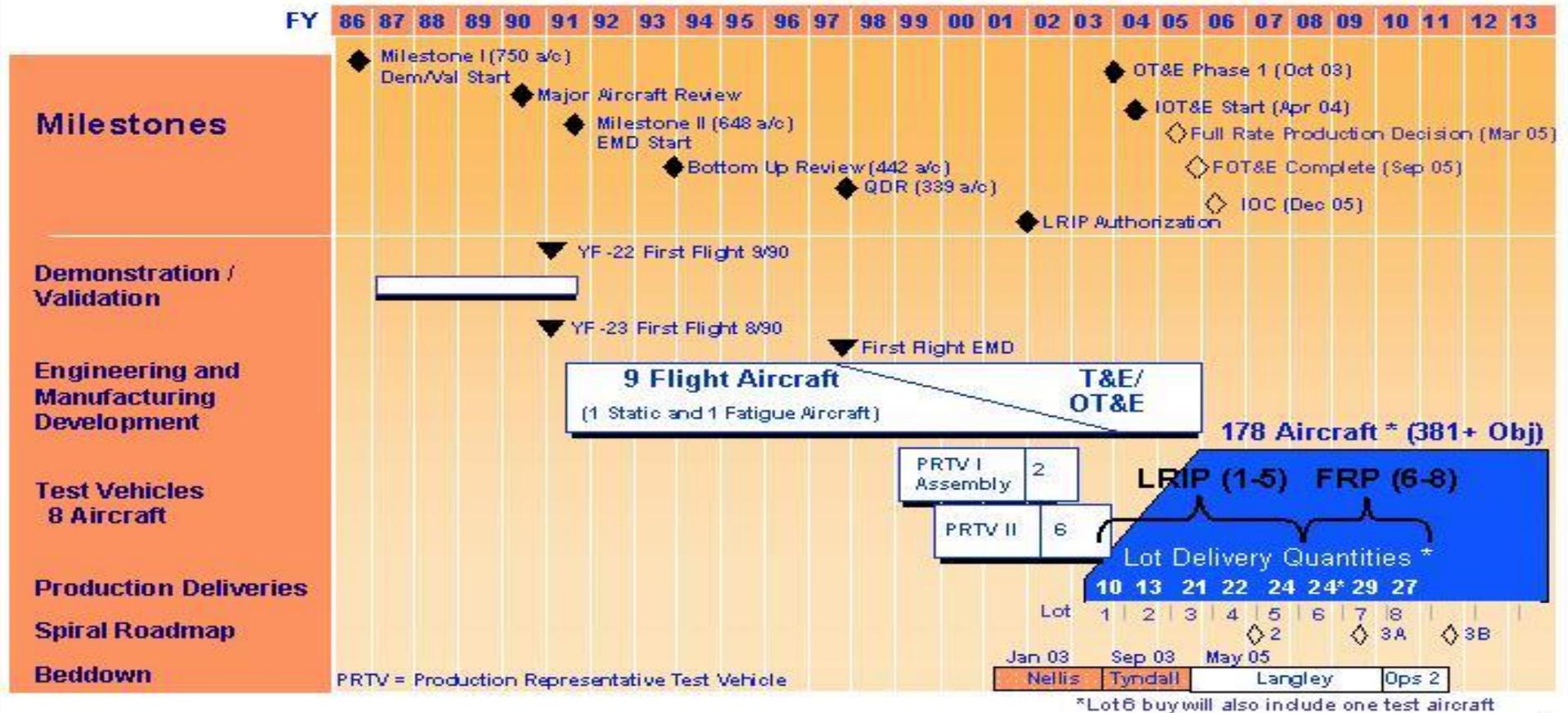
February 2005

BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE  
0604239F F-22 EMD

PROJECT NUMBER AND TITLE  
4069 Advanced Tactical Fighter FSD

# Program Overview (FY06 PB)



UNCLASSIFIED

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2005</b>
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BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0604239F F-22 EMD</b>	PROJECT NUMBER AND TITLE <b>4069 Advanced Tactical Fighter FSD</b>
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	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) <b>Schedule Profile</b>				
(U) OT&E Phase I Start	1Q			
(U) OT&E Phase I Complete	2Q			
(U) IOT&E Start	3Q			
(U) IOT&E Complete		2Q		
(U) FDE Start		2Q		
(U) FDE Complete			1Q	
(U) FOT&E Start		4Q		
(U) FOT&E Complete			1Q	

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PE NUMBER: 0604240F  
 PE TITLE: B-2 Advanced Technology Bomber

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604240F B-2 Advanced Technology Bomber</b>
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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	171.286	270.472	285.205	213.089	206.125	138.216	96.247	86.176	Continuing	TBD
3843 B-2 Advanced Technology Bomber	171.286	270.472	285.205	213.089	206.125	138.216	96.247	86.176	Continuing	TBD

In FY06: B-2 Advanced Technology Bomber adds the Proximity Sensor Logic Unit (PSLU) and Oxygen Generation and Distribution System (OGADS) new start programs.

In FY06: 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.

In FY07: B-2 Advanced Technology Bomber adds the Mode S/5 Identification Friend or Foe (IFF) new start program.

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

The B-2A Spirit is the world's most advanced long-range strike asset. The unique combination of range, payload and stealth characteristics allow the B-2 to target and destroy the highest value enemy targets, regardless of location, and return home. The array of planned RDT&E projects are necessary to both preserve this strategic advantage as well as to increase the flexibility and lethality of this "capital" asset. The Radar Modernization (RMP) and the Aft Deck Crack Programs both address and correct potential fleet grounding issues. The RMP changes the operating frequency of the radar to enable the B-2 to legally operate in the future. The Aft Deck Crack Program preserves the key stealth characteristics that are so vital to the survivability of the B-2. Avionics and armament upgrades are key to enhancing the flexibility and lethality of the B-2. The Link-16/Center Instrument Display (CID)/In-Flight Replanner (IFR) upgrade allows the B-2 access to the theater tactical data link, improving on-board situational awareness while greatly enhancing the ability of the theater commanders to force package the B-2 with other assets. Secure, survivable communication systems upgrade preserves the critical ability to guarantee communication through a nuclear event, while providing a dramatic increase in the data flow into and out of the B-2. Upgrades include, but are not limited to, very low frequency and extremely high frequency components, including the infrastructure upgrades necessary to host these capabilities. Integration of new and/or advanced weapons allows the B-2 to destroy a wider array of target sets as well as destroy more targets per sortie. In addition to final testing and integration of EGBU-28 and JDAM-82/SBRA armament into the B-2 fleet, the GBU-28 C/B weapon integration program will integrate a 5,000 lb "bunker buster" weapon providing improved lethality, thus holding more enemy targets at risk. Engine, structure and Low Observable (LO) programs including, but not limited to Advanced Door Edge Treatment (ADET), Advanced Hot Trailing Edge (AHTE), Tailpipe Coatings, and Windshield Tape Alternative (WTA) are designed to ease pilot and maintainer workload, while preserving/enhancing the combat edge the B-2 fleet affords this nation. Continued baseline B-2 support is essential to the execution of all the RDT&E efforts discussed above. The baseline B-2 support ensures support of the B-2 flight test aircraft, maintains B-2 unique flight test infrastructure, ensures the Mission Planning System configuration keeps pace with aircraft system updates, provides a strategic planning capability to include acquisition planning activities, which are needed to prepare for program initiation, prior to proposal preparation, and provides for other B-2 unique government costs. This program is included in budget activity code 05, System Development and Demonstration because of the significant development and testing associated with the maintenance and upgrade of B-2 capabilities.

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2005

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604240F B-2 Advanced Technology Bomber

(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	165.920	245.049	290.152	131.038
(U) Current PBR/President's Budget	171.286	270.472	285.205	213.089
(U) Total Adjustments	5.366	25.423		
(U) Congressional Program Reductions		-2.502		
Congressional Rescissions				
Congressional Increases		30.000		
Reprogrammings	9.465	-2.075		
SBIR/STTR Transfer	-4.099			

(U) Significant Program Changes:

FY05 changes are due primarily to \$30M (\$8.4M RMP, \$7.2M GBU-28 C/B, and \$14.4M EHF SatCom) Congressional plus-up

FY06 changes are due primarily to \$8.475M T&E funding realignment, EHF SatCom and RMP realignments, PSLU and OGADS new start programs.

FY07 changes are due primarily to \$9.792M T&E funding realignment, EHF SatCom and RMP realignments, Mode S/5 IFF new start program.

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>							PE NUMBER AND TITLE <b>0604240F B-2 Advanced Technology Bomber</b>		PROJECT NUMBER AND TITLE <b>3843 B-2 Advanced Technology Bomber</b>		
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	
3843 B-2 Advanced Technology Bomber	171.286	270.472	285.205	213.089	206.125	138.216	96.247	86.176	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0			

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

The B-2A Spirit is the world's most advanced long-range strike asset. The unique combination of range, payload and stealth characteristics allow the B-2 to target and destroy the highest value enemy targets, regardless of location, and return home. The array of planned RDT&E projects are necessary to both preserve this strategic advantage as well as to increase the flexibility and lethality of this "capital" asset. The Radar Modernization (RMP) and the Aft Deck Crack Programs both address and correct potential fleet grounding issues. The RMP changes the operating frequency of the radar to enable the B-2 to legally operate in the future. The Aft Deck Crack Program preserves the key stealth characteristics that are so vital to the survivability of the B-2. Avionics and armament upgrades are key to enhancing the flexibility and lethality of the B-2. The Link-16/Center Instrument Display (CID)/In-Flight Replanner (IFR) upgrade allows the B-2 access to the theater tactical data link, improving on-board situational awareness while greatly enhancing the ability of the theater commanders to force package the B-2 with other assets. Secure, survivable communication systems upgrade preserves the critical ability to guarantee communication through a nuclear event, while providing a dramatic increase in the data flow into and out of the B-2. Upgrades include, but are not limited to, very low frequency and extremely high frequency components, including the infrastructure upgrades necessary to host these capabilities. Integration of new and/or advanced weapons allows the B-2 to destroy a wider array of target sets as well as destroy more targets per sortie. In addition to final testing and integration of EGBU-28 and JDAM-82/SBRA armament into the B-2 fleet, the GBU-28 C/B weapon integration program will integrate a 5,000 lb "bunker buster" weapon providing improved lethality, thus holding more enemy targets at risk. Engine, structure and Low Observable (LO) programs including, but not limited to Advanced Door Edge Treatment (ADET), Advanced Hot Trailing Edge (AHTE), Tailpipe Coatings, and Windshield Tape Alternative (WTA) are designed to ease pilot and maintainer workload, while preserving/enhancing the combat edge the B-2 fleet affords this nation. Continued baseline B-2 support is essential to the execution of all the RDT&E efforts discussed above. The baseline B-2 support ensures support of the B-2 flight test aircraft, maintains B-2 unique flight test infrastructure, ensures the Mission Planning System configuration keeps pace with aircraft system updates, provides a strategic planning capability to include acquisition planning activities, which are needed to prepare for program initiation, prior to proposal preparation, and provides for other B-2 unique government costs. This program is included in budget activity code 05, System Development and Demonstration because of the significant development and testing associated with the maintenance and upgrade of B-2 capabilities.

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

	FY 2004	FY 2005	FY 2006	FY 2007
(U) Continue B-2 baseline support to include developmental flight test aircraft modification and base of operations; Mission Planning support; long range planning, studies, and program integration activities; and other government costs.	22.513	13.768	14.330	11.015
(U) Continue development of Link-16/CID/IFR, EGBU-28, JDAM/SBRA, UHF SATCOM; Secure, Survivable Communications upgrade (FAB-T integration, computer architecture enhancements, potential near-term alternative integration); Aft Deck Cracks, Low Observable, airframe, and other avionics improvements.	48.126	38.991	30.280	70.220
(U) Continue development of RMP including completing Component Advanced Development (CAD) and	100.647	210.513	240.595	119.454

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604240F B-2 Advanced Technology Bomber</b>	<b>PROJECT NUMBER AND TITLE</b> <b>3843 B-2 Advanced Technology Bomber</b>
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initiating System Development and Demonstration (SDD) and design and fabrication of new and modified components for test aircraft and six developmental units.

(U) Begin development of GBU-28 C/B	7.200			12.400
(U) Begin development of Mode S/Mode 5 IFF and PSLU				
(U) Total Cost	171.286	270.472	285.205	213.089

**(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>Complete</u>							
(U) A/C Proc, AF, Combat A/C/BA07/B-2A	0.000	0.000	0.000	0.000	0.000	0.000			0.000	0.000
(U) A/C Proc, AF, Post Prod Support/BA07	6.017	6.697	7.304	7.567	0.000	0.000			0.000	TBD
(U) A/C Proc, AF, Modifications/BA05/B-2A	120.156	94.533	59.134	195.759	304.749	112.882	82.940	120.899	Continuing	TBD
(U) A/C Prod, AF, ICS	26.135	30.213	22.111	11.517	8.733	9.567			Continuing	TBD
(U) A/C Proc, AF, Cmn Spt Eq/BA07/Items<\$2M	1.099	0.000	0.000	0.000	0.000	0.000			0.000	TBD
(U) A/C Proc, AF, A/C Initial Spares/BA06/B-2A	3.692	2.222	6.632	2.610	4.093	1.036			0.000	TBD
(U) Proc (Other), AF/BA 02,03, 04/B-2A	7.493	7.614	7.813	8.092	8.378	8.625			Continuing	TBD
(U) Military Construction/BA01	0.000	0.000	0.000	0.000	0.000	0.000			0.000	TBD

**(U) D. Acquisition Strategy**

Key elements of the overall acquisition strategy include: use of sole source contract with a prime/integrating contractor (Northrop Grumman); use of cost plus award fee (CPAF) development contracts; and the combination of developmental upgrades with software sustainment blocks to minimize the number of software releases, aircraft downtime, and differences in fielded configurations.

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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			
<b>05 System Development and Demonstration (SDD)</b>			<b>0604240F B-2 Advanced Technology Bomber</b>								<b>3843 B-2 Advanced Technology Bomber</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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>														
Air Vehicle	Multiple	Various	21,610.071	147.845	Oct-03	255.816	Oct-04	270.724	Oct-05	201.923	Oct-06	Continuing	TBD	
Aircrew Training	CPIF	Various	561.345	0.000	N/A	0.000	N/A	0.075	Apr-06	0.075	Apr-06		561.495	
Mission Planning	Multiple	Various	344.976	11.291	Oct-03	2.166	Jan-05	2.010	Jan-06	0.075	Jan-07	Continuing	TBD	
Engines	Multiple	Various	570.720	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A		570.720	
Subtotal Product Development			23,087.112	159.136		257.982		272.809		202.073		Continuing	TBD	0.000
Remarks:														
(U) <u>Support</u>														
Other Govt Costs	N/A	Various	1,060.695	6.769		6.352		7.895		6.919		Continuing	TBD	
Subtotal Support			1,060.695	6.769		6.352		7.895		6.919		Continuing	TBD	0.000
Remarks:														
(U) <u>Test &amp; Evaluation</u>														
Govt Test	N/A	AFFTC	793.913	5.257		6.138		4.501		4.097		Continuing	TBD	
Subtotal Test & Evaluation			793.913	5.257		6.138		4.501		4.097		Continuing	TBD	0.000
Remarks:														
(U) <u>Management</u>														
Cancelled Year Invoices	N/A	Various	0.000	0.124		0.000		0.000		0.000			0.124	
Subtotal Management			0.000	0.124		0.000		0.000		0.000		0.000	0.124	0.000
Remarks:														
(U) Total Cost			24,941.720	171.286		270.472		285.205		213.089		Continuing	TBD	0.000

Award dates listed are the first incremental funding opportunity associated with cost categories

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE  
0604240F B-2 Advanced Technology Bomber

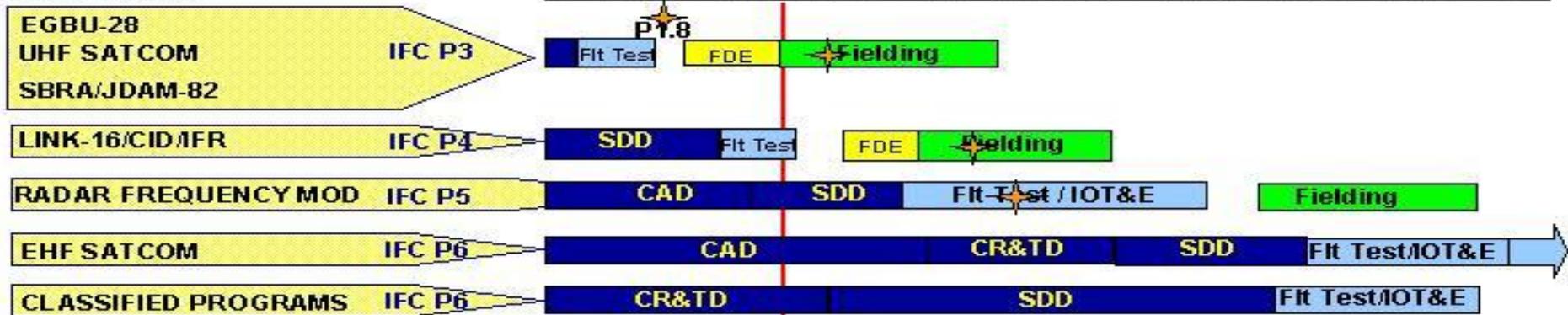
PROJECT NUMBER AND TITLE  
3843 B-2 Advanced Technology Bomber



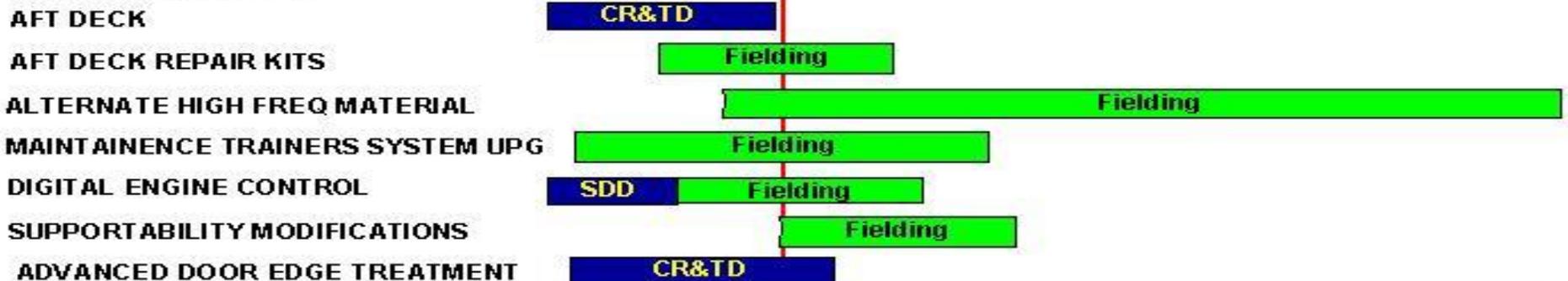
U.S. AIR FORCE

# B-2 Detailed Schedule

**AIRCRAFT MODS**



**AIRCRAFT MAINTAINABILITY**



★ Initial Operational Capability

FY03 FY04 FY05 FY06 FY07 FY08 FY09 FY10 FY11

AS OF: 3 Dec 04  
Reflects EMB 04-02

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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604240F B-2 Advanced Technology Bomber</b>	<b>PROJECT NUMBER AND TITLE</b> <b>3843 B-2 Advanced Technology Bomber</b>
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<b>(U) <u>Schedule Profile</u></b>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) EHF SatCom CAD Extension (FY04/05 Congressional Plus-up)		3Q		
(U) Secure, Survivable Communications System Upgrade Contract Award			2Q	
(U) Radar Management Mod Dev CAD III	3Q			
(U) Aft Deck Contract Award (FY04 Congressional Plus-up)	2Q			
(U) UHF SatCom Flight Test Complete	4Q			
(U) EGBU-28 Flight Test Complete	1Q			
(U) JDAM-82/SBRA Flight Test Complete	1Q			
(U) Radar Management Mod Dev SDD Contract Award (FY05 Congressional Plus-up)	4Q			
(U) Link-16/CID/IFR Flight Test Begins/Completes	3Q	1Q		
(U) GBU-28 C/B Contract Award		2Q		
(U) GBU-28 C/B Flight Test Begins/Completes (FY05 Congressional Plus-up)			1Q	

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PE NUMBER: 0604270F  
 PE TITLE: EW Development

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604270F EW Development</b>
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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	87.763	113.089	82.587	62.982	34.559	11.601	0.980	1.286	Continuing	TBD
1011 Joint Service Electronic Combat Systems Tester	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	48.434
3891 Advanced IR Counter Measures (AIRCM)	2.218	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	85.913
3945 TEWS Upgrade	17.520	20.721	8.514	4.082	2.064	2.936	0.980	1.286	Continuing	TBD
4832 Precision Location and Identification (PLAID)	29.346	29.392	5.524	5.915	0.000	0.000	0.000	0.000	0.000	92.463
8462 Airborne Electronic Attack	38.429	62.976	68.549	52.985	32.495	8.665	0.000	0.000	Continuing	TBD

BPAC 653891 (AIRCM) includes Advanced Strategic and Tactical Infrared Expendables (ASTE). Note: Details for B-52 SOJ (AEA) are being reported in new PE 0604429F.

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

This program element (PE) consolidates Air Force funding and management of common Electronic Warfare (EW) systems from engineering development through transition to operational capability. EW is an integral part of offensive and defensive Counterair, Counterland, and Countersea operations. EW systems influence, deceive, disrupt, degrade, deny, and destroy threats to air operations throughout the electro-magnetic spectrum. This PE supports Electronic Support Measures (ESM), Electronic Protection (EP), and Electronic Attack (EA). ESM programs support the collection, analysis and dissemination of information related to the detection, geolocation, characterization, and identification of threats to air operations. EP programs provide self-protection through active and passive measures that deceive threats to air operations. EA programs provide kinetic and non-kinetic means to defeat threats that rely on the electro-magnetic spectrum.

This program is in budget activity 5 - System Development and Demonstration (SDD) because of the common development to meet user requirements that provide electronic warfare combat 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	92.804	138.393	197.126	229.288
(U) Current PBR/President's Budget	87.763	113.089	82.587	62.982
(U) Total Adjustments	-5.041	-25.304		
(U) Congressional Program Reductions		-37.004		
Congressional Rescissions				
Congressional Increases		11.700		
Reprogrammings	-2.266			
SBIR/STTR Transfer	-2.775			

**(U) Significant Program Changes:**

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2005

BUDGET ACTIVITY

**05 System Development and Demonstration (SDD)**

PE NUMBER AND TITLE

**0604270F EW Development**

- In FY04 LEWK program was cancelled.

- In FY06 there was a total AF adjustment of -\$114.539M, primarily comprised of increases of \$28.0M for MALD/MALD-J and \$4.0M for the AT3 ACTD, a reduction of \$18.4M for B-52 Stand-Off Jammer, \$3.109M in Advanced IR Countermeasures to reflect completion of IR flare SDD, and the transfer of \$120.985M from PE 0604270F BPAC 658462 AEA to PE 0604429F AEA.

- In FY07 there was a total AF adjustment of -\$166.306M, primarily comprised of increases of \$20.0M for MALD/MALD-J, \$46.9M for B-52 Stand-off Jammer, \$6.0M for the AT3 ACTD, and a reduction of \$3.149M in Advanced IR Countermeasures to reflect completion of IR flare SDD, and a transfer of \$235.45M from PE 0604270F BPAC 658462 AEA to PE 0604429F AEA.

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>					PE NUMBER AND TITLE <b>0604270F EW Development</b>			PROJECT NUMBER AND TITLE <b>1011 Joint Service Electronic Combat Systems Tester</b>		
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
1011 Joint Service Electronic Combat Systems Tester	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	48.434
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

FY2004, Project 651011, JSECST Follow-on Test Program Set (FOTPS) Engineering, Manufacturing and Development extended into FY04 due to late delivery of core test sets which were required to complete FOTPS development. Carry over of \$0.6M of FY03 RDT&E funding and internal reprogramming of \$0.75M FY04 funding to complete JSECST development effort.

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

The Joint Service Electronic Combat Systems Tester (JSECST) fills a combined Air Force and Navy operational requirement for a small, adaptable, and highly mobile tester capable of verifying system level performance of installed electronic countermeasures systems. JSECST provides an organizational-level flight line capability for verifying operational status of aircraft-installed electronic combat (EC) systems including Group A antennas and transmission lines. The JSECST system consists of core test sets (CTS), nomenclature AN/USM-670, test program sets (TPS), and software development stations (SDS). The CTS provides the stimulus, measurement, operator-interface, analysis and control functions common across all applications. The TPSs provide aircraft specific hardware interfaces and software packages to employ the CTS. The Follow-on Test Program Set (FOTPS) program will design, develop, assemble, integrate, test, and deliver TPSs for use with the CTS for additional aircraft. The follow-on Air Force platforms include the F-15E, F-16 (Blocks 25/30/32/40/42/50/52), and OA/A-10. Navy platforms include the AV-8B, F/A-18 A/B and the F-14 B/D. Navy platforms will be funded by the Navy. Final effort is a study to investigate the technical feasibility and risks associated with the use of the USM-670 as a core tester on B-52 and SOF 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) Continue SPO Support	0.150			
(U) JSECST - 464 Study	0.100			
(U) Total Cost	0.250	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>Complete</u>							
(U) AF RDT&E										
(U) Other APPN										
(U) Aircraft Procurement, AF PE 27442F (Common ECM Equipment), In Service Direct	0.000	0.000	0.000	0.000	0.000	0.000			0.000	29.472
(U) Ground Support Equipment Initial Spares	0.000	0.000	0.000	0.000	0.000	0.000			0.000	0.464

**Exhibit R-2a, RDT&E Project Justification**

DATE

**February 2005**

BUDGET ACTIVITY

**05 System Development and Demonstration (SDD)**

PE NUMBER AND TITLE

**0604270F EW Development**

PROJECT NUMBER AND TITLE

**1011 Joint Service Electronic Combat Systems Tester**

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

(U) Total Aircraft Procurement	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	29.936
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**(U) D. Acquisition Strategy**

The acquisition strategy is competitive, cost-plus contracts for CTS development. FOTPS acquisition strategy is a sole-source, cost plus contract. Production and support contract is sole source.

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Exhibit R-3, RDT&E Project Cost Analysis											DATE <b>February 2005</b>			
BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>						PE NUMBER AND TITLE <b>0604270F EW Development</b>					PROJECT NUMBER AND TITLE <b>1011 Joint Service Electronic Combat Systems Tester</b>			
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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 Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u>														
AAI	CPAF	Hunt Valley MD	26.922										26.922	
FO TPS AAI	CPIF	Hunt Valley MD	5.583									0.000	5.583	6.400
JSECST - 464 Study	T&M	WR-ALC	0.000	0.100	Aug-04			0.000		0.000			0.100	
Subtotal Product Development			32.505	0.100		0.000		0.000		0.000		0.000	32.605	6.400
Remarks:														
<u>(U) Support</u>														
NAVAIR & Boeing TEWS Lab	MIPR	NAS Lakenhurst NJ & Boeing St Louis	6.861									0.000	6.861	
Subtotal Support			6.861	0.000		0.000		0.000		0.000		0.000	6.861	0.000
Remarks:														
<u>(U) Test &amp; Evaluation</u>														
53 EWG, 46TW	PR	Eglin AB FL	1.759			0.000		0.000		0.000		0.000	1.759	
Subtotal Test & Evaluation			1.759	0.000		0.000		0.000		0.000		0.000	1.759	0.000
Remarks:	Element includes detailed planning, support data reduction, and reports from testing activities.													
<u>(U) Management</u>														
ASC/AANT	Various	WPAFB, OH	5.488	0.150								0.000	5.638	
Subtotal Management			5.488	0.150		0.000		0.000		0.000		0.000	5.638	0.000
Remarks:	Costs include travel, office equipment, office supplies, printing, contract services, program management administration and communications expenses.													
<u>(U) Total Cost</u>			46.613	0.250		0.000		0.000		0.000		0.000	46.863	6.400

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604270F EW Development

PROJECT NUMBER AND TITLE

1011 Joint Service Electronic Combat Systems Tester

# RDT&E Schedule Profile Milestones

ID	Task Name	2004			2005				2006				2007	
		Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2
1	Complete FOTPS Development					☆								
2	JSECST – 464 Study			★										

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2005</b>
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BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0604270F EW Development</b>	PROJECT NUMBER AND TITLE <b>1011 Joint Service Electronic Combat Systems Tester</b>
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	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) <b>Schedule Profile</b>				
(U) Complete FOTPS Development		2Q		
(U) JSECST - 464 Study	4Q			

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>					PE NUMBER AND TITLE <b>0604270F EW Development</b>			PROJECT NUMBER AND TITLE <b>3891 Advanced IR Counter Measures (AIRCМ)</b>		
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
3891 Advanced IR Counter Measures (AIRCМ)	2.218	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	85.913
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

\*Advanced Infrared Countermeasures (AIRCМ) contains the Advanced Strategic and Tactical IR Expendables (ASTE) project. ASTE will transition final products to OO-ALC under PE 28030F WRM Ammunition for procurement/sustainment in FY04/05.

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

The Advanced Infrared Countermeasure (AIRCМ) project contains related aircraft self-protection efforts aimed at increasing aircraft survivability against the increasing threat of sophisticated surface-to-air and air-to-air missiles, which may employ such features as next-generation electro-optics or dual IR and radio frequency seekers. ASTE will provide advanced IR expendable countermeasures that will be functionally compatible with existing ALE-40, 45, and 47 dispenser systems and will be employed across multiple USAF weapon systems including the USN F/A-18 E/F. This also explicitly includes any and all flare and decoy development that may be demanded or needed in current operations supporting the war on terrorism regardless of aircraft platform. These activities may also be paid for under platform specific funding.

**(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 ASTE Flare Development and Transition	2.218	0.000	0.000	0.000
(U) Total Cost	2.218	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>Complete</u>							
(U) AF RDT&E										
(U) Other APPN										
(U) Procurement of Ammunition, AF, PE 28030F, WSC Flares	31.606	5.776	36.914	41.735	95.727	146.227	123.326	131.579	Continuing	TBD

**(U) D. Acquisition Strategy**

The planned acquisition strategy for ASTE is competitive cost-plus.

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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				
<b>05 System Development and Demonstration (SDD)</b>			<b>0604270F EW Development</b>							<b>3891 Advanced IR Counter Measures (AIRCМ)</b>				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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>														
ASTE - Development	CP		17.962	0.770		0.000		0.000		0.000			18.732	
Subtotal Product Development			17.962	0.770		0.000		0.000		0.000		0.000	18.732	0.000
Remarks:														
(U) <u>Support</u>														
ASTE M&S	PR		1.904	0.299		0.000							2.203	
ASTE - Misc	Various		36.727	0.068		0.000							36.795	
													0.000	
Subtotal Support			38.631	0.367		0.000		0.000		0.000		0.000	38.998	0.000
Remarks:														
(U) <u>Test &amp; Evaluation</u>														
ASTE - 46TW	Various		1.644	0.178		0.000							1.822	
ASTE - Misc	Various		0.293	0.011		0.000							0.304	
46TW/AFFTC/ Support	Various		17.092										17.092	
Subtotal Test & Evaluation			19.029	0.189		0.000		0.000		0.000		0.000	19.218	0.000
Remarks:														
(U) <u>Management</u>														
A&AS contractor support				0.892									0.892	
Subtotal Management			0.000	0.892		0.000		0.000		0.000		0.000	0.892	0.000
Remarks:														
(U) Total Cost			75.622	2.218		0.000		0.000		0.000		0.000	77.840	0.000



<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2005</b>
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BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0604270F EW Development</b>	PROJECT NUMBER AND TITLE <b>3891 Advanced IR Counter Measures (AIRCМ)</b>
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(U) <b><u>Schedule Profile</u></b>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) ASTE Milestone C - Transport Aircraft		2Q		

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>					PE NUMBER AND TITLE <b>0604270F EW Development</b>			PROJECT NUMBER AND TITLE <b>3945 TEWS Upgrade</b>		
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
3945 TEWS Upgrade	17.520	20.721	8.514	4.082	2.064	2.936	0.980	1.286	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

This program develops a Fiber Optic Towed Decoy (FOTD) for the joint Integrated Defensive Electronic Countermeasures (IDECM) Navy-led program. The current AF approved program will provide a FOTD that meets F-15 requirements and will include a Reel-In/Reel-Out (RORI) launcher capability in FY07.

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

(1) This program develops and integrates an Air Force Fiber Optic Towed Decoy (FOTD) system. The FOTD portion of the budget provides Air Force participation in the Navy-led IDECM program that is jointly developing, integrating, flight testing, effectiveness testing, and conducting live fire testing using a FOTD. The Air Force will provide for its unique development, integration and testing requirements that are not covered by the Navy-led joint development effort. The Air Force also participates in a joint FOTD risk reduction effort with the Navy looking at alternate FOTDs and methods of deployment to develop an alternative launcher system (Reel-Out/Reel-In [RORI]), which reduces Life Cycle Cost.

(2) The FOTD improves electronic countermeasure performance against Tier 1 threat systems, and improves electronic warfare system performance against future missile threat systems. The Radio Frequency (RF) towed decoy is a countermeasure that increases survivability against monopulse, semi-active, and active RF missile threats during the terminal portion of an engagement. Boeing Study on going to finalize requirements for integration of FOTD on F-15.

**(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 ( F-15 TEWS & Two Tube FOTD & Flight Test)	13.215	3.277	1.662	0.500
(U) FOTD Integration, Live Fire Testing, and RORI	2.092	13.696	5.237	0.681
(U) EW Studies		2.000		2.000
(U) Mission and Test Support	2.213	1.748	1.615	0.901
(U) Total Cost	17.520	20.721	8.514	4.082

**(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>Complete</u>							
Aircraft Procurement, AF PE										
(U) 027442F, War Consumable (RF decoys)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
(U) Aircraft Procurement, AF PE 027442F, Initial Spares	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
(U) Aircraft Procurement, AF PE 027442F, Mods (F-15)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

**(U) D. Acquisition Strategy**

**Exhibit R-2a, RDT&E Project Justification**

DATE

**February 2005**

BUDGET ACTIVITY

**05 System Development and Demonstration (SDD)**

PE NUMBER AND TITLE

**0604270F EW Development**

PROJECT NUMBER AND TITLE

**3945 TEWS Upgrade**

The acquisition strategy for IDECM RDT&E was competitive, cost-plus incentive fee / award fee.

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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			
<b>05 System Development and Demonstration (SDD)</b>										<b>0604270F EW Development</b>		<b>3945 TEWS Upgrade</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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>															
USAF IDECM: Development BAE	CPAF	BAE, Nashua, NH	47.306			0.000						0.000	47.306		
Development Raytheon	CPIF	Raytheon, Goleta, CA	17.722			0.000						0.000	17.722		
F-15 IDECM Integration- Boeing/LMT/Northrop	CPFF	Boeing Company, St Louis, MO	49.293	10.000	Nov-03	0.000						0.000	59.293		
USAF IDECM: Development BAE (Navy BOA)	CPFF	BAE, Nashua, NH	2.417	0.606	Apr-04	0.356	Nov-04	0.400	Nov-05			0.000	3.779		
Raytheon Development (FO-50 Two Tube)	CPFF	Raytheon, Goleta, CA	2.660	3.215	Apr-04	1.250	Mar-05	1.662	Jan-06			0.000	8.787		
IDECM Misc Development Contracts (IMPLC/Alt. Strategy/Flt Test Assets)	Various	Misc	3.191	0.886		1.989		1.422		0.200		0.000	7.688		
RORI Launcher Prototype/Development	CPFF	Raytheon, CA & BAE, NH		0.600	Aug-04	4.714	Nov-04	3.815	Nov-05	0.400	Nov-06	0.000	9.529		
EW Studies	Various	Misc				2.000				2.000			4.000		
Subtotal Product Development			122.589	15.307		10.309		7.299		2.600		0.000	158.104	0.000	
Remarks:															
(U) <u>Support</u>															
ASC/AA - IDECM	Various	Misc	4.848	1.363		1.183		1.215		0.901		0.000	9.510		
Subtotal Support			4.848	1.363		1.183		1.215		0.901		0.000	9.510	0.000	
Remarks:															
(U) <u>Test &amp; Evaluation</u>															
AFOTEC	Various	Misc	1.600									0.000	1.600		
Flight Test Support (Effectiveness Testing)	Various	Misc	0.156			0.000						0.000	0.156		
Eglin Flight Test Support	Various	Misc	2.939	0.450		1.000				0.500		0.000	4.889		
Naval Research Lab (NRL)	Various	Misc	0.678	0.400		0.315						0.000	1.393		
Live Fire Test	Various	Misc	1.232			7.914				0.081		0.000	9.227		
Subtotal Test & Evaluation			6.605	0.850		9.229		0.000		0.581		0.000	17.265	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			134.042	17.520		20.721		8.514		4.082		0.000	184.879	0.000	

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604270F EW Development

PROJECT NUMBER AND TITLE

3945 TEWS Upgrade

# RDT&E Schedule Profile Milestones

ID	Task Name	2004			2005				2006				20	
		Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2
1	DACP FY04 Efforts	★												
2	Live Fire FY04 Efforts	★												
3	FOTD RORI Stability Flt Test Phase 1			★										
4	Reel-In/Reel-Out (RORI) Prototype Launcher Ktr A			★										
5	DACP FY05 Efforts				★									
6	F-15 Alt Launcher Location Study					☆								
7	FOTD RORI Stability Flt Test Phase 2					☆								
8	RORI TIM #1 (PDR)					☆								
9	Live Fire FY05 Efforts					☆								
10	FOTD Envelope Expansion Flt Test					☆								
11	RORI TIM #2 (CDR)							☆						
12	RORI Launcher Prototype Demo Flt Test								☆					
13	FOTD Envelope Expansion Final Flt Test								☆					
14	RORI Development Ktr Awd									☆				
15	FOTD Effectiveness Flt Test									☆				
16	Electronic FOTD Fast Deploy Flt Test										☆			
17	RORI Final Launcher Flt Test												☆	

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Exhibit R-4a, RDT&E Schedule Detail		DATE February 2005		
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE		
<b>05 System Development and Demonstration (SDD)</b>	<b>0604270F EW Development</b>	<b>3945 TEWS Upgrade</b>		
	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) <b>Schedule Profile</b>				
(U) Defense Acquisition Challenge Program FY04 Efforts	2-4Q			
(U) Live Fire FY04 Efforts	2-3Q			
(U) FOTD RORI Stability Flight Test Phase I	4Q			
(U) Reel-Out/Reel-In (RORI) Prototype Launcher Contract Award	4Q			
(U) Defense Acquisition Challenge Program FY05 Efforts		1-4Q		
(U) F-15 Alternate Launcher Location Study		2-4Q		
(U) FOTD RORI Stability Flight Test Phase II		2Q		
(U) RORI TIM 1 (PDR)		2Q		
(U) Live Fire FY05 Efforts		2-3Q		
(U) FOTD Envelope Expansion Flight Test		3-4Q		
(U) RORI TIM 2 (CDR)		4Q		
(U) RORI Launcher Prototype Demo Flight Test			1Q	
(U) FOTD Envelope Expansion Final Flight Test			2-3Q	
(U) RORI Development Contract Award			2Q	
(U) Electronic FOTD Fast Deploy Flight Test			2-3Q	
(U) FOTD Effectiveness Flight Test			2Q	
(U) RORI Launcher Final Flight Test				2Q

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2005

BUDGET ACTIVITY		PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE		
<b>05 System Development and Demonstration (SDD)</b>		<b>0604270F EW Development</b>						<b>4832 Precision Location and Identification (PLAID)</b>		
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
4832 Precision Location and Identification (PLAID)	29.346	29.392	5.524	5.915	0.000	0.000	0.000	0.000	0.000	92.463
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

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

(1) Precision Location and Identification (PLAID) will improve aircrew situational awareness by providing accurate ground emitter location and unambiguous identification. Threat systems can disrupt or negate operational missions, even without firing, by requiring aircrew reactions that affect mission objectives. Improved threat information from a modernized Radar Warning Receiver (RWR) will assist the aircrews in determining precise threat range/directions and provide option responses short of mission abort or violent aircraft maneuvering. Knowing threat location will help an aircrew respond 'real-time' to threats by providing accurate information to allow the aircrews to reroute around hostile areas. PLAID will, where feasible, utilize existing aircraft RWR antennas and wiring (Group A hardware). Some platform modifications may be necessary to optimize geolocation performance and minimize electromagnetic interference. PLAID development is currently focused on the ALR-69A RWR, but PLAID technology can also be applied to other RWRs. Multiple platform geolocation capability is being developed under an OSD and CENTCOM sponsored Advanced Tactical Targeting Technology (AT3) Advanced Concept Technology Demonstration (ACTD). A plan to develop this technology for US Armed Forces airborne platforms has been approved. Additional related enhancements such as the capability to identify specific ground emitters (Specific Emitter ID or SEI) are under consideration.

(2) In FY04 and FY05 Congress added \$3.9M and \$2.3M AF RDT&E funds respectively to the EW Development PE 64270F for "Rapid Replacement of Mission Critical Logistics Electronics Components" (RRMCLEC). In FY05 congress added \$5.4M to the EW Development PE for "AN/ALQ-172 Airborne Electronic Attack (AEA) Upgrade." RRMCLC and ALQ-172 AEA Upgrade work is being performed at Warner-Robins Air Logistics Center in the same directorate as PLAID (WRALC/LS). The Air Force is therefore using the PLAID program office to track these funds. RRMCLC will rapidly develop prototypes of replacement electronic components and subassemblies to combat obsolescence and vanishing vendor issues in Electronic Warfare systems. ALQ-172 AEA Upgrade will resolve all hardware and software deficiencies, increase system reliability and maintainability, reduce system weight and power consumption, provide growth capability, and update the receiver to the service life extension program (SLEP) configuration creating a baseline for an AEA receiver.

**(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 Office and Engineering Support	0.460	3.305	0.500	1.100
(U) CORE SDD/Options/Award Fees	20.752	12.304	3.000	2.700
(U) SOF C-130 CORE Platform Integration - SOF C130 CORE/AT3 ACTD	3.579	3.544	1.024	1.115
(U) DT&E/OT&E - SOF C130 CORE/AT3 ACTD	0.655	2.539	1.000	1.000
(U) Rapid Replacement of Mission Critical Logistics Electronic Components	3.900	2.300		
(U) ALQ-172 Airborne Electronic Attack (AEA) Upgrade		5.400		
(U) Total Cost	29.346	29.392	5.524	5.915

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2005

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604270F EW Development

PROJECT NUMBER AND TITLE

4832 Precision Location and Identification (PLAID)

(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>Complete</u>							
(U) DARPA Funding (ACTD/AT3)	1.300								1.300	
(U) OSD Funding (ACTD/AT3)	5.000	5.000	4.000						14.000	
(U) PE27442F Common ECM Equipment	0.000	0.000	11.077	11.454	10.090	10.396	0.000		49.091	TBD
(U) PE41115F ALR-69 (RWR) AMC C-130 Airlift Squadrons. PLAID procurement to commence in FY04	0.394	0.000	15.812	38.935	53.081	41.136	20.716	9.030	169.151	TBD

(U) **D. Acquisition Strategy**

Acquisition was accomplished through full and open competition. The SDD contract was awarded to Raytheon Corporation in August 2001.

Program is based on 'Evolutionary Acquisition Strategy'.

- CORE SDD: SOF-130 DT/OT (addresses 3 of 4 KPPs)
- Option 1: F-16 DT/OT
- Option 2: Risk Reduction, AT3 Bridge Requirements Definition
- Option 3: F-16 Geo-Location (4th KPP)
- Option 4: SOF-130 Geo-Location (4th KPP)
- Options 5-10: Production
- Option 11: Advanced Tactical Targeting Technology (AT3)

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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			
<b>05 System Development and Demonstration (SDD)</b>										<b>0604270F EW Development</b>		<b>4832 Precision Location and Identification (PLAID)</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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 CORE SDD + Fee	Full & Open Comp CPAF	Raytheon - Goleta CA		12.452	Jan-04	5.000	Feb-05	3.000	Nov-05	2.700		0.000	23.152	23.152	
Raytheon Option 3/4 SDD + Fee	Full & Open Comp CPAF	Raytheon - Goleta CA		5.440	Apr-04							0.000	5.440	5.440	
Raytheon Option 11 AT3 + Fee	Sole Source - Raytheon	Raytheon - Goleta CA		2.860		7.304						0.000	10.164	8.384	
Subtotal Product Development			0.000	20.752		12.304		3.000		2.700		0.000	38.756	36.976	
Remarks:															
(U) <u>Support</u>															
AT3 Program Office Support	PR	Various Contractors		0.460	Aug-04	0.550	Oct-04			0.600			1.610	1.610	
Engineering	Various					1.500	Nov-04	0.500	Nov-05	0.500		0.000	2.500	2.500	
Subtotal Support			0.000	0.460		3.305		0.500		1.100		0.000	5.365	5.365	
Remarks:															
(U) <u>Test &amp; Evaluation</u>															
AFOTEC Det 1 46 OGS C-130	PO			0.655	Sep-04	1.800	Nov-05	1.000	Nov-05	1.000		0.000	4.455	4.455	
AT3 ACTD T&E (Western Test Range)	PO					0.739	Oct-04						0.739	0.739	
Subtotal Test & Evaluation			0.000	0.655		2.539		1.000		1.000		0.000	5.194	5.194	
Remarks:															
(U)															
Platform Integration - C-130, F-16 AT3 ACTD				3.579	Jul-04	3.544	Feb-05	1.024	Nov-05	0.720		0.000	8.867	7.027	
Platform Integration Options 3/4										0.395			0.395	0.395	
Subtotal			0.000	3.579		3.544		1.024		1.115		0.000	9.262	7.422	
Remarks:															
(U)															
Rapid Replacement of Mission Critical Logistics Electronic Components				3.900	Mar-04	2.300							6.200	3.900	
ALQ-172 AEA Upgrade						5.400							5.400		
Subtotal			0.000	3.900		7.700		0.000		0.000		0.000	11.600	3.900	
Remarks:															
(U) Total Cost			0.000	29.346		29.392		5.524		5.915		0.000	70.177	58.857	

Project 4832

R-1 Shopping List - Item No. 71-20 of 71-27

Exhibit R-3 (PE 0604270F)

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE  
0604270F EW Development

PROJECT NUMBER AND TITLE  
4832 Precision Location and Identification (PLAID)

# ALR-69A CORE Schedule

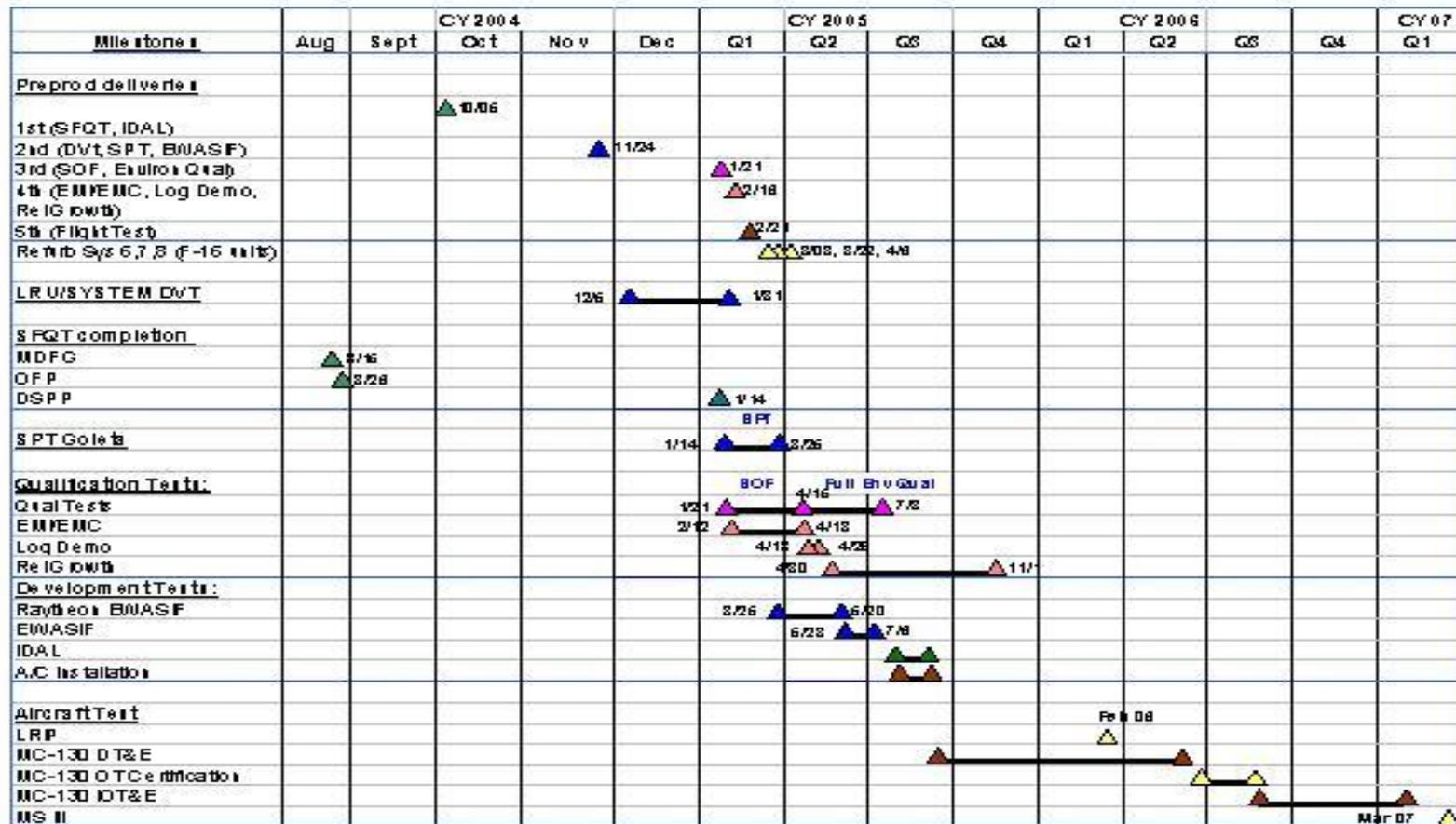


Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2005

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604270F EW Development

PROJECT NUMBER AND TITLE

4832 Precision Location and Identification (PLAID)

(U) **Schedule Profile**

- (U) Developmental Testing and Evaluation
- (U) Initial Operational Test and Evaluation
- (U) LRIP Decision
- (U) MSIII Decision

FY 2004

FY 2005

FY 2006

FY 2007

3Q

4Q

2Q

2Q

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>					PE NUMBER AND TITLE <b>0604270F EW Development</b>			PROJECT NUMBER AND TITLE <b>8462 Airborne Electronic Attack</b>		
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
8462 Airborne Electronic Attack	38.429	62.976	68.549	52.985	32.495	8.665	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

In FY 2006 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).

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

This project develops the Miniature Air Launched Decoy (MALD) and its jammer variant, Miniature Air Launched Decoy Jammer (MALD-J). MALD is a low-cost decoy to stimulate enemy integrated air defense systems (IADS) for detection, location, and both lethal and non-lethal suppression activities. MALD-J will jam radars within the no escape zone of enemy surface-to-air missiles to degrade or deny the enemy's air defense system ability to detect and track friendly aircraft or munitions. The MALD-J is a critical piece of the joint Airborne Electronic Attack System of Systems.

Both decoy and jammer configurations are key enablers supporting the Air Force Global Strike, Global Response, Space and C4ISR, and the Air and Space Expeditionary Force Concepts of Operations. Planned efforts for this program are System Development and Demonstration (SDD) which began in FY03 with a competitive contract award of the decoy configuration. This will include design, development and seamless verification of the decoy vehicle. A spiral to a MALD-J development will begin in FY06 with a modification to the current MALD contract.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) MALD and MALD-J SDD Contract	26.694	34.330	53.314	40.103
(U) MALD Program Office Support (Government)	1.930	2.358	2.615	2.863
(U) MALD / MALD-J B-52 Aircraft Integration	6.729	3.250	2.808	2.190
(U) MALD / MALD-J Mission and Test Support	2.876	1.658	9.638	7.149
(U) MALD / MALD-J F-16 Aircraft Integration	0.200	0.120	0.174	0.680
(U) AEA Synchronization Office Support		0.850		
(U) AEA System of systems engineering / architecture development / refine requirements		4.150		
(U) B-52 SOJ Program Office Support		2.149		
(U) B-52 SOJ Pre-SDD Preparation		2.200		
(U) Low Band Phased Array Tech Development		11.911		
(U) Total Cost	38.429	62.976	68.549	52.985

Note: FY2005 funding details for B-52 SOJ are being reported in the new PE 0604429F.

**(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>Complete</u>							
(U) AF RDT&E										
(U) Other APPN (PE 27442F)				34.976	135.672	97.576	85.972	85.588	Continuing	TBD

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2005

BUDGET ACTIVITY

**05 System Development and Demonstration (SDD)**

PE NUMBER AND TITLE

**0604270F EW Development**

PROJECT NUMBER AND TITLE

**8462 Airborne Electronic Attack****(U) C. Other Program Funding Summary (\$ in Millions)**

MALD procurement)

MALD production funding begins in FY07.

**(U) D. Acquisition Strategy**

A full and open competition for MALD was held in FY03 resulting in award of a cost plus award fee contract to Raytheon. Spiral to MALD-J is planned for FY06 with anticipated award of a cost plus award fee contract to Raytheon.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis											DATE February 2005			
BUDGET ACTIVITY 05 System Development and Demonstration (SDD)						PE NUMBER AND TITLE 0604270F EW Development					PROJECT NUMBER AND TITLE 8462 Airborne Electronic Attack			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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> MALD SDD ACTD	CPFF	Northrop Grumman - Ryan Aeronautical Center	40.074										40.074	
MALD / MALD-J SDD	CPAF	Raytheon Missile Systems, Tucson AZ	7.938	26.584		34.310		53.314		38.024		Continuing	TBD	102.033
MALD/MALD-J B-52 Aircraft Integration	MIPR	B-52 SPO	0.765	6.729	Oct-03	3.250		2.808		2.190		16.402	32.144	24.494
MALD/MALD-J F-16 Aircraft Integration	MIPR	F-16 SPO	0.069	0.585	Oct-03	0.120		0.174		0.680		3.665	5.293	5.469
AEA System of Systems Engineering	MIPR, CPFF	Various				3.350						Continuing	TBD	TBD
B-52 SOJ Pre-SDD Preparation	TBD	TBD				2.200	Mar-05					0.000	2.200	
B-52 SOJ SDD	TBD	TBD				11.911						643.400	655.311	
Subtotal Product Development			48.846	33.898		55.141		56.296		40.894		Continuing	TBD	TBD
Remarks:														
(U) <u>Support</u>														
Contractor Support to AAC/YAZM	Various	Various	2.792	1.373		1.571		1.863		1.907		4.746	14.252	7.787
AEA Synchronization Office Support	MIPR	Various				0.850						Continuing	TBD	TBD
B-52 SOJ Program Office Support	Various	Various				2.049						Continuing	TBD	
Subtotal Support			2.792	1.373		4.470		1.863		1.907		Continuing	TBD	TBD
Remarks:														
(U) <u>Test &amp; Evaluation</u>														
MALD Government Test Planning	Various	Various	5.390	2.491		1.575		9.638		9.229		11.729	40.052	20.056
AEA Virtual Test / AFEWICS	Various	Various										Continuing	TBD	TBD
B-52 SOJ Mission and Test Support						0.100						Continuing	TBD	
Subtotal Test & Evaluation			5.390	2.491		1.675		9.638		9.229		Continuing	TBD	TBD
Remarks:	Element includes detailed planning, support data reduction and reports from such testing.													
(U) <u>Management</u>														
AAC/YAZM (MALD)	Various	AAC, Eglin AFB FL	5.346	0.667		0.740		0.752		0.955		1.375	9.835	9.319
ASC/LRS (B-52 DSO)						0.100						Continuing	TBD	
ASC/XR (AEA Synch Office)						0.850						Continuing	TBD	
Subtotal Management			5.346	0.667		1.690		0.752		0.955		Continuing	TBD	9.319
Remarks:	Element includes miscellaneous administrative costs incurred in the day-to-day operations by the program office. Costs include travel, office equipment, office supplies, printing, contract services, program management administration and communications expenses.													
(U) Total Cost			62.374	38.429		62.976		68.549		52.985		Continuing	TBD	TBD

Project 8462

R-1 Shopping List - Item No. 71-25 of 71-27

Exhibit R-3 (PE 0604270F)



<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2005</b>
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BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0604270F EW Development</b>	PROJECT NUMBER AND TITLE <b>8462 Airborne Electronic Attack</b>
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	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) <b>Schedule Profile</b>				
(U) MALD Integrated Baseline Review	1Q			
(U) MALD Systems Requirements Review	3Q			
(U) MALD Preliminary Design Review		2Q		
(U) MALD Critical Design Review		3Q		
(U) MALD-J Spiral Start			2Q	
(U) MALD Incremental Design Review			3Q	
(U) MALD Flight Readiness Review				1Q

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604280F JOINT TACTICAL RADIO SYSTEMS (JTRS)</b>
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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	29.260	39.099	124.225	131.527	64.839	40.691	3.048	1.687	Continuing	TBD
5068 Joint Tactical Radio System (JTRS)	29.260	39.099	124.225	131.527	64.839	40.691	3.048	1.687	Continuing	TBD

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

Joint Tactical Radio System (JTRS) is the Department of Defense family of common software-defined programmable radios that will form the foundation of radio frequency information transmission for Joint Vision 2020. JTRS radios are intended to interoperate with existing radio systems and provide the warfighter with additional communications capability to access maps and other visual data, communicate via voice and video and obtain information directly from battlefield sensors. JTRS will provide internet protocol (IP)-based capability to the warfighter and will replace all existing tactical radios based on the Services' migration plans. The JTRS program is built around an open Software Communications Architecture (SCA), allowing common software waveform applications to be implemented across the family of radios to provide joint-service, allied, and coalition interoperability. JTRS is a key enabler that will provide dynamic connectivity throughout the battle space to operate within the network centric operational environment

In Nov 03, the AF and Navy Service Acquisition Executives decided to foster commonality by merging the AF-led JTRS Airborne Cluster and Navy-led JTRS Maritime/Fixed Station Cluster development efforts. The JTRS Defense Acquisition Board endorsed the program merger in Dec 03. This joint development effort is called Airborne and Maritime/Fixed Station (AMF) JTRS. Under this arrangement, a joint Air Force and Navy team manages the development of a common core radio design that will be the basis for satisfying the Airborne, Maritime and Fixed Station domain requirements. To remain consistent with the original intent of both programs, the AF and Navy will equitably cost share the development of the common core radio design, but AF will fund any unique Airborne requirements and Navy will fund any unique Maritime/Fixed Station requirements. This effort is currently led by an AF Program Manager and Navy Deputy Program Manager with the lead and key managerial positions rotating at predetermined times during the acquisition. This PE represents the AF contribution to the combined AMF JTRS development and to the implementation of AF JTRS requirements. In addition to the AMF JTRS development, FY04-07 funds are used for the planning and implementation of AF JTRS, such as requirements and integration analyses, engineering support, and the JTRS Wideband Network Waveform (WNW) / Airborne Network requirements.

Additional AF requirements for tactical communications (i.e., handhelds, manpacks, vehicular, etc.) will be met by collaborating with other JTRS Clusters. Funding to support program planning and engineering support to evaluate AF requirements for these Clusters is included in this PE.

This program is in budget activity 5 (System Development and Demonstration) because it supports development and integration of JTRS solutions.

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2005

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604280F JOINT TACTICAL RADIO SYSTEMS (JTRS)

(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	38.814	49.856	122.650	103.363
(U) Current PBR/President's Budget	29.260	39.099	124.225	131.527
(U) Total Adjustments	-9.554	-10.757		
(U) Congressional Program Reductions	-0.389	-10.000		
Congressional Rescissions	-0.329	-0.757		
Congressional Increases				
Reprogrammings	-7.695			
SBIR/STTR Transfer	-1.141			

(U) **Significant Program Changes:**

FY04 funding provides for Pre-System Development and Demonstration (Pre-SDD) effort that includes initial system engineering/design efforts through Preliminary Design Review (PDR) to deal with interface/integration constraints associated with 75+ Airborne Platform types planning to integrate AMF JTRS. This Pre-SDD effort was originally scheduled to start in FY03, but was delayed due to the combining of Airborne and Maritime/Fixed Station Cluster development efforts into Airborne, Maritime/Fixed Station (AMF) JTRS. FY04 funds were adjusted to account for delay in Pre-SDD contract awards. FY05 funding will be used to continue the development effort and implement AF JTRS requirements. FY06 funding continues the system development phase of the program; transitioning from the Pre-SDD to the SDD phase which includes Critical Design Review and pre-engineering development model build-up of multiple system form factors and ancillary equipment. The SDD phase also includes significant software development, contractor testing, and systems integration activities to support an early operational assessment in FY07. FY06-07 funding was adjusted to account for a combined AMF JTRS joint development program cost estimate.

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2005

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>						PE NUMBER AND TITLE <b>0604280F JOINT TACTICAL RADIO SYSTEMS (JTRS)</b>		PROJECT NUMBER AND TITLE <b>5068 Joint Tactical Radio System (JTRS)</b>		
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
5068 Joint Tactical Radio System (JTRS)	29.260	39.099	124.225	131.527	64.839	40.691	3.048	1.687	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

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

Joint Tactical Radio System (JTRS) is the Department of Defense family of common software-defined programmable radios that will form the foundation of radio frequency information transmission for Joint Vision 2020. JTRS radios are intended to interoperate with existing radio systems and provide the warfighter with additional communications capability to access maps and other visual data, communicate via voice and video and obtain information directly from battlefield sensors. JTRS will provide internet protocol (IP)-based capability to the warfighter and will replace all existing tactical radios based on the Services' migration plans. The JTRS program is built around an open Software Communications Architecture (SCA), allowing common software waveform applications to be implemented across the family of radios to provide joint-service, allied, and coalition interoperability. JTRS is a key enabler that will provide dynamic connectivity throughout the battle space to operate within the network centric operational environment

In Nov 03, the AF and Navy Service Acquisition Executives decided to foster commonality by merging the AF-led JTRS Airborne Cluster and Navy-led JTRS Maritime/Fixed Station Cluster development efforts. The JTRS Defense Acquisition Board endorsed the program merger in Dec 03. This joint development effort is called Airborne and Maritime/Fixed Station (AMF) JTRS. Under this arrangement, a joint Air Force and Navy team manages the development of a common core radio design that will be the basis for satisfying the Airborne, Maritime and Fixed Station domain requirements. To remain consistent with the original intent of both programs, the AF and Navy will equitably cost share the development of the common core radio design, but AF will fund any unique Airborne requirements and Navy will fund any unique Maritime/Fixed Station requirements. This effort is currently led by an AF Program Manager and Navy Deputy Program Manager with the lead and key managerial positions rotating at predetermined times during the acquisition. This PE represents the AF contribution to the combined AMF JTRS development and to the implementation of AF JTRS requirements. In addition to the AMF JTRS development, FY04-07 funds are used for the planning and implementation of AF JTRS, such as requirements and integration analyses, engineering support, and the JTRS Wideband Network Waveform (WNW) / Airborne Network requirements.

Additional AF requirements for tactical communications (i.e., handhelds, manpacks, vehicular, etc.) will be met by collaborating with other JTRS Clusters. Funding to support program planning and engineering support to evaluate AF requirements for these Clusters is included in this PE.

This program is in budget activity 5 (System Development and Demonstration) because it supports development and integration of JTRS solutions.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) AMF JTRS Initial Design through PDR (initial development, integration planning, and risk reduction)	24.472	21.719		
(U) AF JTRS Requirements Planning and Implementation	1.761	3.227	2.605	2.353
(U) Business Operations, Logistics Planning, Software Management and Support	1.936	3.105	5.900	5.992
(U) AMF (Airborne) JTRS System Engineering, Integration and Test	1.091	11.048	18.294	21.742
(U) AMF JTRS Design -- post PDR Design and SDD Contract			97.426	101.440
(U) Total Cost	29.260	39.099	124.225	131.527

Exhibit R-2a, RDT&E Project Justification

DATE

February 2005

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604280F JOINT TACTICAL RADIO SYSTEMS (JTRS)

PROJECT NUMBER AND TITLE

5068 Joint Tactical Radio System (JTRS)

(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>Complete</u>							
PE 0207423F Advanced										
(U) Communications Systems - Aircraft Procurement, AF			42.831	156.093	205.548	309.282	306.673	333.073	Continuing	TBD
PE 0207423F Advanced										
(U) Communications Systems - Other Procurement, AF		0.957	11.560	63.607	112.386	161.215	167.949	244.821	Continuing	TBD
PE 0207423F Advanced										
(U) Communications Systems - Operations and Maintenance, AF				3.840	11.815	12.095	12.275	12.517	Continuing	TBD

(U) **D. Acquisition Strategy**

All major contracts within this Program Element 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 05 System Development and Demonstration (SDD)					PE NUMBER AND TITLE 0604280F JOINT TACTICAL RADIO SYSTEMS (JTRS)					PROJECT NUMBER AND TITLE 5068 Joint Tactical Radio System (JTRS)				
(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>														
JTRS WNW/Airborne Network Implementation Requirements	C/FFP	MIT Lincoln Lab, Bedford, MA	2.900	0.000		0.750	Nov-04	0.500	Nov-05	0.300	Nov-06	Continuing	TBD	TBD
AMF JTRS System Engineering Cross-Platform Functional Analyses	C/FFP	Various ASC/AA, Wright-Patterson AFB, OH	2.835	0.894	Oct-03	8.614	Oct-04	13.113	Oct-05	13.743	Oct-06	Continuing	TBD	TBD
Antenna Development	MIPR	AFRL	0.000	0.000		1.250	Feb-05	0.000		0.000		Continuing	TBD	TBD
AF JTRS Planning and Implementation	C/FFP	Various	1.796	0.600	Aug-04	0.798	Jan-05	0.745		0.631		Continuing	TBD	TBD
AMF JTRS Pre-SDD Contracts	C/CPFF	Lockheed Martin, Manassas, VA The Boeing Company, Anaheim, CA	0.000	24.472	Sep-04	21.719	Nov-05	0.000		0.000		Continuing	TBD	TBD
AMF JTRS SDD Contract	C/CPAF	TBD	0.000	0.000		0.000		97.426	Jan-06	101.440	Nov-06	Continuing	TBD	TBD
Subtotal Product Development			8.517	25.966		33.831		111.784		116.114		Continuing	TBD	TBD
Remarks:	AMF JTRS System Engineering includes MITRE, ESC/IN, Risk Reduction/Technology efforts; AF JTRS Implementation includes Lincoln Lab, C130 AMP Antenna Analysis, JPALS Study													
(U) <u>Support</u>														
ESC Acquisition Support	C/FFP	Various	1.537	1.234	Jul-04	1.350	Dec-04	2.100	Dec-05	2.205		Continuing	TBD	TBD
ESC Specialized Cost Services Support	C/FFP	Tecolote Research, Hanscom AFB, MA	0.657	0.517	Dec-03	0.700	Jan-05	0.735	Jan-05	0.551		Continuing	TBD	TBD
AFC2ISRC Requirements & Integration Analyses Support	C/FFP	Northrop Grumman, Langley AFB, VA	1.802	0.800	Feb-04	0.608	Feb-05	0.915	Feb-06	0.967	Feb-07	Continuing	TBD	TBD
INFOSEC Design Support	MIPR	NSA, FT Meade, MD	0.000	0.000		0.535	Dec-05	0.515	Dec-06	0.350	Dec-07	Continuing	TBD	TBD
Subtotal Support			3.996	2.551		3.193		4.265		4.073		Continuing	TBD	TBD
Remarks:														
(U) <u>Test &amp; Evaluation</u>														
Test Automation and Test Support	MIPR	JITC	0.053	0.060	Nov-03	0.132	Jan-05	0.113	Dec-05	1.315	Dec-06	Continuing	TBD	TBD
Test Agency Support	MIPR	Various	0.130	0.135	Mar-04	0.466	Jan-05	4.538	Dec-05	6.317	Dec-06	Continuing	TBD	TBD
Subtotal Test & Evaluation			0.183	0.195		0.598		4.651		7.632		Continuing	TBD	TBD
Remarks:														
Project 5068	R-1 Shopping List - Item No. 72-5 of 72-8												Exhibit R-3 (PE 0604280F)	

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2005**

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE			
<b>05 System Development and Demonstration (SDD)</b>				<b>0604280F JOINT TACTICAL RADIO SYSTEMS (JTRS)</b>				<b>5068 Joint Tactical Radio System (JTRS)</b>			
(U) <u>Management</u>											
AMF (Airborne) JTRS Program Office	C/Varies	ESC/NI4, Hanscom AFB, MA	0.000	0.455	1.339	3.362	3.548	Continuing	TBD	TBD	
AF JTRS Implementation Program Office	C/Varies	ESC/NI4, Hanscom AFB, MA	0.142	0.093	0.138	0.163	0.160	Continuing	TBD	TBD	
Subtotal Management			0.142	0.548	1.477	3.525	3.708	Continuing	TBD	TBD	
Remarks:											
(U) Total Cost			12.838	29.260	39.099	124.225	131.527	Continuing	TBD	TBD	

Exhibit R-4, RDT&E Schedule Profile

DATE

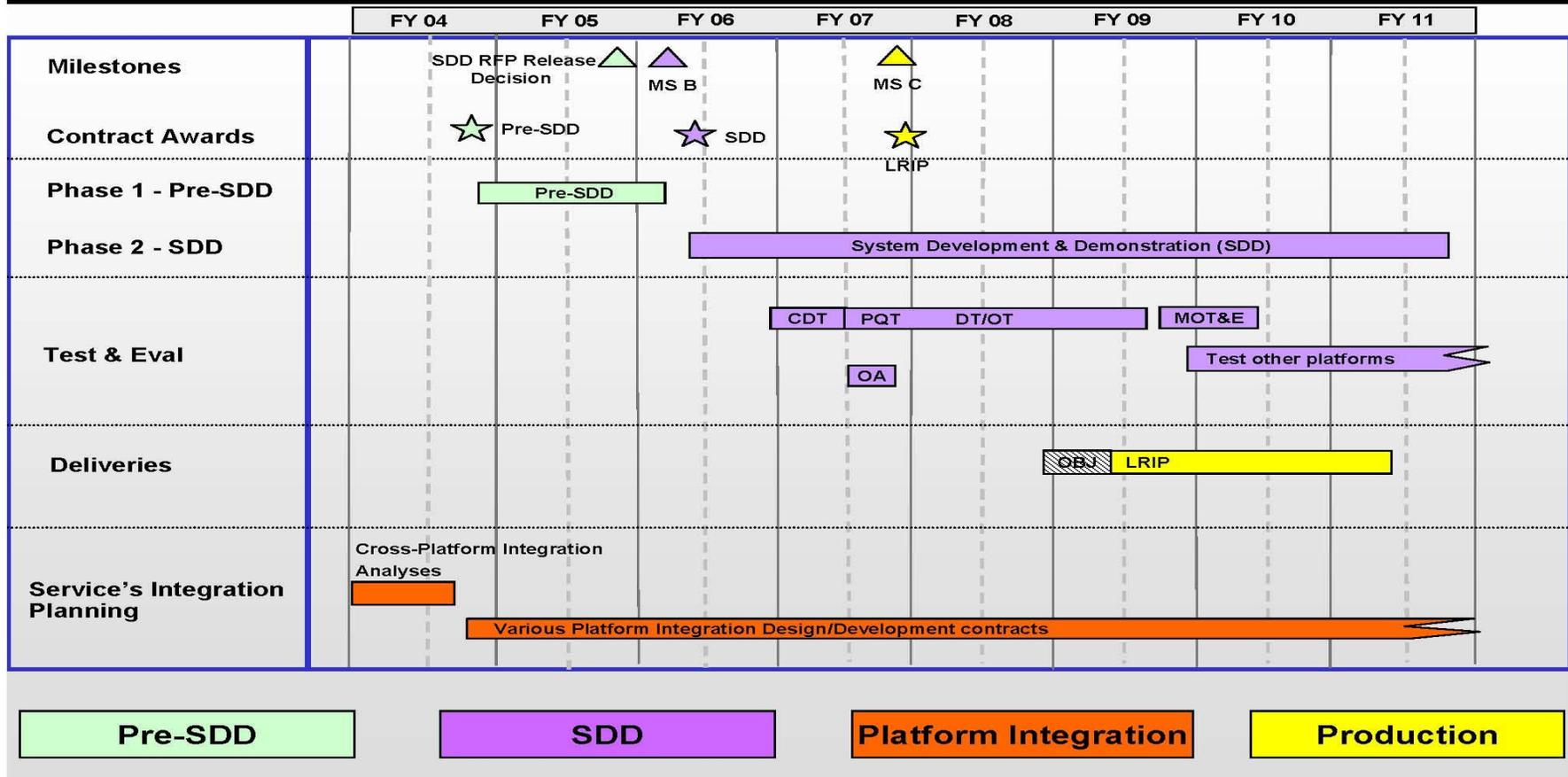
February 2005

BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE  
0604280F JOINT TACTICAL RADIO SYSTEMS (JTRS)

PROJECT NUMBER AND TITLE  
5068 Joint Tactical Radio System (JTRS)

# AMF JTRS Schedule



UNCLASSIFIED

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>		DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604280F JOINT TACTICAL RADIO SYSTEMS (JTRS)</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5068 Joint Tactical Radio System (JTRS)</b>
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<b>(U) <u>Schedule Profile</u></b>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) AMF JTRS Cluster (Pre-SDD) Contract Award	4Q			
(U) AMF JTRS Cluster (SDD) RFP Release		4Q		
(U) Milestone B			1Q	
(U) AMF JTRS Cluster (SDD) Contract Award			2Q	
(U) Milestone C				4Q

**UNCLASSIFIED**

PE NUMBER: 0604287F  
 PE TITLE: Physical Security Equipment

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604287F Physical Security Equipment</b>
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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	7.675	9.659	11.153	8.122	2.270	3.254	3.329	3.387	Continuing	TBD
5120 Physical Security Equipment - SD/ED	7.675	9.659	11.153	8.122	2.270	3.254	3.329	3.387	Continuing	TBD

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

This program is a budget activity level 5 based on the engineering and manufacturing development activities ongoing within the program. The purpose of this program is to design physical security equipment (PSE) systems for all DoD components, to support its physical security and Force Protection missions. This program supports the protection of tactical, fixed and nuclear weapons systems, DoD personnel and DoD facilities. The funds are used to provide PSE RDT&E for individual Service and Joint PSE requirements. The PSE program is organized so that an ongoing USAF-coordinated Joint Action Group, consisting of Army, Navy, Air Force, and Defense Threat Reduction Agency (DTRA) representatives monitors, directs and prioritizes potential and existing PSE programs. OSD program oversight, to be established by a Memorandum of Understanding, is to be provided by the Office of the Under Secretary of Defense, Acquisition, Technology and Logistics (AT&L), the Assistant Secretary of Defense for Networks and Information Integration (NII), and the Assistant to the Secretary of Defense for Nuclear and Chemical and Biological (ATSD(NCB)) programs. With few exceptions, each Service sponsors RDT&E efforts for technologies and programs that have multi-service application. This program element supports the Army's advanced engineering development of robotic and detection systems. The program element also supports all four Services' identification and redesign of developmental, non-developmental, and commercial-off-the-shelf equipment to meet physical security requirements. Activities within this program will seek to reduce risk associated with integrating, fielding, and supporting the equipment once it becomes a part of the overall security 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	7.899	9.659	11.153	8.122
(U) Current PBR/President's Budget	7.675	9.659	11.153	8.122
(U) Total Adjustments	-0.224	0.000		
(U) Congressional Program Reductions				
Congressional Rescissions				
Congressional Increases				
Reprogrammings				
SBIR/STTR Transfer	-0.224			

(U) **Significant Program Changes:**

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2005

BUDGET ACTIVITY		PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE		
<b>05 System Development and Demonstration (SDD)</b>		<b>0604287F Physical Security Equipment</b>						<b>5120 Physical Security Equipment - SD/ED</b>		
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
5120 Physical Security Equipment - SD/ED	7.675	9.659	11.153	8.122	2.270	3.254	3.329	3.387	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 is a budget activity level 5 based on the engineering and manufacturing development activities ongoing within the program. The purpose of this program is to design physical security equipment (PSE) systems for all DoD components, to support its physical security and Force Protection missions. This program supports the protection of tactical, fixed and nuclear weapons systems, DoD personnel and DoD facilities. The funds are used to provide PSE RDT&E for individual Service and Joint PSE requirements. The PSE program is organized so that an ongoing USAF-coordinated Joint Action Group, consisting of Army, Navy, Air Force, and Defense Threat Reduction Agency (DTRA) representatives monitors, directs and prioritizes potential and existing PSE programs. OSD program oversight, to be established by a Memorandum of Understanding, is to be provided by the Office of the Under Secretary of Defense, Acquisition, Technology and Logistics (AT&L), the Assistant Secretary of Defense for Networks and Information Integration (NII), and the Assistant to the Secretary of Defense for Nuclear and Chemical and Biological (ATSD(NCB)) programs. With few exceptions, each Service sponsors RDT&E efforts for technologies and programs that have multi-service application. This program element supports the Army's advanced engineering development of robotic and detection systems. The program element also supports all four Services' identification and redesign of developmental, non-developmental, and commercial-off-the-shelf equipment to meet physical security requirements. Activities within this program will seek to reduce risk associated with integrating, fielding, and supporting the equipment once it becomes a part of the overall security 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) FORCE PROTECTION/TACTICAL SECURITY EQUIPMENT	0.775			
- Began SDD of the BAIS.				
- Conducted Milestone C Full Rate Production Decision.				
- Continued to prepare operational systems improvement plans; develop technology roadmap, update system architecture.				
- Continued to test, develop, and integrate equipment to improve security and access to facilities.				
(U) FORCE PROTECTION/TACTICAL SECURITY EQUIPMENT		3.024		
- Conduct Milestone C Full Rate Production decision for the BAIS.				
- Begin Full Rate Production of BAIS.				
- Conduct Production Verification Tests of BAIS.				
- Continue to manage, develop, evaluate, and test Delay/Denial products.				
- Continue to manage sensor and assessment product developments and tests.				
- Continue to prepare operational systems improvement plans; develop technology roadmap, update system architecture.				
- Continue to test, develop, and integrate equipment to improve security and access to facilities.				
(U) ROBOTIC SECURITY SYSTEMS INTEGRATION	6.900			
- Began SDD of Mobile Detection and Response System - Exterior (MDARS-E) Patrol Units.				

Exhibit R-2a, RDT&E Project Justification			DATE							
			February 2005							
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE								
<b>05 System Development and Demonstration (SDD)</b>	<b>0604287F Physical Security Equipment</b>	<b>5120 Physical Security Equipment - SD/ED</b>								
<ul style="list-style-type: none"> <li>- Developed Encryption capability and Military Band communications.</li> <li>- Completed Subsystem (Obstacle Avoidance and Intrusion Detection) Integration of MDARS-E.</li> <li>- Began Production Qualification Tests of MDARS-E - completed Test 1a.</li> </ul>										
(U) ROBOTIC SECURITY SYSTEMS INTEGRATION		4.435								
<ul style="list-style-type: none"> <li>- Conduct Production Qualification Tests of MDARS-E Test 1b.</li> <li>- Complete Early User Assessments of MDARS-E.</li> <li>- Conduct Factory System Production Qualification Tests of MDARS-E.</li> <li>- Conduct Environmental and EMI Tests of MDARS-E.</li> </ul>										
(U) ROBOTIC SECURITY SYSTEMS INTEGRATION			11.153							
<ul style="list-style-type: none"> <li>- Conduct operational test of MDARS-E.</li> <li>- Provide Engineering Support for fielding the MDARS-E.</li> </ul>										
(U) ROBOTIC SECURITY SYSTEMS INTEGRATION				8.122						
<ul style="list-style-type: none"> <li>- Begin Full Rate Production of MDARS-E.</li> <li>- Preplanned Product Improvement (P3I) to obtain greater sensing distance for MDARS-E while on the move.</li> <li>- Increase the speed and response feed of MDARS-E to support the REDCAR project.</li> </ul>										
(U) WATERSIDE SECURITY SYSTEM		1.300								
<ul style="list-style-type: none"> <li>-Continue preplanned product improvement (P3I) efforts for COTS sonar technologies in support of Subsurface Threat Detection</li> <li>-Continue test and evaluation of swimmer detection equipment</li> <li>-Continue to monitor and investigate availability of non-lethal technologies in the Swimmer Delay, Denial, and Response area.</li> <li>-Conduct in-water tests of Sea Fence and composite material LW barrier developed by the Naval Facilities Engineering Systems Center.</li> </ul>										
(U) EXPLOSIVE DETECTION EQUIPMENT		0.900								
<ul style="list-style-type: none"> <li>- Redesign and develop the Laser IMS prototype into a final production model.</li> <li>- Continue to manage, develop, evaluate, and test explosive detection products</li> </ul>										
(U) Total Cost		7.675	9.659	11.153 8.122						
<b>(U) C. Other Program Funding Summary (\$ in Millions)</b>										
	<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										
<b>(U) D. Acquisition Strategy</b>										
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				
<b>05 System Development and Demonstration (SDD)</b>				<b>0604287F Physical Security Equipment</b>						<b>5120 Physical Security Equipment - SD/ED</b>				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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>														
PM-FPS (US Army)	MIPR			7.385	Dec-03	7.069	Oct-04	10.703	Oct-05	7.802	Oct-06	Continuing	TBD	TBD
NAVEODTECHDIV (US Navy)	MIPR					0.900	Oct-04						0.900	TBD
Subtotal Product Development			0.000	7.385		7.969		10.703		7.802		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 &amp; Evaluation</u>														
SPAWAR, San Diego (US Navy)	MIPR					1.300	Oct-04						1.300	TBD
Subtotal Test & Evaluation			0.000	0.000		1.300		0.000		0.000		0.000	1.300	TBD
Remarks:														
(U) <u>Management</u>														
Program Office Support				0.290		0.390		0.450		0.320		Continuing	TBD	TBD
Subtotal Management			0.000	0.290		0.390		0.450		0.320		Continuing	TBD	TBD
Remarks:														
(U) <u>PM-PSE (US Army)</u>														
(U) Total Cost			0.000	7.675		9.659		11.153		8.122		Continuing	TBD	TBD
Remarks:														

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE  
0604287F Physical Security  
Equipment

PROJECT NUMBER AND TITLE  
5120 Physical Security Equipment -  
SD/ED

Exhibit R-4, Schedule Profile																								Date: February 2005												
BUDGET ACTIVITY 05 System Development and Demonstration (SDD)										PE NUMBER AND TITLE PE0604287F Physical Security Equipment										PROJECT NUMBER AND NAME 5120 Physical Security Equipment - SD/ED																
Fiscal Year	2003				2004				2005				2006				2007				2008				2009				2010				2011			
	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
Begin SDD of BAIS				▲																																
BAIS Production Verification Tests							▲																													
MDARS-E SDD		▲																																		
Conduct Sea Fence In-Water tests											▲																									
Redesign and Develop Laser IMS for production												▲																								
Provide Engineering Support for fielding MDARS																▲																				
Increase MDARS-E speed and response																				▲																

Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2005

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604287F Physical Security Equipment

PROJECT NUMBER AND TITLE

5120 Physical Security Equipment - SD/ED

(U) **Schedule Profile**

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Begin SDD of BAIS	1Q			
(U) BAIS Milestone C Decision		2Q		
(U) BAIS Production Verification Tests		3Q		
(U) MDARS SDD	2Q			
(U) Complete Early User Appraisal of MDARS -E		4Q		
(U) Conduct Sea Fence In-Water tests		1Q		
(U) Redesign and Develop Laser IMS for production		4Q		
(U) Conduct operational test of MDARS-E			1Q	
(U) Provide engineering support for fielding the MDARS-E			3Q	
(U) P3I for MDARS-E for greater sensing distance				1Q
(U) Increase MDARS-E speed and response feed to support REDCAR				1Q

**UNCLASSIFIED**

PE NUMBER: 0604329F  
 PE TITLE: Small Diameter Bomb

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2005</b>
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BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0604329F Small Diameter Bomb</b>
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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	118.828	75.815	85.988	85.209	131.299	141.327	90.759	11.458	0.000	867.441
5006 Small Diameter Bomb	118.828	75.815	38.935	13.232	0.000	0.000	0.000	0.000	0.000	373.568
5191 Small Diameter Bomb Increment II	0.000	0.000	47.053	71.977	131.299	141.327	90.759	11.458	0.000	493.873

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

Small Diameter Bomb (SDB) is an Air Force ACAT 1D program providing increased kills per sortie on current and future aircraft platforms. SDB addresses the following warfighter requirements: multiple kills per pass; multiple ordnance carriage; adverse weather operations, near-precision munitions capability; capability against fixed targets; reduced munitions footprint; increased weapons effectiveness; minimized potential for collateral damage; and reduced susceptibility of munitions to countermeasures. Threshold aircraft is the F-15E. Objective aircraft include the B-1, B-2, Joint Strike Fighter (JSF), F/A-22, F-117, F-16, B-52, Predator B, and the Joint Unmanned Combat Air System (JUCAS). SDB is currently in System Development Demonstration (SDD) phase with Milestone C planned for the third quarter of 2005. SDB will continue multiple incremental development to attack moving targets and pursue network CENTRIC interoperability (Increment 2,3). SDB is a key component of the Air Force's Global Strike Task Force CONOPS.

The government is buying the SDB based on a contractor-developed, government-approved System Performance Specification (SPS) which became contractually binding at contract award. The contractor will assume performance responsibility as defined in the SPS and warrants system performance for 20 years. Accordingly, the contractor is responsible not only for the design of the missile system, but also for planning and executing the seamless verification program to verify the system performance. In its role as facilitator and advisor to the contractor, the government formally arranges and funds the use of government flight test support for testing. Although funded by the government, flight test support funds are part of the negotiated commitment between the contractor and the government ensuring the contractor is able to execute the test program according to the scope of the SDD contract.

This program is in Budget Activity 5 - System Development and Demonstration (SDD) because this RDT&E effort develops the Small Diameter Bomb 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	125.373	76.489	85.525	87.257
(U) Current PBR/President's Budget	118.828	75.815	85.988	85.209
(U) Total Adjustments	-6.545	-0.674		
(U) Congressional Program Reductions	0.000	-0.674		
Congressional Rescissions	0.000			
Congressional Increases	0.000			
Reprogrammings	-2.757			
SBIR/STTR Transfer	-3.788			

**(U) Significant Program Changes:**

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2005

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604329F Small Diameter Bomb

N/A

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>					PE NUMBER AND TITLE <b>0604329F Small Diameter Bomb</b>			PROJECT NUMBER AND TITLE <b>5006 Small Diameter Bomb</b>		
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
5006 Small Diameter Bomb	118.828	75.815	38.935	13.232	0.000	0.000	0.000	0.000	0.000	373.568
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

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

Small Diameter Bomb (SDB) is an Air Force ACAT 1D program providing increased kills per sortie on current and future aircraft platforms. SDB addresses the following warfighter requirements: multiple kills per pass; multiple ordnance carriage; adverse weather operations, near-precision munitions capability; capability against fixed targets; reduced munitions footprint; increased weapons effectiveness; minimized potential for collateral damage; and reduced susceptibility of munitions to countermeasures. Threshold aircraft is the F-15E. Objective aircraft include the B-1, B-2, Joint Strike Fighter (JSF), F/A-22, F-117, F-16, B-52, Predator B, and the Joint Unmanned Combat Air System (JUCAS). SDB is currently in System Development Demonstration (SDD) phase with Milestone C planned for the third quarter of 2005.

The government is buying the SDB based on a contractor-developed, government-approved System Performance Specification (SPS) which became contractually binding at contract award. The contractor will assume performance responsibility as defined in the SPS and warrants system performance for 20 years. Accordingly, the contractor is responsible not only for the design of the missile system, but also for planning and executing the seamless verification program to verify the system performance. In its role as facilitator and advisor to the contractor, the government formally arranges and funds the use of government flight test support for testing. Although funded by the government, flight test support funds are part of the negotiated commitment between the contractor and the government ensuring the contractor is able to execute the test program according to the scope of the SDD contract.

This program is in Budget Activity 5 - System Development and Demonstration (SDD) because this RDT&E effort develops the Small Diameter Bomb 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 aircraft integration.	0.321	8.838	0.175	0.178
(U) Continue program office support.	3.530	1.187	0.000	0.000
(U) Continue mission support.	1.431	0.555	0.780	0.833
(U) Continue System Development and Demonstration (SDD) phase for fixed target variant.	107.207	57.685	37.980	12.221
(U) Continue SDD testing and continue test support.	6.339	7.550	0.000	0.000
(U) Total Cost	118.828	75.815	38.935	13.232

**(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>Complete</u>							
(U) Missile Procurement, AF, 0207327F, App 3020	0.000	29.144	59.052	114.304	105.003	124.319	194.513	195.696	734.162	1,556.193

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2005

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604329F Small Diameter Bomb

PROJECT NUMBER AND TITLE

5006 Small Diameter Bomb

(U) **D. Acquisition Strategy**

All major contracts within this Program Element have been awarded through full and open competition. Two contractors were selected for the 24 month CAD phase using Firm Fixed Price contracts. The Air Force downselected to Boeing in August 2003. SDD will be a fixed target variant with near precision and significant weapon effectiveness. SDD is a Cost Plus Award 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			
<b>05 System Development and Demonstration (SDD)</b>										<b>0604329F Small Diameter Bomb</b>		<b>5006 Small Diameter Bomb</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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>															
CAD Contract 1	FFP	Lockheed Martin, Orlando FL	53.616			0.000	N/A					0.000	53.616	53.616	
CAD Contract 2	FFP	Boeing, St Louis MO	53.616			0.000	N/A					0.000	53.616	53.616	
SDD Baseline Contract	CPAF	Boeing, St Louis MO	2.510	107.207	Oct-03	57.685	Oct-03	37.980	Oct-03	12.221	Oct-03	0.000	217.603	217.603	
Subtotal Product Development			109.742	107.207		57.685		37.980		12.221		0.000	324.835	324.835	
Remarks:															
(U) <u>Support</u>															
F-15 SPO	PO (In-House)	Wright Patterson AFB, OH	6.507	0.000	N/A	8.720	N/A	0.000	N/A	0.000	N/A	0.000	15.227	15.227	
Other A/C SPOs	PO (In-House)	Wright Patterson AFB, OH	1.131	0.321	N/A	0.118	N/A	0.175	N/A	0.178	N/A	0.000	1.923	1.923	
Sverdrup Inc.	C/CPAF	Eglin AFB, FL	4.001	2.040	Jun-01	0.868	Jun-01	0.000	Jun-01	0.000	Jun-01	0.000	6.909	6.909	
Other	Misc	Various	3.309	2.050	N/A	0.555	N/A	0.480	N/A	0.593	N/A	0.000	6.987	6.987	
Subtotal Support			14.948	4.411		10.261		0.655		0.771		0.000	31.046	31.046	
Remarks:															
(U) <u>Test &amp; Evaluation</u>															
46 TW	PO (In-House)	Eglin AFB, FL	1.462	6.339	N/A	7.550	N/A	0.000	N/A	0.000	N/A	0.000	15.351	15.351	
Subtotal Test & Evaluation			1.462	6.339		7.550		0.000		0.000		0.000	15.351	15.351	
Remarks:															
(U) <u>Management</u>															
Madison Reasearch	C/CPAF	Eglin AFB, FL	0.606	0.871	Jun-01	0.319	Jun-01	0.300	Jun-01	0.240	Jun-01	0.000	2.336	2.336	
Subtotal Management			0.606	0.871		0.319		0.300		0.240		0.000	2.336	2.336	
Remarks:															
(U) Total Cost			126.758	118.828		75.815		38.935		13.232		0.000	373.568	373.568	

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE  
0604329F Small Diameter Bomb

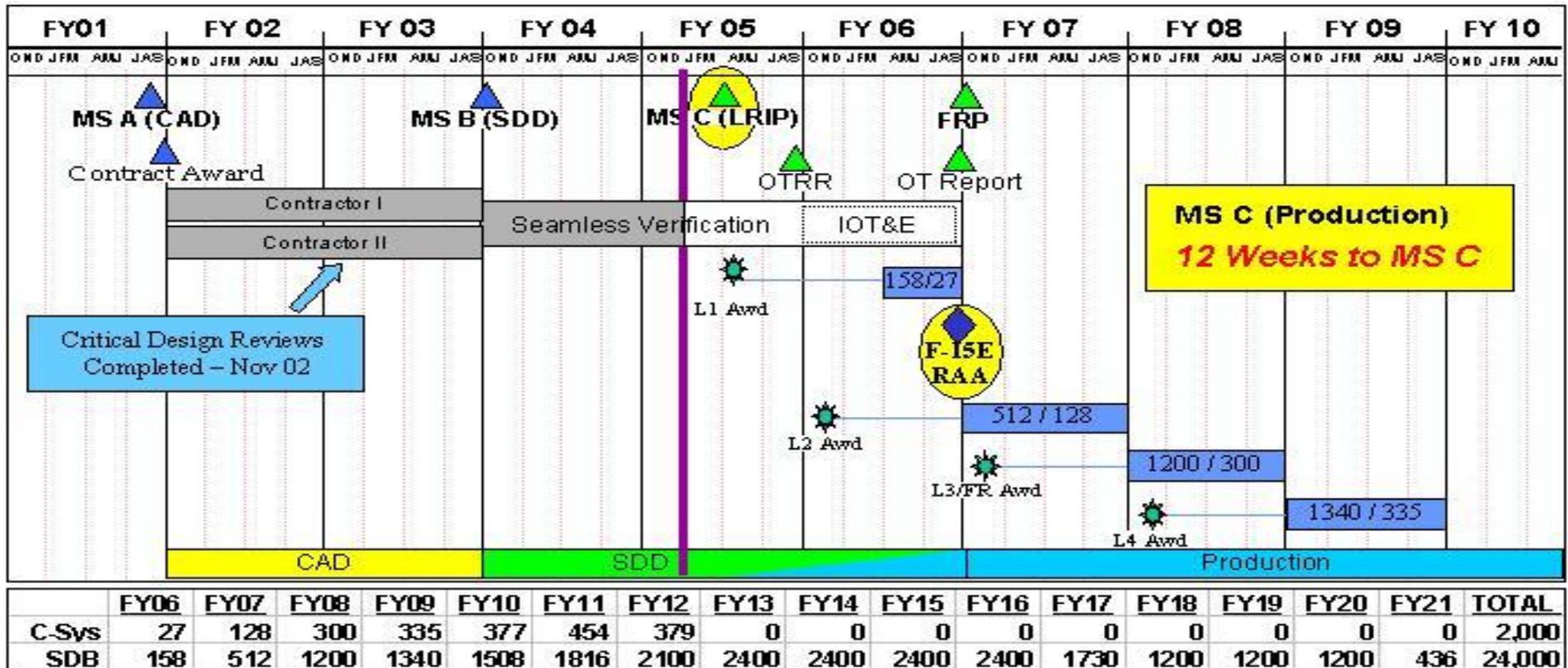
PROJECT NUMBER AND TITLE  
5006 Small Diameter Bomb

# SDB Increment I Schedule

*Commander's Intent: You Will Deliver Small Diameter Bomb (SDB) to the Warfighter in FY06. Schedule Is Paramount*



Small Diameter Bomb



**UNCLASSIFIED**

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2005</b>
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BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0604329F Small Diameter Bomb</b>	PROJECT NUMBER AND TITLE <b>5006 Small Diameter Bomb</b>
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	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
<b>(U) <u>Schedule Profile</u></b>				
(U) Milestone B (Enter System Development Design (SDD))	1Q			
(U) SDD Contract Award	1Q			
(U) Begin Ground Testing	2Q			
(U) Milestone C		3Q		
(U) Low Rate Initial Production (LRIP) Contract Award		3Q		
(U) Lot 2 Award			1Q	
(U) F-15E RAA			4Q	
(U) Lot 3 FRP Award				1Q

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>					PE NUMBER AND TITLE <b>0604329F Small Diameter Bomb</b>			PROJECT NUMBER AND TITLE <b>5191 Small Diameter Bomb Increment II</b>		
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
5191 Small Diameter Bomb Increment II	0.000	0.000	47.053	71.977	131.299	141.327	90.759	11.458	0.000	493.873
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

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

Small Diameter Bomb (SDB) Increment II is a joint interest program providing the warfighter a capability to attack mobile targets in weather. SDB Increment II addresses the following warfighter requirements: attack mobile targets; multiple kills per pass; multiple ordinance carriage; all weather operations; near-precision munitions capability; capability against fixed targets; reduced munitions footprint; increased weapons effectiveness; minimized potential for collateral damage; reduced susceptibility of munitions, to countermeasures and provides a migration path to net centric ops capability. Threshold aircraft is the F-15E. Objective aircraft include the F/A-22, B-1, B-2, Joint Strike Fighter (JSF), F-117, F-16, B-52, Predator B, and the Joint Unmanned Combat Air System (JUCAS). SDB Increment II begins risk reduction in FY06 and Milestone B is scheduled in FY07. Milestone C is planned for FY10 followed by RAA on the F-15E in FY11. SDB will continue incremental development to pursue network CENTRIC interoperability. SDB is a key component of the Air Force's Global Strike Task Force CONOP.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Initiate Increment II Risk Reduction Phase		0.000	46.053	62.295
(U) Initiate Aircraft Integration				6.400
(U) Continue Program Office Support			1.000	3.282
(U) Total Cost	0.000	0.000	47.053	71.977

**(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>Complete</u>							
(U) RDT&E,N		9.961	9.972	9.978						29.911
(U) Missile Procurement, AF, 0207327F, App 3020							58.700	61.100	Continuing	TBD

**(U) D. Acquisition Strategy**

All increments of SDB within this Program Element will be awarded sole source to Boeing. However, the Air Force expects Boeing to conduct a competition for major subsystems of the Increment II weapon to include the seeker and data link elements. The Air Force selected Boeing in August 2003 as the SDB prime contractor following a 24 month CAD. SDB is competing the seeker for FY06 program start.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2005**

<b>BUDGET ACTIVITY</b>	<b>PE NUMBER AND TITLE</b>	<b>PROJECT NUMBER AND TITLE</b>
<b>05 System Development and Demonstration (SDD)</b>	<b>0604329F Small Diameter Bomb</b>	<b>5191 Small Diameter Bomb Increment II</b>

(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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) <u>Product Development</u> SDD Increment II Contract	CPAF	Boeing-St. Louis, MO	N/A	0.000	0	0.000	N/A	46.053	Oct-06	62.295	Oct-06	316.661	316.661	425.009
Subtotal Product Development			0.000	0.000		0.000		46.053		62.295		316.661	316.661	425.009
Remarks:														
(U) <u>Support</u> F-15 SPO	PO (In-House)	Wright Patterson AFB, OH	N/A	0.000	0	0.000	N/A	0.000	Oct-06	6.400	Oct-06	7.400	7.400	13.800
Other A/C SPO's	PO (In-House)	Wright Patterson AFB, OH	N/A	0.000	0	0.000	N/A	0.000	N/A	0.000	N/A	0.747	0.747	0.747
Sverdrup Inc.	C/CPAF	Eglin AFB, FL		0.000		0.000	N/A	0.550	N/A	2.401	Oct-06	9.042	11.993	11.993
Other	Misc.	Various	N/A	0.000	0	0.000	N/A	0.000	N/A	0.400	N/A	9.515	9.515	9.915
Subtotal Support			0.000	0.000		0.000		0.550		9.201		26.704	29.655	36.455
Remarks:														
(U) <u>Test &amp; Evaluation</u> 46 TW	PO (In-House)	Eglin AFB, FL	N/A	0.000	0	0.000	N/A	0.000	N/A	0.000	N/A	27.650	27.650	27.650
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000		27.650	27.650	27.650
Remarks:														
(U) <u>Management</u> Madison Research	C/CPAF	Eglin AFB, FL	N/A	0.000	0	0.000	N/A	0.450	N/A	0.481	N/A	3.828	3.828	4.759
Subtotal Management			0.000	0.000		0.000		0.450		0.481		3.828	3.828	4.759
Remarks:														
(U) Total Cost			0.000	0.000		0.000		47.053		71.977		374.843	377.794	493.873



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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>		DATE <b>February 2005</b>
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BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0604329F Small Diameter Bomb</b>	PROJECT NUMBER AND TITLE <b>5191 Small Diameter Bomb Increment II</b>
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	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) <b><u>Schedule Profile</u></b>				
(U) Risk Reduction			1Q	
(U) Milestone B				3Q

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PE NUMBER: 0604421F  
 PE TITLE: Counterspace Systems

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604421F Counterspace Systems</b>
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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	70.729	26.053	24.651	30.503	30.690	75.005	76.745	78.027	Continuing	TBD
A001 Counter Satellite Communications System	13.094	6.140	6.372	6.640	6.815	7.042	7.211	7.316	Continuing	TBD
A002 Counter Surveillance Reconnaissance System	49.479	0.215	0.000	0.000	0.000	0.000	0.000	0.000	0.000	49.694
A003 Rapid Identification Detection and Reporting System (RAIDRS)	8.156	16.224	18.279	23.863	23.875	67.963	69.534	70.711	Continuing	TBD
A005 Offensive Counterspace (OCS) C2	0.000	3.474	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.474

(U) **A. Mission Description and Budget Item Justification**  
 This program supports the conduct of critical planning, technology insertion, and system acquisition in support of Air Force space control systems and associated command and control development to meet current and future military space control needs. Development and acquisition of counterspace systems will be conducted, capitalizing on the technology development and risk reduction efforts of PE 0603438F, Space Control Technology. This funding supports all phases of the acquisition process: concept development, risk reduction, design, demonstration, and production. Space control systems include both offensive counterspace (OCS) and defensive counterspace (DCS) systems. OCS systems include the means to disrupt, deny, degrade, or destroy an adversary's space systems, or the information they provide, which may be used for purposes hostile to U.S. national security interests. DCS systems include both active and passive measures to protect U.S. and friendly space related capabilities (satellites, communications links, and supporting ground systems) from enemy attack or interference. This includes development efforts to prevent adversarial ability to use U.S. space systems and services for purposes hostile to U.S. national security interests.

This program is in Budget Activity 5, System Development and Demonstration, because it supports the demonstration, engineering and manufacturing development of counterspace and space control 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	81.629	75.863	27.753	32.746
(U) Current PBR/President's Budget	70.729	26.053	24.651	30.503
(U) Total Adjustments	-10.900	-49.810		
(U) Congressional Program Reductions		-53.310		
Congressional Rescissions				
Congressional Increases		3.500		
Reprogrammings	-9.427			
SBIR/STTR Transfer	-1.473			

(U) **Significant Program Changes:**

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2005

BUDGET ACTIVITY

**05 System Development and Demonstration (SDD)**

PE NUMBER AND TITLE

**0604421F Counterspace Systems**

FY 2005: -\$53.000, Counter Surveillance Reconnaissance System (CSRS) not funded by Congress

FY 2005: \$3.500 Congressional Add for OCS C2 (Space Control Test Capability)

FY 2006: -\$4.971 CSRS deletion; Rapid Attack Identification and Reporting System (RAIDRS) transferred \$1.737 of its OPAF funding to RDT&E to meet redefined program requirements

FY 2007: -\$14.156 CSRS deletion; RAIDRS transferred \$11.546 of its OPAF funding to RDT&E to meet redefined program requirements.

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>					PE NUMBER AND TITLE <b>0604421F Counterspace Systems</b>			PROJECT NUMBER AND TITLE <b>A001 Counter Satellite Communications System</b>		
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
A001 Counter Satellite Communications System	13.094	6.140	6.372	6.640	6.815	7.042	7.211	7.316	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

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

This effort supports concept exploration and follow-on system development of mobile/transportable counter satellite communications capabilities and associated command and control, derived from technologies examined in PE 0603438F, Space Control Technology, in the area of Offensive Counter Space. It includes architecture engineering, system hardware design and development, software design and integration, testing and procurement of capabilities to provide disruption of satellite communications signals in response to USSTRATCOM requirements.

**Budget Activity Justification:**

This program is in Budget Activity 5, System Development and Demonstration, because it supports the demonstration, engineering and manufacturing development of counterspace and space control 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 development, integration, test, and fielding of a lightweight, transportable Counter Satellite Communications System	11.494			
(U) Continue Capability Upgrades		4.650	2.000	2.000
(U) Begin to develop, integrate, test and field the next Block (Block 20) advanced counter communications capability			2.799	3.013
(U) Program Office and other Technical Support		1.550	1.440	1.573
(U) Developmental Test/Operational Test (DT/OT) support		0.050	0.050	0.050
(U) Total Cost		13.094	6.140	6.372

**(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>Complete</u>							
(U) None										

**(U) D. Acquisition Strategy**

All contracts funded in this program element will be awarded using competitive procedures to the maximum extent possible, to upgrade existing capabilities as well as to acquire next generation capabilities through incremental acquisitions.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2005**

<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604421F Counterspace Systems</b>	<b>PROJECT NUMBER AND TITLE</b> <b>A001 Counter Satellite Communications System</b>
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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>														
Initial System Development & Future Capability Studies	MAPIC CPAF	Northrop Grumman, Redondo Beach, CA	9.424	11.494	Nov-03								20.918	20.918
Capability Upgrades	CPAF	Harris Corp, Melbourne, FL				4.650	Nov-04	2.000	Nov-05	2.000	Nov-06	Continuing	TBD	TBD
Block 20 Capability Development & Future Capability Studies	TBD	TBD						2.799	Nov-05	3.013	Nov-06	Continuing	TBD	TBD
Subtotal Product Development			9.424	11.494		4.650		4.799		5.013		Continuing	TBD	TBD
Remarks:														
<u>(U) Support</u>														
System Program Office Support & Architecture Engineering	Various	SMC, El Segundo, CA	1.190	1.550	Oct-03	1.440	Oct-04	1.573	Oct-05	1.577	Oct-06	Continuing	TBD	TBD
Subtotal Support			1.190	1.550		1.440		1.573		1.577		Continuing	TBD	TBD
Remarks:														
<u>(U) Test &amp; Evaluation</u>														
DT/OT	MIPR	AFOTEC, Albuquerque, NM	0.050	0.050	Oct-03	0.050	Nov-04	0.000		0.050	Nov-06	Continuing	TBD	TBD
Subtotal Test & Evaluation			0.050	0.050		0.050		0.000		0.050		Continuing	TBD	TBD
Remarks:														
<u>(U) Management</u>														
Subtotal Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000	TBD
Remarks:														
<u>(U) Total Cost</u>			10.664	13.094		6.140		6.372		6.640		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

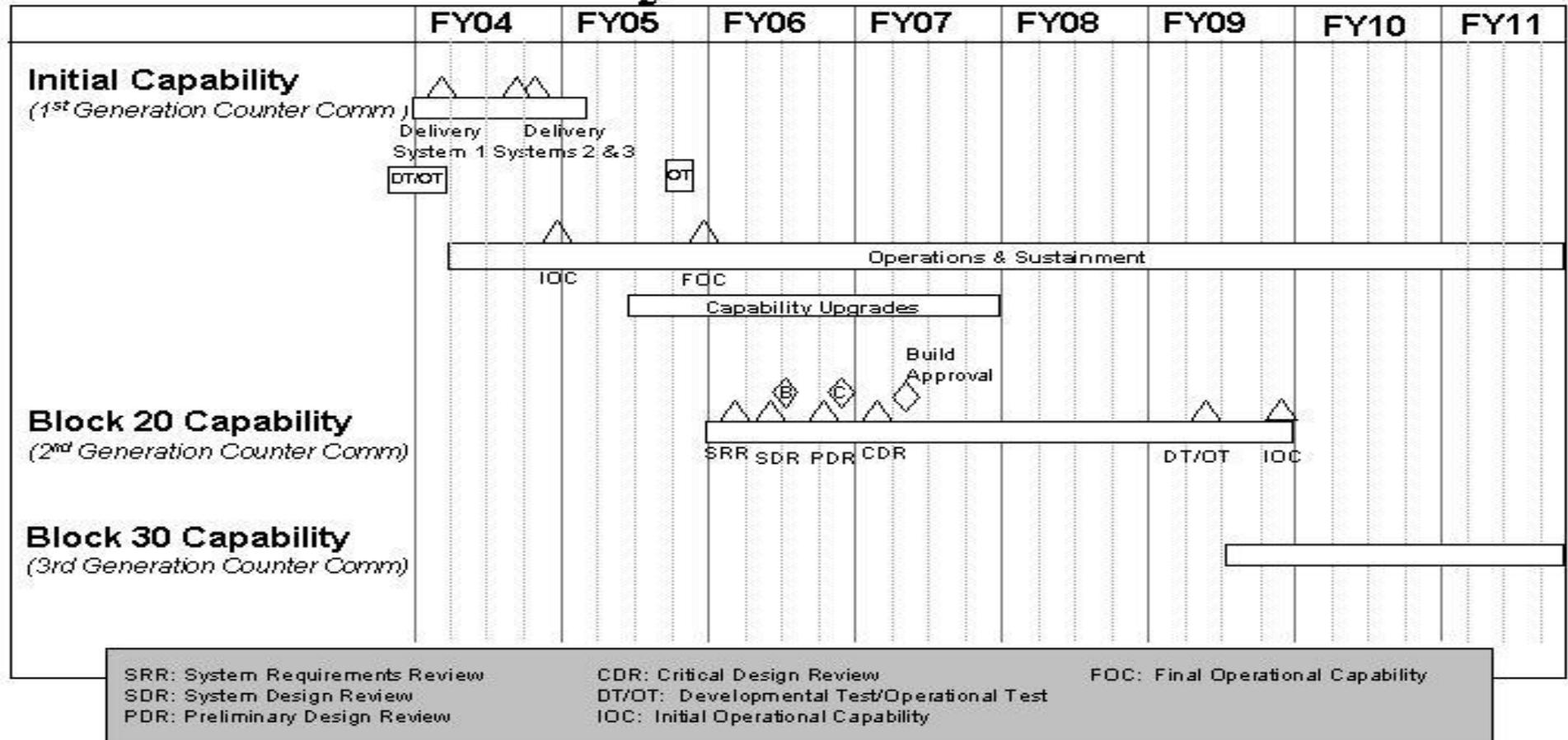
February 2005

BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE  
0604421F Counterspace Systems

PROJECT NUMBER AND TITLE  
A001 Counter Satellite  
Communications System

# Counter Communications System Schedule



<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604421F Counterspace Systems</b>	<b>PROJECT NUMBER AND TITLE</b> <b>A001 Counter Satellite Communications System</b>
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<b>(U) <u>Schedule Profile</u></b>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) 1st System Delivery	1Q			
(U) 1st System Development/Operational Test	1Q			
(U) System 2 & 3 Delivery	3-4Q			
(U) Initial Operational Capability (IOC)	4Q			
(U) Operational Testing		3-4Q		
(U) Final Operational Capability (FOC)		4Q		
(U) Capability Upgrades		2-4Q	1-4Q	1-4Q
(U) Block 20 SRR			1Q	
(U) Block 20 SDR			2Q	
(U) Block 20 Key Decision Point (KDP B)			3Q	
(U) Block 20 PDR			4Q	
(U) Block 20 Key Decision Point (KDP C)			4Q	
(U) Block 20 CDR				1Q
(U) Block 20 Key Decison Point (Build Approval)				2Q

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>					PE NUMBER AND TITLE <b>0604421F Counterspace Systems</b>			PROJECT NUMBER AND TITLE <b>A002 Counter Surveillance Reconnaissance System</b>		
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
A002 Counter Surveillance Reconnaissance System	49.479	0.215	0.000	0.000	0.000	0.000	0.000	0.000	0.000	49.694
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

FY 2005: Congress did not authorize or appropriate funds to continue CSRS development

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

This effort supported concept exploration and follow-on system development of a mobile/transportable counter space based surveillance reconnaissance capability and associated command and control derived from technologies examined in PE 0603438F, Space Control Technology. It included system hardware design and development, software design and integration, and testing and procurement to provide a capability to counter space based imagery systems in response to USSTRATCOM requirements.

CSRS funding/program ended after FY 2004 activity. Congress did not fund the FY 2005 program request for CSRS; however, due to rounding, \$215K remained in this project number. The AF is using these funds to continue development of a Command and Control (C2) capability that is no longer needed for CSRS, but is still needed for the Counter Satellite Communications System (CCS), the remaining Offensive Counterspace capability in this Program Element.

**Budget Activity Justification**

This program is in Budget Activity 5, System Development and Demonstration, because it supports the demonstration, engineering and manufacturing development of counterspace and space control 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 efforts that were preparing for engineering and manufacturing development of a Counter Surveillance & Reconnaissance System, and associated command and control.	32.164			
(U) Continue developing associated Offensive Counterspace (OCS) command and control (C2) capabilities separate from CSRS in support of the Counter Satellite Communications System (CCS)		0.215		
(U) Completed specific technology and risk reduction development for the Counter Surveillance & Reconnaissance System.	11.400			
(U) Completed development and implementation of modeling and simulation codes specific to Counter Surveillance & Reconnaissance threats. Included vulnerability analysis of these threats.	2.300			
(U) Completed support to Component Field Testing	1.300			
(U) Program Office and Other Technical Support	2.315			
(U) Total Cost	49.479	0.215	0.000	0.000

Exhibit R-2a, RDT&E Project Justification

DATE

February 2005

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604421F Counterspace Systems

PROJECT NUMBER AND TITLE

A002 Counter Surveillance  
Reconnaissance System

(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>Complete</u>							

(U) None

(U) D. Acquisition Strategy

N/A

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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				
<b>05 System Development and Demonstration (SDD)</b>				<b>0604421F Counterspace Systems</b>						<b>A002 Counter Surveillance Reconnaissance System</b>				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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 Development	MAPIC CPAF	Northrop Grumman, Redondo Beach, CA	13.509	32.164	Nov-03								45.673	48.798
CCS C2 Development	MAPIC CPAF	Northrop Grumman, Redondo Beach, CA				0.215	Mar-05						0.215	
Technology & Risk Reduction	Various	AFRL, Albuquerque , NM	5.080	13.700	Nov-03								18.780	
Subtotal Product Development Remarks:			18.589	45.864		0.215		0.000		0.000		0.000	64.668	48.798
(U) <u>Support</u> Program Office Support for CSRS	Various	SMC, El Segundo, CA	0.775	0.840	Nov-03								1.615	
Independent Program Assessment	TBD	TBD		0.500									0.500	
Program Office Support for CSRS	MIPR	AFRL, Albuquerque, NM	0.591	0.975	Nov-03								1.566	
Subtotal Support Remarks:			1.366	2.315		0.000		0.000		0.000		0.000	3.681	0.000
(U) <u>Test &amp; Evaluation</u> AFRL	MIPR		0.500	1.300									1.800	
Subtotal Test & Evaluation Remarks:			0.500	1.300		0.000		0.000		0.000		0.000	1.800	0.000
(U) <u>Management</u> Subtotal Management Remarks:			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
(U) Total Cost			20.455	49.479		0.215		0.000		0.000		0.000	70.149	48.798

Exhibit R-4, RDT&E Schedule Profile

DATE

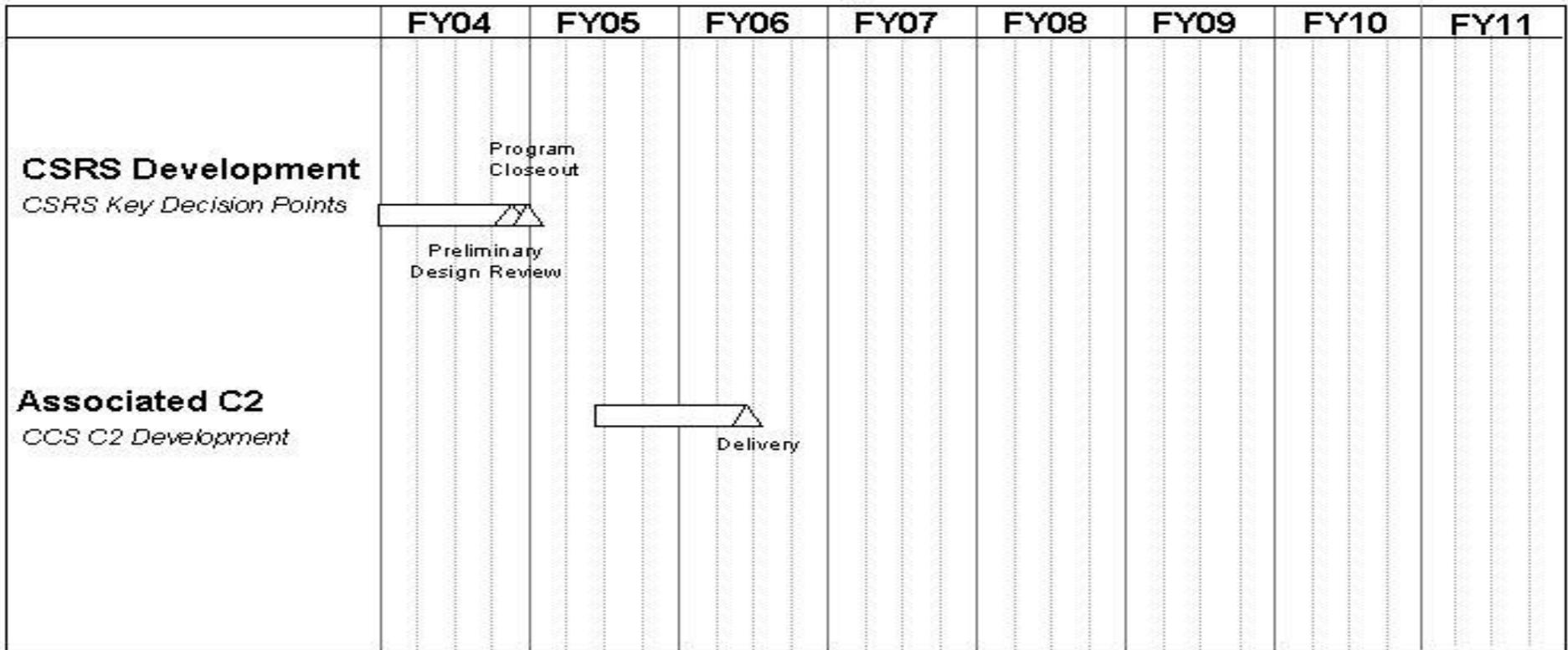
February 2005

BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE  
0604421F Counterspace Systems

PROJECT NUMBER AND TITLE  
A002 Counter Surveillance  
Reconnaissance System

# Counter Surveillance & Reconnaissance System Schedule



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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>		DATE <b>February 2005</b>
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BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0604421F Counterspace Systems</b>	PROJECT NUMBER AND TITLE <b>A002 Counter Surveillance Reconnaissance System</b>
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<b>(U) <u>Schedule Profile</u></b>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Preliminary Design Review	4Q			
(U) Program Closeout	4Q			
(U) CCS C2 Development		3-4Q	1-2Q	

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>					PE NUMBER AND TITLE <b>0604421F Counterspace Systems</b>			PROJECT NUMBER AND TITLE <b>A003 Rapid Identification Detection and Reporting System (RAIDRS)</b>		
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
A003 Rapid Identification Detection and Reporting System (RAIDRS)	8.156	16.224	18.279	23.863	23.875	67.963	69.534	70.711	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

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

This effort supports mission area architecture development, concept exploration, and engineering and manufacturing development to provide attack warning, threat identification and characterization, and rapid mission impact assessments of U.S. space systems. This effort will investigate and implement the technical architecture, operational concept, support concept, training, verification (test), and deployment of a Rapid Attack Identification Detection and Reporting System (RAIDRS). Incremental capability deliveries are planned.

**Budget Activity Justification**

This program is in Budget Activity 5, System Development and Demonstration, because it supports the engineering and manufacturing development of counterspace and space control 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 concept definition, pre-acquisition architecture development and system development of Rapid Attack Identification Detection and Reporting System (RAIDRS) Spiral 1.	5.690	12.824	14.679	15.113
(U) Continue concept definition, pre-acquisition architecture development and system development of Rapid Attack Identification Detection and Reporting System (RAIDRS) Spiral 2.	1.662	2.000	2.000	7.100
(U) Program Office and Other Technical Support	0.804	1.400	1.600	1.650
(U) Total Cost	8.156	16.224	18.279	23.863

**(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>Complete</u>							
(U) OPAF (PE 0604421F), Counterspace Systems				17.131	17.463	25.768	26.505	27.010	Continuing	TBD

**(U) D. Acquisition Strategy**

All contracts funded in this program element will be awarded using competitive procedures to the maximum extent possible. System will be designed and acquired using a Spiral Acquisition strategy.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2005**

<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604421F Counterspace Systems</b>	<b>PROJECT NUMBER AND TITLE</b> <b>A003 Rapid Identification Detection and Reporting System (RAIDRS)</b>
--	--	---

<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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>														
Architecture Development & Systems Engineering	Various	Various	4.230	5.690	Dec-03	4.499	Oct-04	0.600	Nov-05	0.600	Nov-06	Continuing	TBD	TBD
RAIDRS Spiral 1 System Development	TBD	TBD				8.325	Mar-05	14.079	Jan-06	14.513	Jan-07	Continuing	TBD	TBD
RAIDRS Spiral 2 Concept Development	CPAF	Northrop Grumman Mission Systems, Redondo Beach, CA	1.125	1.662	Dec-03	2.000	Jan-05	2.000	Jan-06			0.000	6.787	TBD
RAIDRS Spiral 2 Risk Reduction	TBD	TBD								7.100	Jan-07	Continuing	TBD	TBD
Subtotal Product Development			5.355	7.352		14.824		16.679		22.213		Continuing	TBD	TBD
Remarks:														
<u>(U) Support</u>														
Program Office Support for RAIDRS	Various	SMC, El Segundo	0.603	0.804	Oct-03	1.400	Oct-04	1.600	Oct-05	1.650	Oct-06	Continuing	TBD	TBD
Subtotal Support			0.603	0.804		1.400		1.600		1.650		Continuing	TBD	TBD
Remarks:														
<u>(U) Test &amp; 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>(U) Total Cost</u>			5.958	8.156		16.224		18.279		23.863		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

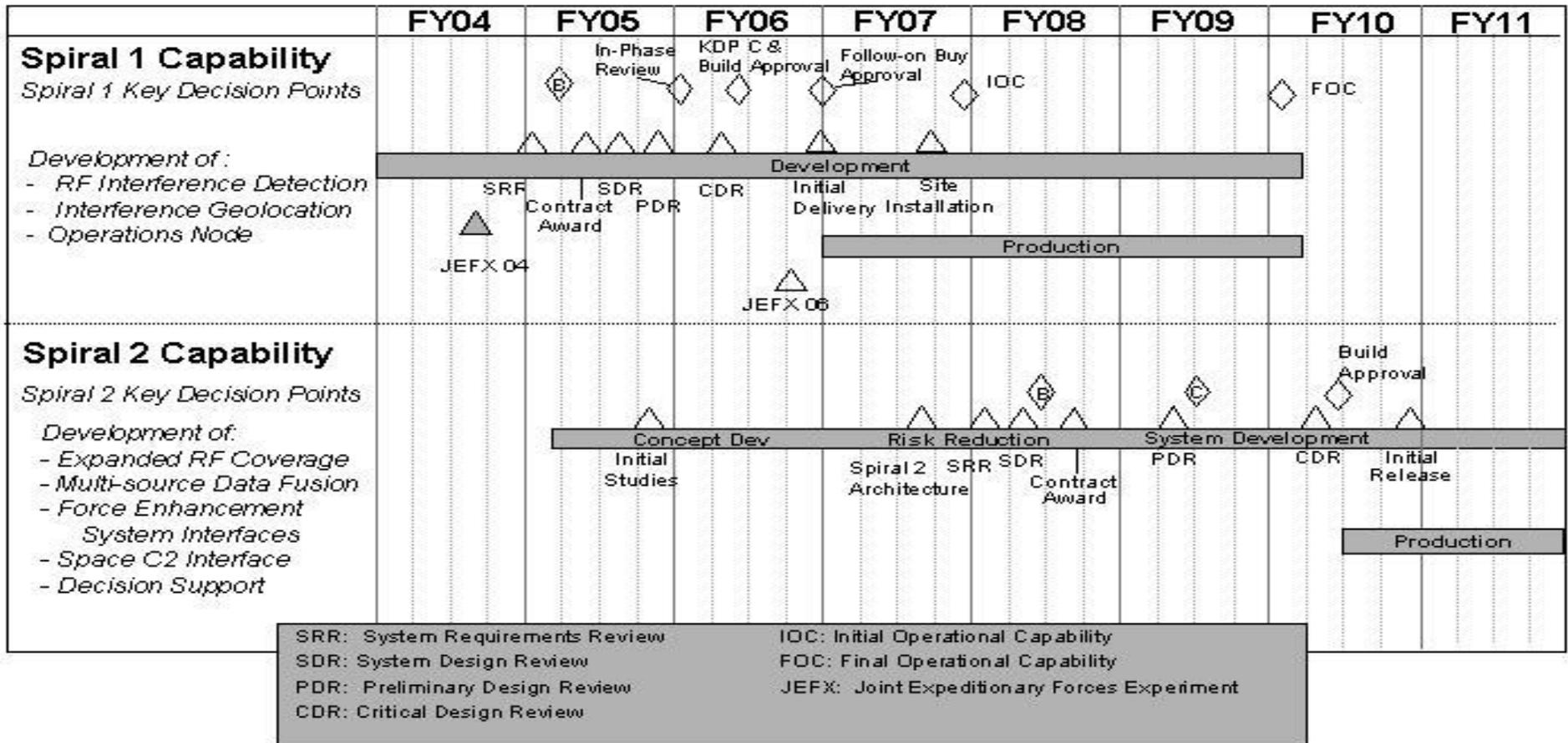
February 2005

BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE  
0604421F Counterspace Systems

PROJECT NUMBER AND TITLE  
A003 Rapid Identification Detection and Reporting System (RAIDRS)

# RAIDRS Schedule



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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604421F Counterspace Systems</b>	<b>PROJECT NUMBER AND TITLE</b> <b>A003 Rapid Identification Detection and Reporting System (RAIDRS)</b>
--	--	---

<b>(U) <u>Schedule Profile</u></b>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Attack reporting solutions and architecture studies	2-4Q			
(U) Begin development of Attack Warning architecture (PE0603438F)	1Q			
(U) Attack Warning concept definition (Proof-of Concept Experiment) JEFX 04	3Q			
(U) Attack Warning architecture defined		1Q		
(U) RAIDRS Spiral 1 Key Decision Point (KDP B)		1Q		
(U) System Development and Demonstration Contract Award		2Q		
(U) RAIDRS Spiral 1 System Design Review		3Q		
(U) RAIDRS Spiral 1 Preliminary Design Review		4Q		
(U) RAIDRS Spiral 2 Initial Studies Complete		4Q		
(U) RAIDRS Spiral 1 In-Phase Review			1Q	
(U) RAIDRS Spiral 1 Critical Design Review			2Q	
(U) RAIDRS Spiral 1 Key Decision Point (KDP C & Build Approval)			2Q	
(U) Attack Warning concept evolution (JEFX-06)			4Q	
(U) RAIDRS Spiral 1 Initial Delivery			4Q	
(U) RAIDRS Spiral 1 Key Decision Point (Follow-on Buy Approval)			4Q	
(U) RAIDRS Spiral 1 Site Installation				3Q
(U) RAIDRS Spiral 2 Architecture Defined				3Q
(U) RAIDRS Spiral 1 IOC				4Q

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>					PE NUMBER AND TITLE <b>0604421F Counterspace Systems</b>			PROJECT NUMBER AND TITLE <b>A005 Offensive Counterspace (OCS) C2</b>		
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
A005 Offensive Counterspace (OCS) C2	0.000	3.474	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.474
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

FY05: Congressional add: \$3.5M

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

This effort supports the development of command and control and mission planning capabilities in support of the fielding and employment of Offensive Counterspace (OCS) Systems. It provides for the integration and development of collaborative tools to link deployable OCS systems with Joint Warfighting C2 systems and to enable integrated planning and execution of the OCS mission. This effort also supports development of Defensive Counterspace (DCS) C2 related 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) Model, conduct "virtual testing," and analyze architectural options for the Rapid Attack Identification Detection and Reporting System (RAIDRS) and for the Counter Satellite Communications System (CCS) Command and Control (C2) and operational data flows.		3.474		
(U) Total Cost	0.000	3.474	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>Complete</u>							
(U) None										

**(U) D. Acquisition Strategy**

FY 2005 efforts will be performed using the Army's existing Space Control Test Capability 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					
<b>05 System Development and Demonstration (SDD)</b>				<b>0604421F Counterspace Systems</b>						<b>A005 Offensive Counterspace (OCS) C2</b>					
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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> C2 Modeling, "virtual test," and analysis	MIPR	Davidson Technology, Huntsville, AL	0.000	0.000		3.474	Mar-05						3.474		
Subtotal Product Development			0.000	0.000		3.474		0.000		0.000		0.000	3.474	0.000	
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 &amp; 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		3.474		0.000		0.000		0.000	3.474	0.000	

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604421F Counterspace Systems

PROJECT NUMBER AND TITLE

A005 Offensive Counterspace (OCS)  
C2

# Offensive Counterspace Command and Control (OCS/C2) Schedule

	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11
<p><b>Initial Analysis</b> <i>(Support to RAIDRS and CCS)</i></p>		<div style="border: 1px solid black; width: 40px; height: 15px; margin: 0 auto;"></div> <p>Modeling, "virtual test," analysis</p>						

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2005</b>
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BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0604421F Counterspace Systems</b>	PROJECT NUMBER AND TITLE <b>A005 Offensive Counterspace (OCS) C2</b>
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(U) <b>Schedule Profile</b>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Modeling, "virtual test," analysis		2-4Q		

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## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2005

## BUDGET ACTIVITY

## 05 System Development and Demonstration (SDD)

## PE NUMBER AND TITLE

0604429F AIRBORNE ELECTRONIC ATTACK

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	120.985	235.450	241.294	177.383	179.553	74.010	Continuing	TBD
5192 Network & Sys -of-Sys Dev	0.000	0.000	12.300	12.300	12.300	12.300	12.300	12.300	Continuing	TBD
5193 B-52 Stand-Off Jammer	0.000	0.000	108.685	223.150	228.994	165.083	167.253	61.710	Continuing	TBD

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.

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

This program element develops critical electronic attack capabilities in support of Air Force and joint operations to include the Global Strike and Persistent Global Attack Concepts of Operations (CONOPS). Based on the 2001 Joint Airborne Electronic Attack (AEA) Analysis of Alternatives (AoA) and the follow-on 2002 Joint Suppression of Enemy Air Defenses (Joint SEAD) presentation to OSD(AT&L), the AEA capability will consist of a number of components working together in a joint system of systems. Efforts were initiated under Project 8462 "Airborne Electronic Attack (AEA)" in PE64270, "Electronic Warfare Development", to define and develop the AEA system of systems requirements and architecture. The Navy AEA components are the EA-6B Improved Capability (ICAP) III and EA-18G modified escort platforms. The Air Force is responsible for coordinating AEA system of systems requirements and developing Air Force component capabilities including the B-52 SOJS, the Miniature Air Launched Decoy (MALD) stand-in jammer variant called MALD-J, the EC-130H Compass Call block configuration, Active Electronically Scanned Array (AESA) radar equipped aircraft, and, potentially, the Joint-Unmanned Combat Air Systems (J-UCAS) in an Electronic Attack role. In FY05 (within PE 64270), AEA system of systems engineering/architecture definition was conducted and specific B-52 SOJS risk mitigation studies/engineering analyses and acquisition activities were accomplished. For FY06 and beyond, this new PE includes two projects consisting of transfer of the previous AEA system of systems engineering into Project 655192 "Network and System of Systems Development" and B-52 SOJS into Project 655193 "B-52 Stand Off Jammer" from PE64270. Planned efforts in FY06 and beyond include: Project 5192 - overall systems engineering for the system of systems, architecture development, requirements allocation to component systems, establishment and utilization of virtual test capabilities for system of systems testing/evaluation, and AF Electronic Warfare (EW) investment strategy development and maintenance; Project 5193 - perform studies and mature technologies to a level needed to provide required platform capabilities; and design, document, develop, integrate, test, and install an electronic attack capability that provides high power, wide frequency jamming, high probability of intercept receivers for target detection and geo-location, and battle management functions for reactive jamming suppression of enemy IADS and IADS component radars from stand-off distances, while maintaining B-52 multi-mission offensive and self defense capabilities. This program is included in budget activity 5, System Development and Demonstration, because of the significant development and testing associated with Airborne Electronic Attack.

**Exhibit R-2, RDT&E Budget Item Justification**

DATE

**February 2005**

BUDGET ACTIVITY

**05 System Development and Demonstration (SDD)**

PE NUMBER AND TITLE

**0604429F AIRBORNE ELECTRONIC ATTACK**

(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	120.985	235.450
(U) Total Adjustments	0.000	0.000		

(U) **Congressional Program Reductions**

Congressional Rescissions

Congressional Increases

Reprogrammings

SBIR/STTR Transfer

(U) **Significant Program Changes:**

Airborne Electronic Attack efforts were transferred in FY2006 from PE 0604270F, EW Development, into this PE.

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>					PE NUMBER AND TITLE <b>0604429F AIRBORNE ELECTRONIC ATTACK</b>			PROJECT NUMBER AND TITLE <b>5192 Network &amp; Sys -of-Sys Dev</b>		
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
5192 Network & Sys -of-Sys Dev	0.000	0.000	12.300	12.300	12.300	12.300	12.300	12.300	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

In FY 2006, Project 655192, Network and System-of-Systems Development , efforts were transferred from PE 0604270F, Electronic Warfare Development, Project 658462, Airborne Electronic Attack.

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

This project will concentrate on the overall systems engineering for the AEA system of systems, architecture development, requirements allocation to component systems, establishment and utilization of virtual test capabilities for system of systems testing/evaluation, and AF Electronic Warfare (EW) investment strategy development and maintenance. These efforts were initiated in PE 0604270F, "Electronic Warfare Development," and are crucial in the development of critical electronic attack capabilities in support of Air Force and joint operations to include the Global Strike and Persistent Global Attack Concepts of Operations (CONOPS).

The joint AEA system of systems components include the Navy EA-6B and EA-18G, the B-52 Stand-Off Jammer System (SOJS), the Miniature Air Launched Decoy (MALD) stand-in jammer variant, MALD-J, the EC-130H Compass Call block 35 configuration, Active Electronically Scanned Array (AESA) radar equipped aircraft, and, potentially the Joint-Unmanned Combat Air Systems (J-UCAS) in an Electronic Attack role.

This program is included in budget activity 5, System Development and Demonstration, because of the significant development and testing associated with Airborne Electronic Attack.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) AEA Synchronization Office Support			1.100	1.100
(U) AEA System of systems engineering/architecture development/refine requirements			5.800	5.800
(U) AEA Virtual Test/Modeling & Simulation/EW capability investment strategy			5.400	5.400
(U) Total Cost	0.000	0.000	12.300	12.300

**(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</u>	<u>Total Cost</u>
	Actual	Estimate	Complete							
(U) None										

**(U) D. Acquisition Strategy**

Project 5192 "Network and System of Systems Development" plans to use existing ASC, AFRL, and other contracts and instruments to provide engineering, architecture development, and other support for the system of 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				
<b>05 System Development and Demonstration (SDD)</b>			<b>0604429F AIRBORNE ELECTRONIC ATTACK</b>							<b>5192 Network &amp; Sys -of-Sys Dev</b>				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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>														
AEA system of systems engineering	MIPR & CPFF	Various						4.750		4.750		Continuing	TBD	
Subtotal Product Development			0.000	0.000		0.000		4.750		4.750		Continuing	TBD	0.000
Remarks:	Includes system of systems engineering; architecture development; network requirements development; EW assessments; working group support; & assistance to engineering, test planning, and milestone preparation													
(U) <u>Support</u>														
AEA requirements support	MIPR	Various						1.050		1.050		Continuing	TBD	
Subtotal Support			0.000	0.000		0.000		1.050		1.050		Continuing	TBD	0.000
Remarks:	Requirements support includes contracted requirements refinement support for ACC and AF/XOR													
(U) <u>Test &amp; Evaluation</u>														
AEA Virtual test/AFEWICS	Various	Various						5.400		5.400		Continuing	TBD	
Subtotal Test & Evaluation			0.000	0.000		0.000		5.400		5.400		Continuing	TBD	0.000
Remarks:	AEA Virtual test element includes modeling and simulation for SoS EW assessments, DoD scenario instantiation & distribution, SoS test planning/rehearsal and supports Air Force Electronic Warfare Capability Investment Strategy (AFEWCIS) roadmap development, maintenance, & assessments													
(U) <u>Management</u>														
ASC/XR (AEA Synch office)	Various	Various						1.100		1.100		Continuing	TBD	
Subtotal Management			0.000	0.000		0.000		1.100		1.100		Continuing	TBD	0.000
Remarks:	Element includes miscellaneous administrative costs incurred in the day-to-day operations by program offices. Costs include travel, office equipment, office supplies, printing, contract services, program management administrative and communications expenses.													
(U) Total Cost			0.000	0.000		0.000		12.300		12.300		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE  
0604429F AIRBORNE ELECTRONIC  
ATTACK

PROJECT NUMBER AND TITLE  
5192 Network & Sys -of-Sys Dev

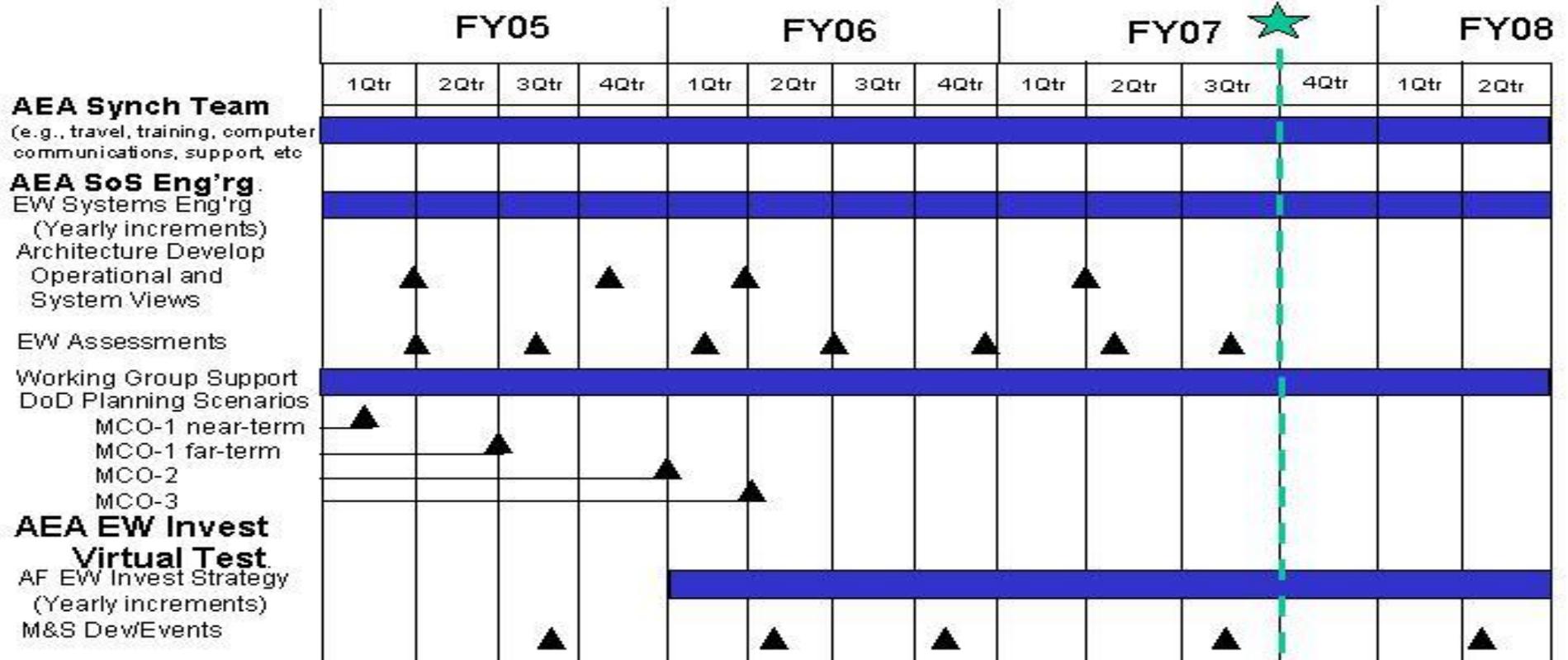


# AEA SoS Synchronization Schedule



*Dominant Air Power: Design for Tomorrow... Deliver Today*

B-52 SOJS MS B



▲ = Deliveries

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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>		DATE <b>February 2005</b>
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BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0604429F AIRBORNE ELECTRONIC ATTACK</b>	PROJECT NUMBER AND TITLE <b>5192 Network &amp; Sys -of-Sys Dev</b>
---	---	---

<b>(U) <u>Schedule Profile</u></b>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) AEA System-of-Systems engineering assessment in support of B-52 SOJ MS B				2-3Q

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>					PE NUMBER AND TITLE <b>0604429F AIRBORNE ELECTRONIC ATTACK</b>			PROJECT NUMBER AND TITLE <b>5193 B-52 Stand-Off Jammer</b>		
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
5193 B-52 Stand-Off Jammer	0.000	0.000	108.685	223.150	228.994	165.083	167.253	61.710	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

In FY 2006, Project 655193, B-52 Stand-Off Jammer, efforts were transferred from PE 0604270F, Electronic Warfare Development, Project 658462, Airborne Electronic Attack.

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

The B-52 Stand Off Jammer (SOJ) program will design, document, develop, integrate, test, and install an electronic attack capability that provides high power, wide frequency jamming, high probability of intercept receivers for target detection and geo-location, and battle management functions for reactive jamming suppression of enemy integrated air defense systems (IADS) and IADS component radars from stand-off distances. B-52 multi-mission offensive and self defense capabilities will be maintained. This program will also perform studies and mature technologies to a level needed to provide the above capabilities.

This program is included in budget activity 5, System Development and Demonstration, because of the significant development and testing associated with Airborne Electronic Attack.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) B-52 SOJ Pre-SDD Contract			91.900	165.900
(U) B-52 SOJ SDD Contract				35.000
(U) Low Band Phased Array Tech Demo			6.000	
(U) Mission and Test Support			6.850	16.050
(U) Program Office Support			3.935	6.200
(U) Total Cost	0.000	0.000	108.685	223.150

**(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>Complete</u>							
(U) PE 27442F (AEA procurement)					42.079	95.078	82.750	117.864	Continuing	TBD

**(U) D. Acquisition Strategy**

Maturation of low band phased array will be accomplished via AFRL contracts with applicable vendors. Full and open competition for Pre-SDD contract, to be awarded in late FY05, with a lead system integration contractor. SDD contract to be awarded in FY07 will include competition for suppliers of key components.

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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				
<b>05 System Development and Demonstration (SDD)</b>				<b>0604429F AIRBORNE ELECTRONIC ATTACK</b>							<b>5193 B-52 Stand-Off Jammer</b>				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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>															
B-52 SOJ Pre-SDD Contract	TBD	TBD						91.900		165.900			257.800		
B-52 SOJ SDD Contract	TBD	TBD								35.000	Jul-07	Continuing	TBD		
Low Band Phased Array Tech Development								6.000					6.000		
Subtotal Product Development			0.000	0.000		0.000		97.900		200.900		Continuing	TBD	0.000	
Remarks:	Studies and Analysis includes modeling and simulation														
(U) <u>Support</u>															
SOJ Program Support								3.635		5.800		Continuing	TBD		
Studies and Analysis								3.600		3.550		Continuing	TBD		
Government Furnished Equipment								2.950		12.000		Continuing	TBD		
Subtotal Support			0.000	0.000		0.000		10.185		21.350		Continuing	TBD	0.000	
Remarks:	Studies and Analysis includes modeling and simulation														
(U) <u>Test &amp; Evaluation</u>															
Test Support								0.300		0.400		Continuing	TBD		
Subtotal Test & Evaluation			0.000	0.000		0.000		0.300		0.400		Continuing	TBD	0.000	
Remarks:	Funds for test planning support from various organizations														
(U) <u>Management</u>															
Management Support								0.300		0.500		Continuing	TBD		
Subtotal Management			0.000	0.000		0.000		0.300		0.500		Continuing	TBD	0.000	
Remarks:	Includes support of Acquisition and Sustainment wings at Wright-Patterson AFB and Tinker AFB														
(U) Total Cost			0.000	0.000		0.000		108.685		223.150		Continuing	TBD	0.000	

Exhibit R-4, RDT&E Schedule Profile

DATE  
February 2005

BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE  
0604429F AIRBORNE ELECTRONIC  
ATTACK

PROJECT NUMBER AND TITLE  
5193 B-52 Stand-Off Jammer



# AEA Program Schedule



U.S. AIR FORCE

*Dominant Air Power: Design For Tomorrow... Deliver Today*

FY: 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017

**AEA Synchronization Effort**



**SOJ Milestones:**

Concept Decision

MS B

MS C

FRP

IOC (6/6)

Capabilities Documents  
ICD

CDD

CPD

SOJ Tech Demo

Pre-SDD

**LEGEND**

Program Milestone ◊  
Gov't Milestone □

SRR SDR PDR CDR MRR DRR

SOJ SDD

SOJ PRODUCTION

Sys Design/Integration

System Demonstration

CT&E

DT&E/IOT&E

LL/LRIP Fab

LRIP Install

6 Acft/6 Pod SS

Lot 1 Fab

L1 Install 16/12

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2005</b>
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BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0604429F AIRBORNE ELECTRONIC ATTACK</b>	PROJECT NUMBER AND TITLE <b>5193 B-52 Stand-Off Jammer</b>
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(U) <b><u>Schedule Profile</u></b>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Pre-SDD Contract Award		4Q		
(U) Milestone B				3-4Q

**UNCLASSIFIED**

PE NUMBER: 0604441F

PE TITLE: Space Based Infrared Systems (SBIRS) High EMD

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2005</b>
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BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0604441F Space Based Infrared Systems (SBIRS) High EMD</b>
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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	621.830	594.169	756.630	653.713	532.587	382.062	336.678	268.962	31.400	7,673.611
3616 SBIRS High Element EMD	621.830	594.169	756.630	653.713	532.587	382.062	336.678	268.962	31.400	7,673.611

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

(U) The Space-Based Infrared System's (SBIRS) primary mission is to provide initial warning of a ballistic missile attack on the US, its deployed forces or its allies. SBIRS will incorporate new technologies to enhance detection and improve reporting of intercontinental ballistic missile launches, submarine launched ballistic missile launches, and tactical ballistic missile launches. SBIRS supports Missile Defense, Battlespace Characterization and Technical Intelligence missions by providing reliable, accurate, and timely data to Unified Combatant Commanders, Joint Task Force (JTF) Commanders, the intelligence community, and other users. SBIRS provides increased detection and tracking performance in order to meet requirements in US Space Command's Capstone Requirements Document and Air Force Space Command's Operational Requirements Document. SBIRS will consist of satellites in Geosynchronous Earth Orbit (GEO), payloads hosted on satellites in Highly Elliptical Orbit (HEO), an integrated centralized ground station serving all SBIRS space elements, Defense Support Program (DSP) satellites, and program and other related support activities.

(U) This program is assigned to Budget Activity 5, System Development and Demonstration (SDD), because it funds the development activities for the SBIRS High program.

**(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	610.230	508.448	373.353	310.628
(U) Current PBR/President's Budget	621.830	594.169	756.630	653.713
(U) Total Adjustments	11.600	85.721		
(U) Congressional Program Reductions		-5.279		
Congressional Rescissions				
Congressional Increases		91.000		
Reprogrammings	11.600			
SBIR/STTR Transfer				

**(U) Significant Program Changes:**

Congress appropriated an additional \$91 million over the President's Budget request in FY 2005 to address development program shortfalls. Additional funding added in fiscal year 2006-2010 to address cost growth inherent with program delay.

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>					PE NUMBER AND TITLE <b>0604441F Space Based Infrared Systems (SBIRS) High EMD</b>			PROJECT NUMBER AND TITLE <b>3616 SBIRS High Element EMD</b>			
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	
3616 SBIRS High Element EMD	621.830	594.169	756.630	653.713	532.587	382.062	336.678	268.962	31.400	7,673.611	
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0			

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

(U) The Space-Based Infrared System's (SBIRS) primary mission is to provide initial warning of a ballistic missile attack on the US, its deployed forces or its allies. SBIRS will incorporate new technologies to enhance detection and improve reporting of intercontinental ballistic missile launches, submarine launched ballistic missile launches, and tactical ballistic missile launches. SBIRS supports Missile Defense, Battlespace Characterization and Technical Intelligence missions by providing reliable, accurate, and timely data to Unified Combatant Commanders, Joint Task Force (JTF) Commanders, the intelligence community, and other users. SBIRS provides increased detection and tracking performance in order to meet requirements in US Space Command's Capstone Requirements Document and Air Force Space Command's Operational Requirements Document. SBIRS will consist of satellites in Geosynchronous Earth Orbit (GEO), payloads hosted on satellites in Highly Elliptical Orbit (HEO), an integrated centralized ground station serving all SBIRS space elements, Defense Support Program (DSP) satellites, and program and other related support activities.

(U) This program is assigned to Budget Activity 5, System Development and Demonstration (SDD), because it funds the development activities for the SBIRS High 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) Continue EMD contracts for Space and Ground segment development (includes GFE, continued GEO development, GEO 1&2 integration, assembly and test, design activities for GEO block upgrades, HEO integration and test, HEO message certification, Ground System Development, System Engineering and Program Management, Host SPO support, Technical Intelligence activities, CTF support activities, continuation of systems integration and test studies and related support activities).	587.173	554.447	714.607	609.719
(U) Continue System Program Office Support.	6.720	9.385	10.578	10.977
(U) Continue technical analysis and independent verification and validation of contractor by Federally Funded Research and Development Center (FFRDC).	27.937	30.337	31.445	33.017
(U) Total Cost	621.830	594.169	756.630	653.713

**(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>Complete</u>							
(U) MPAF (PE 0305915F, BA-05, P-30)	0.000	0.000	0.000	115.962	592.368	570.052	464.448	43.260	0.000	1,786.090
(U) Other Procurement (PE 0305915F, BA-03, P-61)	94.713	0.000	3.689	4.217	3.977	1.946	1.955	1.948	0.000	112.445

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2005

BUDGET ACTIVITY

**05 System Development and Demonstration (SDD)**

PE NUMBER AND TITLE

**0604441F Space Based Infrared  
Systems (SBIRS) High EMD**

PROJECT NUMBER AND TITLE

**3616 SBIRS High Element EMD****(U) C. Other Program Funding Summary (\$ in Millions)****(U)** Related RDT&E:**(U) D. Acquisition Strategy**

The pre-SDD SBIRS contracts were competed in full and open competition. Two contracts were awarded to Lockheed/Loral/Aerojet and Hughes/TRW in 1995 for the pre-SDD phase. A single contract was awarded to Lockheed Martin in 1996 for the SDD phase.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2005**

BUDGET ACTIVITY			PE NUMBER AND TITLE									PROJECT NUMBER AND TITLE		
<b>05 System Development and Demonstration (SDD)</b>			<b>0604441F Space Based Infrared Systems (SBIRS) High EMD</b>									<b>3616 SBIRS High Element EMD</b>		
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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>														
LMMS & Hughes (Pre-SDD)	C/CPFF		159.600									0.000	159.600	
LMMS (SDD)	C/CPAF	Lockheed Martin, Sunnyvale, CA	3,110.512	587.173	Oct-03	554.447	Oct-04	714.607	Oct-05	609.719	Oct-06	1,354.952	6,931.410	6,305.386
SBIRS Pre-SDD Contract Adjustment			4.780									0.000	4.780	
Technology	Various		11.600									0.000	11.600	
Phenomenology	Various		17.350									0.000	17.350	
Sandia Natl Lab (Cobra Brass)	Various		10.000									0.000	10.000	
Not Applicable													0.000	
Subtotal Product Development			3,313.842	587.173		554.447		714.607		609.719		1,354.952	7,134.740	TBD
Remarks:														
(U) <u>Support</u>														
Aerospace Corp	MORD	Aerospace Corp, El Segundo CA	122.590	27.937	Oct-03	30.337	Oct-04	31.445	Oct-05	33.017	Oct-06	149.424	394.750	329.623
Prgm Mgmt Supt	Various	Various	59.148	6.720	Oct-03	9.385	Oct-04	10.578	Oct-05	10.977	Oct-06	47.313	144.121	153.542
Subtotal Support			181.738	34.657		39.722		42.023		43.994		196.737	538.871	483.165
Remarks:														
(U) <u>Test &amp; 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>														
Subtotal Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
(U) Total Cost			3,495.580	621.830		594.169		756.630		653.713		1,551.689	7,673.611	TBD

Exhibit R-4, RDT&E Schedule Profile

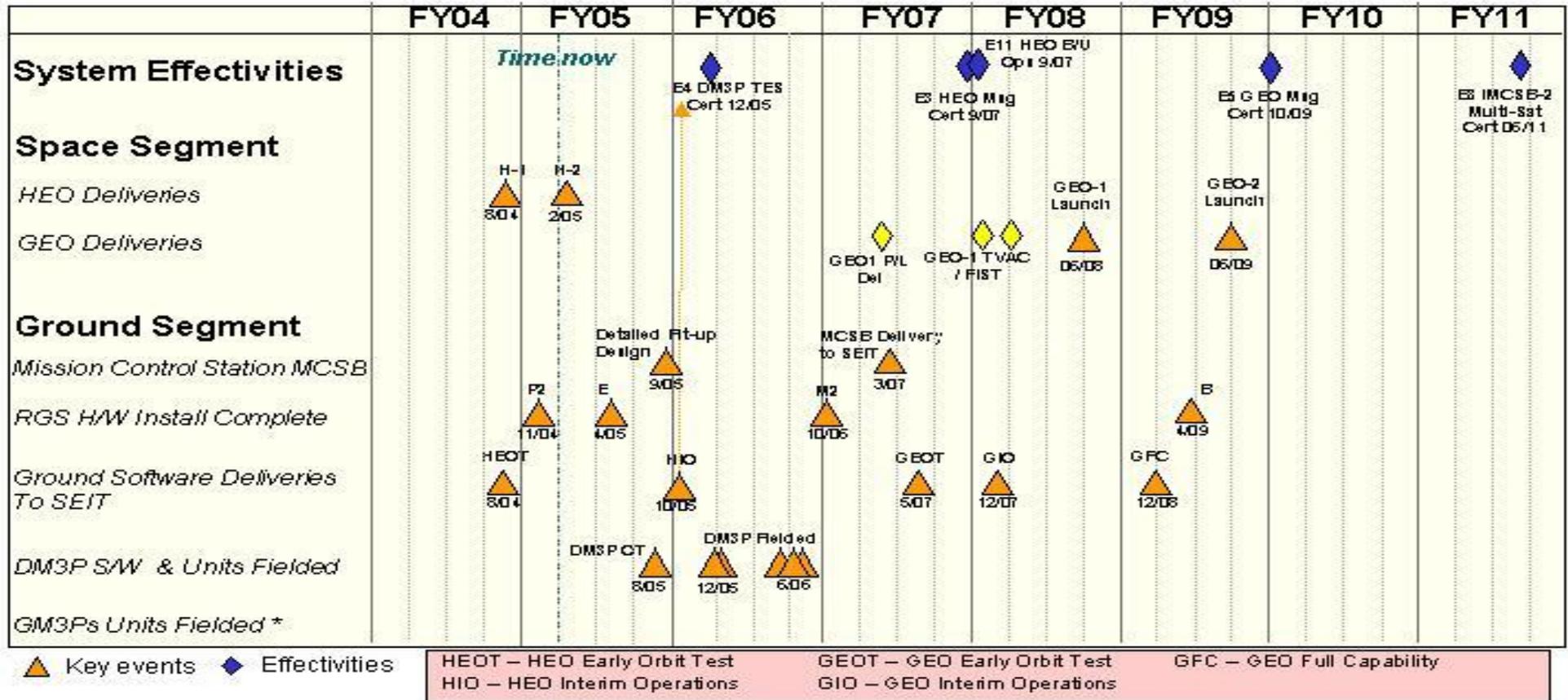
DATE

February 2005

BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE  
0604441F Space Based Infrared  
Systems (SBIRS) High EMD

PROJECT NUMBER AND TITLE  
3616 SBIRS High Element EMD



UNCLASSIFIED

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604441F Space Based Infrared Systems (SBIRS) High EMD</b>	<b>PROJECT NUMBER AND TITLE</b> <b>3616 SBIRS High Element EMD</b>
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<b>(U) <u>Schedule Profile</u></b>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) HEO sensor #1 delivery	4Q			
(U) HEO Sensor #2 Delivery		2Q		
(U) DSP capable M3P to Systems engineering, integration & test team (SEIT)		2Q		
(U) Relay Ground Station hardware installation		3Q		
(U) HEO Interim operations software delivered to Systems Engineering, Integration, and Test			1Q	
(U) Effectivity 4 - DM3P Theater Event System (TES) Certification			1Q	
(U) DM3P final unit delivered			4Q	
(U) GEO-1 payload delivered to SEIT				2Q
(U) Effectivity 3 HEO message certification				4Q
(U) HEO Back-up Operations				4Q

**UNCLASSIFIED**

PE NUMBER: 0604479F  
 PE TITLE: MILSTAR LDR/MDR Sat Comm

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2005</b>
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BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0604479F MILSTAR LDR/MDR Sat Comm</b>
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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	1.367	1.368	0.000	0.000	0.000	0.000	0.000	0.000	0.000	602.019
5010 Milstar Sat Comm Sys	1.367	1.368	0.000	0.000	0.000	0.000	0.000	0.000	0.000	602.019

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

Milstar is a joint service program to develop and acquire extremely high frequency (EHF) satellites; a satellite mission control segment; and new or modified Army, Navy and Air Force communications terminals for survivable, jam-resistant, worldwide, secure communications to strategic and tactical warfighters. Milstar I satellites 1 and 2 have a low data rate (LDR) payload that supports strategic and tactical forces with emphasis on highly survivable, minimum essential communications. Milstar II satellites 3 through 6 have both LDR and medium data rate (MDR) payloads with increased tactical capabilities, including higher data rates to mobile forces and nulling that will neutralize close-in enemy jammers. Satellite 3 did not reach its proper orbit and the satellite was placed in its final non-interference orbit and shutdown. Satellites 4 and 5 were successfully launched in 2001 and 2002, respectively. The final Milstar satellite was successfully launched in Apr 2003 and was declared operational in Dec 2003. Contract close out will be completed in FY05; no funds are requested in FY06. Milstar terminals are funded under Program Element 0303601F.

**(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	1.367	1.380	0.000	0.000
(U) Current PBR/President's Budget	1.367	1.368	0.000	0.000
(U) Total Adjustments	0.000	-0.012		
(U) Congressional Program Reductions		-0.012		
Congressional Rescissions				
Congressional Increases				
Reprogrammings				
SBIR/STTR Transfer				
(U) <u>Significant Program Changes:</u>				
None				

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>							PE NUMBER AND TITLE <b>0604479F MILSTAR LDR/MDR Sat Comm</b>		PROJECT NUMBER AND TITLE <b>5010 Milstar Sat Comm Sys</b>	
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
5010 Milstar Sat Comm Sys	1.367	1.368	0.000	0.000	0.000	0.000	0.000	0.000	0.000	602.019
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

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

Milstar is a joint service program to develop and acquire extremely high frequency (EHF) satellites; a satellite mission control segment; and new or modified Army, Navy and Air Force communications terminals for survivable, jam-resistant, worldwide, secure communications to strategic and tactical warfighters. Milstar I satellites 1 and 2 have a low data rate (LDR) payload that supports strategic and tactical forces with emphasis on highly survivable, minimum essential communications. Milstar II satellites 3 through 6 have both LDR and medium data rate (MDR) payloads with increased tactical capabilities, including higher data rates to mobile forces and nulling that will neutralize close-in enemy jammers. Satellite 3 did not reach its proper orbit and the satellite was placed in its final non-interference orbit and shutdown. Satellites 4 and 5 were successfully launched in 2001 and 2002, respectively. The final Milstar satellite was successfully launched in Apr 2003 and was declared operational in Dec 2003. Contract close out will be completed in FY05; no funds are requested in FY06. Milstar terminals are funded under Program Element 0303601F.

**(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 Milstar II contract effort which includes close out and disposal of GFP	1.295	1.288		
(U) Program Office Support	0.072	0.080		
(U) Total Cost	1.367	1.368	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>Complete</u>							
(U) N/A										

**(U) D. Acquisition Strategy**

Lockheed Martin was awarded a sole source contract to develop 6 Milstar protected communication satellites. The first two LDR satellites were launched in FY94 and FY95. Satellite 3 launch in FY99 was to provide the first LDR/MDR on-orbit capability, but the satellite did not reach its proper orbit due to a Centaur upper stage failure. Satellites 4 and 5 were launched successfully in 2001 and 2002, respectively. The last LDR/MDR Satellite 6 was successfully launched on 8 April 2003.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2005**

BUDGET ACTIVITY										PE NUMBER AND TITLE		PROJECT NUMBER AND TITLE			
<b>05 System Development and Demonstration (SDD)</b>										<b>0604479F MILSTAR LDR/MDR Sat Comm</b>		<b>5010 Milstar Sat Comm Sys</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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>															
LMSC (Milstar I) [Sats 1,2,3L]	C/CPAF		4,727.752										4,727.752		
LMSC (Milstar II) [Sats 3M,4,5,6]	SS/CPAF		3,872.146	1.295	Oct-03	1.288	Oct-04						3,874.729		
LMSC (Satellite Engineering)	SS/CPAF		222.123										222.123		
SPAWAR (ACMS)	SS/MIPR		165.406										165.406		
LINCOM	SS/CPAF		37.160										37.160		
Lincoln Lab	SS/MIPR		33.235										33.235		
Miscellaneous	Various		272.905										272.905		
Subtotal Product Development			9,330.727	1.295		1.288		0.000		0.000		0.000	9,333.310	0.000	
Remarks:															
(U) <u>Support</u>															
Aerospace	SS/CPFF/ AF		196.269										196.269		
Miscellaneous	Various		174.094	0.072	Oct-03	0.080	Oct-04						174.246		
Subtotal Support			370.363	0.072		0.080		0.000		0.000		0.000	370.515	0.000	
Remarks:															
(U) <u>Test &amp; 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>															
None.													0.000		
Subtotal Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000	
Remarks:															
(U) Total Cost			9,701.090	1.367		1.368		0.000		0.000		0.000	9,703.825	0.000	

**Exhibit R-4, RDT&E Schedule Profile**

DATE

**February 2005**

BUDGET ACTIVITY

**05 System Development and Demonstration (SDD)**

PE NUMBER AND TITLE

**0604479F MILSTAR LDR/MDR Sat  
Comm**

PROJECT NUMBER AND TITLE

**5010 Milstar Sat Comm Sys**

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UNCLASSIFIED

Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2005

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604479F MILSTAR LDR/MDR Sat  
Comm

PROJECT NUMBER AND TITLE

5010 Milstar Sat Comm Sys

(U) **Schedule Profile**

FY 2004

FY 2005

FY 2006

FY 2007

(U) N/A. No funds in FY06/07.

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**UNCLASSIFIED**

PE NUMBER: 0604600F  
 PE TITLE: Munitions Dispenser Development

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604600F Munitions Dispenser Development</b>
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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	16.685	27.801	21.738	0.000	0.000	0.000	0.000	0.000	0.000	69.587
1015 Wind Corrected Munitions Dispenser (WCMD) Kit	16.685	27.801	21.738	0.000	0.000	0.000	0.000	0.000	0.000	69.587

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

This project extends the range and improves accuracy of the Wind Corrected Munitions Dispenser (WCMD) through the development of a wing kit and integration of a GPS equipped tail kit into the CBU-87 (soft and area targets) and CBU-97 (anti-armor targets) dispensers. Wind Corrected Munitions Dispenser Extended Range (WCMD-ER) will increase the standoff range with GPS guidance and a wing kit, maintaining current weapon effectiveness on both bombers and fighters. The WCMD-ER development is two phased, supporting an initial capability on the F-16 and a final capability on the B-52. WCMD-ER significantly contributes to Air Force warfighting capability.

This is funded in budget activity 5, System Development and Demonstration, because it develops the WCMD-ER and associated software, flight testing, and other developmental 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	17.499	28.048	21.992	0.000
(U) Current PBR/President's Budget	16.685	27.801	21.738	0.000
(U) Total Adjustments	-0.814	-0.247		
(U) Congressional Program Reductions	0.000	-0.247		
Congressional Rescissions	0.000	0.000		
Congressional Increases	0.000	0.000		
Reprogrammings	-0.285	0.000		
SBIR/STTR Transfer	-0.529	0.000		
(U) <u>Significant Program Changes:</u> None				

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>					PE NUMBER AND TITLE <b>0604600F Munitions Dispenser Development</b>			PROJECT NUMBER AND TITLE <b>1015 Wind Corrected Munitions Dispenser (WCMD) Kit</b>		
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
1015 Wind Corrected Munitions Dispenser (WCMD) Kit	16.685	27.801	21.738	0.000	0.000	0.000	0.000	0.000	0.000	69.587
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

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

This project extends the range and improves accuracy of the Wind Corrected Munitions Dispenser (WCMD) through the development of a wing kit and integration of a GPS equipped tail kit into the CBU-87 (soft and area targets) and CBU-97 (anti-armor targets) dispensers. Wind Corrected Munitions Dispenser Extended Range (WCMD-ER) will increase the standoff range with GPS guidance and a wing kit, maintaining current weapon effectiveness on both bombers and fighters. The WCMD-ER development is two phased, supporting an initial capability on the F-16 and a final capability on the B-52. WCMD-ER significantly contributes to Air Force warfighting capability.

This is funded in budget activity 5, System Development and Demonstration, because it develops the WCMD-ER and associated software, flight testing, and other developmental 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) Continue WCMD-ER contract to design and procure test hardware.	13.910	18.242	10.247	
(U) Continue aircraft integration and testing on F-16 and B-52 and	0.478	6.635	9.068	
(U) Continue engineering support, program office support, and other government support.	0.497	2.924	2.423	
(U) Passive Attack Weapon development funding (now in AF W/H, but still in program's PE)	1.800			
(U) Total Cost	16.685	27.801	21.738	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>								
Procurement of Ammunition,										
(U) AF P-1 Line Item 8	71.873	58.443	0.000	0.000	0.000	0.000	0.000	0.000	0.000	130.316

**(U) D. Acquisition Strategy**

This program was approved as a Lockheed-Martin pre-planned product improvement by the Secretary of the Air Force. The System Development and Demonstration effort is a Cost Plus Award Fee Contract. The Award Fee program provides incentives for contractor performance including meeting the production unit cost for follow on production 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				
<b>05 System Development and Demonstration (SDD)</b>			<b>0604600F Munitions Dispenser Development</b>							<b>1015 Wind Corrected Munitions Dispenser (WCMD) Kit</b>				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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/CPAF	Missile & Fire Control, Orlando, FL	3.284	13.910	Oct-03	18.241	Jan-05	10.247	Jan-06			0.000	45.682	45.682
Subtotal Product Development			3.284	13.910		18.241		10.247		0.000		0.000	45.682	45.682
Remarks:														
(U) <u>Support</u> AAC/YH	Various	Eglin AFB, FL	0.000	0.059		2.570		1.973				0.000	4.602	4.602
Support Contracts	Various	Eglin AFB, FL	0.000	0.350	Dec-03	0.354	Dec-04	0.450	Dec-05			0.000	1.154	1.154
Subtotal Support			0.000	0.409		2.924		2.423		0.000		0.000	5.756	5.756
Remarks:														
(U) <u>Test &amp; Evaluation</u> 46 OG/OGML	REO	Eglin AFB, FL	0.010	0.520		3.420		6.508				0.000	10.458	10.458
Aircraft Integration	AF 616	Tinker AFB, OK and WPAFB, OH	0.069	0.000		3.216		2.560				0.000	5.845	5.845
Subtotal Test & Evaluation			0.079	0.520		6.636		9.068		0.000		0.000	16.303	16.303
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) <u>Adjusting Entries</u> Passive Area Attack Develop Funding (in Program's PE, but now on AF Withhold. Withdrawal on BA of \$46K was not posted to ABIDES				1.800									1.800	1.800
Subtotal Adjusting Entries			0.000	1.846		0.000		0.000		0.000		0.000	1.846	1.846
Remarks:														
(U) Total Cost			3.363	16.685		27.801		21.738		0.000		0.000	69.587	69.587

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

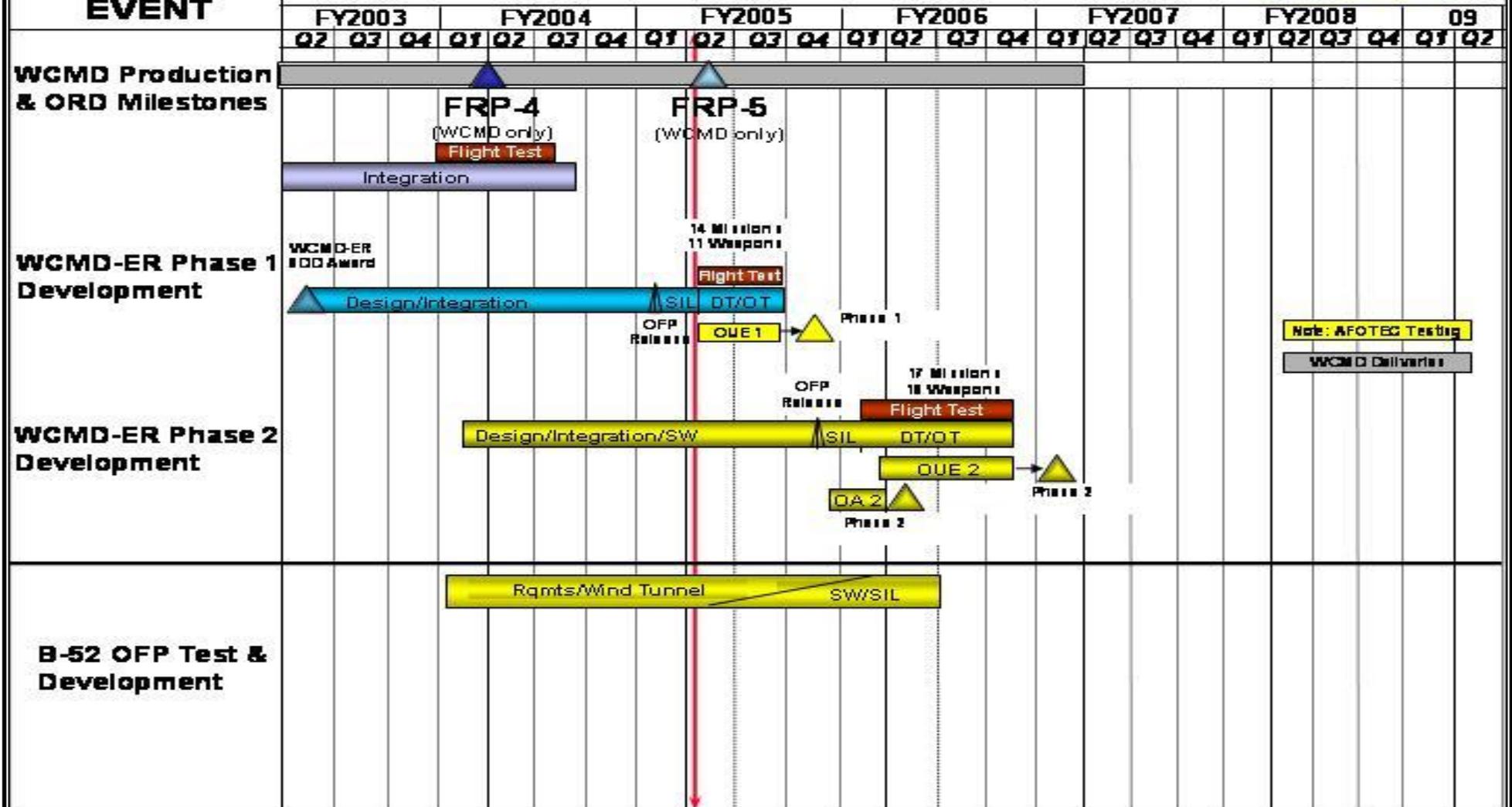
BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE  
0604600F Munitions Dispenser  
Development

PROJECT NUMBER AND TITLE  
1015 Wind Corrected Munitions  
Dispenser (WCMD) Kit

**WCMD-ER Program Schedule**

As of : Jan 05



Note: AFOTEC Testing

WCMD Deliveries

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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>		DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604600F Munitions Dispenser Development</b>	<b>PROJECT NUMBER AND TITLE</b> <b>1015 Wind Corrected Munitions Dispenser (WCMD) Kit</b>
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<b>(U) <u>Schedule Profile</u></b>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) System Development and Demonstration Contract	1Q	1Q	1Q	
(U) Preliminary Design Review	1Q			
(U) Critical Design Review		1Q		
(U) Phase 1 Flight Schedule		3Q		
(U) Phase 2 Flight Schedule			1Q	

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PE NUMBER: 0604602F  
 PE TITLE: Armament/Ordnance Development

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	<b>DATE</b> <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604602F Armament/Ordnance Development</b>
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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	8.179	8.280	7.786	4.847	2.007	2.102	2.055	1.984	Continuing	TBD
3133 Bombs & Fuzes	6.381	6.875	6.349	3.758	0.699	0.776	0.797	0.801	Continuing	TBD
4696 Armament Standardization Program	1.661	1.264	1.291	0.935	1.152	1.156	1.084	1.006	Continuing	TBD
5613 Containers	0.137	0.141	0.146	0.154	0.156	0.170	0.174	0.177	Continuing	TBD

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

The Armament Ordnance Development program provides for initial and continuing development of munition equipment for support and operational use.

**Bombs and Fuzes:** This project develops and improves conventional bombs and fuzes. It currently includes integration of the Joint Programmable Fuze (JPF) on legacy weapons, other fuze development, and Insensitive Munitions (IM), the use of an insensitive explosive fill and bomb case modifications for MK-80 series bombs to make these weapons insensitive to unplanned stimuli.

**Armament Standardization/Control/Munitions Material Handling Equipment (MMHE):** This continuing project develops and improves the standardization and commonality of munitions handling and armament equipment to preclude duplication. This project's efforts are limited to the study, design, and development of MMHE and armament control systems. Procurement will be performed and funded by the applicable weapons system project.

**Containers:** This project funds the operation of the tri-service Container Design Retrieval System (CDRS). This maintains a container database to preclude proliferation and duplication of munitions containers. It also supports organic container design, acquisition transportation, prototyping, testing capabilities, as well as the Joint Ordnance Commander's Working Group (JOCG) for Packaging, Handling, and Loading.

This program is in Budget Activity 5 - System Development and Demonstration because the projects support the SDD phase of several munitions related items and functions.

**(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	8.347	8.353	8.354	5.146
(U) Current PBR/President's Budget	8.179	8.280	7.786	4.847
(U) Total Adjustments	-0.168	-0.073		
(U) Congressional Program Reductions	0.000	-0.073		
Congressional Rescissions	0.000	0.000		
Congressional Increases	0.000	0.000		
Reprogrammings	0.084	0.000		
SBIR/STTR Transfer	-0.252	0.000		

**(U) Significant Program Changes:**

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2005

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604602F Armament/Ordnance Development

None

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>					PE NUMBER AND TITLE <b>0604602F Armament/Ordnance Development</b>			PROJECT NUMBER AND TITLE <b>3133 Bombs &amp; Fuzes</b>		
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
3133 Bombs & Fuzes	6.381	6.875	6.349	3.758	0.699	0.776	0.797	0.801	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

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

There are two subprojects in the Bombs and Fuzes project: (1) Fuzes: Joint Programmable Fuze (JPF) - JPF enables the fuze settings to be changed from the aircraft, optimizing the performance of the weapon by matching the fuze setting with the target selected. JPF was developed primarily for JDAM and funded by the JDAM program (PE 0604618). This project funds the integration of JPF on other AF legacy weapons. Hard Target Smart Fuze (HTSF) - There may be residual efforts in closing out this program, as well as systems analysis and travel. (2) Insensitive Munitions (IM) develops an explosive fill and bomb case modification to make conventional weapons insensitive to unplanned stimuli as given in MIL-STD-2105C.

This program is in Budget Activity 5 - System Development and Demonstration (SDD) because the projects support the SDD phase of several munitions related items and functions.

**(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 Insensitive Munitions (IM) development effort. Conduct lab level performance tests, environmental tests, bomb case development performance tests, and prototype booster reliability tests	0.000	1.100	0.480	0.246
(U) JPF legacy weapons integration and other fuze activity	0.848	0.475	0.865	0.938
(U) Formulate IM explosive development fill and integrate the fuze on IM filled bombs	2.697	1.347	0.517	0.265
(U) Conduct bomb case study and comparative testing	2.836	3.953	4.487	2.309
(U) Total Cost	6.381	6.875	6.349	3.758

**(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>Complete</u>							
(U) N/A										

**(U) D. Acquisition Strategy**

The acquisition strategy for the MK-84/MK-82 Insensitive Munition (IM) was based on Best Value due to the redundancy of approaches presented by competing offerors.

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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				
<b>05 System Development and Demonstration (SDD)</b>				<b>0604602F Armament/Ordnance Development</b>							<b>3133 Bombs &amp; Fuzes</b>				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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>															
ATK (HTSF)	CPIF/CPF F	Hopkins, MN	23.378	0.590	Jan-04	0.000		0.000		0.000		0.000	23.968	23.968	
Kaman/Dayron (JPF)	FPIF	Orlando, FL	8.190	0.000		0.000		0.000		0.000		0.000	8.190	8.190	
Air Force Research Lab/MN (IM)	In-house	Eglin AFB, FL	2.233	2.002	N/A	1.400	N/A	0.550	N/A	0.628	N/A	0.000	6.813	6.813	
General Dynamics OTS (IM)	CPFF	Niceville, FL	0.956	1.125	Dec-03	0.600	Jan-05	0.405	Jan-06	0.000		0.000	3.086	3.086	
McAAP	Army	McAllester, OK	0.000	0.339	N/A	0.850	N/A	0.400	N/A	0.000	N/A	0.000	1.589	1.589	
Subtotal Product Development			34.757	4.056		2.850		1.355		0.628		0.000	43.646	43.646	
Remarks:	CPIF = Cost Plus Incentive Fee; CPFF = Cost Plus Fixed Fee														
(U) <u>Support</u>															
TEAS/ TEAMS (Fuze Activity)	FFP	Eglin AFB, FL	4.503	0.122	Oct-03	0.000		0.000		0.000		0.000	4.625	4.625	
AAC/YU-FUZES (Fuze Activity)	In-house	Eglin AFB, FL	1.308	0.136	N/A	0.243	N/A	0.440	N/A	0.469	N/A	1.537	4.133	4.133	
AAC/XR (IM)	In-house	Eglin AFB, FL	0.390	0.291	N/A	0.300	N/A	0.300	N/A	0.480	N/A	0.000	1.761	1.761	
TEAS/TAMS (IM)	FFP	Eglin AFB, FL	0.695	0.507	Oct-03	0.440	Oct-04	0.440	Oct-05	0.440	Oct-06	0.000	2.522	2.522	
Subtotal Support			6.896	1.056		0.983		1.180		1.389		1.537	13.041	13.041	
Remarks:	TEAS/TAMS contractors provide support to the System Program Office (SPO) for technical (TEAS) and management/financial (TAMS) services. FFP = Firm Fixed Price														
(U) <u>Test &amp; Evaluation</u>															
Fuze Testing (gov't agencies)	In-house	Various	6.331	0.000		0.232	N/A	0.425	N/A	0.469	N/A	1.537	8.993	9.993	
46th Test Wing (IM)	In-house	Eglin AFB, FL	0.296	0.824	N/A	1.400	N/A	0.356	N/A	0.000	N/A	0.000	2.876	2.876	
Navy, China Lake ( IM)	Navy	China Lake, CA	0.000	0.445	N/A	1.410	N/A	3.033	N/A	1.272	N/A	0.000	6.160	6.160	
Subtotal Test & Evaluation			6.627	1.269		3.042		3.814		1.741		1.537	18.029	19.029	
Remarks:															
(U) Total Cost			48.280	6.381		6.875		6.349		3.758		3.073	74.716	75.716	

Exhibit R-4, RDT&E Schedule Profile

DATE

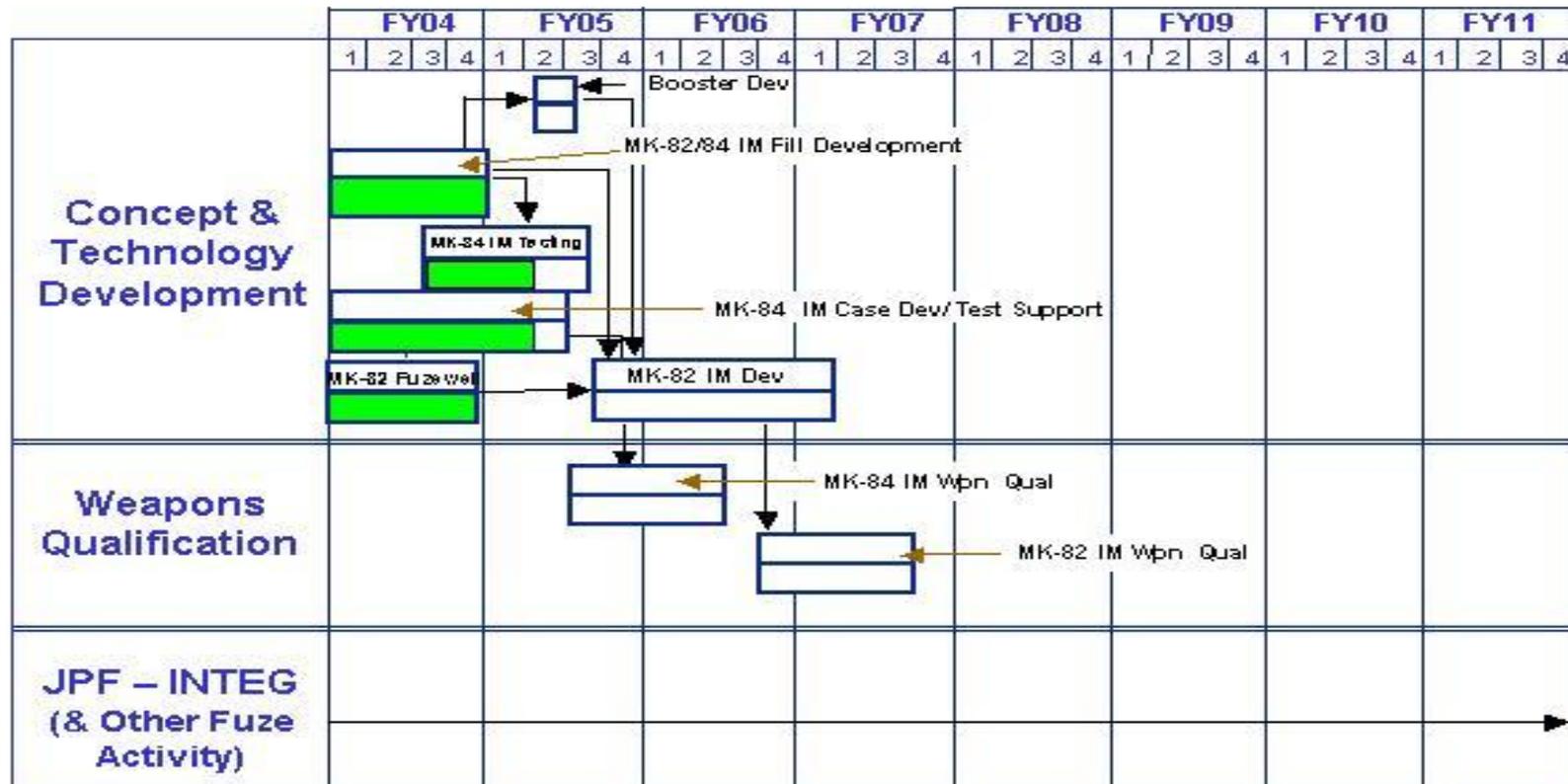
February 2005

BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE  
0604602F Armament/Ordnance  
Development

PROJECT NUMBER AND TITLE  
3133 Bombs & Fuzes

### Insensitive Munitions (IM) and Joint Programmable Fuze (JPF) Schedule



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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604602F Armament/Ordnance Development</b>	<b>PROJECT NUMBER AND TITLE</b> <b>3133 Bombs &amp; Fuzes</b>
--	---	--

<b>(U) <u>Schedule Profile</u></b>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) FUZES				
(U) JPF Integration on Legacy Weapons & Other Fuze Activity	1-4Q	1-4Q	1-4Q	1-4Q
(U) INSENSITIVE MUNITIONS (IM)				
(U) IM Fill Development	1-3Q			
(U) MK-84 IM Bomb Case Study/Test	1-4Q	1-2Q		
(U) Small-scale Sensitivity/Qual Testing	1-4Q	1-3Q		
(U) MK-84 IM System Integration/Weapons Qual		3-4Q	1-2Q	
(U) MK-82 IM System Integration/Weapons Qual		3-4Q	1-4Q	1-3Q

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>					PE NUMBER AND TITLE <b>0604602F Armament/Ordnance Development</b>			PROJECT NUMBER AND TITLE <b>4696 Armament Standardization Program</b>		
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
4696 Armament Standardization Program	1.661	1.264	1.291	0.935	1.152	1.156	1.084	1.006	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

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

Armament Standardization/Control/Munitions Material Handling Equipment (MMHE): These continuing projects develop and provide for acquisition of standardized, safe, and user-friendly munitions handling and armament equipment with common life cycle support. Projects will reduce proliferation and increase workload efficiencies while reducing mobility footprint. Project efforts are limited to study, design, test and development. Procurement will be performed and funded by the applicable weapons system project or air logistics center.

This program is in Budget Activity 5 - System Development and Demonstration (SDD) because the projects support the SDD phase of several munitions related items and functions.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Design, prototype, test and develop various MMHE projects for AF use.	1.661	1.264	1.291	0.935
(U) Total Cost	1.661	1.264	1.291	0.935

**(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>Complete</u>							
(U) N/A										

**(U) D. Acquisition Strategy**

MMHE is a program of continuing efforts (projects) with activities performed organically or through contracted services.

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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				
<b>05 System Development and Demonstration (SDD)</b>				<b>0604602F Armament/Ordnance Development</b>							<b>4696 Armament Standardization Program</b>				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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>Support</u> AAC/YBC (Program Office)	In-house (RREO)	Eglin AFB, FL	0.674	0.150	N/A	0.114	N/A	0.131	N/A	0.097	N/A	Continuing	TBD	TBD	
Subtotal Support			0.674	0.150		0.114		0.131		0.097		Continuing	TBD	TBD	
Remarks:															
(U) <u>Product Development</u> J.E. Sverdrup	FFP	Eglin AFB, FL	3.319	0.987	Jan-04	0.702	Jan-05	0.715	Jan-06	0.720	Jan-07	Continuing	TBD	TBD	
96 LRS	In-house (RREO)	Eglin AFB, FL	0.516	0.339	N/A	0.278	N/A	0.275	N/A	0.038	N/A	Continuing	TBD	TBD	
EDSD	In-house (RREO)	Eglin AFB, FL	0.043	0.035	N/A	0.020	N/A	0.020	N/A	0.000	N/A	Continuing	TBD	TBD	
Phototype Fabrication Shop	In-house (RREO)	Eglin AFB, FL	1.050	0.150	N/A	0.150	N/A	0.150	N/A	0.080	N/A	Continuing	TBD	TBD	
Subtotal Product Development			4.928	1.511		1.150		1.160		0.838		Continuing	TBD	TBD	
Remarks:															
(U) Total Cost			5.602	1.661		1.264		1.291		0.935		Continuing	TBD	TBD	

## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604602F Armament/Ordnance  
Development

PROJECT NUMBER AND TITLE

4696 Armament Standardization  
Program

The Armament Standardization Program consists of several continuing projects that support the SDD phase of several munitions-related items and functions.

**UNCLASSIFIED**

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604602F Armament/Ordnance Development</b>	<b>PROJECT NUMBER AND TITLE</b> <b>4696 Armament Standardization Program</b>
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<b>(U) <u>Schedule Profile</u></b>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Study, Design, and Test MMHE	1-4Q	1-4Q	1-4Q	1-4Q

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>					PE NUMBER AND TITLE <b>0604602F Armament/Ordnance Development</b>			PROJECT NUMBER AND TITLE <b>5613 Containers</b>		
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
5613 Containers	0.137	0.141	0.146	0.154	0.156	0.170	0.174	0.177	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

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

Containers: This project funds the operation of the Tri-Service Container Design Retrieval System (CDRS). The CDRS maintains a container database to preclude proliferation and duplication of munitions containers. It also supports the Joint Ordnance Commander's Working Group (JOCWG) for packaging, handling and loading. In addition, CDRS supports organic container design, acquisition transportation, prototyping and testing capabilities. This program is in Budget Activity 5 - System Development and Demonstration (SDD) because the projects support the SDD phase of several munitions related items and functions.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Initiate/continue/complete design/development of various CDRS projects	0.006	0.006	0.006	0.006
(U) Provide container design expertise and technical support to programs such as BLU-122/A, MALD, P5 CTS, Joint Standoff Weapon, Munitions Material Handling Equipment, and Small Diameter Bomb	0.006	0.006	0.006	0.006
(U) Manage and operate the CDRS database and support service	0.125	0.129	0.134	0.142
(U) Total Cost	0.137	0.141	0.146	0.154

**(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>Complete</u>							
(U) N/A										

**(U) D. Acquisition Strategy**

Containers is a program of continuing effort throughout the year, mostly to support the Tri-Service Container Design and Retrieval System (CDRS). The purpose of this SDRS is to share ideas and standardize munitions containers throughout the Services.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2005**

BUDGET ACTIVITY			PE NUMBER AND TITLE								PROJECT NUMBER AND TITLE			
<b>05 System Development and Demonstration (SDD)</b>			<b>0604602F Armament/Ordnance Development</b>								<b>5613 Containers</b>			
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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>Support</u> AAC/YBC (Program Office)	In-house	Eglin AFB, FL	0.932	0.122	N/A	0.124	N/A	0.128	N/A	0.134	N/A	Continuing	TBD	TBD
Subtotal Support			0.932	0.122		0.124		0.128		0.134		Continuing	TBD	TBD
Remarks:														
(U) <u>Product Development</u> J.E.Sverdrup	FFP	Eglin AFB, FL	1.589	0.015	Feb-04	0.017	Feb-05	0.018	Feb-06	0.020	Feb-07	Continuing	TBD	TBD
Subtotal Product Development			1.589	0.015		0.017		0.018		0.020		Continuing	TBD	TBD
Remarks:														
(U) Total Cost			2.521	0.137		0.141		0.146		0.154		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604602F Armament/Ordnance  
Development

PROJECT NUMBER AND TITLE

5613 Containers

The Munitions Container Program is a continuing projects that supports container standardization activities/meetings throughout the year.

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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604602F Armament/Ordnance Development</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5613 Containers</b>
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<b>(U) <u>Schedule Profile</u></b>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Support CDRS Activities/Meetings	1-4Q	1-4Q	1-4Q	1-4Q

**UNCLASSIFIED**

PE NUMBER: 0604604F  
 PE TITLE: Submunitions

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	<b>DATE</b> <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604604F Submunitions</b>
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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	4.451	5.772	5.475	5.728	1.981	1.750	1.850	1.726	Continuing	TBD
3166 Joint Smart Munitions Test and Evaluation	4.451	5.772	5.475	5.728	1.981	1.750	1.850	1.726	Continuing	TBD

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.

**(U) A. Mission Description and Budget Item Justification**  
 This program element provides support for smart munitions and related technologies test and evaluation (T&E) activities, including T&E support for programs in engineering and manufacturing development. Project 3166 is a joint US Air Force/US Army project which provides RDT&E support for developmental smart munitions acquisition programs. Project 3166 (project Chicken Little) evaluates developmental smart munitions and related emerging technology with applications against vehicle targets and Theater Air Defense units by determining performance against actual foreign targets in realistic environments and in the presence of countermeasures. Data gathered is used to meet developmental decision points requiring highly reliable, realistic performance data. The project is a major focal point for joint Air Force and Army target signature collection and dissemination for development and exploitation purposes. The program provides best value test and evaluation support for submunition development and weaponization studies and modeling and simulation capabilities to augment a limited number of measurement and open air tests of smart weapons and related technologies.

This program is funded in BA5 - System Development and Demonstration (SDD) because it supports development programs prior to full rate production decision.

**(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	4.677	4.824	5.444	5.627
(U) Current PBR/President's Budget	4.451	5.772	5.475	5.728
(U) Total Adjustments	-0.226	0.948		
(U) Congressional Program Reductions	0.000	-0.052		
Congressional Rescissions	0.000	0.000		
Congressional Increases	0.000	1.000		
Reprogrammings	-0.085	0.000		
SBIR/STTR Transfer	-0.141	0.000		

**(U) Significant Program Changes:**  
 FUNDING: In FY05 Congress added \$1M for self destruct fuzing for CBU-87 submunition.

UNCLASSIFIED

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>					PE NUMBER AND TITLE <b>0604604F Submunitions</b>			PROJECT NUMBER AND TITLE <b>3166 Joint Smart Munitions Test and Evaluation</b>		
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
3166 Joint Smart Munitions Test and Evaluation	4.451	5.772	5.475	5.728	1.981	1.750	1.850	1.726	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 support for smart munitions and related technologies test and evaluation (T&E) activities, including T&E support for programs in engineering and manufacturing development. Project 3166 is a joint US Air Force/US Army project which provides RDT&E support for developmental smart munitions acquisition programs. Project 3166 (project Chicken Little) evaluates developmental smart munitions and related emerging technology with applications against vehicle targets and Theater Air Defense units by determining performance against actual foreign targets in realistic environments and in the presence of countermeasures. Data gathered is used to meet developmental decision points requiring highly reliable, realistic performance data. The project is a major focal point for joint Air Force and Army target signature collection and dissemination for development and exploitation purposes. The program provides best value test and evaluation support for submunition development and weaponization studies and modeling and simulation capabilities to augment a limited number of measurement and open air tests of smart weapons and related technologies.

This program is funded in BA5 - System Development and Demonstration (SDD) because it supports development programs prior to full rate production decision.

**(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 weapon effectiveness evaluation and weaponization studies	1.200	1.200	0.420	0.500
(U) Develop, validate, and accredit improved models and simulation for assessment of alternatives and force on force studies	0.584	0.584	0.650	0.700
(U) Increase utility of lethality/vulnerability and signature database through addition of modern threat systems and secure datalink	0.429	0.429	0.505	0.600
(U) Plan and conduct captive carry flight tests and signature collection for seeker/sensor evaluations and algorithm development	1.750	1.750	1.800	1.900
(U) Characterize performance of advanced and programmable warheads to access potential for increasing lethality of weapons	0.244	0.517	0.300	0.400
(U) Perform vulnerability analysis of upgraded/advanced Suppression of Enemy Air Defense (SEAD) and Advanced Hardened Targets (AHT)	0.244	0.244	0.300	0.400
(U) Plan and conduct weapon netcentric tests and analysis to access potential applications for increasing weapon system net readiness	0.000	0.100	1.500	1.228
(U) Design a retrofit for the CBU-87 submunition (BLU-97) fuze to reduce unexploded ordnance	0.000	0.948	0.000	0.000
(U) Total Cost	4.451	5.772	5.475	5.728

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604604F Submunitions</b>	<b>PROJECT NUMBER AND TITLE</b> <b>3166 Joint Smart Munitions Test and Evaluation</b>
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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>Complete</u>							

(U) None

(U) **D. Acquisition Strategy**

Funds are executed organically in support of test and evaluation activities including studies, analyses, flight tests, model building and simulation. There are two contracts supporting the program office in executing the testing activities.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2005**

BUDGET ACTIVITY										PE NUMBER AND TITLE		PROJECT NUMBER AND TITLE			
<b>05 System Development and Demonstration (SDD)</b>										<b>0604604F Submunitions</b>		<b>3166 Joint Smart Munitions Test and Evaluation</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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>Support</u> Macaulay Brown/ANSTEC	FFP	Technical Analysis and Test Support, Eglin AFB, FL	1.648	0.058	Apr-02	0.100	Apr-05	0.070	Apr-05	0.125	Apr-05	Continuing	TBD	TBD	
Other (A-Team)	CPIF	Technical/Co st Analysis, Eglin AFB, FL and Arlington, VA	0.119	0.072	Jan-04	0.080	Jan-05	0.100	Jan-06	0.100	Jan-07	Continuing	TBD	TBD	
Subtotal Support			1.767	0.130		0.180		0.170		0.225		Continuing	TBD	TBD	
Remarks:	For support contractors, once the contract is awarded, we continue funding via annual additions and do not award new contracts each year. CPIF = Cost Plus Incentive Fee; FFP = Firm Fixed Price														
(U) <u>Test &amp; Evaluation</u> Sverdrup	CPIF	Technical Analysis and Test Support, Eglin AFB, FL	10.633	0.271	Jun-01	1.275	Jun-01	1.310	Jun-01	1.378	Jun-01	Continuing	TBD		
46th Test Wing (46 OG)	N/A	Conducting Tests and Analysis, Eglin AFB, FL	73.097	3.800	N/A	4.067	N/A	3.745	N/A	3.850	N/A	Continuing	TBD	TBD	
Subtotal Test & Evaluation			83.730	4.071		5.342		5.055		5.228		Continuing	TBD	TBD	
Remarks:	46th Test Wing is the Program Office which conducts inhouse testing. Contract type and award date is N/A.														
(U) <u>Management</u> 46th Test Wing (46 OG)	N/A	Planning and Conducting Tests, Eglin AFB, FL	6.363	0.250	N/A	0.250	N/A	0.250	N/A	0.275	N/A	Continuing	TBD	TBD	
Subtotal Management			6.363	0.250		0.250		0.250		0.275		Continuing	TBD	TBD	
Remarks:	46th Test Wing is the Program Office which conducts inhouse testing. Contract type and award date is N/A.														
(U) Total Cost			91.860	4.451		5.772		5.475		5.728		Continuing	TBD	TBD	

## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604604F Submunitions

PROJECT NUMBER AND TITLE

3166 Joint Smart Munitions Test and Evaluation

**SCHEDULE**

Project 3166, Joint Smart Munition Test and Evaluation program (project Chicken Little) does not execute in accordance with established acquisition milestones. Chicken Little is a continuing test effort:

Target/warhead evaluation/analysis, signature tests, and captive carry flight tests are ongoing throughout the year and continue through the FYDP. This project is also funded by the Army and other Services on a case by case basis. The type of activities is given in Section B. The timing, duration, and level of effort is decided at the annual Steering Committee meetings.

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604604F Submunitions</b>	<b>PROJECT NUMBER AND TITLE</b> <b>3166 Joint Smart Munitions Test and Evaluation</b>
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	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) <b>Schedule Profile</b>				
(U) Target/warhead evaluation/analysis, signature test, captive carry flight tests	1-4Q	1-4Q	1-4Q	1-4Q
(U) Design a retrofit for CBU-87 submunition fuze		2-4Q	1-4Q	

**UNCLASSIFIED**

PE NUMBER: 0604617F  
 PE TITLE: Agile Combat Support

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604617F Agile Combat Support</b>
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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	20.556	18.886	10.173	9.996	10.742	9.462	9.715	9.954	Continuing	TBD
2895 CE Readiness	5.971	6.322	6.041	6.432	6.577	6.661	6.809	6.936	Continuing	TBD
4910 Aeromedical Readiness	14.585	12.564	4.132	3.564	4.165	2.801	2.906	3.018	Continuing	TBD

In FY06, Project 2895, Civil Engineering Readiness (CE), includes new start efforts.

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

This Program Element (PE) provides capabilities to rapidly deploy, defend and sustain airfield operations, and command and control activities to ensure readiness. In addition, this PE provides tactical and strategic aeromedical evacuation systems, automated information systems; and medical treatment equipment to meet unique Air Force medical readiness and operational requirements. These activities are prerequisites to establishing air superiority. Development of Agile Combat Support (ACS) systems provides beddown for aircraft, support equipment, and forces at both main operating bases and contingency operating locations, which may have only a runway and a water source. They also offer crucial utilities, runway stabilization and repair, explosive ordnance disposal (EOD), rescue and recovery aids, aeromedical evacuation and treatment equipment; and security and reconnaissance capabilities to support aircraft deployment, launch, recovery and regeneration. Lighter-weight, rapidly deployable equipment has become essential in supporting numerous global contingencies such as DESERT SHIELD/DESERT STORM, Provide Comfort, Restore Hope, Joint Endeavor, and Enduring Freedom for security, base defense, relief efforts, and special operations throughout the world. Specific ACS capabilities being developed include: power generation and distribution systems to reduce airlift; deployable medical grade oxygen generation systems; a family of deployable shelters to be used as aircraft hangars, maintenance facilities, heavy equipment storage, Command, Control, Communications, Computers and Intelligence (C4I) operations, medical and personnel shelters, systems to repair runway damage, and Joint Service (Army-led) test, evaluation and acquisition of protective systems, and equipment to be used by Air Force EOD technicians for reconnaissance and mine clearing missions.

The Agile Combat Support program is in RDT&E Budget Activity 5 - System Development and Demonstration (SDD) because it supports development, testing and evaluation of materials and equipment for contingency basing, detection and handling of explosive ordnance, tactical shelters, and aeromedical evacuation 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	13.360	10.053	8.976	8.814
(U) Current PBR/President's Budget	20.556	18.886	10.173	9.996
(U) Total Adjustments	7.196	8.833		
(U) Congressional Program Reductions				
Congressional Rescissions		-0.167		
Congressional Increases		9.000		
Reprogrammings	7.700			
SBIR/STTR Transfer	-0.504			

**(U) Significant Program Changes:**

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2005

BUDGET ACTIVITY

**05 System Development and Demonstration (SDD)**

PE NUMBER AND TITLE

**0604617F Agile Combat Support**

In FY04, Project 4910 received two Congressional Adds in the amounts of \$2.8M and \$2.1M, respectively, for Deployable Oxygen System (DOS) programs and Nano-Technology to produce sterile water.

Also in FY04, Project 2895, Civil Engineering Readiness, received \$3.0M for the Base Operating Support Assessment Model (BOSAM). Since the BOSAM contract had been executing using O&M funds, reprogramming action was accomplished to recolor \$1.4M of the \$3.0M RDT&E to O&M. The remaining reprogramming actions include \$9.2M for Epidemic Outbreak Surveillance (EOS).

In FY05, Project 4910 received four Congressional Adds in the amounts of \$2.8M, \$4.2M, \$1M, and \$1M, respectively for AERO Medical Readiness Water sterilization, Isolation Units with Reactive Nanoparticle Materials, Advanced Casualty Care for AFSOC, and Biostatic Protective Clothing for AFSOC.

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2005

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE			
<b>05 System Development and Demonstration (SDD)</b>				<b>0604617F Agile Combat Support</b>				<b>2895 CE Readiness</b>			
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	
2895 CE Readiness	5.971	6.322	6.041	6.432	6.577	6.661	6.809	6.936	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 provides capabilities to rapidly deploy, defend and sustain airfield operations and command and control activities to ensure readiness. These activities are prerequisites to establishing air superiority. Agile Combat Support (ACS) systems provide beddown for aircraft, support equipment, and forces at both main operating bases and contingency operating locations, which may have only a runway and water source. They also offer crucial utilities, runway stabilization and repair, explosive ordnance disposal (EOD), rescue and recovery aids; and security and reconnaissance capabilities to support global aircraft deployment, employment, recovery and regeneration. Light weight, rapidly deployable equipment has become essential in supporting numerous global contingencies such as ENDURING FREEDOM and IRAQI FREEDOM for security, base defense, relief efforts, and special operations throughout the world. Specific ACS capabilities being developed and fielded include: deployable power generation and distribution systems to reduce airlift and energy consumption, deployable shelters to be used as aircraft hangars, maintenance facilities, heavy equipment storage, C4I operations, medical and personnel shelters, systems to repair runway damage; and Joint Service (Army-led) test, evaluation and acquisition of protective systems, and equipment to be used by Air Force EOD technicians for reconnaissance, mine clearing operations, accessing and neutralizing improvised explosive devices, and equipment in support of Homeland Defense missions.

The Agile Combat Support program is in RDT&E Budget Activity 5 - System Development and Demonstration (SDD) because it supports development, testing and evaluation of materials and equipment for contingency basing, detection and handling of explosive ordnance, tactical shelters, and aeromedical evacuation 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				
(U) Continue SDD for All-purpose Remote Transport System (ARTS)/Attachments	1.700	2.100	1.100	
(U) Provide Joint Robotics Program (JRP) Support				0.100
(U) Initiate SDD for Rapid Parking Ramp Expansion (RPRE)	0.100	0.100	1.200	1.900
(U) Continue SDD for Large Shelter System (LSS)	1.392	1.800	0.200	
(U) Continue(d) SDD for Multimedia Training Systems (MTS)	0.952	1.500	1.472	1.100
(U) Continue(d) Product Evaluations for Commercial Technology Exploitation (CTE)	0.227	0.822	0.969	0.932
(U) Initiate SDD for Modular Automated Robotics System (MARS)			0.200	1.000
(U) Initiate SDD for Next-Generation Emergency Airfield Lighting System (NEALS)			0.900	1.400
(U) Initiate Base Operating Support Assessment Model (BOSAM)	1.600	0.000		
(U) Total Cost	5.971	6.322	6.041	6.432

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0604617F Agile Combat Support</b>	PROJECT NUMBER AND TITLE <b>2895 CE Readiness</b>
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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>Complete</u>							
Other Procurement, AF, PE 0401135F, Other Base and Maintenance Support, Mobility Equipment (WSC 845420)	92.261	267.077	23.370	27.033	37.712	59.167	74.014	31.892	Continuing	TBD
Other Procurement, AF, PE 0208028F, Other Base and Maintenance Support, Air Base Operability (WSC 845100)	21.127	5.411	5.463	5.540	6.418	6.752	6.899	7.078	Continuing	TBD

**(U) D. Acquisition Strategy**

A majority of projects funded in this PE employ a streamlined acquisition approach. Whenever practical, commercial items are tested and evaluated as candidates for solutions to user needs. This normally involves characterization, verification and qualification testing to ensure commercial off-the-shelf equipment is properly adapted for military purposes. ACC/DRM/CEX jointly develop/approve requirements supporting Civil Engineering Readiness and Capabilities Enhancement initiatives, such as Explosive Ordnance Disposal robotics programs. The AAC/YBC Agile Combat Support (ACS) Program Office initiates SDD following receipt of applicable Capabilities Development Documents from those agencies. The Basic Expeditionary Airfield Resource (BEAR) Systems Readiness Board (BSRB) evaluates laboratory and commercial technologies with application for modernization of BEAR assets, such as deployable shelters, power, waste treatment and airfield support systems. With ACC/DRM/LGX/CEX direction and BEAR Program Office approval, the AAC/YBC ACS Program Office initiates SDD, and ACC/LGX aligns BEAR production funding within PE41135F to support modernization of assets. Initiation of SDD includes all 6.4 activities leading up to contract award and subsequent test and evaluation culminating in a Milestone C production decision.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis											DATE February 2005			
BUDGET ACTIVITY 05 System Development and Demonstration (SDD)					PE NUMBER AND TITLE 0604617F Agile Combat Support					PROJECT NUMBER AND TITLE 2895 CE Readiness				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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> ARTS/Attachments	FFP	Applied Research Associates, South Royalton, VT	5.055	1.700	Nov-03	2.100	Mar-05	1.100	Jan-06			0.000	9.955	9.955
Joint Robotics Program (JRP) Support	FFP	AAC/YBC, Eglin AFB, FL	0.000							0.100	Jan-07	Continuing	TBD	TBD
Rapid Parking Ramp Expansion	FFP	TBD	0.694	0.100	Feb-04	0.100	Mar-05	1.200	Dec-05	1.900	Dec-06	0.700	4.694	4.700
Large Shelter System (LSS)	FFP	Vertigo, Inc., Lake Elsinore, CA	1.215	1.392	Jun-04	1.800	Feb-05	0.200	Jan-06			0.000	4.607	4.700
Multimedia Training Systems (MTS)	FFP	Multiple	4.123	0.952	May-04	1.500	Jan-05	1.472	Feb-06	1.100	Mar-07	Continuing	TBD	TBD
Commercial Technology Exploitation (CTE)	FFP	Multiple	1.743	0.227	Aug-04	0.822	May-05	0.969	May-06	0.932	May-07	Continuing	TBD	TBD
Modular Automated Robotics System (MARS)	TBD	TBD	0.000					0.200		1.000	Dec-06	2.600	3.800	3.800
Next-Generation Emergency Airfield Lighting System (NEALS)	TBD	TBD	0.000					0.900	Mar-06	1.400	Feb-07	0.800	3.100	3.100
Base Operating Support Assessment Model (BOSAM)	FFP	Dynamic Research Corporation, Andover, MA	0.000	1.600	Sep-04			0.000		0.000		0.000	1.600	3.000
Subtotal Product Development Remarks:			12.830	5.971		6.322		6.041		6.432		Continuing	TBD	TBD
(U) <u>Support</u> None. None													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 &amp; Evaluation</u> Various None	Various			0.000		0.000						Continuing	TBD	0.000
Subtotal Test & Evaluation Remarks:			0.000	0.000		0.000		0.000		0.000		Continuing	TBD	0.000
(U) <u>Management</u> Subtotal Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Project 2895														

R-1 Shopping List - Item No. 82-5 of 82-16

Exhibit R-3 (PE 0604617F)

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2005**

BUDGET ACTIVITY

**05 System Development and Demonstration (SDD)**

PE NUMBER AND TITLE

**0604617F Agile Combat Support**

PROJECT NUMBER AND TITLE

**2895 CE Readiness**

Remarks:

(U) Total Cost

12.830

5.971

6.322

6.041

6.432

Continuing

TBD

TBD

NOTE: This is a level of effort Program Element with 20+ years of projects. Prior years breakout not available.

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604617F Agile Combat Support

PROJECT NUMBER AND TITLE

2895 CE Readiness

2895 CE Readiness

CE Readiness Schedule

0604617F Agile Combat Support

**(U) Schedule Profile**

**ALL-PURPOSE REMOTE TRANSPORT SYSTEM (ARTS)**

- Awarded ARTS ACS Production Contract
- ARTS Box Rake
- ARTS Box Rake Production
- Submunitions Clearance System (SCS)
- Initiate SCS Production
- Complete T&E for ARTS Data Feedback System (DFS)
- DFS Production

**RAPID PARKING RAMP EXPANSION (RPRE)**

- Conduct FY04 RPRE Activity
- Conduct FY05 RPRE Pre-SDD Activities
- RPRE Milestone B Decision
- Award RPRE SDD Contract
- Initiate RPRE T&E

**LARGE SHELTER SYSTEM (LSS)**

- Award LSS SDD Contract
- Start LSS SDD
- Complete LSS T&E
- LSS Milestone C Decision
- LSS First Delivery

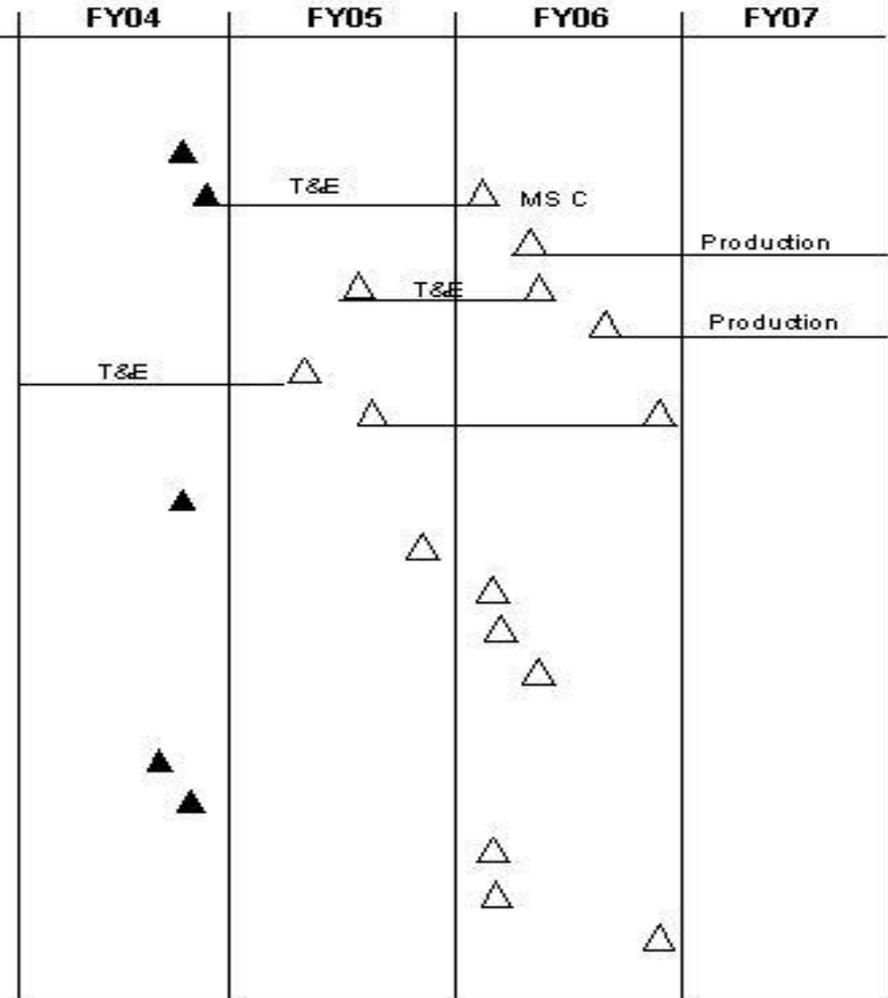


Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604617F Agile Combat Support

PROJECT NUMBER AND TITLE

2895 CE Readiness

2895 CE Readiness		CE Readiness Schedule			
0604617F Agile Combat Support		FY04	FY05	FY06	FY07
<b>(U) Schedule Profile</b>					
<b>MULTIMEDIA TRAINING SYSTEMS (MTS)</b>					
▪ Conduct FY04 MTS Projects	▲				
▪ Conduct FY05 MTS Projects		△			
▪ Conduct FY06 MTS Projects			△		
▪ Conduct FY07 MTS Projects					△
<b>COMMERCIAL TECHNOLOGY EXPLOITATION (CTE)</b>					
▪ Conduct FY04 CTE Product Evaluations		▲			
▪ Conduct FY05 CTE Product Evaluations			△		
▪ Conduct FY06 CTE Product Evaluations				△	
▪ Conduct FY07 CTE Product Evaluations					△
<b>MODULAR AUTOMATED ROBOTICS SYSTEM (MARS)</b>					
▪ Submit MARS RFP				△	
▪ Award MARS SDD					△
▪ Initiate MARS T&E					△

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604617F Agile Combat Support

PROJECT NUMBER AND TITLE

2895 CE Readiness

CE Readiness Schedule

0604617F Agile Combat Support  
BPAC 652895 CE Readiness

FY04

FY05

FY06

FY07

(U) Schedule Profile

**NEXT-GENERATION EMERGENCY AIRFIELD LIGHTING SYSTEM (NEALS)**

- Submit NEALS RFP
- Award NEALS SDD Contract
- Initiate NEALS T&E



**BASE OPERATIONS SUPPORT ASSESSMENT MODEL (BOSAM) (CONGRESSIONAL ADD)**

- Completed Pre-Award Activities
- Awarded Development Contract



**UNCLASSIFIED**

Exhibit R-4a, RDT&E Schedule Detail		DATE <b>February 2005</b>		
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE		
<b>05 System Development and Demonstration (SDD)</b>	<b>0604617F Agile Combat Support</b>	<b>2895 CE Readiness</b>		
<b>(U) <u>Schedule Profile</u></b>	<b><u>FY 2004</u></b>	<b><u>FY 2005</u></b>	<b><u>FY 2006</u></b>	<b><u>FY 2007</u></b>
(U) ALL-PURPOSE REMOTE TRANSPORT SYSTEM (ARTS)				
(U) Awarded ARTS ACS Production Contract	3Q			
(U) Initiated T&E for ARTS Box Rake	4Q			
(U) Complete T&E for ARTS Box Rake			1Q	
(U) Award ARTS Box Rake Procurement Option			2Q	
(U) Complete Data Feedback System (DFS) T&E		2Q		
(U) Award DFS Procurement Option		3Q		
(U) Initiate T&E for Submunitions Clearance System (SCS)		3Q		
(U) Complete T&E for SCS			2Q	
(U) Award SCS Procurement Option			3Q	
(U) RAPID PARKING RAMP EXPANSION (RPRE)				
(U) Complete FY04 RPRE Activity	4Q			
(U) Complete FY05 RPRE Pre-SDD activities		4Q		
(U) RPRE Milestone B Decision			1Q	
(U) Award SDD Contract			1Q	
(U) Initiate RPRE T&E			2Q	
(U) LARGE SHELTER SYSTEM (LSS)				
(U) Awarded LSS SDD Contract	3Q			
(U) Started LSS SDD	4Q			
(U) Complete LSS T&E			1Q	
(U) LSS Milestone C Decision			1Q	
(U) LSS First Delivery			4Q	
(U) MULTIMEDIA TRAINING SYSTEMS (MTS)				
(U) Completed FY04 MTS Projects	3Q			
(U) Complete FY05 MTS Projects		3Q		
(U) Complete FY06 MTS Projects			3Q	
(U) Complete FY07 MTS Projects				3Q
(U) COMMERCIAL TECHNOLOGY EXPLOITATION (CTE)				
(U) Completed FY04 CTE Product Evaluations		1Q		
(U) Complete FY05 CTE Product Evaluations		4Q		
(U) Complete FY06 CTE Product Evaluations			4Q	
(U) Complete FY07 CTE Product Evaluations				4Q
(U) MODULAR AUTOMATED ROBOTICS SYSTEM (MARS)				

**UNCLASSIFIED**

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>		DATE <b>February 2005</b>
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE
<b>05 System Development and Demonstration (SDD)</b>	<b>0604617F Agile Combat Support</b>	<b>2895 CE Readiness</b>
(U) Submit MARS RFP		4Q
(U) Award MARS SDD		1Q
(U) Initiate MARS T&E		2Q
(U) NEXT-GENERATION EMERGENCY AIRFIELD LIGHTING SYTEM (NEALS)		
(U) Submit NEALS RFP		1Q
(U) Award NEALS SDD Contract		2Q
(U) Initiate NEALS T&E		3Q
(U) NEALS MS C Decision		
(U) BASE OPERATIONS SUPPORT ASSESSMENT MODEL (BOSAM) (CONGRESSIONAL ADD)		
(U) Completed Pre-Award Activities	4Q	
(U) Awarded Development Contract		1Q

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>					PE NUMBER AND TITLE <b>0604617F Agile Combat Support</b>			PROJECT NUMBER AND TITLE <b>4910 Aeromedical Readiness</b>		
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	14.585	12.564	4.132	3.564	4.165	2.801	2.906	3.018	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

In FY04, Project 4910 received two Congressional Adds in the amounts of \$2.8M and \$2.1M, respectively, for the Deployable Oxygen System (DOS) program and Nano-Technology to produce sterile water.

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

This program provides tactical and strategic aeromedical evacuation systems, automated information systems, and medical treatment equipment to meet unique Air Force medical readiness and operational requirements.

The Agile Combat Support program is in RDT&E Budget Activity 5 - System Development and Demonstration (SDD) because it supports development, testing and evaluation of materials and equipment for contingency basing, detection and handling of explosive ordnance, tactical shelters, and aeromedical evacuation 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 operation support, market research, and acquisition strategy for deployable oxygen systems	0.335	0.535	0.000	0.000
(U) Continue development of oxygen systems to meet deployable oxygen requirements	2.800	1.969	2.455	2.000
(U) Conduct foundational studies and analyses of Nano-Technology to produce sterile water	2.100	0.000	0.000	0.000
(U) Conduct analysis and begin SDD activities for Expeditionary Trauma Resuscitation			1.410	1.293
(U) Congressional add for Advanced Casualty Care for AFSOC		1.000		
(U) Initiate Congressional add for AERO Medical Readiness Water Sterilization (Continuation of FY04 Congressional add for Nano-technology to produce sterile water)		2.800		
(U) Congressional add for Biostatic Protective Clothing for AFSOC		1.000		
(U) Congressional add for Isolation Units with Reactive Nanoparticle Materials		4.200		
(U) Aeromedical Systems Analysis - Conduct foundational studies and analyses, requirements analyses, and product demonstrations to meet operational needs, and define acquisition strategies and baselines for potential system solutions to Air Force Medical Service materiel needs	9.350	1.060	0.267	0.271
(U) Total Cost	14.585	12.564	4.132	3.564

**(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, Other Base Maintenance and Support Equipment (WSC 845060)	33.720	13.965	14.695	16.998	16.930	18.802	19.239	16.622	Continuing	TBD

Exhibit R-2a, RDT&E Project Justification

DATE

February 2005

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604617F Agile Combat Support

PROJECT NUMBER AND TITLE

4910 Aeromedical Readiness

(U) D. Acquisition Strategy

All major projects are awarded under best-value competitive solicitation.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2005**

BUDGET ACTIVITY										PE NUMBER AND TITLE			PROJECT NUMBER AND TITLE		
<b>05 System Development and Demonstration (SDD)</b>										<b>0604617F Agile Combat Support</b>			<b>4910 Aeromedical Readiness</b>		
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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>															
Deployable Oxygen Systems (DOS)	N/A		2.087	2.545		0.535		0.000		0.000		0.000	5.167	2.087	
Deployable Oxygen Generation System - Small, medium & large gas generators and storage units	TBD	TBD	0.000	0.000		1.969		2.015		1.740		Continuing	TBD	TBD	
Nano-Technology to produce sterile water	TIA	Seldon Labs, VT	0.000	2.100	May-04	0.000						0.000	2.100	2.100	
Expeditionary Trauma Resuscitation	TBD	TBD	0.000					1.410		1.293		Continuing	TBD	TBD	
Assist Surgeon General in developing a capability for Epidemic Outbreak Surveillance	MIPR	USAMRAA, Ft Detrick, MD	0.000	9.115	Jun-04	0.000		0.000		0.000		0.000	9.115	9.115	
Congressional add for Advanced Casualty Care for AFSOC	TBD	TBD	0.000	0.000		1.000		0.000		0.000		0.000	1.000	TBD	
Congressional add for AERO Medical Readiness Water Sterilization	TBD	TBD	0.000	0.000		2.800		0.000		0.000		0.000	2.800	TBD	
Congressional add for Biostatic Protective Clothing	TBD	TBD	0.000	0.000		1.000		0.000		0.000		0.000	1.000	TBD	
Congressional add for Isolation Units With Reactive Nanoparticle Materials	TBD	TBD	0.000	0.000		4.200		0.000		0.000		0.000	4.200	TBD	
Aeromedical Systems Analysis to include Analysis of Solutions for planned aeromedical and Surgeon General initiatives	N/A	N/A	0.000	0.235		0.331							0.566		
Subtotal Product Development			2.087	13.995		11.835		3.425		3.033		Continuing	TBD	TBD	
Remarks:															
(U) <u>Support</u>															
Technical Engineering And Management Support (TEAMS)	Delivery Order			0.340		0.320		0.330		0.200		Continuing	TBD		
Program Management Support & Operations	Various			0.200		0.359		0.327		0.331		Continuing	TBD		
None.													0.000		
Subtotal Support			0.000	0.540		0.679		0.657		0.531		Continuing	TBD	0.000	
Remarks:															
(U) <u>Test &amp; Evaluation</u>															
DOS Test and Evaluation				0.050		0.050		0.050				Continuing	TBD		
None.													0.000		
Subtotal Test & Evaluation			0.000	0.050		0.050		0.050		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			2.087	14.585		12.564		4.132		3.564		Continuing	TBD	TBD	
Project 4910															

R-1 Shopping List - Item No. 82-14 of 82-16

Exhibit R-3 (PE 0604617F)

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604617F Agile Combat Support

PROJECT NUMBER AND TITLE

4910 Aeromedical Readiness

### Aeromedical Readiness Schedule

PE 0604617F Agile Combat Support  
BPAC 654910 Aeromedical Readiness

**(U) Schedule Profile**

**DEPLOYABLE OXYGEN SYSTEM (DOS)**

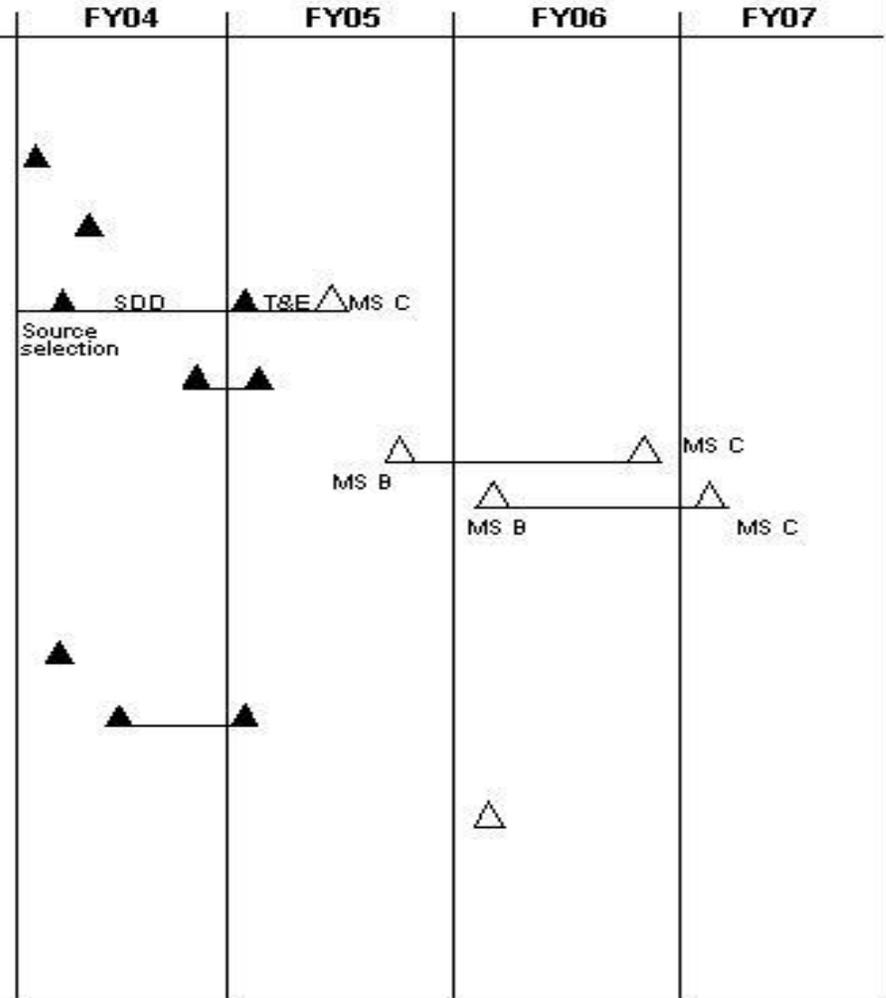
- Completed Deployable Oxygen Gaseous Oxygen Generator (DOGS) limited procurement (40 units)
- Completed Next-generation Patient Therapeutic Liquid Oxygen (NPTLOX) limited procurement (25 units)
- Deployable Liquid Oxygen System (DOLS) prototype development
- Conduct analysis of solutions for oxygen systems to meet deployable oxygen requirements
  - Small oxygen generator and storage unit
  - Medium oxygen generator and storage unit
  - Large oxygen generator and storage unit (MS B, 2Q FY08)

**NANO-TECHNOLOGY TO PRODUCE STERILE WATER**

- Award Technology Insertion Agreement (TIA)
- Deliver 50 Combat Straws and conduct Military Utility Assessment

**EXPEDITIONARY TRAUMA RESUSCITATION**

- Conduct MS B/C decision based on technology maturation



**UNCLASSIFIED**

Exhibit R-4a, RDT&E Schedule Detail		DATE <b>February 2005</b>		
BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0604617F Agile Combat Support</b>	PROJECT NUMBER AND TITLE <b>4910 Aeromedical Readiness</b>		
	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) <b>Schedule Profile</b>				
(U) DEPLOYABLE OXYGEN SYSTEMS				
(U) -Completed Deployable Gaseous Oxygen Generator (DOGS) limited production	1Q			
(U) -Completed Next-generation Patient Therapeutic Liquid Oxygen (NPTLOX) production	2Q			
(U) -Began Deployable Oxygen Liquification System (DOLS) prototype development	2Q			
(U) -Complete DOLS prototype development		1Q		
(U) -Conduct concept analyses for development of oxygen systems to meet deployment requirements	4Q			
(U) -Conduct Milestone B for small oxygen generator and storage unit		3Q		
(U) -Conduct Milestone C for small oxygen generator and storage unit				4Q
(U) -Conduct Milestone B for medium oxygen generator and storage unit			1Q	
(U) -Conduct Milestone C for medium oxygen generator and storage unit				1Q
(U) NANO-TECHNOLOGY TO PRODUCE STERILE WATER				
(U) -Began Technology Insertion Agreement (TIA) for Nano-Technology to produce sterile water	1Q			
(U) -Complete Technology Insertion Agreement (TIA) for Nano-Technology to produce sterile water		2Q		
(U) EXPEDITIONARY TRAUMA RESUSCITATION				
(U) -Conduct Milestone B/C decision dependent upon technology maturation			1Q	

**UNCLASSIFIED**

PE NUMBER: 0604618F  
 PE TITLE: Joint Direct Attack Munition

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604618F Joint Direct Attack Munition</b>
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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	35.984	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	410.414
3890 Joint Direct Attack Munitions	35.984	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	410.414

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

The Joint Direct Attack Munition (JDAM) is a joint Air Force/Navy program with the Air Force as the lead service. Designated ACAT 1C, this program upgrades the existing inventory of general purpose bombs (MK-84, BLU-109, MK-83/BLU-110 and MK-82/BLU-111) by integrating the bombs with a guidance kit consisting of a Global Positioning System aided Inertial Navigation System (GPS/INS). JDAM provides an accurate, adverse weather capability. JDAM is integrated with the B-52H, B-2A, B-1B, F-15E, F-16C/D, F-14B/D, and F/A-18C/D/E/F aircraft. Follow-on integration with the F/A-22, F-117A, A/OA-10, AV-8B, F-35 are in progress. Follow-on integration efforts are planned for MQ-9 (Predator), and X-45C (J-UCAS). JDAM Low Rate Initial Production (LRIP) began in FY97 and Full Rate Production (MK-84 and BLU-109) began in FY01. The development effort to integrate the JDAM guidance kits on the MK-82 completed in Dec 03 with production beginning in FY03. The JDAM GPS Selective Availability Anti-Spoofing Module (SAASM) development program with an integrated Anti-Jam capability (SAASM/AJ) began in Feb 03. SAASM capability is scheduled to be delivered in FY06 with Lot 9 tailkits. A redesign effort for the Joint Programmable Fuze (JPF) began Mar 01 to improve high altitude bomber capability. This fuze is a multi-function unitary fuze developed for JDAM and other conventional inventory weapons. An alternate fuze risk reduction effort started in FY03 to meet JDAM Operational Requirements Document (ORD) fuze requirements, as a backup to the JPF development program.

This program is funded in Budget Activity 5, SDD, due to its focus on devising an affordable design and manufacturing process.

**(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	35.159			
(U) Current PBR/President's Budget	35.984	0.000		
(U) Total Adjustments	0.825	0.000		
(U) Congressional Program Reductions				
Congressional Rescissions				
Congressional Increases				
Reprogrammings	1.887			
SBIR/STTR Transfer	-1.062			
(U) <u>Significant Program Changes:</u>				

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>							PE NUMBER AND TITLE <b>0604618F Joint Direct Attack Munition</b>		PROJECT NUMBER AND TITLE <b>3890 Joint Direct Attack Munitions</b>	
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
3890 Joint Direct Attack Munitions	35.984	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	410.414
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

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

The Joint Direct Attack Munition (JDAM) is a joint Air Force/Navy program with the Air Force as the lead service. Designated ACAT 1C, this program upgrades the existing inventory of general purpose bombs (MK-84, BLU-109, MK-83/BLU-110 and MK-82/BLU-111) by integrating the bombs with a guidance kit consisting of a Global Positioning System aided Inertial Navigation System (GPS/INS). JDAM provides an accurate, adverse weather capability. JDAM is integrated with the B-52H, B-2A, B-1B, F-15E, F-16C/D, F-14B/D, and F/A-18C/D/E/F aircraft. Follow-on integration with the F/A-22, F-117A, A/OA-10, AV-8B, F-35 are in progress. Follow-on integration efforts are planned for MQ-9 (Predator), and X-45C (J-UCAS). JDAM Low Rate Initial Production (LRIP) began in FY97 and Full Rate Production (MK-84 and BLU-109) began in FY01. The development effort to integrate the JDAM guidance kits on the MK-82 completed in Dec 03 with production beginning in FY03. The JDAM GPS Selective Availability Anti-Spoofing Module (SAASM) development program with an integrated Anti-Jam capability (SAASM/AJ) began in Feb 03. SAASM capability is scheduled to be delivered in FY06 with Lot 9 tailkits. A redesign effort for the Joint Programmable Fuze (JPF) began Mar 01 to improve high altitude bomber capability. This fuze is a multi-function unitary fuze developed for JDAM and other conventional inventory weapons. An alternate fuze risk reduction effort started in FY03 to meet JDAM Operational Requirements Document (ORD) fuze requirements, as a backup to the JPF development program.

This program is funded in Budget Activity 5, SDD, due to its focus on devising an affordable design and manufacturing process.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Perform test effort on JDAM with integrated SAASM and anti-jam capabilities for the JDAM receiver.	6.637			
(U) Provide support and management tasks to coordinate the program activities of the prime contractor and various organizations.	1.811			
(U) JDAM software and hardware development to support SAASM integration effort and anti-jam development and integration. Also includes operational analysis and testing to evaluate future JDAM enhancements.	27.536			
(U) Total Cost	35.984	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>Complete</u>							
(U) Procurement of Ammunition, Air Force, JDAM, Appn. 3011, PE 0207583F	424.389	514.786	223.285	229.103	218.475	267.031	137.667	104.963	Continuing	TBD
(U) (U) Procurement of Project 3890	0.143	0.000	0.000	0.105	0.000	0.000			Continuing	TBD

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2005

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604618F Joint Direct Attack Munition

PROJECT NUMBER AND TITLE

3890 Joint Direct Attack Munitions

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

Ammunition, Air Force, Seek  
Eagle, Appn. 3011, PE  
0207590F

**(U) D. Acquisition Strategy**

The contract for the JDAM MK-82 effort is Cost Plus Award Fee (CPAF). The JPF effort is a fixed price incentive fee (FPIF) contract. The SAASM/Anti-Jam effort was awarded as a Cost Plus Award Fee (CPAF) contract. The Alternate Fuze risk reduction effort is a Cost Plus Fixed Fee (CPFF) 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			
05 System Development and Demonstration (SDD)						0604618F Joint Direct Attack Munition					3890 Joint Direct Attack Munitions			
(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>														
Prime Contractors Boeing and Lockheed Martin FY94/95 Only (Baseline JDAM, Mk-82, SAASM/Anti-Jam, Alternate Fuze)	C/CPAF/C PFF	Boeing (St Louis MO) and Lockheed Martin FY94/95 Only	226.016	27.536	Nov-03	0.000						0.000	253.552	253.552
Joint Programmable Fuze/Misc	FPIF	Dayron/Kaman (Orlando, FL)	8.229										8.229	8.229
Conceptual Studies	Various		22.428					0.000		0.000		0.000	22.428	22.428
Subtotal Product Development			256.673	27.536		0.000		0.000		0.000		0.000	284.209	284.209
Remarks:														
(U) <u>Support</u>														
Engineering Support	CPAF	Eglin AFB, FL	15.057	0.881	Nov-03							0.000	15.938	15.938
TAMS Contractor	CPAF	Eglin AFB, FL	5.190									0.000	5.190	5.190
Program Office	Various	Eglin AFB, FL	18.415	0.930								0.000	19.345	19.345
Subtotal Support			38.662	1.811		0.000		0.000		0.000		0.000	40.473	40.473
Remarks:		TAMS contractor provides management and financial support to the System Program Office (SPO).												
(U) <u>Test &amp; Evaluation</u>														
Aircraft SPO Support	Various	Eglin AFB, FL	13.905									0.000	13.905	13.905
Flight Testing	Various	Eglin AFB, FL/Edwards AFB and China Lake, CA/Hill AFB, UT	42.552	6.637								0.000	49.189	49.189
Ground Testing	Various	Eglin AFB, FL/China Lake, CA	14.983									0.000	14.983	14.983
JPF Wind Tunnel Testing	TBD	Arnold Engineering Development Center, TN	3.320										3.320	3.320
Government Furnished Equipment (GFE)	Various	N/A	4.335										4.335	4.335
Subtotal Test & Evaluation			79.095	6.637		0.000		0.000		0.000		0.000	85.732	85.732
Project 3890														
			R-1 Shopping List - Item No. 83-4 of 83-7										Exhibit R-3 (PE 0604618F)	

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2005**

BUDGET ACTIVITY

**05 System Development and Demonstration (SDD)**

PE NUMBER AND TITLE

**0604618F Joint Direct Attack Munition**

PROJECT NUMBER AND TITLE

**3890 Joint Direct Attack Munitions**

Remarks:									
(U) Total Cost	374.430	35.984	0.000	0.000	0.000	0.000	0.000	410.414	410.414

**Exhibit R-4, RDT&E Schedule Profile**

DATE

**February 2005**

BUDGET ACTIVITY

**05 System Development and Demonstration (SDD)**

PE NUMBER AND TITLE

**0604618F Joint Direct Attack Munition**

PROJECT NUMBER AND TITLE

**3890 Joint Direct Attack Munitions**

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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>		DATE <b>February 2005</b>
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BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0604618F Joint Direct Attack Munition</b>	PROJECT NUMBER AND TITLE <b>3890 Joint Direct Attack Munitions</b>
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<b>(U) <u>Schedule Profile</u></b>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) MK-82 Developmental Test (DT) Flight Test Finish	1Q			
(U) JPF Redesign/Testing Finish	2Q			
(U) SAASM/Anti-Jam Flight Test Start	3Q			
(U) Alternate Fuze Risk Reduction Effort Complete	3Q			
(U) AF MK-82 OT Flight Test Complete	4Q			

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PE NUMBER: 0604706F  
 PE TITLE: Life Support Systems

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604706F Life Support Systems</b>
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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	6.352	11.330	7.315	8.100	5.561	4.904	3.713	3.773	Continuing	TBD
412A Life Support Systems	6.352	11.330	7.315	8.100	5.561	4.904	3.713	3.773	Continuing	TBD

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

This program provides for development of life support equipment and subsystems to satisfy operational command requirements for improved life support capability. There are currently two main programs/projects in this PE. (1) Aircrew Laser Eye Protection (ALEP) provides aircrews with eye protection against a variety of laser devices which could cause temporary and permanent loss of vision. (2) ACES II Ejection Seat encompasses Structural Upgrades, Modularity Upgrades, Digital Recover Sequencer, and Preplanned Product Improvements (P3I). There is one new start in this PE beginning in FY06: Active Noise Reduction (ANR) for aircrew helmets. This PE also provides for the continuing development and integration of aircrew protection systems and subsystems for aircrew operations, escape and descent, and survival and recovery such as, but not limited to, the following: fight helmets, oxygen breathing equipment for aviators, survival radio support equipment, night vision devices, active/passive noise reduction devices, aircraft seating and parachutes. Program management support includes task to assess deficiencies of currently fielded equipment, provide for the transition of new technology into development program/projects, and support all current life support programs. Program is in Budget Activity 5 because projects are in Acquisition Phase B, 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	5.026	6.630	6.414	6.085
(U) Current PBR/President's Budget	6.352	11.330	7.315	8.100
(U) Total Adjustments	1.326	4.700		
(U) Congressional Program Reductions			-0.100	
Congressional Rescissions				
Congressional Increases			4.800	
Reprogrammings	1.478			
SBIR/STTR Transfer	-0.152			

**(U) Significant Program Changes:**

FY 2005 Congressional Adds: \$2.0 for Lower Anti-G Garment; \$1.8M for Integrated Mission Helmet; and \$1.0M for ACES II Ejection Seat Improvement  
 FY 2006 New Start - Active Noise Reduction for Crew Helmets

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>							PE NUMBER AND TITLE <b>0604706F Life Support Systems</b>		PROJECT NUMBER AND TITLE <b>412A Life Support Systems</b>	
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
412A Life Support Systems	6.352	11.330	7.315	8.100	5.561	4.904	3.713	3.773	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 development of life support equipment and subsystems to satisfy operational command requirements for improved life support capability. There are currently two main programs/projects in this PE. (1) Aircrew Laser Eye Protection (ALEP) provides aircrews with eye protection against a variety of laser devices which could cause temporary and permanent loss of vision. (2) ACES II Ejection Seat encompasses Structural Upgrades, Modularity Upgrades, Digital Recover Sequencer, and Preplanned Product Improvements (P3I). There is one new start in this PE beginning in FY06: Active Noise Reduction (ANR) for aircrew helmets. This PE also provides for the continuing development and integration of aircrew protection systems and subsystems for aircrew operations, escape and descent, and survival and recovery such as, but not limited to, the following: fight helmets, oxygen breathing equipment for aviators, survival radio support equipment, night vision devices, active/passive noise reduction devices, aircraft seating and parachutes. Program management support includes task to assess deficiencies of currently fielded equipment, provide for the transition of new technology into development program/projects, and support all current life support programs. Program is in Budget Activity 5 because projects are in Acquisition Phase B, 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) Congressional Add for ACES II Ejection Seat Improvements	4.000			
(U) Aircrew Laser Eye Protection (ALEP) Block 2 SDD	0.100	5.168	4.815	4.252
(U) Active Noise Reduction for Crew Helmets SDD			1.140	2.130
(U) Congressional Add for Lower Anti-G Garment		1.605		
(U) Congressional Add for ACES II Safety Improvements		0.925		
(U) Congressional Add for Integrated Mission Helmet		1.713		
(U) Congressional Add for Anti-Exposure Suit (reprogrammed from PE 0702833F)	0.875			
(U) Anti-Exposure Suit SDD (replace 74/16/P)			0.125	0.328
(U) Program Management /Technical Support/Travel/Test & Evaluation Support	0.994	1.919	1.235	1.390
(U) Panoramic Night Vision Goggles	0.383			
(U) Total Cost	6.352	11.330	7.315	8.100

**(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>Complete</u>							
(U) Items Less Than \$5M (Safety Equipment) PE 0702833F	2.100	1.800								3.900
BPAC 842990:Advanced Technology Anti-Gravity Suit										

Exhibit R-2a, RDT&E Project Justification

DATE

February 2005

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0604706F Life Support Systems</b>	PROJECT NUMBER AND TITLE <b>412A Life Support Systems</b>
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(U) **C. Other Program Funding Summary (\$ in Millions)**

(ATAGS)

	2.920	5.683	6.539	4.823		19.965
(U) Items Less Than \$5M (Safety Equipment) PE 0702833F BPAC 842990: Aircrew Laser Eye Protection (ALEP)						
(U) Items Less Than \$5M (Safety Equipment) PE 0702833F BPAC 842140: ACES II Ejection Seat Upgrades	1.728	4.047	4.400	4.500	4.500	19.175

(U) **D. Acquisition Strategy**

Acquisition strategy is carried out at the project level.

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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				
<b>05 System Development and Demonstration (SDD)</b>				<b>0604706F Life Support Systems</b>						<b>412A Life Support Systems</b>				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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>														
Aircrew Laser Eye Protection	TBD	TBD		0.100		5.168		4.815		4.252			14.335	
ACES II	CFFP	Goodrich, Phoenix , AZ		4.000	Aug-04								4.000	
Active Noise Reduction Helmet	TBD	TBD						1.140		2.130			3.270	
Anti-Exposure Suits	TBD	TBD		0.875				0.125		0.328			1.328	
ACES II Safety Improvements	TBD	TBD				0.925							0.925	
Lower Anti-G Garment	TBD	TBD				1.605							1.605	
Integrated Mission Helmet	TBD	TBD				1.713							1.713	
Panoramic Night Vision Goggles				0.383									0.383	
Subtotal Product Development			0.000	5.358		9.411		6.080		6.710		0.000	27.559	0.000
Remarks:														
(U) <u>Support</u>														
Program Management Support				0.215		0.499		0.255		0.355		Continuing	TBD	
Travel				0.080		0.120		0.080		0.085		Continuing	TBD	
Tech Eng & Acq				0.699		0.900		0.800		0.850		Continuing	TBD	
Subtotal Support			0.000	0.994		1.519		1.135		1.290		Continuing	TBD	0.000
Remarks:														
(U) <u>Test &amp; Evaluation</u>														
AFRL						0.400		0.100		0.100			0.600	
Subtotal Test & Evaluation			0.000	0.000		0.400		0.100		0.100		0.000	0.600	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	6.352		11.330		7.315		8.100		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY

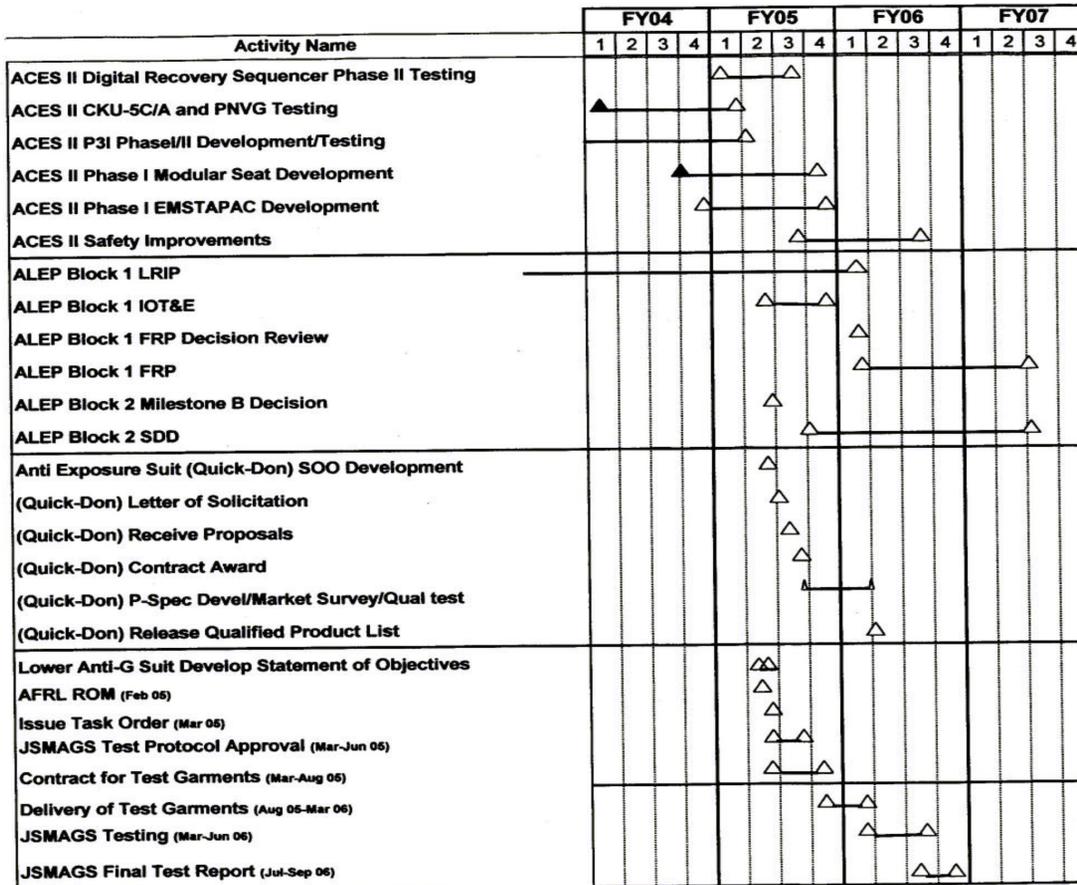
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604706F Life Support Systems

PROJECT NUMBER AND TITLE

412A Life Support Systems



UNCLASSIFIED

Exhibit R-4a, RDT&E Schedule Detail		DATE February 2005		
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE		
<b>05 System Development and Demonstration (SDD)</b>	<b>0604706F Life Support Systems</b>	<b>412A Life Support Systems</b>		
<b>(U) Schedule Profile</b>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) ACES II Digital Recovery Sequencer Phase II Testing		3Q		
(U) ACES II Task Completion for CKU-5A and PNVG		1Q		
(U) ACES II P3I Phase I/II Task Completion		2Q		
(U) ACES II Modular Seat Development Contract Award		4Q		
(U) ACES II EMSTAPAC Development Contract Award		4Q		
(U) ACES II Safety Improvements		3Q		
(U) ALEP Block 1 IOT&E Completion		3Q		
(U) ALEP Block 1 FRP Decision Review			1Q	
(U) ALEP Block 1 FRP			1Q	
(U) ALEP Block 2 Milestone B Decision		2Q		
(U) ALEP Block 2 SDD		3Q		
(U) Anti Exposure Suit (Quick-Don) SOO Development		2Q		
(U) (Quick-Don) Letter of Solicitation		2-3Q		
(U) (Quick-Don) Receive Proposals		3Q		
(U) (Quick-Don) Contract Award		2Q		
(U) (Quick-Don) P-Spec Level/Market Survey/Qual test		3Q		
(U) (Quick-Don) Release Qualified Product List			1Q	
(U) Lower Anti-G Suit Develop Statement of Objectives (Feb-Mar 05)		2Q		
(U) AFRL ROM (Feb 05)		2Q		
(U) Issue Task Order (Mar 05)		2Q		
(U) JSMAGS Test Protocol Approval (Mar-Jun 0		2-3Q		
(U) Contract for Test Garments (Mar-Aug 05)		2-4Q		
(U) Delivery of Test Garments		4Q		
(U) JSMAGS Testing (Mar-Jun 06		2-3Q		
(U) JSMAGS Final Test Report (Jul-Sep 06)		3-4Q		

**UNCLASSIFIED**

PE NUMBER: 0604735F

PE TITLE: Combat Training Ranges

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604735F Combat Training Ranges</b>
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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	24.077	21.326	6.122	15.092	18.459	18.575	18.854	18.922	Continuing	TBD
2286 Combat Training Range Equipment	24.077	21.326	6.122	15.092	18.459	18.575	18.854	18.922	Continuing	TBD

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

The Combat Training Range (CTR) Program Element provides equipment and support for Air Force units and combat training ranges to support mission test, training, and evaluation of aircrews, as well as the operational testing of weapons systems and tactics under simulated combat conditions. This program element provides funding for the development of electronic, telecommunications, instrumentation equipment/systems and standards for the training ranges. Air Force P5 Combat Training System (P5CTS) is interoperable with Navy Tactical Air Combat Training System (TACTS) ranges. The P5CTS will take a phased approach to the development of improved Air Combat Training System (ACTS) capabilities for fielding to operational locations. It will provide capabilities to train aircrews in air-to-air and air-to-surface combat as well as electronic warfare. Additionally, P5CTS provides real-time monitoring and control of aircraft during large and joint force exercises, small unit training, while recording events for post-mission debrief and analysis. Other capabilities P5CTS include: real-time kill verification, system security initiatives to protect classified aircraft systems information, integration of electronics, weapon and threat simulations, ground system integration location specific architecture, internal pod replacement subsystems, integration of new Operational Flight Programs, and the development of solutions to meet changing data link standards. Other efforts included in this program element are: the development of Next Generation Range Instrumentation (NexRI) standards to facilitate live/virtual connectivity and standardization across all platforms to include the F/A-22 and F-35, Joint Strike Fighter (JSF). The NexRI initiative, started in FY04, uses a Air Force business approach to produce and test standards for new range systems to facilitate interoperability for joint training exercises. Another effort is to development/upgrade the Nellis Air Combat Training System (NACTS) Range to support Red Flag, Coalition Flag, USAF Fighter Weapons School training and tactics development. Another effort is aircraft-to-pod interfaces and software interoperability among service ranges and aircraft platforms.

This program element includes the development of advanced threat emitters. In FY02, the Advanced Threat Emitter System (ATES) incorporated other service requirements and evolved into the Joint Threat Emitter (JTE) system. The JTE continues the development of a comprehensive suite of threat signals for aircrew tactics and electronic combat training for simulated penetrations of hostile airspace. This program complements existing range threat simulators by emulating signals that simulate current and future air defense and threat radars. In FY04 the Threat Reaction Analysis Indicator System (TRAINS) underwent improvements to increase reliability, maintainability and availability, and to increase its functional capabilities including Reactive Threats, Deceptive Analysis and Site electronic countermeasure information database capabilities. The TRAINS is an electronic combat analysis system that is paired with the Multiple Threat Emitter System (MUTES) to provide analysis of aircraft Electronic Countermeasure (ECM) responses to threat signals.

Aerial Targets was included in this program element through FY04 and moved to PE 0305116F in FY05.

This program is in budget activity 5 - Systems Development and Demonstration because the Combat Training Ranges (CTR) Program directly contributes to the effectiveness and survivability of US combat forces by developing range instrumentation and training systems.

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2005

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604735F Combat Training Ranges

(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	24.077	18.714	17.490	17.935
(U) Current PBR/President's Budget	24.077	21.326	6.122	15.092
(U) Total Adjustments	0.000	2.612		
(U) Congressional Program Reductions				
Congressional Rescissions		-0.188		
Congressional Increases		2.800		
Reprogrammings				
SBIR/STTR Transfer				
(U) <b><u>Significant Program Changes:</u></b>				
FY06: Reduced for program realignment and higher AF priorities				
FY07: Reduced for higher AF priorities				

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>					PE NUMBER AND TITLE <b>0604735F Combat Training Ranges</b>			PROJECT NUMBER AND TITLE <b>2286 Combat Training Range Equipment</b>		
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
2286 Combat Training Range Equipment	24.077	21.326	6.122	15.092	18.459	18.575	18.854	18.922	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

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

The Combat Training Range (CTR) Program Element provides equipment and support for Air Force units and combat training ranges to support mission test, training, and evaluation of aircrews, as well as the operational testing of weapons systems and tactics under simulated combat conditions. This program element provides funding for the development of electronic, telecommunications, instrumentation equipment/systems and standards for the training ranges. Air Force P5 Combat Training System (P5CTS) is interoperable with Navy Tactical Air Combat Training System (TACTS) ranges. The P5CTS will take a phased approach to the development of improved Air Combat Training System (ACTS) capabilities for fielding to operational locations. It will provide capabilities to train aircrews in air-to-air and air-to-surface combat as well as electronic warfare. Additionally, P5CTS provides real-time monitoring and control of aircraft during large and joint force exercises, small unit training, while recording events for post-mission debrief and analysis. Other capabilities P5CTS include: real-time kill verification, system security initiatives to protect classified aircraft systems information, integration of electronics, weapon and threat simulations, ground system integration location specific architecture, internal pod replacement subsystems, integration of new Operational Flight Programs, and the development of solutions to meet changing data link standards. Other efforts included in this program element are: the development of Next Generation Range Instrumentation (NexRI) standards to facilitate live/virtual connectivity and standardization across all platforms to include the F/A-22 and F-35, Joint Strike Fighter (JSF). The NexRI initiative, started in FY04, uses a Air Force business approach to produce and test standards for new range systems to facilitate interoperability for joint training exercises. Another effort is to development/upgrade the Nellis Air Combat Training System (NACTS) Range to support Red Flag, Coalition Flag, USAF Fighter Weapons School training and tactics development. Another effort is aircraft-to-pod interfaces and software interoperability among service ranges and aircraft platforms.

This program element includes the development of advanced threat emitters. In FY02, the Advanced Threat Emitter System (ATES) incorporated other service requirements and evolved into the Joint Threat Emitter (JTE) system. The JTE continues the development of a comprehensive suite of threat signals for aircrew tactics and electronic combat training for simulated penetrations of hostile airspace. This program complements existing range threat simulators by emulating signals that simulate current and future air defense and threat radars. In FY04 the Threat Reaction Analysis Indicator System (TRAINS) under went improvements to increase reliability, maintainability and availability, and to increase its functional capabilities including Reactive Threats, Deceptive Analysis and Site electronic countermeasure information database capabilities. The TRAINS is an electronic combat analysis system that is paired with the Multiple Threat Emitter System (MUTES) to provide analysis of aircraft Electronic Countermeasure (ECM) responses to threat signals.

Aerial Targets was included in this program element through FY04 and moved to PE 0305116F in FY05.

This program is in budget activity 5 - Systems Development and Demonstration because the Combat Training Ranges (CTR) Program directly contributes to the effectiveness and survivability of US combat forces by developing range instrumentation and training 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 Air Combat Training Systems (ACTS) funding support for Range Instrumentation Systems to	18.670	13.140	4.988	12.137

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>		DATE <b>February 2005</b>
<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604735F Combat Training Ranges</b>	<b>PROJECT NUMBER AND TITLE</b> <b>2286 Combat Training Range Equipment</b>

include the development and testing of: P5 Combat Training Systems (P5CTS) including software/hardware upgrades, and continue Joint Tactical Radio System (JTRS) compliance; aircraft/pod integration and upgrades for range applications; interoperability improvements with existing Air Force and Navy ranges including software, upgrades, and weapons simulations; Combat Training Range (CTR) programs basic operating support, system acquisition and engineering support; upgrades to the Nellis Air Combat Training System (NACTS) including integration of tactical information and ground tracking (FY03 and FY04); and Next Generation Range Instrumentation (NexRI) standards (first year FY04).

(U) Continue ACTS funding support for Range Threat Systems which includes the development and testing of the Joint Threat Emitter (JTE) System, the Threat Reaction Analysis Indicator System (TRAINS), and program operating, acquisition and engineering support.	5.407	5.386	1.134	2.955
(U) Virtual TeleOperation for Unmanned Aerial Vehicle		2.800		
(U) Total Cost	24.077	21.326	6.122	15.092

(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>Complete</u>							
Other Procurement, AF,										
(U) Combat Training Ranges, 3080 BP83	80.691	31.789	15.021	14.774	19.452	19.599	19.856	20.282	Continuing	TBD
(U) Initial Spares, 3080 BP86	0.768	0.780	0.803	0.832	0.862	0.884	0.906	0.921	Continuing	TBD
(U) Total OPAF, PEC 0207429F	81.459	32.569	15.824	15.606	20.314	20.483	20.762	21.203	Continuing	TBD
Aircraft Procurement, AF,										
(U) Combat Training Ranges, 3010 BP19	11.840	14.158	14.105	14.542	15.499	15.896	16.228	16.356	Continuing	TBD
(U) Initial Spares, 3010 BP16	1.082	1.164	1.428	1.463	1.548	1.598	1.638	1.657	Continuing	TBD
(U) Total APAF, PEC 0207429F	12.922	15.322	15.533	16.005	17.047	17.494	17.866	18.013	Continuing	TBD

(U) **D. Acquisition Strategy**

The acquisition strategy is competitive, with cost plus and 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			
<b>05 System Development and Demonstration (SDD)</b>										<b>0604735F Combat Training Ranges</b>		<b>2286 Combat Training Range Equipment</b>			
(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>															
Cubic Defense (NACTS)	C/CPAF/FP		33.480	3.765	Jun-04	0.000		0.000		0.000			37.245		
Sverdrup (RITS)	CPAF		2.530	0.149	Jan-04	0.155	Jan-05	0.000		0.155	Jan-07	Continuing	TBD		
Cubic Defense (P5CTS)	CPIF/FFP		0.395	1.866	Mar-04	3.430	Feb-05	2.041	Feb-06	2.160	Feb-07	Continuing	TBD		
Modern Technologies Corp (JTE )	CPAF		2.700	4.770	Mar-04	4.631	Mar-05	0.600	Mar-06	2.181	Mar-07	Continuing	TBD		
E W Systems (TRAINS)	FFP		0.000	0.356	Mar-04	0.369	Mar-05	0.369	Mar-06	0.369	Mar-07	Continuing	TBD		
Joint Interoperability	Navy Contract		5.947	3.165	Feb-04	3.555	Feb-05	0.873	Feb-06	3.700	Feb-07	Continuing	TBD		
Stanford Research International (NexRI)	FFP		0.000	3.628	Apr-04	1.000	Apr-05	0.000		0.950	Apr-07	Continuing	TBD		
Aircraft Interface	Through MOAs with ALCs & Aircraft SPO Contractor s		5.549	1.199	Apr-04	2.164	Apr-05	1.074	Apr-06	2.220	Apr-07	Continuing	TBD		
Composite Engineering Inc. (AFSAT PI)	FFP		0.000	1.575	Apr-04	0.000		0.000		0.000			1.575		
University of Iowa (Virtual Teleoperation for Unmanned Aerial Vehicle)	TBD		0.000	0.000		2.800		0.000		0.000			2.800		
Subtotal Product Development			50.601	20.473		18.104		4.957		11.735		Continuing	TBD	0.000	
Remarks:															
(U) <u>Support</u>															
OO/ALC/LH, Hill AFB, UT	Various		0.879	0.281		0.386		0.165		0.405		Continuing	TBD		
AAC/YBR, Eglin AFB, FL	Various		10.715	2.306		2.836		1.000		2.952		Continuing	TBD		
AAC/YAA, Eglin AFB, FL	Various		0.371	0.219		0.000		0.000		0.000			0.590		
SAF/AQX			0.363	0.664		0.000		0.000		0.000			1.027		
Subtotal Support			12.328	3.470		3.222		1.165		3.357		Continuing	TBD	0.000	
Remarks:															
(U) <u>Test &amp; Evaluation</u>															
AAC/YBR, Eglin AFB, FL	Various		1.405	0.000		0.000		0.000		0.000		Continuing	TBD		
46 Test Wing, Eglin AFB FL	Various		0.640	0.134		0.000		0.000		0.000		Continuing	TBD		
Subtotal Test & Evaluation			2.045	0.134		0.000		0.000		0.000		Continuing	TBD	0.000	
Remarks:															
(U) Total Cost			64.974	24.077		21.326		6.122		15.092		Continuing	TBD	0.000	

Exhibit R-4, RDT&E Schedule Profile

DATE  
February 2005

BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

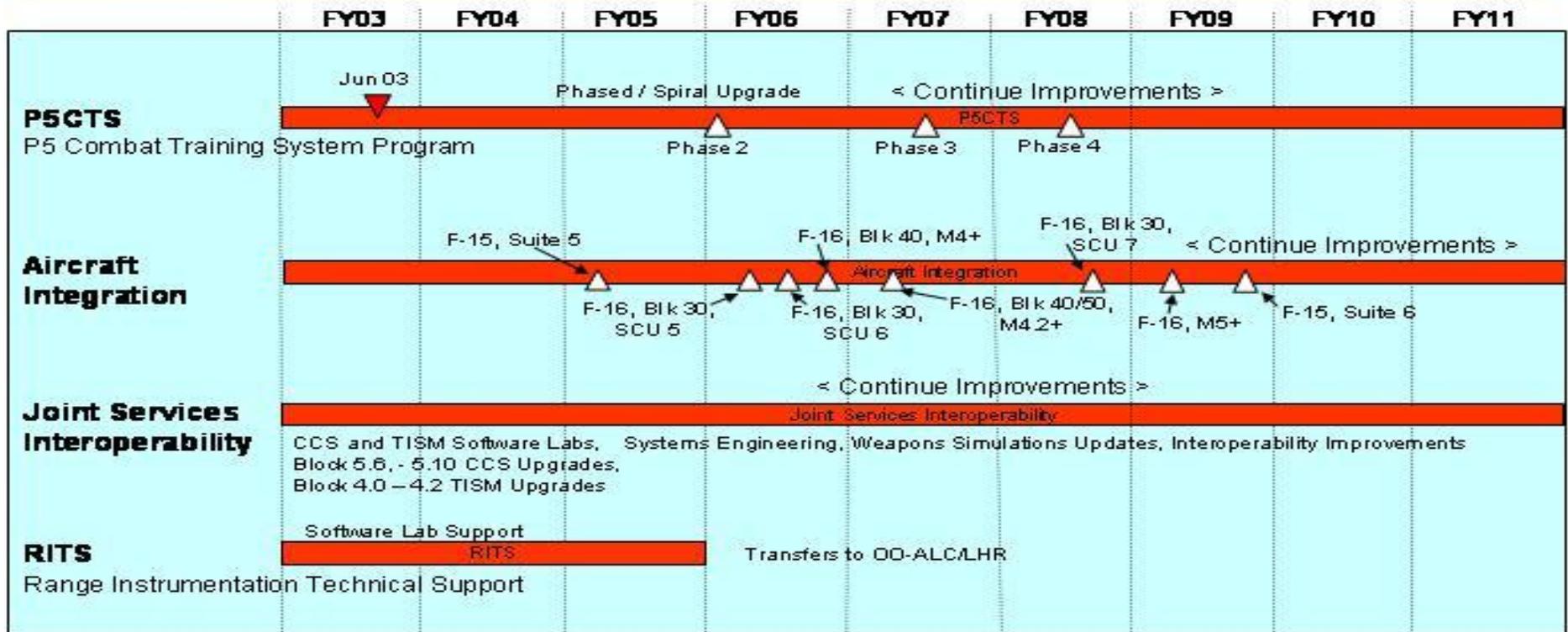
PE NUMBER AND TITLE  
0604735F Combat Training Ranges

PROJECT NUMBER AND TITLE  
2286 Combat Training Range Equipment



U.S. AIR FORCE

# CTR Schedule



Requirements Definition Actual Contract Award EMD Projected Contract Award Production Fielding Other Activity

Exhibit R-4, RDT&E Schedule Profile

DATE  
February 2005

BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE  
0604735F Combat Training Ranges

PROJECT NUMBER AND TITLE  
2286 Combat Training Range Equipment



U.S. AIR FORCE

# CTR Schedule



Exhibit R-4, RDT&E Schedule Profile

DATE  
February 2005

BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

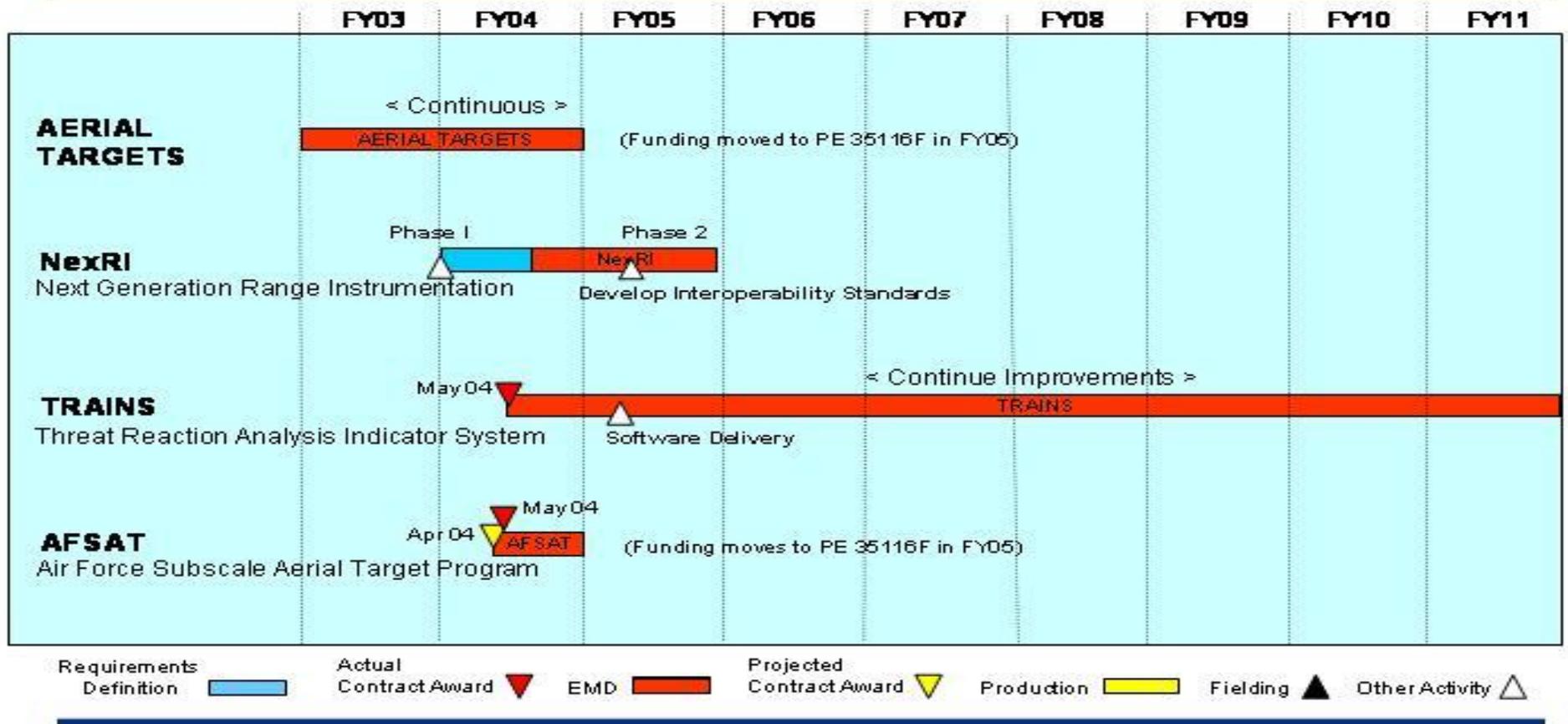
PE NUMBER AND TITLE  
0604735F Combat Training Ranges

PROJECT NUMBER AND TITLE  
2286 Combat Training Range Equipment



U.S. AIR FORCE

# CTR Schedule for Congressional Adds



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Exhibit R-4a, RDT&E Schedule Detail		DATE February 2005		
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE		
<b>05 System Development and Demonstration (SDD)</b>	<b>0604735F Combat Training Ranges</b>	<b>2286 Combat Training Range Equipment</b>		
<b>(U) Schedule Profile</b>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) P5CTS Development				
(U) -- P5 CTS Spiral Development	2Q	1-4Q	1-4Q	1-4Q
(U) -- Continue Joint Tactical Radio System (JTRS) Waveform Development	1-4Q	1-4Q	1-4Q	1-4Q
(U) Aircraft Integration Effort				
(U) -- F-15 5E Software Upgrade		2Q		
(U) -- F-15 5M Software Upgrade		2Q		
(U) -- F-16 M3.3+ Software Upgrade		2Q		
(U) -- F-16 OFP 4.1a+ Software Upgrade			2Q	
(U) -- F-16 OFP 4.2a+ Software Upgrade				3Q
(U) Joint Service Interoperability				
(U) -- Continue System Engineering Activities	1-4Q	1-4Q	1-4Q	1-4Q
(U) -- CCS Upgrades	1-3Q	1-3Q	1-3Q	1-3Q
(U) -- TISM Software Upgrades	1Q	1Q		1Q
(U) JTE Development				
(U) -- Initial Developmental Contract Award	2Q			
(U) -- Spiral Development and Continue Improvements		2Q	2Q	2Q
(U) Nellis Air Combat Training Systems (NACTS)				
(U) -- Contract Award for Spiral Development	3Q			
(U) -- NACTS Range Security activities (on-going)	1-4Q			
(U) Next Generation Range Instrumentation (NexRI)				
(U) -- Phase I Studies Complete		2Q		
(U) -- Phase II Studies Complete		4Q		
(U) Threat Reaction Analysis Indicator System (TRAINS)				
(U) -- Contract Award	3Q			
(U) -- Software Delivery		1Q		
(U) -- Continue Improvements			2Q	2Q
(U) AF Subscale Aerial Targets (AFSAT) Program (to PE 35116F in FY05)				
(U) -- Contract Award	3Q			

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**UNCLASSIFIED**

PE NUMBER: 0604740F  
 PE TITLE: Integrated Command & Control Applications

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604740F Integrated Command &amp; Control Applications</b>
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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	10.772	21.904	0.161	0.010	0.110	0.055	0.018	0.000	Continuing	TBD
2523 Product Lines	0.237	0.258	0.161	0.010	0.110	0.055	0.018	0.000	Continuing	TBD
2524 Reuse and Component Support	10.535	21.646	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

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

The goal of the Integrated Command & Control Applications (IC2A) program is to reduce the development time, costs, and risks associated with the acquisition and development of an enterprise oriented Command & Control (C2) capability by defining a reference architecture to enhance a common application use and reuse. Project 652523, Product Lines, minimizes development cost and time by defining a C2 architecture approach consistent with net-centric principles and guidance to ensure compliance and interoperability using standards based service oriented architecture components. The use of web services as a common product line on a C2 reference architecture improves software quality, interoperability and reliability while reducing fielding times and overall life cycle costs. Project 652524, Reuse and Component Support (RCS), identifies, tests, and provides reusable software components and products to the IC2A program. The RCS project developed a software reuse strategy for the Department of Defense (DoD) and is developing a Distributed Mission Interoperability Toolkit (DMIT) focused on research and development of interoperability in support of existing programs, a Congressional special interest item, based on primarily commercial off-the-shelf (COTS) products. The IC2A program has determined that over 80% of the functionality of any command center software is common to all command centers for programs using product line concepts based on a C2 reference architecture.

This program is categorized as Budget Activity (BA) 5 to reflect a program in System Demonstration and Development (SD&D).

**(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	11.105	0.258	0.161	0.264
(U) Current PBR/President's Budget	10.772	21.904	0.161	0.010
(U) Total Adjustments	-0.333	21.646		
(U) Congressional Program Reductions				
Congressional Rescissions				
Congressional Increases		21.646		
Reprogrammings				
SBIR/STTR Transfer	-0.333			

**(U) Significant Program Changes:**

In FY05 Congress added \$21.9M for JSTARS Net-Centric Enhancements using Web Services, Distributed Mission Interoperability Toolkit (DMIT), Net-Centric Information Visualization Services, Integration of Global Expeditionary Medical Services (IGAPS), Global Awareness Presentation System (GAPS), Asset Source for Software Engineering Technology eWing Program, and Air Force Electronic Systems Command/National Product Line Asset Center (NPLACE).

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>					PE NUMBER AND TITLE <b>0604740F Integrated Command &amp; Control Applications</b>			PROJECT NUMBER AND TITLE <b>2523 Product Lines</b>		
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
2523 Product Lines	0.237	0.258	0.161	0.010	0.110	0.055	0.018	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 software architecture, developed by the Product Lines Project, forms a vital component of the Integrated Command and Control Applications (IC2A) program by providing pre-defined reference architecture as a foundation for a DoD enterprise C2 capability. Using rapid prototyping techniques, a contractor can quickly tailor a reference architecture-based C2 component to the warfighter's needs and deliver an integrated, combat-ready system. All product lines and components are based on net-centric principles, service oriented architecture and Core Enterprise Services to ensure joint compliance and interoperability; make maximum use of open system architectures, industry standards, Commercial off-the-shelf (COTS) products, and government furnished equipment; and incorporate multilevel security (MLS) features. This effort ensures that components and systems are developed with a view of operating within a C2 enterprise instead of stovepipe functionality. Contractors develop and maintain a common integrated infrastructure in a collaborative, synergistic environment using validated, mature software engineering processes to help ensure the quality of the designs and components. Reference architecture based designs and tested software components reduce development costs, risks and time for the user. New technologies, capabilities, and incremental developments are assessed and integrated into the architecture and components design as part of the product line development process to minimize any impact to the user.

This program is categorized as Budget Activity (BA) 5 to reflect a program in System Demonstration and Development (SD&D).

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Qualify components for product lines	0.237	0.258	0.161	0.010
(U) Total Cost	0.237	0.258	0.161	0.010

**(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>Complete</u>							
(U) Not applicable										

**(U) D. Acquisition Strategy**

All major contracts within PE 0604740F 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			
<b>05 System Development and Demonstration (SDD)</b>			<b>0604740F Integrated Command &amp; Control Applications</b>								<b>2523 Product Lines</b>			
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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 &amp; 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 Support/ITSP	Various	ESC Hanscom AFB, MA	0.000	0.237	Oct-03	0.258	Oct-04	0.161	Oct-05	0.010	Oct-06	Continuing	TBD	TBD
Subtotal Management			0.000	0.237		0.258		0.161		0.010		Continuing	TBD	TBD
Remarks:														
(U) Total Cost			0.000	0.237		0.258		0.161		0.010		Continuing	TBD	TBD

**Exhibit R-4, RDT&E Schedule Profile**

DATE

**February 2005**

BUDGET ACTIVITY

**05 System Development and Demonstration (SDD)**

PE NUMBER AND TITLE

**0604740F Integrated Command &  
Control Applications**

PROJECT NUMBER AND TITLE

**2523 Product Lines**

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Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2005

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604740F Integrated Command &  
Control Applications

PROJECT NUMBER AND TITLE

2523 Product Lines

(U) Schedule Profile

FY 2004

FY 2005

FY 2006

FY 2007

(U)

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>							PE NUMBER AND TITLE <b>0604740F Integrated Command &amp; Control Applications</b>		PROJECT NUMBER AND TITLE <b>2524 Reuse and Component Support</b>	
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
2524 Reuse and Component Support	10.535	21.646	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 Reuse and Component Support project identifies, tests, and provides a set of common integrated infrastructure products for use by Air Force and Department of Defense program offices. This requires industry involvement for technology development and knowledge of direct and indirect impact to DoD missions in order to provide a skillful technical transition to fully state-of-the-art enterprise C2-based warfighting capability. Reuse and component architecture builds on the AF technical architecture and provides those pre-defined product line architectures with standards based architecture components. A software reuse strategy for DoD was developed as part of this effort. Efforts are continuing with development of a Distributed Mission Interoperability Toolkit focused on research and development of interoperability in support of existing programs.

The Distributed Mission Interoperability Toolkit (DMIT) funding enables on-demand, trusted, interoperability among and between Command, Control, Communications, Computers, & Intelligence (C4I) systems and simulation models. Air Tasking Interoperability Service (ATIS) (formerly Asset Source for Software Engineering Technology (ASSET)/eWing funding enables single point access to Air Force Command & Control (C2) legacy data sources through standard Web browsing technologies. Visual Computing for Productive Collateral Damage Congressional funds enables blast visualization and blast effects modeling tool development. Interactive 3-D Human Interface Congressional funding enables the development of a 3-D visualization (3-D Viz) toolkit with an interactive human interface capability. Specifically, 3-D Viz enables concept exploration and development of interactive 3-D human interface tools, such as: VROOM, STK and PowerScene to be incorporated into the toolkit. National Product Line Asset Center (NPLACE) funding enables the Air Force to continue the development of the NPLACE Software Reuse Repository.

This program is categorized as Budget Activity (BA) 5 to reflect a program in System Demonstration and Development (SD&D).

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) NPLACE	5.738	2.571		
(U) ATIS eWING, JSTARS, C2 Mgr for AFSOC		6.635		
(U) 3D Viz Services, IGEMS, GAPS		6.929		
(U) Distributed Mission Interoperability Toolkit (DMIT)	3.292	5.511		
(U) Visual Computational Predictive Collateral Damage	1.505			
(U) Total Cost	10.535	21.646	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>Complete</u>							

(U) Not applicable

Exhibit R-2a, RDT&E Project Justification

DATE

February 2005

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604740F Integrated Command & Control Applications

PROJECT NUMBER AND TITLE

2524 Reuse and Component Support

(U) D. Acquisition Strategy

All major contracts for Reuse and Component Support development will be awarded after full and open competition.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2005**

<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604740F Integrated Command &amp; Control Applications</b>	<b>PROJECT NUMBER AND TITLE</b> <b>2524 Reuse and Component Support</b>
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(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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> NPLACE	C/FFP	West Virginia High Technology Center, West Virginia	0.000	2.220	Dec-03	2.365	Feb-05					Continuing	TBD	TBD
ATIS eWING, JSTARS, C2 Manager for AFSOC	C/FFP	SAIC, West Virginia	0.000	2.130	May-04	6.072	Feb-05					Continuing	TBD	TBD
3-D Viz Services, IGEMS, GAPS	C/FFP	ProLogic, West Virginia	0.000	1.310	Apr-04	6.375	Apr-05					Continuing	TBD	TBD
DMIT	C/FFP	Gestalt, Camden, New Jersey	0.000	2.900	Apr-04	4.960	Mar-05					Continuing	TBD	TBD
Visual Computing for Productive Collateral Damage	MIPR	ProLogic West Virginia	0.000	0.940	May-04							Continuing	TBD	TBD
Subtotal Product Development Remarks:			0.000	9.500		19.772		0.000		0.000		Continuing	TBD	TBD
(U) <u>Support</u> Contractor Support	T&M	ESC Hanscom AFB, MA	0.000	1.035	Dec-03	0.937	Feb-05					Continuing	TBD	TBD
Subtotal Support Remarks:			0.000	1.035		0.937		0.000		0.000		Continuing	TBD	TBD
(U) <u>Test &amp; Evaluation</u>  Subtotal Test & Evaluation Remarks:			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
(U) <u>Management</u> Program Management Support Subtotal Management Remarks:			0.000	0.000		0.937	Feb-05	0.000		0.000		0.000	0.937	0.000
(U) <u>Not applicable.</u> (U) Total Cost Remarks:			0.000	10.535		21.646		0.000		0.000		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604740F Integrated Command & Control Applications

PROJECT NUMBER AND TITLE

2524 Reuse and Component Support

# IC2A Schedule

	FY2004	FY2005	FY2006
<b>ASSET</b>			
JStars web services	▲	▲	▲
eWing / ATIS		▲	
<b>DMIT</b>			
XSWTP Spiral	▲	▲	▲
DMS Spiral	▲	▲	▲
MCSOA Spiral	▲	▲	▲
<b>3D VIZ/SOVF</b>			
SOVF			▲
NVIS			▲
GEMS			▲
GAPS	▲		▲
<b>NPLACE</b>	→		
COE			
NCES			

Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2005

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604740F Integrated Command & Control Applications

PROJECT NUMBER AND TITLE

2524 Reuse and Component Support

(U) Schedule Profile

- (U) NPLACE
- (U) ATIS, JSTARS, C2 Manager for AFSOC
- (U) 3-D Viz Services, IGEMS, GAPS
- (U) DMIT
- (U) Visual Computing for PCD

FY 2004

FY 2005

FY 2006

FY 2007

- 1-4Q
- 1-4Q
- 4Q
- 2-4Q
- 4Q
- 3-4Q
- 4Q
- 2-4Q
- 4Q

**UNCLASSIFIED**

PE NUMBER: 0604750F  
 PE TITLE: Intelligence Equipment

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	<b>DATE</b> <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604750F Intelligence Equipment</b>
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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	2.264	2.428	1.369	1.413	1.434	1.461	1.495	1.520	Continuing	TBD
2053 National Air Intel Center	2.264	2.428	1.369	1.413	1.434	1.461	1.495	1.520	Continuing	TBD

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

Intelligence Equipment (IE) Program performs the engineering development of software, and/or automated information operations (IO) techniques (i.e., Information Superiority) to streamline the processing, integration, exploitation, display, and dissemination of strategic and tactical threat assessment intelligence information from the National Air and Space Intelligence Center (NASIC), Wright-Patterson AFB, OH and the Air Force Information Warfare Center (AFIWC), San Antonio, TX.

IE provides continuing development and upgrades of threat analysis capabilities to produce integrated, predictive air and space intelligence to enable military operations, force modernization decisions, and policy making. IE both accelerates and increases the accuracy of threat estimates and system descriptions to deployed operational forces via Reachback. IE also provides clients with accurate, predictive, relevant, timely, and actionable intelligence that will support client processes, operational planning, and mission execution. Both NASIC and AFIWC are tasked with providing detailed foreign technology intelligence information to a variety of DOD and non-DOD customers. NASIC and AFIWC customers' requirements have become more sophisticated, dictating more detailed and timely intelligence not only in the technology regime but also in the economic, world crisis, and political arenas. IE develops and provides NASIC and AFIWC with the tools necessary to produce timely intelligence of foreign weapon systems and also develops the tools to model and assess foreign air and space systems operations.

This is the only AF program developing new or upgraded analysis, modeling and simulation tools focused on intelligence production in support of AF operational and developmental functions. IE directs the engineering and development of specialized software to conduct Information Operations with systems which process, integrate, display, and distribute intelligence data for HQ Air Combat Command (ACC) and the Air Intelligence Agency (AIA). In general, IE projects incrementally transition technologies to the operational communities through the spin off of incremental upgrade versions to their end-users over a period of several years as the individual development projects progress towards their final complete full-up configuration.

This effort is Budget Activity 5, System Demonstration and Development (SDD), because the program develops and inserts new technology into existing systems and models to keep existing systems current.

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2005

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604750F Intelligence Equipment

(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	2.290	1.349	1.362	1.387
(U) Current PBR/President's Budget	2.264	2.428	1.369	1.413
(U) Total Adjustments	-0.026	1.079		
(U) Congressional Program Reductions				
Congressional Rescissions		-0.021		
Congressional Increases		1.100		
Reprogrammings	-0.026			
SBIR/STTR Transfer				

(U) **Significant Program Changes:**

Funding: Congressional \$1.0M add in FY04 for High Power Microwave Vulnerability Assessment (Follow-on to FY01/02 Congressional adds for Radio Frequency Weapon Threat Assessment (RFWA) Program). Also, Congress added \$1.1M in FY05 for Hard and Deeply Buried Target and Underground Facilities Detection (HDBT / UGF - D) efforts. These funds are being used to advance and enhance planned projects (mainly new HDBT-UGF detection tools and techniques) in this area.

**Exhibit R-2a, RDT&E Project Justification**

DATE

**February 2005**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>					PE NUMBER AND TITLE <b>0604750F Intelligence Equipment</b>			PROJECT NUMBER AND TITLE <b>2053 National Air Intel Center</b>		
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
2053 National Air Intel Center	2.264	2.428	1.369	1.413	1.434	1.461	1.495	1.520	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

FY04 \$1.0M Congressional Increase for High Powered Microwave Vulnerability Assessment. FY05 \$1.1M increase for Hard and Deeply Buried Target (HDBT) / Underground Facility (UGF) Detection Technology Project.

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

Intelligence Equipment (IE) Program performs the engineering development of software, and/or automated information operations (IO) techniques (i.e., Information Superiority) to streamline the processing, integration, exploitation, display, and dissemination of strategic and tactical threat assessment intelligence information from the National Air and Space Intelligence Center (NASIC), Wright-Patterson AFB, OH and the Air Force Information Warfare Center (AFIWC), San Antonio, TX.

IE provides continuing development and upgrades of threat analysis capabilities to produce integrated, predictive air and space intelligence to enable military operations, force modernization decisions, and policy making. IE both accelerates and increases the accuracy of threat estimates and system descriptions to deployed operational forces via Reachback. IE also provides clients with accurate, predictive, relevant, timely, and actionable intelligence that will support client processes, operational planning, and mission execution. Both NASIC and AFIWC are tasked with providing detailed foreign technology intelligence information to a variety of DOD and non-DOD customers. NASIC and AFIWC customers' requirements have become more sophisticated, dictating more detailed and timely intelligence not only in the technology regime but also in the economic, world crisis, and political arenas. IE develops and provides NASIC and AFIWC with the tools necessary to produce timely intelligence of foreign weapon systems and also develops the tools to model and assess foreign air and space systems operations.

This is the only AF program developing new or upgraded analysis, modeling and simulation tools focused on intelligence production in support of AF operational and developmental functions. IE directs the engineering and development of specialized software to conduct Information Operations with systems which process, integrate, display, and distribute intelligence data for HQ Air Combat Command (ACC) and the Air Intelligence Agency (AIA). In general, IE projects incrementally transition technologies to the operational communities through the spin off of incremental upgrade versions to their end-users over a period of several years as the individual development projects progress towards their final complete full-up configuration.

This effort is Budget Activity 5, System Demonstration and Development (SDD), because the program develops and inserts new technology into existing systems and models to keep existing systems current.

**(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 High Speed Engine Propulsion Tools Phase 1 (Pulsed-Detonation Engine Model)	0.050			
(U) Complete High Speed Engine Propulsion Tools Phase 2 (Air-Turbo-Rocket Engine Model)	0.050			
(U) Continue/Complete High Speed Engine Propulsion Tools Phase 4 (SCRAM Jet Engine Model)	0.250	0.204	0.100	0.100
(U) Complete Missile System Upgrades Phase 3 (CRMPS [Computer Requirements Model for Payload Study])	0.110			
(U) Complete Missile System Upgrades Phase 4: BRACE [Ballistic Reentry Vehicle Accuracy Estimate])	0.110			
(U) Continue/Complete Advanced Analysis Capabilities (AAC) -- Integrated Avionics Support (IAS)	0.160	0.120		

Exhibit R-2a, RDT&E Project Justification							DATE <b>February 2005</b>				
BUDGET ACTIVITY				PE NUMBER AND TITLE		PROJECT NUMBER AND TITLE					
<b>05 System Development and Demonstration (SDD)</b>				<b>0604750F Intelligence Equipment</b>		<b>2053 National Air Intel Center</b>					
(U)	Continue/Complete Laser Weapons (LODUR) Threat Assessment Tool			0.200		0.120					
(U)	Initiate / Complete Analysis & Exploitation of Hardened & Deeply - Buried Target - Detection (HDBT-D) Using Hyperspectral and MASINT Tools			0.180		0.260					
(U)	Complete Analysis & Exploitation of Hardened & Deeply - Buried Target -Detection (HDBT-D) Using Hyperspectral and MASINT Tools (Part of FY05 Congressional Add)					0.190					
(U)	Initiate / Continue Terrain Map Comparison Tools for HDBT-D					0.100	0.117	0.203			
(U)	Initiate / Complete MASINT Exploitation Technology Applications Facility (METAF) for HDBT / UGF Algorithm Development and Test					0.359	0.377				
(U)	Initiate / Continue Upgrade of TEL-SCOPE/SCOUT-L Tool with Expanded Operational Capability (EOC)			0.100		0.175	0.200	0.220			
(U)	Complete Standard Visualization System (SVS) -- IVIEW Upgrade to GOTS -- J-VIEW			0.065							
(U)	Initiate Phase 1 of Adaptive Signature Generation Library (ASGL) for HDBT-D (ASGL for Paint Degradation) (Part of FY05 Congressional Add for HDBT)					0.450					
(U)	Continue Phase 1 of ASGL for HDBT-D						0.180	0.220			
(U)	Initiate Phase 2 of ASGL for HDBT-D (ASGL for Seasonal Vegetation Changes) (Part of FY05 Congressional Add for HDBT)					0.450					
(U)	Initiate / Continue Phase 2 of Adaptive Signature Generation Library (ASGL) for HDBT-D (ASGL for Seasonal Vegetation Changes)						0.180	0.220			
(U)	Initiate / Continue Information in Warfare (IIW) -- Geospacial Information System (GIS) -Based Integrated Analytic Environment (GIANT)						0.110	0.200			
(U)	Initiate / Continue Integrated Air Defense System (IADS) Model -- TEL-SCOPE / SCOUT-L Integration						0.105	0.200			
(U)	Initiate Radio Frequency / Electro-Optical (RF/EO) Cross Detection Capabilities								0.050		
(U)	Initiate / Complete High Power Microwave Vulnerability (HPMV) Threat Assessment (Congressional Add FY04)			0.989							
(U)	Total Cost			2.264		2.428	1.369	1.413			
(U)	<b><u>C. Other Program Funding Summary (\$ in Millions)</u></b>										
		<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)	<b><u>D. Acquisition Strategy</u></b>										
	All major contracts are awarded after full and open competition.										

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis											DATE February 2005			
BUDGET ACTIVITY 05 System Development and Demonstration (SDD)						PE NUMBER AND TITLE 0604750F Intelligence Equipment					PROJECT NUMBER AND TITLE 2053 National Air Intel Center			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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>														
High Speed Propulsion Tools Phase 1 (Pulsed Detonation)	C/CPFF	Northrop Grumman Corp (Defense Mission Systems), Fairborn, OH & Pratt & Whitney, West Palm Beach, FL	0.365	0.050	Jul-04	0.000		0.000		0.000		0.000	0.415	0.415
High Speed Propulsion Tools Phase 2 (Air Turbo Rocket)	C/IDIQ/C PFF	Science Applications International Corp (SAIC), Beavercreek, OH	0.287	0.050	Jul-04	0.000		0.000		0.000		0.000	0.337	0.337
High Speed Propulsion Tools Phase 4 (Scram-Jet)	C/CPFF	Pratt & Whitney West Palm Beach, FL	0.000	0.250	Mar-04	0.204	Jan-05	0.100	May-06	0.100	Nov-06	0.000	0.654	0.654
Missile System / Phase 3: (CRMPS)	C/CPFF	Northrop Grumman Corp (Defense Mission Systems), Fairborn, OH & SAIC, Beavercreek, OH	0.480	0.110	Nov-03	0.000		0.000		0.000		0.000	0.590	0.590
Missile System / Phase 4: (BRACE)	C/CPFF	Northrop Grumman Corp (Defense Mission Systems), Fairborn, OH & SAIC, Beavercreek,	0.540	0.110	Nov-03	0.000		0.000		0.000		0.000	0.650	0.650

Project 2053

R-1 Shopping List - Item No. 87-5 of 87-11

Exhibit R-3 (PE 0604750F)

**UNCLASSIFIED**

Exhibit R-3, RDT&E Project Cost Analysis										DATE <b>February 2005</b>				
BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>					PE NUMBER AND TITLE <b>0604750F Intelligence Equipment</b>					PROJECT NUMBER AND TITLE <b>2053 National Air Intel Center</b>				
I-VIEW 2000 Upgrade / J-View SVS	C/CPFF	OH PAR Government Systems, Hartford, NY & AFRL/IFSB, Rome, NY (In-House)	0.430	0.065	Nov-03	0.000		0.000		0.000	0.000	0.495	0.495	
Advanced Analysis Capability: Integrated Avionics Support Model	C/CPFF	Northrop-Gru mman Corp (Defense Mission Systems), Fairborn, OH & SAIC, Beavercreek, OH	0.580	0.160	Nov-03	0.120	Nov-04	0.000		0.000	0.000	0.860	0.860	
Laser Weapons (LODUR) Threat Assessment Tool	C/CPFF	Applied Sciences Laboratories, Inc., Albuquerque, NM	0.130	0.200	Nov-03	0.120	Nov-04	0.000		0.000	0.000	0.450	0.450	
Analysis & Exploitation of Hardened, Deeply-Buried Targets / Underground Facilities (HDBT / UGF) Using Hyperspectral & MASINT Tools	C/CPFF	CACI / MTL Systems Inc., Dayton, OH	0.000	0.180	Jun-04	0.260	Nov-04	0.000		0.000	0.000	0.440	0.440	
Analysis & Exploitation of HDBT / UGF Using Hyperspectral & MASINT Tools (FY05 Congressional Add)	C/CPFF	CACI / MTL Systems Inc., Dayton, OH	0.000	0.000		0.190	Apr-05	0.000		0.000	0.000	0.190	0.190	
Terrain Map Comparison Tools for HDBT / UGF) Detection (HDBT /UGF - D)	C/CPFF	CACI / MTL Systems Inc., Dayton, OH	0.000	0.000		0.100	Jul-05	0.117	Nov-05	0.203	Nov-06	0.650	1.070	1.044
MASINT Exploitation Technology Applications Facility (METAF) for HDBT / UGF - D Algorithm Development and Test	C/CPFF	Alion Science and Technology, Albuquerque, NM and Rome, NY	0.000	0.000		0.359	Mar-05	0.377	Nov-05	0.000	0.000	0.736	0.736	
TEL-SCOPE Expanded Operational Capability (EOC) -- Space Communications Using Terrestrial Links (SCOUT-L)	C/FFP	Prediction Systems, Inc., Spring Lake, NJ	0.000	0.100	Nov-03	0.175	Dec-04	0.200	Dec-05	0.220	Nov-06	0.750	1.445	1.445
Project 2053														

R-1 Shopping List - Item No. 87-6 of 87-11

Exhibit R-3 (PE 0604750F)

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2005**

BUDGET ACTIVITY			PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE					
<b>05 System Development and Demonstration (SDD)</b>			<b>0604750F Intelligence Equipment</b>					<b>2053 National Air Intel Center</b>					
High Power Microwave Vulnerability Assessment Tool (Congressional Add FY04)	C/CPFF	Applied Sciences Laboratories, Inc., Albuquerque, NM	3.850	0.989	Jun-04	0.000	0.000	0.000	0.000	0.000	4.839	4.839	
Phase 1 of Adaptive Signature Generation Library (ASGL) for HDBT / UGF - D (ASGL for Paint Degradation)	C/CPFF	CACI / MTL Systems Inc., Dayton, OH	0.000	0.000		0.000	0.180	Jan-06	0.220	Nov-06	0.555	0.955	0.955
Phase 1 of ASGL for HDBT / UGF - D (ASGL for Paint Degradation) (FY05 Congressional Add)	C/CPFF	CACI / MTL Systems Inc., Dayton, OH	0.000	0.000		0.450	Mar-05	0.000	0.000		0.000	0.450	0.450
Phase 2 of ASGL for HDBT / UGF - D (ASGL for Seasonal Vegetation Changes)	C/CPFF	CACI / MTL Systems Inc., Dayton, OH	0.000	0.000		0.000	0.180	Jan-06	0.220	Nov-06	0.555	0.955	0.955
Phase 2 of ASGL for HDBT / UGF - D (ASGL for Seasonal Vegetation Changes) (FY05 Congressional Add)	C/CPFF	CACI / MTL Systems Inc., Dayton, OH	0.000	0.000		0.450	Mar-05	0.000	0.000		0.000	0.450	0.450
Information in Warfare (IIW) -- Geospatial Information System (GIS) - Based Integrated Analytic Environment (GIANT)	C/TBD	TBD	0.000	0.000		0.000	0.110	Jan-06	0.200	Nov-06	0.650	0.960	TBD
Integrated Air Defense System (IADS) Model -- TEL-SCOPE / SCOUT-L Integration	C/TBD	TBD	0.000	0.000		0.000	0.105	Jan-06	0.200	Nov-06	0.655	0.960	TBD
Radio Frequency / Electro-Optical; (RF / EO) Cross Detection Capabilities	C/TBD	TBD	0.000	0.000		0.000	0.000		0.050	Jan-07	0.750	0.800	TBD
Subtotal Product Development			6.662	2.264		2.428	1.369		1.413		4.565	18.701	TBD
Remarks:											0.000		
(U) Total Cost			6.662	2.264		2.428	1.369		1.413		4.565	18.701	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604750F Intelligence Equipment

PROJECT NUMBER AND TITLE

2053 National Air Intel Center

Fiscal Year	2004				2005				2006				2007				2008				2009				2010				2011			
	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
• TEL-SCOPE / SCOUT-L Expanded Operational Capability (EOC)	◆																															
• Adaptive Signature Generation Library (ASGL) Phase 1 – ASGL for Paint Degradation for HDBT-D (Including FY05 Congressional Add for HDBT-D)					◆																											
• ASGL Phase 2 – ASGL for Seasonal Vegetation Change for HDBT-D (Including FY05 Congressional Add for HDBT-D)					◆																											
• Information in Warfare (IIW) – GIS Based Integrated Analytic Environment (GIANT)									◆																◆							
• Integrated Air Defense System (IADS) Model – TEL-SCOPE / SCOUT-L Integration									◆																◆							
• RF/EO Cross Detection Capabilities													◆												◆							

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604750F Intelligence Equipment

PROJECT NUMBER AND TITLE

2053 National Air Intel Center

Fiscal Year	2004				2005				2006				2007				2008				2009				2010				2011			
	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
• High Speed Propulsion (HSP) Performance Tools (Phase 1: Pulse Detonation Engine Model)				◆																												
• HSP Performance Analysis Tools (Phase 2: Air Turbo Rocket Engine Model)				◆																												
• HSP Performance Analysis Tools (Phase 4: Scram-Jet Engine Model)			◆													◆																
• Std Visualization Solution (SVS) [VIEW-2000 – JVIEW Upgrade]				◆																												
• Missile System Upgrades (Phase 3: CRMPS [Computer Requirements Model for Payload Study])				◆																												
• Missile System Upgrades (Phase 4: BRACE [Ballistic Reentry Vehicle Accuracy Estimation])				◆																												
• Advanced Analysis Capability (AAC) - Integrated Avionics Support (IAS)							◆																									
• Laser Weapons Threat Assessment (LODUR)							◆																									
• Analysis & Exploitation of Hard & Deeply Buried Targets-Detection (HDBT-D) w/MASINT & Hyper Spectral Tools (Incl FY05 Congressional HDBT Add)			◆									◆																				
• Terrain Map Comparison Tools for HDBT-D							◆																	◆								
• MASINT Exploitation Technology Applications Facility (METAF) for HDBT / UGF Algorithm Development & Test							◆					◆																				
• High Power Microwave Vulnerability (HPMV) Assessment (FY04 Congressional Add)			◆				◆																									

## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2005

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604750F Intelligence Equipment		PROJECT NUMBER AND TITLE 2053 National Air Intel Center		
(U) <b>Schedule Profile</b>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	
(U) Complete High Speed Propulsion (HSP) Engine Propulsion Tools (Phase 1: Pulsed Detonated Engine Model)	4Q				
(U) Complete HSP Engine Propulsion Tools (Phase 2: Air Turbo Rocket Engine Model)	4Q				
(U) Re-Start / Continue / Complete HSP Engine Propulsion Tools (Phase 4: SCRAM Jet Engine Model)	3Q	1-4Q	1-4Q	4Q	
(U) Complete Standard Visualization Solution (SVS) I-VIEW 2000 Upgrade / J-VIEW	4Q				
(U) Complete Missile System Upgrades (Phase 3: CRMPS [Computer Requirements Model for Payload Study] )	4Q				
(U) Complete Missile System Upgrades (Phase 4: BRACE [Ballistic Reentry Vehicle Accuracy Estimate] )	4Q				
(U) Continue / Complete Advanced Analysis Capabilities (AAC) -- Integrated Avionics Support (IAS)	1-4Q	4Q			
(U) Continue / Complete Laser Weapons (LODUR) Threat Assessment Tool	1-4Q	4Q			
(U) Initiate / Continue / Complete Analysis and Exploitation of HDBT-D using Hyperspectral & MASINT Tools	3Q	1-4Q	4Q		
(U) Continue Analysis and Exploitation of HDBT-D using Hyperspectral & MASINT Tools (FY05 Congressional Add)		1-4Q			
(U) Initiate / Continue Terrain Map Comparison Tools for HDBT-D		3Q	1-4Q	1-4Q	
(U) Initiate / Complete MASINT Exploitation Technology Applications Facility (METAF) for HDBT / UGF Algorithm Development and Test		2Q	4Q		
(U) Initiate / Continue TEL-SCOPE Expanded Operational Capability (EOC) -- Space Communications Using Terrestrial Links (SCOUT-L)	1Q	1-4Q	1-4Q	1-4Q	
(U) Initiate Phase 1 of Adaptive Signature Generation Library (ASGL) for HDBT-D (ASGL for Paint Degradation) (FY05 Congressional Add for HDBT-D)		2Q			
(U) Continue Phase 1 of ASGL for HDBT-D (ASGL for Paint Degradation)			1-4Q	1-4Q	
(U) Initiate Phase 2 of ASGL for HDBT-D (ASGL for Seasonal Vegetation Changes) (FY05 Congressional Add for HDBT-D)		2Q			
(U) Continue Phase 2 of ASGL for HDBT-D (ASGL for Seasonal Vegetation Changes)			1-4Q	1-4Q	
(U) Initiate / Continue Information in Warfare (IIW) -- Geospacial Information System (GIS)-Based Integrated Analytic Environment (GIANT)			2Q	1-4Q	
(U) Initiate / Continue Integrated Air Defense System (IADS) Model--TEL-SCOPE / SCOUT-L Integration			2Q	1-4Q	

Project 2053

R-1 Shopping List - Item No. 87-10 of 87-11

Exhibit R-4a (PE 0604750F)

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Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2005

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604750F Intelligence Equipment

PROJECT NUMBER AND TITLE

2053 National Air Intel Center

(U) Initiate Radio Frequency / Electro-Optical (RF/EO) Cross Detection Capabilities

2Q

(U) Initiate / Complete High Power Microwave Vulnerability Assessment  
(Congressional Add FY04)

3-4Q

1-4Q

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PE NUMBER: 0604754F  
 PE TITLE: Tactical Data Link Integration

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	<b>DATE</b> <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604754F Tactical Data Link Integration</b>
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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	22.376	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
4992 Family of Interoperable Operational Pictures (FIOP)	22.376	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

PROJECT #654749: In FY03, PE 0604754F, Tactical Data Link Integration, Project #654749 efforts were transferred to PE 0207434F, Link 16 Support and Sustainment, Project #655050 in order to consolidate Tactical Data Link Infrastructure funding.

PROJECT #654992: In FY05, PE 0604754F, Tactical Data Link Integration, Project #654992 efforts transferred to PE 0207443F, Family of Interoperable Operational Pictures (FIOP), Project #675137 in order to consolidate FIOP funding. For FY03 FIOP Task 1 program details, see PE 0207434F, Link 16 Support and Sustainment, Project #655051. For FY04 Task 1 Details, see PE 0207438F, Theater Battle Management C4I, Project #654790. For FY04 Task 2 program details, see PE 0604754F, Tactical Data Link Integration, Project #654992 and PE 0603850F, Integrated Broadcast Service, Project #635151. For FY05 Task 1 and 2 details, see PE 0207443F, FIOP, Project #675137.

(U) **A. Mission Description and Budget Item Justification**  
 Tactical Data Link (TDL) integration employs the Joint Tactical Information Distribution System (JTIDS) and the Multifunction Information Distribution System (MIDS) terminals on multi-service platforms to broadcast Link 16 information to all participants operating within the network. TDLs provide interoperability, local and global connectivity, and situational awareness to the pilot in rapidly changing operational conditions. TDL terminals are used by all service Theater Command and Control (C2) elements, weapons platforms, and sensors.

The Family of Interoperable Operational Pictures (FIOP) is a program designed to implement web-based technologies into Systems of Record, making their data, and thus the Common Operational Picture (COP) and the Common Tactical Picture, consistent throughout the Services and at all echelons of Combat Operations. The Joint Requirements Oversight Council (JROC) directed the FIOP program to "...provide an all-source picture of the Battlespace containing actionable, decision quality information through the fusion of existing databases" in JROC Memorandum 156-02. Ultimately, the FIOP effort will lead to the underpinnings of Network Centric Operational Warfare.

This program is in budget activity 5 (Engineering Manufacturing and Development) because it supports development, integration solutions, fielding, operational support activities, and support of special projects.

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2005

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604754F Tactical Data Link Integration

(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	14.550			
(U) Current PBR/President's Budget	22.376	0.000		
(U) Total Adjustments	7.826	0.000		
(U) Congressional Program Reductions				
Congressional Rescissions				
Congressional Increases				
Reprogrammings	8.326			
SBIR/STTR Transfer	-0.500			

(U) **Significant Program Changes:**

FY05 funding transferred to PE0207443F (FIOP), #675137, as part of the FIOP funding consolidation.

FY2004 Reprogrammings comprised of \$9+M for JEFX Blue Force Tracking.

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2005

BUDGET ACTIVITY		PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE		
<b>05 System Development and Demonstration (SDD)</b>		<b>0604754F Tactical Data Link Integration</b>						<b>4992 Family of Interoperable Operational Pictures (FIOP)</b>		
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
4992 Family of Interoperable Operational Pictures (FIOP)	22.376	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, PE 0604754F, Tactical Data Link Integration, Project #654992 efforts transferred to PE 0207443F, Family of Interoperable Operational Pictures (FIOP), Project #675137 in order to consolidate FIOP funding.

For FY03 FIOP Task 1 program details, see PE 0207434F, Link 16 Support and Sustainment, Project #655051. For FY04 Task 1 Details, see PE 0207438F, Theater Battle Management C4I, Project #654790. For FY04 Task 2 program details, see PE 0604754F, Tactical Data Link Integration, Project #654992 and PE 0603850F, Integrated Broadcast Service, Project #635151. For FY05 Task 1 and 2 details, see PE 0207443F, FIOP, Project #675137.

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

Tactical Data Link (TDL) integration employs the Joint Tactical Information Distribution System (JTIDS) and the Multifunction Information Distribution System (MIDS) terminals on multi-service platforms to broadcast Link 16 information to all participants operating within the network. TDLs provide interoperability, local and global connectivity, and situational awareness to the pilot in rapidly changing operational conditions. TDL terminals are used by all service Theater Command and Control (C2) elements, weapons platforms, and sensors.

The Family of Interoperable Operational Pictures (FIOP) is a program designed to implement web-based technologies into Systems of Record, making their data, and thus the Common Operational Picture (COP) and the Common Tactical Picture, consistent throughout the Services and at all echelons of Combat Operations. The Joint Requirements Oversight Council (JROC) directed the FIOP program to "...provide an all-source picture of the Battlespace containing actionable, decision quality information through the fusion of existing databases" in JROC Memorandum 156-02. Ultimately, the FIOP effort will lead to the underpinnings of Network Centric Operational Warfare.

This program is in budget activity 5 (Engineering Manufacturing and Development) because it supports development, integration solutions, fielding, operational support activities, and support of special projects.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Joint Precision Fire Support	3.490			
--(U) Provide Joint Precision Fire Support application of the Tactical Common Operating Environment (COE) client to provide precision target information to multiple weapons platforms.				
(U) Tactical Datalink Integration With COP	1.800			
--(U) Develop Global Command and Control Systems/Air Defense Systems Integration (GCCS/ADSI) interface and Integrated Broadcast Service (IBS)/Link-16 interface to provide expeditious data flow and improved dissemination of near-real intelligence data.				
(U) Situation Awareness Data Interoperability (SADI)	2.500			

**Exhibit R-2a, RDT&E Project Justification**

DATE

**February 2005**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0604754F Tactical Data Link Integration</b>	PROJECT NUMBER AND TITLE <b>4992 Family of Interoperable Operational Pictures (FIOP)</b>
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--(U) Develop two products: a Situational Awareness System Interface Control Document and a COE Situational Awareness Gateway Software Segment.				
(U) Develop Network Based Services	6.260			
--(U) Develop Common Integrated Infrastructure (CII) components and node information services to provide infrastructure enablers that support FIOP tasks (eg, Ground Moving Target Indicators (GMTI) Services and or Meteorologic/Oceanographic (METOC) Services).				
(U) Blue Force Tracking JEFX04 Initiative	8.326			
--(U) Support the continued development, integration, operational experimentation and migration of a FIOP Blue Force Tracking initiative.				
(U) Total Cost	22.376	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) RDT&E, AF										
(U) 0207443F (FIOP)	0.000	46.607	0.000	0.000	0.000	0.000	0.000	0.000		46.607
(U) 0207438F (TBMC4I)	5.723	0.000	0.000	0.000	0.000	0.000	0.000	0.000		5.723
(U) 0603850F (Integrated Broadcast System)	5.636	0.000	0.000	0.000	0.000	0.000	0.000	0.000		5.636
(U) O&M (3400)										
(U) 0207443F	0.000	0.000	0.072	0.145	0.156	0.168	0.165	0.168	Continuing	TBD

**(U) D. Acquisition Strategy**

JROC-directed activity to spiral develop, integrate, and sustain web-enabled COP capabilities that are interoperable with existing Service systems by identifying execution-level requirements and candidate solutions which will be tested and then migrated to Service Systems of Record for sustainment.

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Exhibit R-3, RDT&E Project Cost Analysis											DATE <b>February 2005</b>			
BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>						PE NUMBER AND TITLE <b>0604754F Tactical Data Link Integration</b>					PROJECT NUMBER AND TITLE <b>4992 Family of Interoperable Operational Pictures (FIOP)</b>			
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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 Precision Fire Support	MIPR	MARCORS YSCOM, Quantico VA		3.490	Feb-04							Continuing	TBD	
Tactical Datalink Integration With COP	MIPR	SPAWAR SYS COM, San Diego CA		1.800	Feb-04							Continuing	TBD	
Situation Awareness Data Interoperability	MIPR	PEO/C3T, Ft Monmouth NJ		2.500	May-04							Continuing	TBD	
Network Based Services	Various	Various		6.260	Feb-04							Continuing	TBD	
JEFX Blue Force Tracking Initiative	Various	Various		8.326	May-04							Continuing	8.326	
Subtotal Product Development			0.000	22.376		0.000		0.000		0.000		Continuing	TBD	0.000
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 &amp; 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>(U) Total Cost</u>			0.000	22.376		0.000		0.000		0.000		Continuing	TBD	0.000

**Exhibit R-4, RDT&E Schedule Profile**

DATE

**February 2005**

BUDGET ACTIVITY

**05 System Development and Demonstration (SDD)**

PE NUMBER AND TITLE

**0604754F Tactical Data Link  
Integration**

PROJECT NUMBER AND TITLE

**4992 Family of Interoperable  
Operational Pictures (FIOP)**

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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604754F Tactical Data Link Integration</b>	<b>PROJECT NUMBER AND TITLE</b> <b>4992 Family of Interoperable Operational Pictures (FIOP)</b>
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<b>(U) <u>Schedule Profile</u></b>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Joint Precision Fire Support Spiral 1 Delivery	3Q			
(U) Tactical Data Link Integration CONOPS	2Q			
(U) Tactical Data Link Integration Spiral 1 Delivery	3Q			
(U) Situation Awareness Data Interoperability Spiral 1 Delivery	4Q			
(U) Network Based Services Cross-System Weapon Target Pairing Information Service	4Q			
(U) Blue Force Tracking JEFX04 Initiative	3Q			

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PE NUMBER: 0604762F

PE TITLE: Common Low Observable Verification Sys

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2005</b>
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BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0604762F Common Low Observable Verification Sys</b>
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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	6.605	10.212	8.692	0.000	0.000	0.000	0.000	0.000	0.000	61.641
4683 Common Low Observable Verification System	6.605	10.212	8.692	0.000	0.000	0.000	0.000	0.000	0.000	61.641

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

Common Low Observable Verification System (CLOVerS) is intended as an easily deployable flightline system to evaluate surface anomalies on low observable (stealth) aircraft. It will allow maintenance personnel to determine if a repair is needed or if the repair performed was successful in restoring the low observable characteristic of the aircraft. CLOVerS is intended for use with the B-2, F-117, F/A-22, as well as future aircraft such as the Joint Strike Fighter (JSF) and/or Joint Unmanned Combat Air System (J-UCAS). Key capabilities required include the ability to detect, locate, and resolve small surface defects, reduced measurement time (compared to existing verification methods), operation under less restrictive security measures, and a small deployment footprint. This program is in budget activity 5 - System Development and Demonstration (SDD) because this program develops the Common Low Observable Verification System (CLOVerS).

**(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	6.941	10.303	8.646	
(U) Current PBR/President's Budget	6.605	10.212	8.692	
(U) Total Adjustments	-0.336	-0.091		
(U) Congressional Program Reductions				
Congressional Rescissions		-0.091		
Congressional Increases				
Reprogrammings	-0.126			
SBIR/STTR Transfer	-0.210			
(U) <u>Significant Program Changes:</u>				

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>							PE NUMBER AND TITLE <b>0604762F Common Low Observable Verification Sys</b>		PROJECT NUMBER AND TITLE <b>4683 Common Low Observable Verification System</b>	
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
4683 Common Low Observable Verification System	6.605	10.212	8.692	0.000	0.000	0.000	0.000	0.000	0.000	61.641
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) **A. Mission Description and Budget Item Justification**  
 Common Low Observable Verification System (CLOVerS) is intended as an easily deployable flightline system to evaluate surface anomalies on low observable (stealth) aircraft. It will allow maintenance personnel to determine if a repair is needed or if the repair performed was successful in restoring the low observable characteristic of the aircraft. CLOVerS is intended for use with the B-2, F-117, F/A-22, as well as future aircraft such as the Joint Strike Fighter (JSF) and/or Joint Unmanned Combat Air System (J-UCAS). Key capabilities required include the ability to detect, locate, and resolve small surface defects, reduced measurement time (compared to existing verification methods), operation under less restrictive security measures, and a small deployment footprint. This program is in budget activity 5 - System Development and Demonstration (SDD) because this program develops the Common Low Observable Verification System (CLOVerS).

(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Complete Cart 4/5 development and continue ancillary equipment development.	4.093	7.618	6.742	
(U) Field Testing	1.805	1.788	1.914	
(U) Program Office Support	0.707	0.806	0.036	
(U) Total Cost	6.605	10.212	8.692	0.000

(U) <b><u>C. Other Program Funding Summary (\$ in Millions)</u></b>	<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>Complete</u>							
BP12 - PE27145F:Appn: Aircraft Procurement, AF (APAF) Budget Activity: Aircraft (A/C)										
(U) Procurement/Common Support Equipment, Program Title: Common Low Observable Verification System (CLOVerS)	0.000	0.000	0.000	19.897	20.371	32.594	33.733	34.453	2.643	143.691
BP16 - PE27145F: Appn: (U) Spares for Common Low Observable Verification	0.000	0.000	0.000	0.962	0.987	1.625	2.663	2.694	1.901	10.832

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>February 2005</b>
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BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0604762F Common Low Observable Verification Sys</b>	PROJECT NUMBER AND TITLE <b>4683 Common Low Observable Verification System</b>
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(U) **C. Other Program Funding Summary (\$ in Millions)**

System (CLOVerS)										
Operational & Support										
(U) Funding (3400) for Common Low Observable Verification System (CLOVerS)	0.000	0.817	0.000	0.000	0.002	1.685	1.701	1.733	38.822	44.760

(U) **D. Acquisition Strategy**

The contract was awarded May 99, using full and open competition as a Cost Plus Award Fee. Contract restructured Jul 02 to convert contract to Cost Plus Fixed Fee and to stretch out the period of performance from Apr 02 to Jan 05. Another restructure was initiated in Feb 03 due to a realignment of the Future Years Defense Plan and stretched the SDD program out to Sep 06.

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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						
05 System Development and Demonstration (SDD)				0604762F Common Low Observable Verification Sys				4683 Common Low Observable Verification System						
(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>														
Develop CLOVerS EMD Unit	CPFF	Boeing Co., St Louis	33.590	5.801		9.227		8.456				0.000	57.074	57.074
Subtotal Product Development			33.590	5.801		9.227		8.456		0.000		0.000	57.074	57.074
Remarks:	Boeing Contract awarded 11 May 1999.													
(U) <u>Support</u>														
JSC Support to obtain electromagnetic licensing (EML) Rqts.	MIPR	Joint Spectrum Cnt, Annapolis, MD	0.601	0.090		0.170		0.180				0.000	1.041	1.041
88CG - Radar Freq. mgt. support (req'd to obtain EML)	MORD	88th Comm Group, WPAFB, OH	0.015	0.007		0.007		0.020				0.000	0.049	0.049
AFRL - Ancillary Equipment/Shroud Support	AF Form 616	AFRL, WPAFB, OH	0.116	0.000		0.002						0.000	0.118	0.118
Subtotal Support			0.732	0.097		0.179		0.200		0.000		0.000	1.208	1.208
Remarks:	Includes detailed planning, support, data reduction and reports excluding the Contract Data Requirements List data.													
(U) <u>Test &amp; Evaluation</u>														
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:	Test and evaluation at contractor test facilities included under product development.													
(U) <u>Management</u>														
YSAL - Mission Support Rqts.	Various	ASC/YSAL, WPAFB, OH	1.810	0.707		0.806		0.036				0.000	3.359	3.359
Subtotal Management			1.810	0.707		0.806		0.036		0.000		0.000	3.359	3.359
Remarks:	The mission support element includes miscellaneous administrative costs incurred in the day-to-day operations by the program office. Costs include training, travel, office equipment, office supplies, printing, computer support, contract services in support of program office operations, program management assessments (PMA) and communication expenses.													
(U) Total Cost			36.132	6.605		10.212		8.692		0.000		0.000	61.641	61.641

Exhibit R-4, RDT&E Schedule Profile

DATE

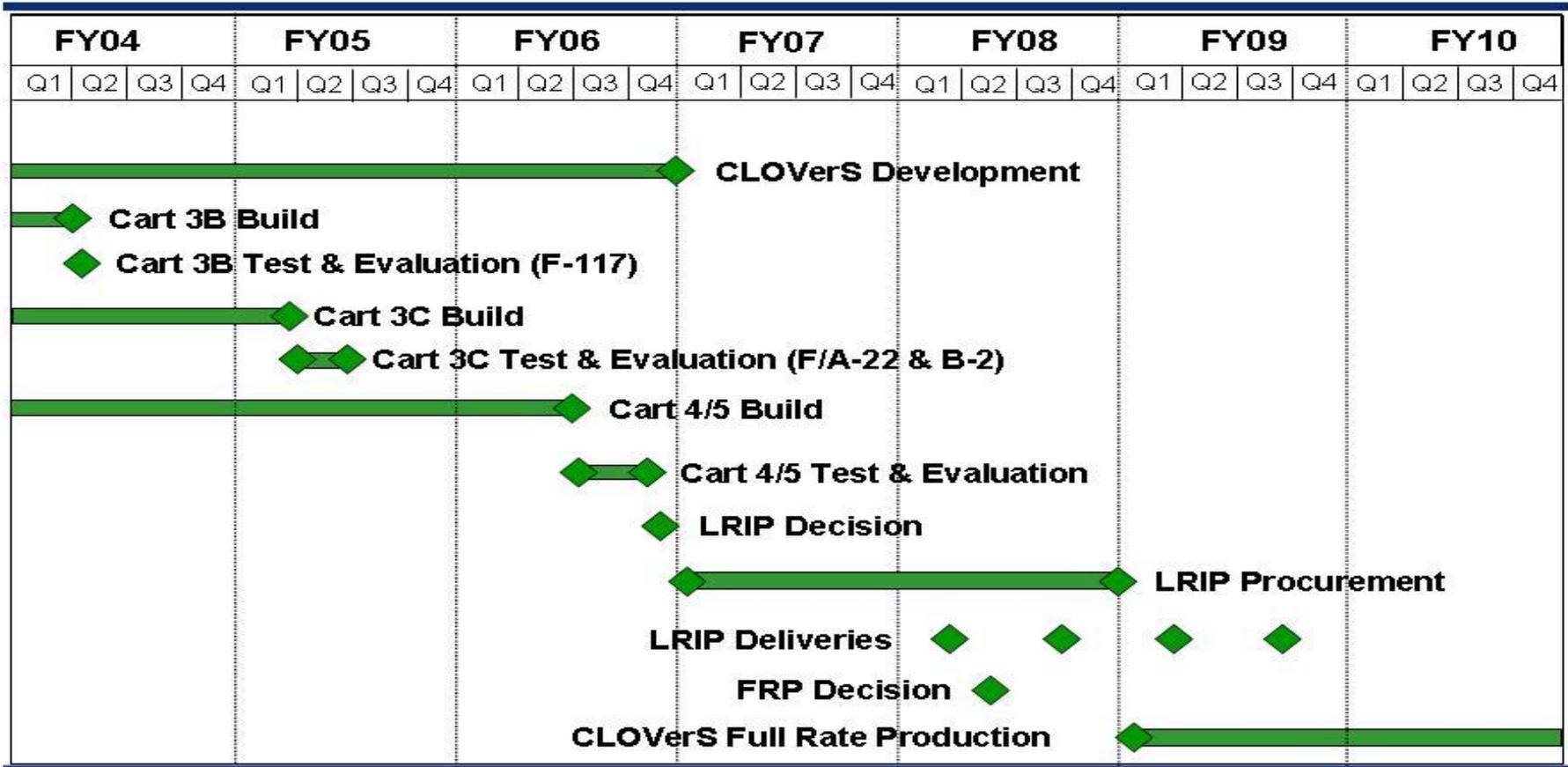
February 2005

BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE  
0604762F Common Low Observable  
Verification Sys

PROJECT NUMBER AND TITLE  
4683 Common Low Observable  
Verification System

# CLOVerS Overview



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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604762F Common Low Observable Verification Sys</b>	<b>PROJECT NUMBER AND TITLE</b> <b>4683 Common Low Observable Verification System</b>
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	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
<b>(U) <u>Schedule Profile</u></b>				
(U) Cart 3B Test and Evaluation	2Q			
(U) Cart 3C Test and Evaluation		2Q		
(U) Cart 4/5 Build			2Q	
(U) Cart 4/5 Test and Evaluation			3Q	

**UNCLASSIFIED**

PE NUMBER: 0604800F  
 PE TITLE: Joint Strike Fighter EMD

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604800F Joint Strike Fighter EMD</b>
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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	2,021.034	2,181.272	2,474.763	2,192.584	1,914.385	1,578.312	1,282.774	839.995	Continuing	TBD
3831 Joint Strike Fighter	2,021.034	2,181.272	2,474.763	2,192.584	1,914.385	1,578.312	1,282.774	839.995	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 cost) to T&E Support, PE 65807F.

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

The Joint Strike Fighter (JSF) program will develop and field a family of aircraft that meets the need of the USN, USAF, USMC and allies with maximum commonality among the variants, consistent with National Disclosure Policy (NDP), to minimize life cycle costs. This is a joint program with no executive service. Service Acquisition Executive (SAE) authority alternates between the Department of the Navy and the Department of the Air Force and currently resides with the Air Force. Navy and Air Force each provide approximately equal shares of annual funding to the program. The United Kingdom and 7 other International countries are participants in the JSF program.

This program is funded under System Development and Demonstration (SDD) because it encompasses system development and demonstration of new end items prior to a production approval decision.

Quantity of 15 AF and DoN RDT&E articles (1 in FY 2006, 1 in FY 2007, 6 in FY 2008, and 7 in FY 2009) reflects flight test articles; 8 ground test articles are also budgeted in SDD.

**(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	2,092.547	2,307.420	2,489.848	2,203.446
(U) Current PBR/President's Budget	2,021.034	2,181.272	2,474.763	2,192.584
(U) Total Adjustments	-71.513	-126.148		
(U) Congressional Program Reductions		-126.148		
Congressional Rescissions				
Congressional Increases				
Reprogrammings	-7.428			
SBIR/STTR Transfer	-64.085			

**(U) Significant Program Changes:**

NOTE: This submission reflects JSF Program Replan. Additional design work and scope was required to achieve weight reductions in the STOVL variant, resulting in an increase in cost and schedule. See R-4a Schedule Exhibit for detailed schedule changes.

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>					PE NUMBER AND TITLE <b>0604800F Joint Strike Fighter EMD</b>			PROJECT NUMBER AND TITLE <b>3831 Joint Strike Fighter</b>		
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
3831 Joint Strike Fighter	2,021.034	2,181.272	2,474.763	2,192.584	1,914.385	1,578.312	1,282.774	839.995	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 Strike Fighter (JSF) program will develop and field a family of aircraft that meets the need of the USN, USAF, USMC and allies with maximum commonality among the variants, consistent with National Disclosure Policy (NDP), to minimize life cycle costs. This is a joint program with no executive service. Service Acquisition Executive (SAE) authority alternates between the Department of the Navy and the Department of the Air Force and currently resides with the Air Force. Navy and Air Force each provide approximately equal shares of annual funding to the program. The United Kingdom and 7 other International countries are participants in the JSF program.

This program is funded under System Development and Demonstration (SDD) because it encompasses system development and demonstration of new end items prior to a production approval decision.

Quantity of 15 AF and DoN RDT&E articles (1 in FY 2006, 1 in FY 2007, 6 in FY 2008, and 7 in FY 2009) reflects flight test articles; 8 ground test articles are also budgeted in SDD.

**(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 Development and Demonstration (SDD) for Air System with Lockheed Martin including International Commonality Effort (ICE) commenced execution in FY02. FY04, FY05, FY06 and FY07 continue SDD execution of the Air System, including airframe, vehicle systems, mission systems, autonomic logistics, systems engineering and integrated test efforts	3,348.068	3,757.000	4,409.000	3,911.000
(U) System Development and Demonstration (SDD) for F135 Propulsion System with Pratt & Whitney including International Commonality Effort (ICE) commenced in FY02. FY04, FY05, FY06 and FY07 continue SDD execution of the F135 Propulsion System, including engine testing, autonomic logistics, integration and performing technology maturation efforts.	868.969	797.000	711.000	421.000
(U) FY04, FY05, FY06 and FY07 continue the Fighter Engineer Team (General Electric/Rolls Royce) F136 development for a second, interchangeable, JSF engine for competition in production (previously begun in associated Program Elements 0603800N and 0603800F). Efforts include technology maturation, engine testing, autonomic logistics and integration.	141.578	231.000	236.000	370.000
(U) SDD Systems Engineering (SE) and mission support activities, including Modeling, Simulation and Analysis (MS&A) efforts, risk reduction activities and program office functions commenced in FY02. FY04, FY05, FY06 and FY07 continue SE and Mission Support activities, including MS&A, risk reduction, Government verification and test, non-test systems engineering and technical support and program office functions.	262.158	291.811	313.276	482.779
(U) Total Cost	4,620.773	5,076.811	5,669.276	5,184.779

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2005

BUDGET ACTIVITY

**05 System Development and Demonstration (SDD)**

PE NUMBER AND TITLE

**0604800F Joint Strike Fighter EMD**

PROJECT NUMBER AND TITLE

**3831 Joint Strike Fighter**

Note: Total cost includes USN and International partner contributions in addition to USAF funding. Exhibit R-2 data reflects USAF funding only.

**(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>Complete</u>							
(U) USN RDT&E	2081.930	2145.239	2393.013	2287.055	1944.629	1518.126	1207.520	751.608	Continuing	TBD
(U) Int'l Partner Funding	517.809	750.300	801.500	705.140	480.670	228.260	166.670	137.010	Continuing	TBD
(U) USN PROCUREMENT				247.238	2042.931	4636.719	4518.458	3733.098	Continuing	TBD
(U) USAF PROCUREMENT			152.377	1095.027	1386.200	2126.635	2531.230	3574.468	Continuing	TBD
(U) USN Initial Spares and Repair Parts					85.322	153.089	167.744	148.682	Continuing	TBD
(U) USAF Initial Spares and Repair Parts				96.477	100.771	183.708	284.572	528.404	Continuing	TBD
(U) USN MILCON	24.370									
(U) USAF MILCON 0207142F	19.060	9.965	0.000	0.000	85.402	79.998	0.000	0.000	Continuing	TBD
(U) USAF MILCON 91211F	1.000	0.900								

This is a joint program with no executive service. Service Acquisition Executive (SAE) authority alternates between the Department of the Navy and the Department of the Air Force and currently resides with the Air Force. Program Element 0604800N continues USN development efforts budgeted in 0603800N prior to FY2002. The United Kingdom and other International countries are participants in the SDD phase of JSF.

Note: The USAF PROCUREMENT line includes all JSF funding in Budget Activities 01 and 06. USAF Initial Spares and Repair Parts is a subset of USAF PROCUREMENT. USN Initial Spares and Repair Parts is a subset of USN PROCUREMENT. International Partner Funding includes funds provided under the Italy and Netherlands Bilateral agreements. Special Memorandum of Understanding provisions exist for those two countries to pursue country unique requirements.

RELATED RDT&E: Funding prior to JSF SDD (FY94-FY01): USN PE 0603800N \$1,950,617; USAF PE 0603800F \$1,907,352; DARPA PE 0603800E \$118,0056. UK \$201,221; Multi-Lateral \$32,100; Canada \$10,600; and Italy \$10,000 for a total of \$4,229,896.

**(U) D. Acquisition Strategy**

Activities in the prior phase of JSF centered around three distinct objectives to provide a sound foundation for the start of System Development & Demonstration (SDD) in Fall 2001:

- (1) facilitated the Services' development of fully validated, affordable operational requirements;
- (2) lowered risk by investing in and demonstrating key leveraging technologies that lowered the cost of development, production and ownership; and
- (3) demonstrated operational concepts.

Early warfighter and technologist interaction was an essential aspect of the requirements definition process and achieved JSF affordability goals. To an unprecedented

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2005

BUDGET ACTIVITY

**05 System Development and Demonstration (SDD)**

PE NUMBER AND TITLE

**0604800F Joint Strike Fighter EMD**

PROJECT NUMBER AND TITLE

**3831 Joint Strike Fighter**

degree, the JSF Program used cost-performance trades early, as an integral part of the weapon system development process. The Services defined requirements through an iterative process, balancing weapon system capability against life cycle cost (LCC) at every stage. Each iteration of the requirements was provided to industry. They evolved their designs and provided cost data back to the warfighters. The warfighters evaluated trades and made decisions for the next iteration. This iterative process produced iterations of the Services' Joint Interim Requirements Documents in 1995, 1997, 1998 and culminated in the approved joint Operational Requirements Document (ORD) in FY2000.

A sizable technology maturation effort was conducted to reduce risk and LCC through technology maturation and demonstrations. The primary emphasis was on technologies identified as high-payoff contributors to affordability, supportability, survivability and lethality. Numerous demonstrations were accomplished to validate performance and LCC impact to component, subsystem and the total system.

In November 1996, contracts were awarded to Boeing and Lockheed Martin for Concept Demonstration Programs. These competing contractors built and flew concept demonstrator aircraft, conducted concept unique ground demonstrations, and refined their respective weapon system concepts. Specifically, Boeing and Lockheed Martin demonstrated commonality and modularity, Short Take Off Vertical Landing (STOVL) hover and transition, and low speed handling qualities of their respective weapon system concepts. Pratt and Whitney provided propulsion hardware and engineering support. General Electric continued development of a second, interchangeable engine for competition in production.

Following evaluation of proposals and a favorable Milestone B decision, the JSF Program entered SDD on 26 October 2001 with SDD contract awards to Lockheed Martin and Pratt & Whitney. The SDD plan reflects a block approach, based on open systems architecture, for accomplishing aircraft and weapons integration. General Electric continues propulsion development efforts.

The 14 October 2004 Defense Acquisition Board (DAB) reiterated the JSF Acquisition Strategy and updated the program schedule.

USAF procurement is planned to begin in FY 2007 with advance procurement in FY 2006. DoN procurement is planned to begin in FY 2008 with advance procurement in FY 2007.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2005**

BUDGET ACTIVITY										PE NUMBER AND TITLE		PROJECT NUMBER AND TITLE			
<b>05 System Development and Demonstration (SDD)</b>										<b>0604800F Joint Strike Fighter EMD</b>		<b>3831 Joint Strike Fighter</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &amp;</u> <u>Type</u>	<u>Performing</u> <u>Activity &amp;</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>															
Lockheed Martin	C/CPAF	Ft. Worth, TX	3,456.051	3,341.568	Oct-03	3,757.000	Oct-04	4,409.000	Oct-05	3,911.000	Oct-06	Continuing	TBD	19.670	
Lockheed Martin	SS/BOA	Ft. Worth, TX	0.000	5.500	Dec-03	0.000		0.000		0.000			5.500		
Lockheed Martin	SS/IDIQ	Ft. Worth, TX	0.000	1.000	Dec-03	0.000		0.000		0.000			1.000		
Pratt & Whitney	SS/CPAF	Hartford, CT	1,528.762	844.168	Oct-03	786.000	Oct-04	709.000	Oct-05	421.000	Oct-06	Continuing	TBD	4.851	
Pratt & Whitney	SS/BOA	Hartford, CT	10.220	24.801	Dec-03	11.000	Oct-04	2.000	Oct-05	0.000		Continuing	TBD	13.000	
General Electric	SS/CPAF	Cincinnati, OH	230.883	137.026	Oct-03	23.000	Oct-04	0.000		0.000		Continuing	TBD	468.444	
General Electric	SS/BOA	Cincinnati, OH	0.409	1.552	Dec-03	1.000	Oct-04	9.000	Oct-05	8.000	Oct-06	Continuing	TBD	18.000	
General Electric	SS/IDIQ	Cincinnati, OH	0.000	3.000	Dec-03	0.000	Oct-04	0.000	Oct-05	0.000		Continuing	TBD	3.000	
General Electric	SS/CPAF	Cincinnati, OH	0.000	0.000		207.000	Oct-04	227.000	Oct-05	362.000	Oct-06	Continuing	TBD	703.312	
Subtotal Product Development			5,226.325	4,358.615		4,785.000		5,356.000		4,702.000		Continuing	TBD	1,230.277	
Remarks:															
(U) <u>Support</u>															
NAWC Lakehurst	Various	NAWC Lakehurst	1.342	1.441	Dec-03	0.600	Oct-04	0.700	Oct-05	0.700	Oct-06	Continuing	TBD	TBD	
NAWC Patuxent River	Various	Patuxent River, VA	76.118	59.165	Dec-03	64.000	Oct-04	68.000	Oct-05	105.000	Oct-06	Continuing	TBD	TBD	
NAWC China Lake ASC	Various	Various	24.772	13.770	Dec-03	36.000	Oct-04	38.000	Oct-05	51.000	Oct-06	Continuing	TBD	TBD	
	Various	Wright Patterson AFB	13.617	6.556	Dec-03	7.605	Oct-04	8.822	Oct-05	16.410	Oct-06	Continuing	TBD	TBD	
AFFTC	Various	Various	21.380	16.528	Dec-03	26.915	Oct-04	31.222	Oct-05	45.527	Oct-06	Continuing	TBD		
ESC	Various	Hanscom AFB	5.790	1.435	Dec-03	1.633	Oct-04	1.894	Oct-05	10.235	Oct-06	Continuing	TBD		
Other	Various	Various	38.773	123.726	Dec-03	121.731	Oct-04	129.250	Oct-05	195.101	Oct-06	Continuing	TBD		
Miscellaneous	Various	Various	2.068	14.162	Oct-03	5.400	Dec-04	5.500	Dec-05	14.355	Dec-06	Continuing	TBD		
Sverdrup/Anteon	C/CPAF	Arlington, VA	8.899	4.450	Dec-03	5.278	Dec-04	5.433	Dec-05	14.515	Dec-06	Continuing	TBD		
AI-ES, Arlington, VA	SS/CPFF	Arlington, VA	12.747	6.373	Dec-03	7.127	Dec-04	8.300	Dec-05	13.135	Dec-06	Continuing	TBD		
Subtotal Support			205.506	247.606		276.289		297.121		465.978		Continuing	TBD	TBD	
Remarks:															
(U) <u>Test &amp; Evaluation</u>														0.000	

Project 3831

R-1 Shopping List - Item No. 90-5 of 90-8

Exhibit R-3 (PE 0604800F)

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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				
<b>05 System Development and Demonstration (SDD)</b>				<b>0604800F Joint Strike Fighter EMD</b>						<b>3831 Joint Strike Fighter</b>				
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
(U) <u>Management</u>														
Stanley	SS/CPFF	Arlington, VA	12.839	12.161	Oct-03	12.211	Oct-04	12.797	Oct-05	13.309	Oct-06	Continuing	TBD	TBD
Aegis	SS/CPFF	Arlington, VA	4.781	2.391	Dec-03	3.311	Dec-04	3.358	Dec-05	3.492	Dec-06	Continuing	TBD	TBD
Subtotal Management			17.620	14.552		15.522		16.155		16.801		Continuing	TBD	TBD
Remarks:														
(U) Total Cost			5,449.451	4,620.773		5,076.811		5,669.276		5,184.779		Continuing	TBD	TBD
Remarks: Prior Years reflect \$4,379.834 USAF/\$4,466.337 USN/\$1,249.969 International/Total \$10,070.224														
FY 2005 reflects \$2,181.272 USAF/\$2,145.239 USN/\$750.350 International/Total \$5,076.811														
FY 2006 reflects \$2,474.763 USAF/\$2,393.013 USN/\$801.500 International/Total \$5,669.276														
FY 2007 reflects \$2,192.584 USAF/\$2,287.055 USN/\$705.140 International/Total \$5,184.779														



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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2005</b>
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BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0604800F Joint Strike Fighter EMD</b>	PROJECT NUMBER AND TITLE <b>3831 Joint Strike Fighter</b>
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	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) <b>Schedule Profile</b>				
(U) Defense Acquisition Board (DAB)	3Q			
(U) DAB Program Review (DPR)		1-2Q	2Q	2Q
(U) Critical Design Reviews (CDR 1&2 FY06, CDR 3 FY07)			2Q	2Q
(U) F-35A Conventional Takeoff and Landing (CTOL) First Flight			4Q	

**UNCLASSIFIED**

PE NUMBER: 0604851F  
 PE TITLE: ICBM - EMD

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604851F ICBM - EMD</b>
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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	153.623	90.880	32.415	0.000	0.000	0.000	0.000	0.000	0.000	480.794
133B Rapid Execution & Combat Targeting (REACT)	21.025	16.101	0.000	0.000	0.000	0.000	0.000	0.000	0.000	68.136
4371 Safety Enhanced Reentry Vehicle (SERV) Program	63.783	52.903	26.564	0.000	0.000	0.000	0.000	0.000	0.000	231.183
4788 PSRE Life Extension Program	9.091	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	69.057
4823 ECS Replacement Program	13.491	16.260	0.000	0.000	0.000	0.000	0.000	0.000	0.000	37.044
5007 GPS Metric Tracking Capability	11.639	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	20.660
5037 Support Equipment	15.471	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	24.124
5080 ICBM Security	19.123	5.616	5.851	0.000	0.000	0.000	0.000	0.000	0.000	30.590

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

ICBM modernization efforts will ensure the extension of the operational life of the Minuteman III Intercontinental Ballistic Missile (ICBM) weapon system through 2020.

The Rapid Execution and Combat Targeting (REACT) Program designs and develops the modifications to the weapon system control consoles to correct launch readiness deficiencies.

The Safety Enhanced Reentry Vehicle (SERV) Program designs, develops, and tests the modifications necessary to adapt the Minuteman III Reentry System to accommodate the MK 21 Reentry Vehicle.

The Propulsion System Rocket Engine (PSRE) Life Extension Program (LEP) designs and develops the components necessary to refurbish the Minuteman III post-boost vehicle to correct age-related degradations.

The Environmental Control System (ECS) Replacement Program designs and develops the modifications necessary to refurbish, update, and/or replace components of the current Minuteman III ECS in the Launch Facilities (LFs) and Missile Alert Facilities (MAFs).

The Global Positioning System (GPS) Metric Tracking Capability Program designs and develops the modifications to the Minuteman III Range Instrumentation/Safety Wafer needed to use GPS for obtaining real-time position data to meet test range safety requirements.

The ICBM Support Equipment project designs and develops items used to maintain/modernize the Minuteman III weapons systems base, depot, launch control, and missile test capabilities.

## Exhibit R-2, RDT&amp;E Budget Item Justification

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February 2005

BUDGET ACTIVITY

**05 System Development and Demonstration (SDD)**

PE NUMBER AND TITLE

**0604851F ICBM - EMD**

The ICBM Security Program designs and develops the components necessary to counter emerging threats and vulnerabilities identified in the Security Review Document.

All of these modernization programs are designed to keep the Minuteman III weapon system at its required availability and reliability levels through 2020.

This program is in Budget Activity 05 because the projects are being developed for the Air Force but have not received production approval.

**(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	172.713	91.687	32.245	0.000
(U) Current PBR/President's Budget	153.623	90.880	32.415	0.000
(U) Total Adjustments	-19.090	-0.807		
(U) Congressional Program Reductions	0.000	0.000		
Congressional Rescissions	0.000	-0.807		
Congressional Increases				
Reprogrammings	-10.280			
SBIR/STTR Transfer	-8.810			
(U) <u>Significant Program Changes:</u>				
None in FY05, None in FY06				

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>					PE NUMBER AND TITLE <b>0604851F ICBM - EMD</b>			PROJECT NUMBER AND TITLE <b>133B Rapid Execution &amp; Combat Targeting (REACT)</b>		
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
133B Rapid Execution & Combat Targeting (REACT)	21.025	16.101	0.000	0.000	0.000	0.000	0.000	0.000	0.000	68.136
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

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

The Rapid Execution and Combat Targeting (REACT) Service Life Extension Program (SLEP) will modify the 50 Minuteman (MM) III Launch Control Centers (LCCs), Weapon System Control Consoles (WSSC) and the 19 other trainer and test facilities that support the MM III Weapon System. Hardware changes include upgrading the Embedded Memory Array Dynamic (EMAD) Card, replacing the Visual Display Units (VDU), and replacing the Head Disk Assembly (HDA) with current technology. The Console Operation Program (COP) software will be modified to correct identified deficiencies currently deployed to the warfighter and will be independently tested to provide Nuclear Surety Cross Check Analysis (NSCCA).

This document is for the RDT&E phase of REACT. The production phase is budgeted under (old and new) Modification # 3413, PE 0101213F.

FY05 was the last year for development funding.

**(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 COP software, HDA hardware, VDU hardware and EMAD hardware. Complete development of VDU, EMAD in 2004 and HDA in 2005	17.179	13.564		
(U) Continue NSCCA on COP software, complete in 2005	3.369	2.193		
(U) Provide other government support	0.477	0.344		
(U) Total Cost	21.025	16.101	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) Other APPN Missile Procurement - AF (PE 0101213F, Minuteman Squadrons, MM III Modifications, REACT, Mod #3413) (BA-03, P-011) BP21	13.060	13.853	0.119	0.000	0.000	0.000	0.000	0.000	0.000	39.235

NOTE: Procurement data above is only for items being procured as a result of the current RDT&E effort, not total procurement from REACT Program inception.

**(U) D. Acquisition Strategy**

A Cost Plus Award Fee (CPAF) contract addendum was added to the ICBM Prime Integration Contract in the 3QFY02 for everything but the Nuclear Safety Cross Check

**Exhibit R-2a, RDT&E Project Justification**

DATE

**February 2005**

BUDGET ACTIVITY

**05 System Development and Demonstration (SDD)**

PE NUMBER AND TITLE

**0604851F ICBM - EMD**

PROJECT NUMBER AND TITLE

**133B Rapid Execution & Combat Targeting (REACT)**

Analysis (NSCCA) effort which was contracted for separately under a CPAF 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					
<b>05 System Development and Demonstration (SDD)</b>				<b>0604851F ICBM - EMD</b>						<b>133B Rapid Execution &amp; Combat Targeting (REACT)</b>					
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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> ICBM Prime Integration Contract	CPAF	Northrop Grumman, Clearfield, UT	27.841	17.179	Jan-04	13.564	Jan-05	0.000		0.000		0.000	58.584		
Subtotal Product Development			27.841	17.179		13.564		0.000		0.000		0.000	58.584	0.000	
Remarks:															
(U) <u>Support</u> NSCCA	CPAF	Logicon (Northrop Grumman), San Pedro, CA	2.494	3.369	Jan-04	2.193	Jan-05	0.000		0.000		0.000	8.056		
SPO/Other Program Support	Various	ICBM Program Office, Hill AFB, UT	0.675	0.477	N/A	0.344	N/A					0.000	1.496		
Subtotal Support			3.169	3.846		2.537		0.000		0.000		0.000	9.552	0.000	
Remarks:															
(U) <u>Test &amp; 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> Subtotal Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000	
Remarks:															
(U) Total Cost			31.010	21.025		16.101		0.000		0.000		0.000	68.136	0.000	

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

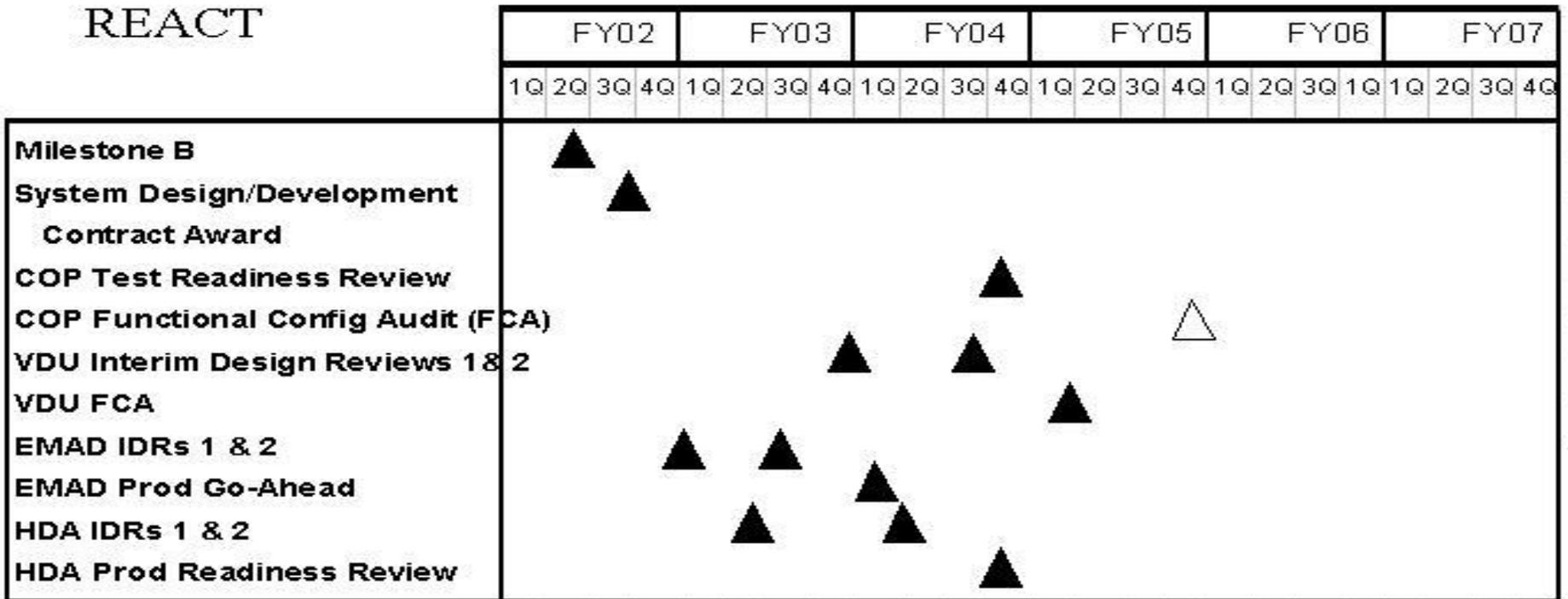
PE NUMBER AND TITLE

0604851F ICBM - EMD

PROJECT NUMBER AND TITLE

133B Rapid Execution & Combat Targeting (REACT)

REACT



COP = Console Operations Program  
 EMAD = Embedded Memory Array Dynamic  
 HDA = Head Disk Assembly  
 VDU = Visual Display Unit

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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2005</b>
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BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0604851F ICBM - EMD</b>	PROJECT NUMBER AND TITLE <b>133B Rapid Execution &amp; Combat Targeting (REACT)</b>
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<b>(U) <u>Schedule Profile</u></b>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Video Display Unit (VDU) Interim Design Review (IDR) 2	3Q			
(U) Console Operations Program (COP) Test Readiness Review (TRR)	4Q			
(U) Visual Display Unit Functional Configuration Audit (FCA)		1Q		
(U) COP Functional Configuration Audit (FCA)		4Q		
(U) Head Disk Assembly (HDA) IDR 2	1Q			
(U) HDA Production Readiness Review (PRR)	4Q			

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>				PE NUMBER AND TITLE <b>0604851F ICBM - EMD</b>				PROJECT NUMBER AND TITLE <b>4371 Safety Enhanced Reentry Vehicle (SERV) Program</b>		
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
4371 Safety Enhanced Reentry Vehicle (SERV) Program	63.783	52.903	26.564	0.000	0.000	0.000	0.000	0.000	0.000	231.183
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

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

The SERV program will modify the Minuteman III (MMIII) Reentry System (RS) to accept the Peacekeeper MK21 warhead, thus keeping the newest and safest warhead in the inventory. The MK21 will be deployed on MM III prior to the phase out of the MK12 warhead which is being driven by the pending decertification of this warhead by the Department of Energy (DOE). The SERV will modify the RS to accommodate differences in electrical and mechanical interfaces, system software, support equipment, and trainers along with nuclear surety and human intent certification. Test articles will be developed to support development and qualification testing, flight testing, systems integration, and weapon system-level testing. This document is for the RDT&E phase of SERV. The production phase is budgeted under Modification # 5911, PE 0101213F.

This program is in Budget Activity 05 because it is being developed for the Air Force but has not yet received full production approval.

**(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 design of the MM III airborne vehicle equipment (AVE) hardware and software needed for the MK21 RV	21.969	13.685	6.311	
(U) Continue development of the MM III command and launch equipment software needed for the MK21 RV	7.295	7.350	0.000	
(U) Continue NSCCA on SERV software	7.127	5.620	0.000	
(U) Continue design of the MM III support equipment needed for the MK21 RV	14.324	1.691	0.000	
(U) Continue system test and evaluation for all newly designed/developed hardware/software	10.286	12.181	5.220	
(U) Continue development of trainers/training needed for employing the MK21 RV on the MM III	2.482	2.971	1.451	
(U) Conduct initial flight testing	0.000	9.205	13.282	
(U) Provide other government support	0.300	0.200	0.300	
(U) Total Cost	63.783	52.903	26.564	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>Complete</u>							
(U) Other APPN Missile Procurement - AF										
(U) (PE 0101213F, Minuteman Squadrons, MM III)	20.286	55.135	60.530	67.304	64.882	48.300	0.000	0.000	0.000	316.437

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2005

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604851F ICBM - EMD

PROJECT NUMBER AND TITLE

4371 Safety Enhanced Reentry  
Vehicle (SERV) Program**(U) C. Other Program Funding Summary (\$ in Millions)**

Modifications, Safety  
Enhanced Reentry Vehicle,  
Mod #5911) (BA-03, P-012)

**(U) D. Acquisition Strategy**

A Cost Plus Incentive Fee with Award Fee (CPIF/AF) contract addendum was added to the ICBM Prime Integration Contractor (IPIC) for everything but the Nuclear Safety Cross Check Analysis (NSCCA) effort which was contracted for separately under a CPAF 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			
<b>05 System Development and Demonstration (SDD)</b>				<b>0604851F ICBM - EMD</b>							<b>4371 Safety Enhanced Reentry Vehicle (SERV) Program</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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> ICBM Prime Integration Contract	CPIF/AF	Northrop Grumman, Clearfield, UT	77.405	56.356	Jan-04	37.878	Dec-04	17.417	Jan-06	0.000		0.000	189.056	
Subtotal Product Development			77.405	56.356		37.878		17.417		0.000		0.000	189.056	0.000
Remarks:														
(U) <u>Support</u> NSCCA	CPAF	Logicon, San Pedro, CA	8.978	7.127	Jan-04	5.620	Jan-05	0.000	N/A	0.000		0.000	21.725	
SPO/Other Program Support	Various	ICBM Program Office, Hill AFB, UT	1.550	0.300		0.200	N/A	0.300	N/A			0.000	2.350	
Subtotal Support			10.528	7.427		5.820		0.300		0.000		0.000	24.075	0.000
Remarks:														
(U) <u>Test &amp; Evaluation</u> Vandenberg AFB	Project Order	Air Force test team at Vandenberg AFB CA (AFOTEC, A FSPC, 576th Flight Test Sq, DOE)		0.000	0	9.205	N/A	8.847	N/A	0.000		0.000	18.052	
None				0.000	0.000	9.205		8.847		0.000		0.000	18.052	0.000
Subtotal Test & Evaluation			0.000	0.000		9.205		8.847		0.000		0.000	18.052	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			87.933	63.783		52.903		26.564		0.000		0.000	231.183	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE  
February 2005

BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE  
0604851F ICBM - EMD

PROJECT NUMBER AND TITLE  
4371 Safety Enhanced Reentry Vehicle (SERV) Program

## Safety Enhanced Reentry Vehicle Program

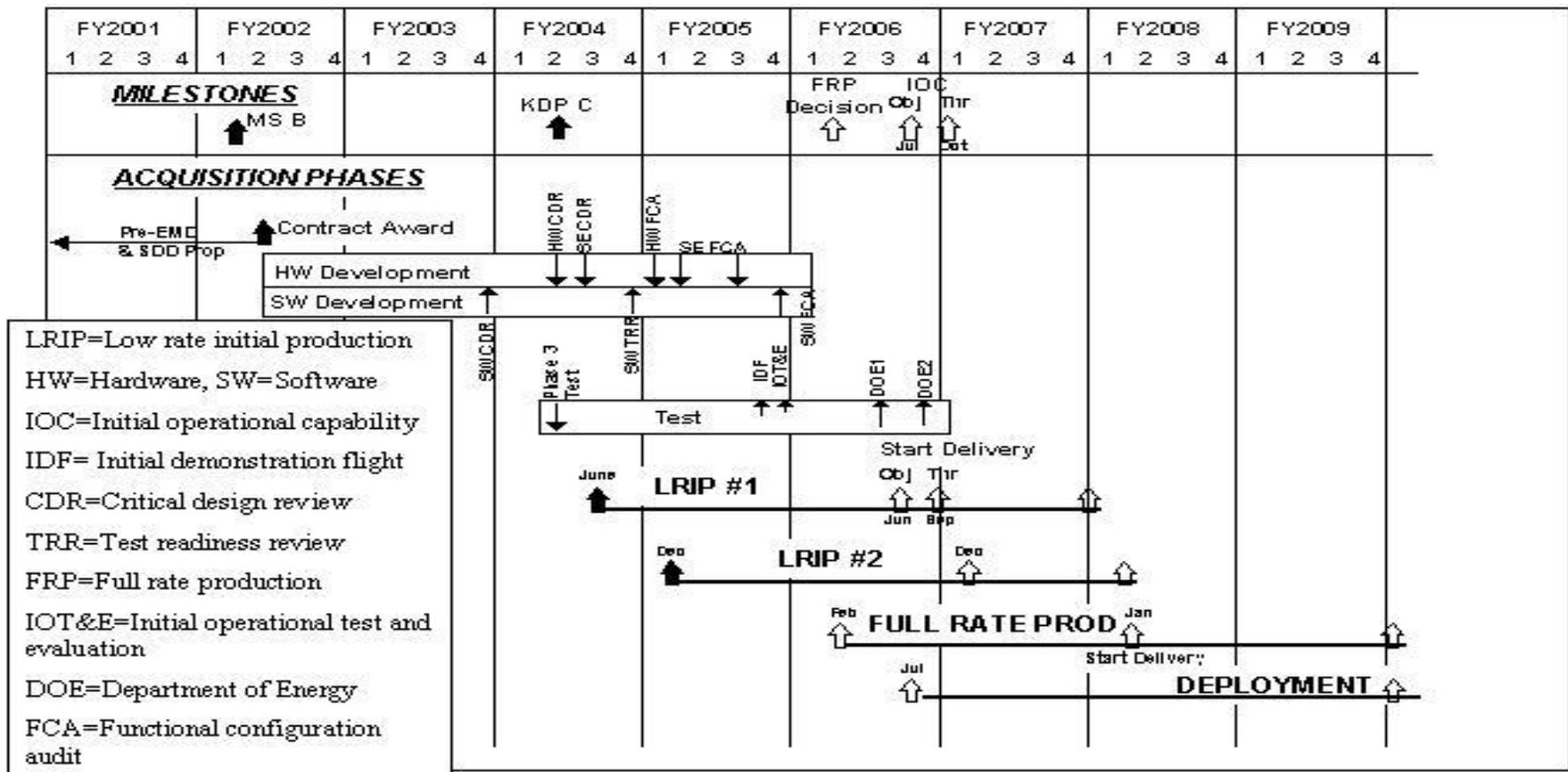


Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2005

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604851F ICBM - EMD

PROJECT NUMBER AND TITLE

4371 Safety Enhanced Reentry Vehicle (SERV) Program

(U) **Schedule Profile**

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Support Equipment Critical Design Review (CDR)	2Q			
(U) Airborne Vehicle Equipment (AVE) CDR	2Q			
(U) Phase 3 Test Execution	2Q			
(U) Software Test Readiness Review (TRR)	4Q			
(U) AVE Functional Configuration Audit		1Q		
(U) Initial Demonstration Flight		3Q		
(U) Flight Test #2		4Q		
(U) Department of Energy Flight Test #1			3Q	
(U) Initial Operating Capability			4Q	

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>				<b>PE NUMBER AND TITLE</b> <b>0604851F ICBM - EMD</b>				<b>PROJECT NUMBER AND TITLE</b> <b>4788 PSRE Life Extension Program</b>		
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
4788 PSRE Life Extension Program	9.091	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	69.057
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) **A. Mission Description and Budget Item Justification**  
 The Propulsion System Rocket Engine (PSRE) Life Extension Program will refurbish the Minuteman (MM) III post-boost vehicle (PBV) propulsion system. This refurbishment will correct age-related degradations, reduce life cycle costs, and support MM III life extension while maintaining existing weapon system reliability. Deficiencies identified (e.g., relief valve aging, titanium pressure sensing (pressure chamber) PC tube cracking, and fuel flex line cracks) may cause system failure/loss of performance and, in turn, potential mission failure. Other deficiencies (e.g., staging connector aging and actuator motor performance) will impact weapon system availability in addition to reducing system performance.  
 RDT&E efforts will identify replacement materials for those no longer available or which have become environmentally unacceptable. The program will then design/develop components and manufacturing processes necessary to correct the identified deficiencies. This document is for the RDT&E phase of PSRE Life Extension Program. The production phase is budgeted under modification # 5768, PE 0101213F.  
 FY04 was the last year for development funding.  
 This program is in Budget Activity 05 because it is being developed for the Air Force but has not yet received full production approval.

<b>(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Completed dynamics test firings results, Functional Configuration Audit and Production Readiness Review	4.727			
(U) Completed various activities: technician labor activities to include disassembly/reassembly of PSRE and selected subsystems: maintenance and repair of program unique depot support equipment, special test equipment, and program office support	4.124			
(U) Finished other government support	0.240			
(U) Total Cost	9.091	0.000	0.000	0.000

<b>(U) <u>C. Other Program Funding Summary (\$ in Millions)</u></b>	<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>Complete</u>							
(U) Other APPN Missile Procurement - AF (PE 0101213F, Minuteman Squadrons, MM III Modifications, PSRE Life Extension, Mod #5768)	13.247	13.598	19.110	19.720	25.640	27.130	25.483	28.002	0.000	171.930

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2005

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604851F ICBM - EMD

PROJECT NUMBER AND TITLE

4788 PSRE Life Extension Program

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

(BA-03, P-011)

**(U) D. Acquisition Strategy**

The PSRE Life Extension Program is being conducted under the ICBM Prime Integration Contractor (IPIC) and a joint refurbishment effort with the government depot.

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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			
<b>05 System Development and Demonstration (SDD)</b>				<b>0604851F ICBM - EMD</b>							<b>4788 PSRE Life Extension Program</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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> ICBM Prime Integration Contract	CPAF	Northrop Grumman, Clearfield, UT	43.619	4.727	Jan-04	0.000		0.000		0.000		0.000	48.346	
Subtotal Product Development Remarks:			43.619	4.727		0.000		0.000		0.000		0.000	48.346	0.000
(U) <u>Support</u> SPO/Other Program Support	WR	ICBM SPO and Depot, Hill AFB, UT	14.347	4.364	N/A	0.000		0.000		0.000		0.000	18.711	
Subtotal Support Remarks:			14.347	4.364		0.000		0.000		0.000		0.000	18.711	0.000
(U) <u>Test &amp; Evaluation</u> White Sands Test Facility (WSTF)	Project Order	US Army, White Sands, NM	2.000	0.000	N/A	0.000		0.000		0.000		0.000	2.000	
Subtotal Test & Evaluation Remarks:			2.000	0.000		0.000		0.000		0.000		0.000	2.000	0.000
(U) <u>Management</u> Subtotal Management Remarks:			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
(U) Total Cost			59.966	9.091		0.000		0.000		0.000		0.000	69.057	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604851F ICBM - EMD

PROJECT NUMBER AND TITLE

4788 PSRE Life Extension Program

## Propulsion System Rocket Engine

TASK	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
Contract Award (1Q00)																																
PDR (4Q00)																																
CDR (1Q02)																																
Qual 1 and 2 Test Firings (3QFY04)																																
PRR/FCA (3QFY04, 1QFY05)																																
PCA 1QFY05																																
Production																																

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**Exhibit R-4a, RDT&E Schedule Detail**

DATE

**February 2005**

BUDGET ACTIVITY

**05 System Development and Demonstration (SDD)**

PE NUMBER AND TITLE

**0604851F ICBM - EMD**

PROJECT NUMBER AND TITLE

**4788 PSRE Life Extension Program**

**(U) Schedule Profile**

- (U) Low Rate Production Decision
- (U) Qualification Test Fire #1
- (U) Qualification Test Fire #2
- (U) Production Readiness Review
- (U) Functional Configuration Audit
- (U) Physical Configuration Audit

FY 2004

FY 2005

FY 2006

FY 2007

2Q

3Q

3Q

3Q

1Q

1Q

**Exhibit R-2a, RDT&E Project Justification**

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**February 2005**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>					PE NUMBER AND TITLE <b>0604851F ICBM - EMD</b>			PROJECT NUMBER AND TITLE <b>4823 ECS Replacement Program</b>		
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
4823 ECS Replacement Program	13.491	16.260	0.000	0.000	0.000	0.000	0.000	0.000	0.000	37.044
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

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

The Minuteman III Environmental Control System (ECS) Replacement Program will replace the failing 1960's ECS equipment. The existing ECS is adversely affecting weapon system availability as well as driving increased support costs due to high failure rates, non-availability of replacement parts, and a lack of diagnostic capabilities. This program will replace the existing ECS equipment in MM III Launch Facilities (LFs), Missile Alert Facilities (MAFs), and test and trainer sites with modern equipment to extend the life of ECS to 2020. This document is for the RDT&E phase of ECS. The production phase is budgeted under Modification #5739, PE 0101213F.

FY05 was the last year for development funding.

This program is in Budget Activity 05 because it is being developed for the Air Force but has not yet received production approval.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Provide other government support	0.698	0.556		
(U) Continued design/development, qualification and testing of ECS components	6.500			
(U) Designed and fabricated test components	4.201			
(U) Continued identification and compilation of system data requirements	2.092			
(U) Complete design and development of ECS components		2.375		
(U) Complete test and evaluation of ECS components		11.795		
(U) Complete diagnostics and retest efforts		1.534		
(U) Total Cost	13.491	16.260	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>Complete</u>							
(U) Other APPN Missile Procurement - AF (PE 0101213F, Minuteman Squadrons, MM III Modifications, Environmental Control System Modification, Mod #5739) (BA-03, P-011)	0.000	0.000	30.208	62.850	62.579	62.456	61.802	5.031	0.000	284.926

Exhibit R-2a, RDT&E Project Justification

DATE

February 2005

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604851F ICBM - EMD

PROJECT NUMBER AND TITLE

4823 ECS Replacement Program

(U) **D. Acquisition Strategy**

The ECS Replacement Program is being conducted under the ICBM Prime Integration Contractor (IPIC). The effort will be completed on a Cost Plus Award Fee (CPAF) 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		
<b>05 System Development and Demonstration (SDD)</b>										<b>0604851F ICBM - EMD</b>			<b>4823 ECS Replacement Program</b>		
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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> ICBM Prime Integration Contract	CPAF	Northrop Grumman, Clearfield, UT	6.693	12.802	Jan-04	15.704	Jan-05	0.000		0.000		0.000	35.199		
Subtotal Product Development			6.693	12.802		15.704		0.000		0.000		0.000	35.199	0.000	
Remarks:															
(U) <u>Support</u> SPO/Other Program Support	Various	ICBM Program Office, Hill AFB, UT	0.600	0.689	N/A	0.556	N/A	0.000		0.000		0.000	1.845		
Subtotal Support			0.600	0.689		0.556		0.000		0.000		0.000	1.845	0.000	
Remarks:															
(U) <u>Test &amp; Evaluation</u> None								0.000		0.000			0.000		
None													0.000		
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000		0.000	0.000	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			7.293	13.491		16.260		0.000		0.000		0.000	37.044	0.000	

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

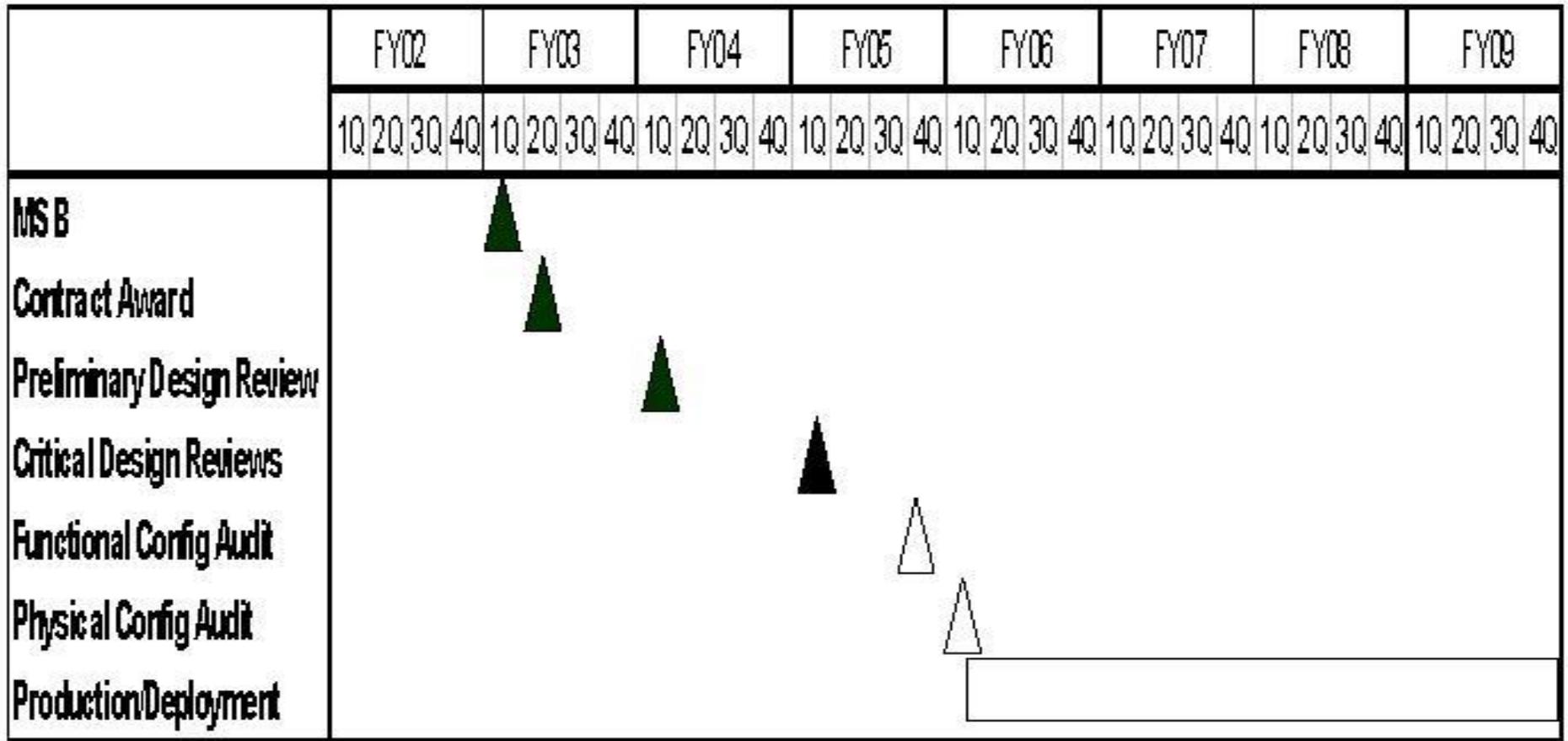
PE NUMBER AND TITLE

0604851F ICBM - EMD

PROJECT NUMBER AND TITLE

4823 ECS Replacement Program

**ICBM Environmental Control System**



<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2005</b>
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BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0604851F ICBM - EMD</b>	PROJECT NUMBER AND TITLE <b>4823 ECS Replacement Program</b>
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	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) <b>Schedule Profile</b>				
(U) Preliminary Design Review	1Q			
(U) Critical Design Review		1Q		
(U) Functional Configuration Audit		4Q		
(U) Physical Configuration Audit			1Q	

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>					PE NUMBER AND TITLE <b>0604851F ICBM - EMD</b>			PROJECT NUMBER AND TITLE <b>5007 GPS Metric Tracking Capability</b>		
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
5007 GPS Metric Tracking Capability	11.639	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	20.660
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

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

The GPS Metric Tracking (GPS MT) program will develop a certified GPS tracking and range safety capability to replace the current C-Band transponder radar which is scheduled for retirement (FY05). This program will develop, modify, test and flight certify the necessary GPS hardware to be integrated onto the Mod 7 Flight Instrumentation package to support flight test operations of the Minuteman III weapon system. The GPS MT system will provide range operations with near instantaneous time/space position information and flight profile data required to safely conduct launch operations. This document is for the RDT&E phase of GPS MT. The production phase is budgeted under Modification #5799, PE 0101213F.

FY04 was the last year for development funding.

This program is in Budget Activity 05 because it is being developed for the Air Force but has not yet received production approval.

**(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 design and development of GPS MT hardware and software and design related support equipment	9.574			
(U) Completed other government support	2.065			
(U) Total Cost	11.639	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>Complete</u>							
(U) Other APPN Missile Procurement - AF (PE 11213F, Minuteman Squadrons, MM III	2.981	0.480	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.772
(U) Modifications, GPS Metric Tracking Program, Mod #5799) (BA-03, P-011)									0.000	

**(U) D. Acquisition Strategy**

A Cost Plus Award Fee (CPAF) contract addendum was added to the ICBM Prime Integration Contract 3rd Qtr of FY02.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2005**

<b>BUDGET ACTIVITY</b>	<b>PE NUMBER AND TITLE</b>	<b>PROJECT NUMBER AND TITLE</b>
<b>05 System Development and Demonstration (SDD)</b>	<b>0604851F ICBM - EMD</b>	<b>5007 GPS Metric Tracking Capability</b>

(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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> ICBM Prime Integration Contract	CPAF	Northrop Grumman, Clearfield, UT	7.595	9.574	Jan-04	0.000		0.000		0.000		0.000	17.169	
Subtotal Product Development			7.595	9.574		0.000		0.000		0.000		0.000	17.169	0.000
Remarks:														
(U) <u>Support</u> SPO/Other Program Support	Various	ICBM Program Office, Hill AFB, CA	0.710	0.065	N/A	0.000		0.000		0.000		0.000	0.775	
Subtotal Support			0.710	0.065		0.000		0.000		0.000		0.000	0.775	0.000
Remarks:														
(U) <u>Test &amp; Evaluation</u> Vandenberg integration and launch	MIPR	USAF Vandenberg AFB CA (576th Test Sq)	0.716	2.000	N/A	0.000		0.000		0.000		0.000	2.716	
Subtotal Test & Evaluation			0.716	2.000		0.000		0.000		0.000		0.000	2.716	0.000
Remarks:														
(U) <u>Management</u>								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			9.021	11.639		0.000		0.000		0.000		0.000	20.660	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604851F ICBM - EMD

PROJECT NUMBER AND TITLE

5007 GPS Metric Tracking Capability

GPS Metric

	FY03				FY04				FY05				FY06				FY07				FY08				FY09							
	1Q	2Q	3Q	4Q																												
MS B																																
Preliminary Design Review			▲																													
Critical Design Review				▲																												
Flight Tests																																
GPS Certified on MM III																																

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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2005</b>
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BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0604851F ICBM - EMD</b>	PROJECT NUMBER AND TITLE <b>5007 GPS Metric Tracking Capability</b>
---	---	--

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) <b>Schedule Profile</b>				
(U) Certification Flight Test #1	2Q			
(U) Certification Flight Test #2	3Q			
(U) Certification Flight Test #3	4Q			
(U) GPS Metric Certified on Minuteman III		3Q		

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>					PE NUMBER AND TITLE <b>0604851F ICBM - EMD</b>			PROJECT NUMBER AND TITLE <b>5037 Support Equipment</b>		
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
5037 Support Equipment	15.471	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	24.124
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

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

The ICBM Support Equipment efforts will design and develop support equipment and various components required to sustain Minuteman III system reliability and maintainability and to also restore minimum maintenance and testing capabilities. Equipment to support the guidance system (Gyro Stabilized Platform {GSP} Fine Balance test set, GI-T1-B gyro drift test set, and guidance repair stations ) will be designed and developed. The existing Reentry Vehicle Test Set Low Frequency Instrument Console (LFIC) emulator will also begin design. Lastly, Air Force Safety Board recommendations to protect against power surges in the Minuteman III Missile Alert Facility (MAF) and Launch Facility (LF) electrical systems will be implemented by adding protection to ground support equipment.

FY04 was the last year for development funding.

This program is in Budget Activity 05 because it is being developed for the Air Force but has not yet received production approval.

**(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 and complete design and development activities for the GSP Fine Balance and GI-T1-B test sets	10.348			
(U) Provided other government support	0.105			
(U) Designed, developed, and planned test and qualification for the guidance repair stations (instrument build).	2.868			
(U) Begin and complete design and development for Surge Protection equipment	1.400			
(U) Began design on Reentry Vehicle Test Set Low Frequency Instrument Console (LFIC)	0.750			
(U) Total Cost	15.471	0.000	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) Other APPN 3020 Funds, Missile Procurement-AF (PE 0101213F) , BP2100, Minuteman III Modifications, Minuteman Surge Protection, Mod # 5912 (BA-03, P-011)	1.802	3.828	4.822	4.841	2.886	0.000	0.000	0.000	0.000	18.179

Exhibit R-2a, RDT&E Project Justification

DATE

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604851F ICBM - EMD

PROJECT NUMBER AND TITLE

5037 Support Equipment

(U) D. Acquisition Strategy

The Support Equipment Program is being conducted under the ICBM Prime Integration Contract (IPIC) via a Cost Plus Award Fee (CPAF) contract. The LFIC portion is a Cost Plus Fixed Fee.

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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				
<b>05 System Development and Demonstration (SDD)</b>										<b>0604851F ICBM - EMD</b>					<b>5037 Support Equipment</b>				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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> ICBM Prime Integration Contract	CPAF	Northrop Grumman Clearfield, UT	8.488	14.616	Jan-04	0.000	N/A	0.000		0.000		0.000	23.104						
LFIC	CPFF	Lockheed Martin, Valley Forge, PA	0.000	0.750	Apr-04	0.000		0.000		0.000		0.000	0.750						
Subtotal Product Development Remarks:			8.488	15.366		0.000		0.000		0.000		0.000	23.854	0.000					
(U) <u>Support</u> SPO/Other Program Support	Various	ICBM Program Office, Hill AFB, UT	0.165	0.105	N/A	0.000	N/A	0.000		0.000		0.000	0.270						
Subtotal Support Remarks:			0.165	0.105		0.000		0.000		0.000		0.000	0.270	0.000					
(U) <u>Test &amp; Evaluation</u> Subtotal Test & Evaluation Remarks:			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000					
(U) <u>Management</u> Subtotal Management Remarks:			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000					
(U) Total Cost			8.653	15.471		0.000		0.000		0.000		0.000	24.124	0.000					

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604851F ICBM - EMD

PROJECT NUMBER AND TITLE

5037 Support Equipment

### ICBM Support Equipment

	FY03	FY04	FY05	FY06	FY07	FY08	FY09	
Cont Award (Test Sets)	▲							
Cont Awards (other efforts)		▲▲						
Guid Repair Station PDR			▲					
GSP FB Test Set CDR		▲						
GI-T1-B Test Set CDR		▲						
Surge Protect CDR		▲						
Guid Repair Station CDR			△					
LFIC Emulator Completion				△				
Procurement		■						

PRD = Preliminary Design Review  
 CDR = Critical Design Review  
 GSP FB = Gyro Stabilized Platform Fine Balance  
 LFIC = Low Frequency Instrument Console

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**Exhibit R-4a, RDT&E Schedule Detail**

DATE

**February 2005**

BUDGET ACTIVITY

**05 System Development and Demonstration (SDD)**

PE NUMBER AND TITLE

**0604851F ICBM - EMD**

PROJECT NUMBER AND TITLE

**5037 Support Equipment**

**(U) Schedule Profile**

(U) Gyro Stabilized Platform Fine Balance test set Critical Design Review (CDR)

FY 2004

2Q

FY 2005

FY 2006

FY 2007

(U) GI-T1-B test set CDR

3Q

(U) Contract Award for, Surge Protect, and Guidance Repair

3Q

(U) Surge Protection CDR

4Q

(U) Guidance Repair Station Preliminary Design Review

4Q

(U) Guidance Repair Station CDR

2Q

(U) Award Low Frequency Instrument Console Emulator contract

3Q

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>						PE NUMBER AND TITLE <b>0604851F ICBM - EMD</b>			PROJECT NUMBER AND TITLE <b>5080 ICBM Security</b>	
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
5080 ICBM Security	19.123	5.616	5.851	0.000	0.000	0.000	0.000	0.000	0.000	30.590
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

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

The ICBM Security program will design and develop the features necessary to modernize launch facility (LF) security systems. Modernized ICBM security systems will mitigate emerging threat technologies and methods, and will address the potential vulnerabilities identified in Air Force security reviews.

This document is for the RDT&E phase of ICBM Security and is in Budget Activity 05. The Production portion of the program is under PE 0101213F.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Component design, development and evaluation	18.946	5.456	5.681	
(U) Provide other government support	0.177	0.160	0.170	
(U) Total Cost	19.123	5.616	5.851	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>Complete</u>							
(U) Missile Procurement AF, PE 0101213F, Minuteman Squadrons, MMIII Modifications, ICBM Security, Mod 5914 (BA-03, P-012)	0.596	47.954	40.924	76.078	71.528	66.294	53.559	26.997	6.420	390.350

**(U) D. Acquisition Strategy**

The Security effort will be managed under a CPAF contract with the ICBM Prime Integration Contractor (IPIC).

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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			
<b>05 System Development and Demonstration (SDD)</b>				<b>0604851F ICBM - EMD</b>							<b>5080 ICBM Security</b>			
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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> ICBM Prime Integration Contract	CPAF	Northrop Grumman, Clearfield, UT	0.000	18.946	Jan-04	5.456	Jan-05	5.681	Jan-06	0.000		0.000	30.083	
Subtotal Product Development			0.000	18.946		5.456		5.681		0.000		0.000	30.083	0.000
Remarks:														
(U) <u>Support</u> SPO/Other Program Support	Various	ICBM Program Office, Hill AFB, UT	0.000	0.177	N/A	0.160	N/A	0.170	N/A	0.000		0.000	0.507	
Subtotal Support			0.000	0.177		0.160		0.170		0.000		0.000	0.507	0.000
Remarks:														
(U) <u>Test &amp; 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	19.123		5.616		5.851		0.000		0.000	30.590	0.000



**Exhibit R-4a, RDT&E Schedule Detail**

DATE

**February 2005**

BUDGET ACTIVITY

**05 System Development and Demonstration (SDD)**

PE NUMBER AND TITLE

**0604851F ICBM - EMD**

PROJECT NUMBER AND TITLE

**5080 ICBM Security**

**(U) Schedule Profile**

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Contract Award B-Plug	2Q			
(U) Contract Award Remote Visual Assessment (RVA)	2Q			
(U) Preliminary Design Review B Plug		1Q		
(U) Critical Design Review B Plug		2Q		
(U) Functional Configuration Audit B Plug			2Q	
(U) Preliminary Design RVA			1Q	
(U) Critical Design Review RVA			2Q	
(U) Functional Configuration Audit RVA			4Q	

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PE NUMBER: 0604853F  
 PE TITLE: Evolved Expendable Launch Vehicle - EMD

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2005</b>
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BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0604853F Evolved Expendable Launch Vehicle - EMD</b>
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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	7.509	26.763	26.093	18.303	0.000	0.000	0.000	0.000	0.000	833.611
0004 Evolved Expendable Launch Vehicle	7.509	26.763	26.093	18.303	0.000	0.000	0.000	0.000	0.000	833.611

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

The Evolved Expendable Launch Vehicle (EELV) program is a jointly funded (government and industry) space launch system developed in partnership with industry to provide two competitive families of launch vehicles (Delta IV & Atlas V). The program satisfies the government's National Launch Forecast (NLF) requirements, reduces the cost of space launch by at least 25%, and satisfies commercial satellites' launch services needs.

EELV is a commercial launch service, not a weapon system. The EELV program includes launch vehicles, a standard payload interface, support systems, mission integration (includes mission unique requirements), flight instrumentation and range interfaces, special studies (mission feasibility analysis, secondary payloads, dual manifesting, dual integration, special flight instrumentation, loads analysis, etc.), post-flight data evaluation and analysis, mission assurance, assured access (RL-10 producibility, etc.), government mission director, system/process and reliability improvements, training, and technical support. In addition, the system includes launch site/operations activities, activities in support of assured access, systems integration and tests, and other related support activities. The program will also design and develop a Global Positioning System (GPS) Metric Tracking capability for obtaining real-time booster position data during flight.

The EELV system provides two families of launch vehicles (Delta IV and Atlas V). EELV is responsible for launching government manifested payloads, including those supported by Titan II, Delta II, Atlas II/III, and Titan IV. Evolved from current expendable launch systems and new applications of existing technology, EELV supports military, intelligence, civil, and commercial mission requirements.

An EELV Heavy Lift Vehicle (HLV) demonstration was added to the program in response to the Space Launch Broad Area Review (BAR) and the EELV Joint Assessment Team (JAT) to increase mission assurance and confidence in the HLV. An HLV demonstration test article was launched on 21 Dec 2004. This program element is in Budget Activity 5, System Development and Demonstration, because it supports development and demonstration of the EELV concept leading to deployment of a lower cost expendable launch vehicle system.

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2005</b>
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BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0604853F Evolved Expendable Launch Vehicle - EMD</b>
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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	7.909	27.000	17.153	17.963
(U) Current PBR/President's Budget	7.509	26.763	26.093	18.303
(U) Total Adjustments	-0.400	-0.237		
(U) Congressional Program Reductions				
Congressional Rescissions		-0.237		
Congressional Increases				
Reprogrammings				
SBIR/STTR Transfer	-0.400			
(U) <u>Significant Program Changes:</u>				
FY06 includes additional \$8.8M for GPS Metric Tracking development				

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2005

BUDGET ACTIVITY		PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE		
<b>05 System Development and Demonstration (SDD)</b>		<b>0604853F Evolved Expendable Launch Vehicle - EMD</b>						<b>0004 Evolved Expendable Launch Vehicle</b>		
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
0004 Evolved Expendable Launch Vehicle	7.509	26.763	26.093	18.303	0.000	0.000	0.000	0.000	0.000	833.611
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

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

The Evolved Expendable Launch Vehicle (EELV) program is a jointly funded (government and industry) space launch system developed in partnership with industry to provide two competitive families of launch vehicles (Delta IV & Atlas V). The program satisfies the government's National Launch Forecast (NLF) requirements, reduces the cost of space launch by at least 25%, and satisfies commercial satellites' launch services needs.

EELV is a commercial launch service, not a weapon system. The EELV program includes launch vehicles, a standard payload interface, support systems, mission integration (includes mission unique requirements), flight instrumentation and range interfaces, special studies (mission feasibility analysis, secondary payloads, dual manifesting, dual integration, special flight instrumentation, loads analysis, etc.), post-flight data evaluation and analysis, mission assurance, assured access (RL-10 producibility, etc.), government mission director, system/process and reliability improvements, training, and technical support. In addition, the system includes launch site/operations activities, activities in support of assured access, systems integration and tests, and other related support activities. The program will also design and develop a Global Positioning System (GPS) Metric Tracking capability for obtaining real-time booster position data during flight.

The EELV system provides two families of launch vehicles (Delta IV and Atlas V). EELV is responsible for launching government manifested payloads, including those supported by Titan II, Delta II, Atlas II/III, and Titan IV. Evolved from current expendable launch systems and new applications of existing technology, EELV supports military, intelligence, civil, and commercial mission requirements.

An EELV Heavy Lift Vehicle (HLV) demonstration was added to the program in response to the Space Launch Broad Area Review (BAR) and the EELV Joint Assessment Team (JAT) to increase mission assurance and confidence in the HLV. An HLV demonstration test article was launched on 21 Dec 2004.

This program element is in Budget Activity 5, System Development and Demonstration, because it supports development and demonstration of the EELV concept leading to deployment of a lower cost expendable launch vehicle 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 GPS Metric Tracking Booster Capability Integration	0.509	12.763	12.093	8.303
(U) Assured Access initiatives	7.000	14.000	14.000	10.000
(U) Total Cost	7.509	26.763	26.093	18.303

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2005

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604853F Evolved Expendable  
Launch Vehicle - EMD

PROJECT NUMBER AND TITLE

0004 Evolved Expendable Launch  
Vehicle(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>Complete</u>							
(U) Other APPN										
(U) MPAF (BA 05, PE 0305953F, P-28)*	624.788	506.389	838.347	1132.873	1163.979	1123.048	1156.133	1437.792	12,804.860	20,788.20 9

\* The Cost To Complete value is an estimate based on 95 AF launches in the current manifest, FY 2002-2020.

(U) **D. Acquisition Strategy**

The EELV concept of families of launch vehicles emphasizes commonality of hardware, infrastructure, and economies of scale to enhance production, operations, and support efficiencies. Four initial contracts were awarded for the Low Cost Concept Validation (LCCV) phase in August 1995. The Air Force downselected to two contractors - The Boeing Company (TBC) and Lockheed Martin (LM) - for the Pre-Engineering and Manufacturing Development (Pre-EMD) phase in December 1996. On 16 Oct 1998, two \$500M Other Transaction Agreements (OTA) were awarded to TBC and LM for the development effort. The contractors have contributed additional funds of their own, as necessary, to bring their national launch operational capability on line. It is estimated that each contractor has invested in excess of \$1B. At the same time as the award of the development effort, Initial Launch Services (ILS) contracts were awarded to Boeing for \$1.38B (19 missions) and to Lockheed Martin for \$649M (9 missions).

On 18 Sep 2000, a revised acquisition strategy was reviewed by the DEPSECDEF and signed by USD (AT&L). Under the revised strategy, only TBC would develop a Vandenberg AFB launch facility. LM transferred two West Coast Defense Meteorological Satellite Program (DMSP) missions to TBC and provided the government additional consideration. Furthermore, the program restructure included the procurement of a SECAF-directed heavy lift demonstration launch to increase confidence in the Delta IV Heavy Lift Vehicle (HLV) prior to the first operational government HLV launch.

On 24 Jul 2003, the investigation into Procurement Integrity Act violations by TBC resulted in transferring seven ILS missions from TBC to LM. In addition, TBC's exclusive right to west coast missions was rescinded. LM is developing a Vandenberg AFB launch facility that is planned for completion in CY05.

All of the ILS (Buy 1/awarded) launch services are firm-fixed price contracts. Due to the decrease in the commercial market, the projected costs of the unawarded EELV launches have increased. The new acquisition strategy, which will begin in FY06, separates the launch price from the infrastructure costs. Follow-on Launch Service Buys will include launch service costs on a fixed-price contract. National launch capability infrastructure costs, to include launch and range operations, mission integration, mission unique development and integration, subcontract support engineering, factory engineering, etc., will be funded on an annual basis. The Space System Acquisition Strategy (SSAS) for EELV is being revised to reflect this modified approach to provide assured access to space with two viable launch service providers.

The acquisition approach supports the 2004 National Space Transportation Policy, caps the government's development costs, and allows partnership with industry, while still reducing the program's overall cost to launch the NLF by at least 25% over existing systems. The EELV system will launch the majority of the government portion of the NLF through 2020 and the government will continue to work in partnership with industry to capture continuous product and process improvements that will enhance

**Exhibit R-2a, RDT&E Project Justification**

DATE

**February 2005**

BUDGET ACTIVITY

**05 System Development and Demonstration (SDD)**

PE NUMBER AND TITLE

**0604853F Evolved Expendable  
Launch Vehicle - EMD**

PROJECT NUMBER AND TITLE

**0004 Evolved Expendable Launch  
Vehicle**

reliability and reduce both the contractors' and government's total operating costs.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2005**

BUDGET ACTIVITY			PE NUMBER AND TITLE								PROJECT NUMBER AND TITLE			
<b>05 System Development and Demonstration (SDD)</b>			<b>0604853F Evolved Expendable Launch Vehicle - EMD</b>								<b>0004 Evolved Expendable Launch Vehicle</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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>														
Prime Contractor Boeing	OTA/ILS		685.002	0.255	Aug-04	6.506	Oct-04	13.046	Nov-05	9.151	Nov-06		713.960	
Prime Contractor Lockheed Martin	OTA/ILS		537.092	7.254	Dec-03	20.257	Oct-04	13.047	Nov-05	9.152	Nov-06		586.802	
Subtotal Product Development			1,222.094	7.509		26.763		26.093		18.303		0.000	1,300.762	0.000
Remarks:														
(U) <u>Support</u>														
SPO/CTF Range Mission Spt	Various		39.529										39.529	
FFRDC	SS/CPAF		67.214										67.214	
Other Cntr Spt	Various		15.144										15.144	
Subtotal Support			121.887	0.000		0.000		0.000		0.000		0.000	121.887	0.000
Remarks:														
(U) <u>Test &amp; 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			1,343.981	7.509		26.763		26.093		18.303		0.000	1,422.649	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

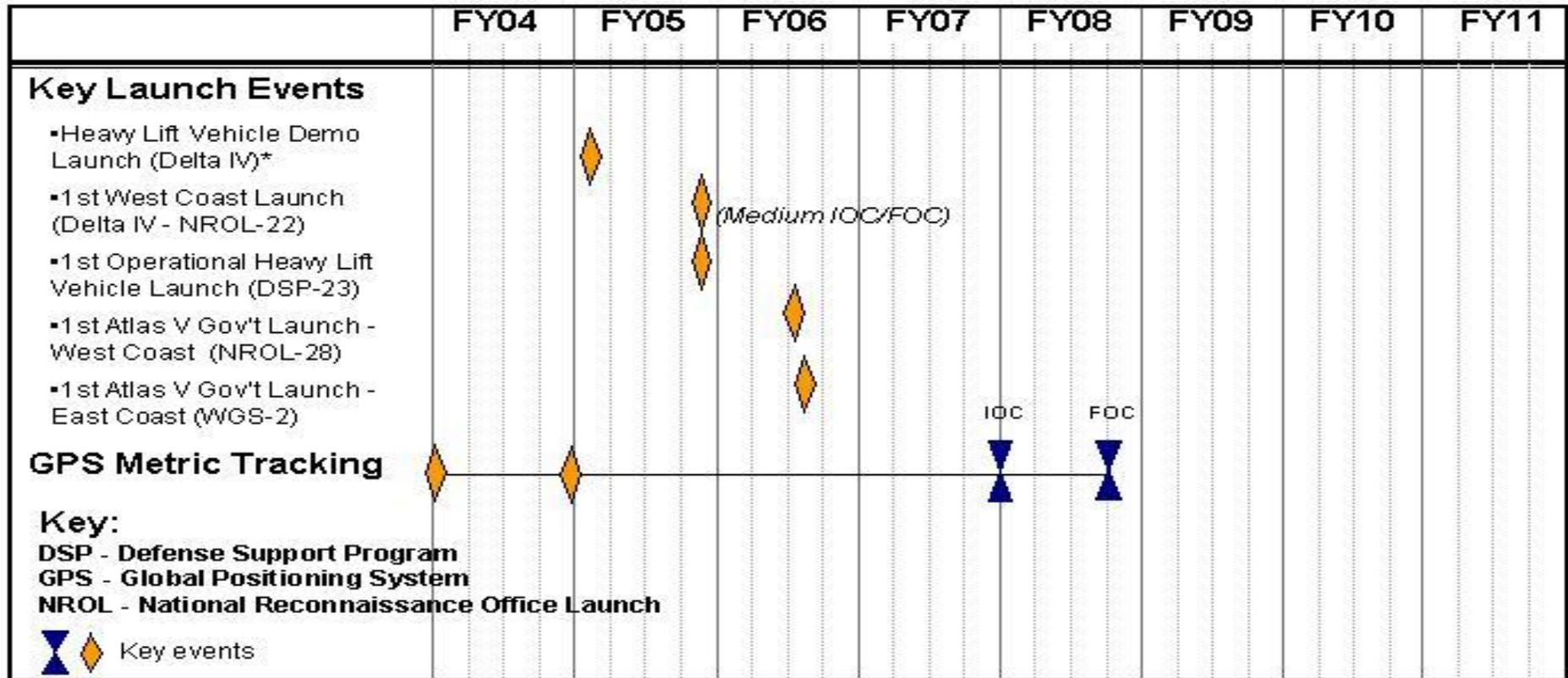
February 2005

BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE  
0604853F Evolved Expendable  
Launch Vehicle - EMD

PROJECT NUMBER AND TITLE  
0004 Evolved Expendable Launch  
Vehicle

**EELV Program - Key Events**



UNCLASSIFIED

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604853F Evolved Expendable Launch Vehicle - EMD</b>	<b>PROJECT NUMBER AND TITLE</b> <b>0004 Evolved Expendable Launch Vehicle</b>
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<b>(U) <u>Schedule Profile</u></b>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) GPS Metric Tracking Project Planning & Requirements Analysis	1-4Q			
(U) GPS Metric Tracking Project Planning & Requirements Integration	4Q	1-4Q	1-4Q	1-4Q
(U) HLV Demonstration Launch		1Q		
(U) 1st West Coast Launch of Delta IV		4Q		
(U) 1st Government Operational HLV Launch		4Q		
(U) 1st West Coast Launch of Atlas V			3Q	
(U) 1st Government East Coast Launch of Atlas V			3Q	

**UNCLASSIFIED**

PE NUMBER: 0605011F  
 PE TITLE: RDT&E For Aging Aircraft

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2005</b>
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BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0605011F RDT&amp;E For Aging Aircraft</b>
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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	38.950	31.783	24.384	25.597	26.149	26.535	27.067	27.425	Continuing	TBD
4685 Aging Aircraft	38.950	31.783	24.384	25.597	26.149	26.535	27.067	27.425	Continuing	TBD

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

This program develops cross-cutting technologies to extend the service life, ensure flight safety, control rapidly rising sustainment costs, and retain the operational capability of the aging aircraft fleet. The program identifies these cross-cutting technologies through detailed business case analyses identifying opportunities to reduce total ownership costs and improve reliability, availability, and maintainability. The program then develops and delivers solutions (to include prototype hardware and software) to address cross-cutting platform deficiencies. The program also analyzes and recommends changes to existing sustainment processes such as field and depot repair processes. Additionally, the program develops and delivers tools to facilitate system/subsystem management, including the sharing of aging aircraft information and knowledge among the Air Logistics Centers, Product Centers, System Program Offices, other Services and government agencies, and industry, as well as providing senior decision makers with a common, comprehensive understanding of program areas such as corrosion, fatigue, wiring, subsystems, etc. Note: In FY 2005, Congress added a total of \$16.4 million for the following Congressional Adds: \$4.2 million for Academic Center for Aging Aircraft, \$1.0 million for Enterprise Availability and Cost Optimization System System, \$1.3 million for Fleet Capability Assessment Process, \$4.6 million for Aging Landing Gear Life Extension, \$1.3 million for Fleet Readiness, \$1.0 million for Advanced Aircraft Avionics and Electronics Insertion, \$1.3 million for LEAN Depot Engine Repair, and \$1.7 million for TER-O Mil-STD-1760 ("Smart") Modification. This program is in Budget Activity 5, System Demonstration and Development since projects/capabilities will be developed in this program and then made available for procurement by already 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	40.615	15.665	24.922	25.387
(U) Current PBR/President's Budget	38.950	31.783	24.384	25.597
(U) Total Adjustments	-1.665	16.118		
(U) Congressional Program Reductions				
Congressional Rescissions		-0.282		
Congressional Increases		16.400		
Reprogrammings	-0.579			
SBIR/STTR Transfer	-1.086			

**(U) Significant Program Changes:**

C. Not applicable.

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>					PE NUMBER AND TITLE <b>0605011F RDT&amp;E For Aging Aircraft</b>			PROJECT NUMBER AND TITLE <b>4685 Aging Aircraft</b>		
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
4685 Aging Aircraft	38.950	31.783	24.384	25.597	26.149	26.535	27.067	27.425	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 cross-cutting technologies to extend the service life, ensure flight safety, control rapidly rising sustainment costs, and retain the operational capability of the aging aircraft fleet. The program identifies these cross-cutting technologies through detailed business case analyses identifying opportunities to reduce total ownership costs and improve reliability, availability, and maintainability. The program then develops and delivers solutions (to include prototype hardware and software) to address cross-cutting platform deficiencies. The program also analyzes and recommends changes to existing sustainment processes such as field and depot repair processes. Additionally, the program develops and delivers tools to facilitate system/subsystem management, including the sharing of aging aircraft information and knowledge among the Air Logistics Centers, Product Centers, System Program Offices, other Services and government agencies, and industry, as well as providing senior decision makers with a common, comprehensive understanding of program areas such as corrosion, fatigue, wiring, subsystems, etc. Note: In FY 2005, Congress added a total of \$16.4 million for the following Congressional Adds: \$4.2 million for Academic Center for Aging Aircraft, \$1.0 million for Enterprise Availability and Cost Optimization System System, \$1.3 million for Fleet Capability Assessment Process, \$4.6 million for Aging Landing Gear Life Extension, \$1.3 million for Fleet Readiness, \$1.0 million for Advanced Aircraft Avionics and Electronics Insertion, \$1.3 million for LEAN Depot Engine Repair, and \$1.7 million for TER-O Mil-STD-1760 ("Smart") Modification. This program is in Budget Activity 5, System Demonstration and Development since projects/capabilities will be developed in this program and then made available for procurement by already 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) MAJOR THRUST: Aging Aircraft Structures Projects. Transitions cross-cutting technologies for aircraft structures to weapon systems, field and depot maintainers, and Air Logistics Center engineers and managers to ensure continued airworthiness, control sustainment cost growth, and improve aircraft availability.	11.057	7.396	13.118	14.318
(U) In FY 2004: Continued corrosion maintenance improvements. Continued to develop and transition corrosion abatement techniques, procedures, and repairs. Expanded the range of available repair technologies for eliminating aircraft structural corrosion. Continued to reduce the cost and man-hours associated with corrosion maintenance actions and minimized aircraft downtime by providing automated corrosion detection technologies. Continued development and integration of software and analytical tools to support corrosion management workload prediction (e.g., environmental exposure models and corrosion damage analyses). Continued work on improved non-destructive inspection techniques, deployment of corrosion and crack detection capabilities, and ongoing evaluation of new and more cost-effective techniques. Continued work to shorten detection time for flaws and damage due to fatigue cracking. Continued to develop and refine the Depot Technology Modernization Plan process and implement this process. Developed and implemented requirements process to identify, validate, and prioritize aging aircraft deficiencies and solutions through coordination with the operational MAJCOMs.				

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2005

BUDGET ACTIVITY

**05 System Development and Demonstration (SDD)**

PE NUMBER AND TITLE

**0605011F RDT&E For Aging Aircraft**

PROJECT NUMBER AND TITLE

**4685 Aging Aircraft**

- (U) In FY 2005: Identify common requirements and develop implementation strategies for delivery of cross-cutting solutions for aircraft and depots. Focus on maintaining aircraft safety, increasing aircraft readiness, mission capability, and supporting the extension of aircraft service life with decreased operations and support cost (includes Air Vehicle Health Management project). Improve fleet management software tools for Air Logistics Center Aircraft Structural Integrity Program managers by integrating analyses for fatigue and corrosion detection, quantification, and repair analyses to determine effect of current and anticipated damage on structural integrity. Enhance structural analysis and develop advanced software code for structural assessments, damage rate calculations, and predictions. Transition advanced non-destructive inspection capabilities and provide hidden corrosion and sub-layer crack detection, damage quantification, structural degradation monitoring, and data management for predictive analyses. Deliver enhanced hardware for detecting additional forms of corrosion (exfoliation and pitting). Develop technologies to upgrade repair and replacement methodologies. Provide new or improved repair methodologies, material processes, and design and repair selection software. Deliver repair and design analysis software (includes Composite Repair of Aircraft Structures Design and Analysis Software project), freeform fabrication of replacement structural components (includes thermal additive manufacturing project), material substitution guidelines for multi-year delivery, and evaluation of ten year-old composite repair patches to determine if patch bond process adjustments are necessary. Deliver an advanced aircraft corrosion protection system that will transition an environmentally benign, long-life aircraft coating system with chromate-free surface preparation.
- (U) In FY 2006: Continue to identify common requirements and develop implementation strategies for delivery of cross-cutting solutions for aircraft sustainment and depots. Focus on maintaining aircraft safety, increasing aircraft readiness, mission capability, and supporting the extension of aircraft service life with decreased operations and support cost. Further improve fleet management software tools for Air Logistics Center Aircraft Structural Integrity Program managers by integrating analyses for fatigue and corrosion detection, quantification, and repair analyses to determine effect of current and anticipated damage on structural integrity. Enhance structural analysis and develop advanced software code for structural assessments, damage rate calculations, and predictions. Continue to transition advanced non-destructive inspection capabilities and provide hidden corrosion and sub-layer crack detection, damage quantification, structural degradation monitoring, and data management for predictive analyses. Develop enhanced capability to inspect for delaminations in metal and composite structures. Develop additional technologies to upgrade repair and replacement methodologies. Continue to provide new or improved repair methodologies, material processes, and design and repair selection software. Enhance fatigue and corrosion prevention and control techniques.
- (U) In FY 2007: Continue to identify common requirements and develop implementation strategies for delivery of cross-cutting solutions for aircraft and depots. Focus on maintaining aircraft safety,

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0605011F RDT&amp;E For Aging Aircraft</b>	<b>PROJECT NUMBER AND TITLE</b> <b>4685 Aging Aircraft</b>
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increasing aircraft readiness, mission capability, and supporting the extension of aircraft service life with decreased operations and support cost. Further improve fleet management software tools for Air Logistics Center Aircraft Structural Integrity Program managers by integrating analyses for fatigue and corrosion detection, quantification, and repair analyses to determine effect of current and anticipated damage on structural integrity. Continue to enhance structural analysis and develop advanced software code for structural assessments, damage rate calculations, and predictions. Develop non-destructive inspection capabilities, damage quantification, structural degradation, and data management for honeycomb composites. Provide repair methodologies, material processes, and design and repair selection software. Enhance fatigue and corrosion prevention and control techniques.

- (U) MAJOR THRUST: Aging Aircraft Avionics Projects. Establishes enabling avionics capabilities that can be affordably inserted into the legacy force structure, facilitating a force multiplier combat capability across diverse platforms. Institutionalize Viable Combat Avionics (VCA), the use of affordable tools and techniques, including change management roadmaps, to manage avionics upgrades while keeping pace with technology and prevailing threat conditions in a dynamic environment. Tools range from a Best Value Methodology for evaluation of competitive source selections to a web-based Integrated Change Roadmap process that enables the system program offices to baseline the fielded platforms and merge the upgrades into the program's life cycle planning. Planned investments will establish enabling cross-cutting solutions that can facilitate the affordable insertion of mission enabling capabilities into fielded systems, extending their useful operational life and ensuring their combat superiority.
- (U) In FY 2004: Continued work on technologies to maintain the structural integrity of aging weapon systems to ensure continued flight safety. Continued techniques to incorporate bonded repairs into legacy air frames.
- (U) In FY 2005: Establish the enabling technology to affordably upgrade over 3,000 fielded triple ejection bomb racks (TER-9As) used for gravity munitions carriage, so that they can alternately support precision guided munitions carriage. Planned effort will potentially establish 300 percent increase in smart munitions (1760 connectivity) carriage capabilities over existing bomb racks and avoid imposed aircraft reconfiguration changes that burden flight line personnel. Leveraging upon MIL-STD 1553 databus technology development activities, build flight capable hardware, and perform integration activities to demonstrate the technology/hardware on the F-16 aircraft. Begin updating MIL-STD 1553B. Maximize VCA toolsets through two initiatives: the development of an Integrated Change Roadmap (ICR) cross-cutting tool that identifies the platforms and services that have common avionics upgrade requirements; and the design and development of a functional technology for affected platforms having common requirements. Initiatives will enable the VCA program to advance towards establishing a strategic capabilities investment process, integrating the ICR cross-cutting tool that identifies common

	5.211	5.472	7.858	7.752
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Exhibit R-2a, RDT&E Project Justification		DATE February 2005			
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE			
<b>05 System Development and Demonstration (SDD)</b>	<b>0605011F RDT&amp;E For Aging Aircraft</b>	<b>4685 Aging Aircraft</b>			
<p>avionics upgrade requirements with the design and development of comparable enabling capabilities required by diverse platforms. Emphasis will be placed on identifying opportunities to accelerate capability deployment to the warfighter. Planned efforts will link functional technologies and common requirements, establishing integrated investment strategies focused on facilitating reduced cycle-time and expanded mission capability for the same total resources expenditure.</p> <p>(U) In FY 2006: Develop an affordable F-15 Heads Up Display (HUD) cathode ray tube (CRT) replacement item that can be transparently inserted into fielded assets as part of the normal repair cycle. Planned CRT advancements will eliminate an inherent F-15 failure mode, increasing the incurred CRT mean time between failure rate from under 400 hours to over 3,000 hours, and will be transferable to alternate platforms experiencing marginal HUD CRT reliability performance. Establish an upgraded 1553 chipset, possessing 200 times increased bandwidth capabilities over current 1553 aircraft/munitions interface capabilities. Continue MIL-STD 1553B update activity to define capabilities of 1553 chipset, as well as how to validate and test those capabilities. Planned efforts include first release of extended MIL-STD 1553C. Emphasis will be placed on identifying opportunities to accelerate capability deployment to the warfighter. Maintain the VCA toolsets, enabling the VCA program to continue to advance towards establishing a strategic capabilities investment process. Planned efforts will link functional technologies and common requirements, establishing integrated investment strategies focused on facilitating reduced cycle-time and expanded mission capability for the same total resources expenditure.</p> <p>(U) In FY 2007: Continue efforts to provide an affordable F-15 HUD CRT replacement item. Planned activities include F-15 flight testing and migration of HUD CRT to another aircraft platform. Provide additional capabilities to extended MIL-STD 1553C. Maintain the VCA toolsets, enabling the VCA program to continue to advance towards establishing a strategic capabilities investment process. Emphasis will be placed on identifying opportunities to accelerate capability deployment to the warfighter. Planned efforts will link functional technologies and common requirements, establishing integrated investment strategies focused on facilitating reduced cycle-time and expanded mission capability for the same total resources expenditure.</p> <p>(U)</p> <p>(U) MAJOR THRUST: Aging Aircraft Subsystems Projects. Extends the service life, controls the rapidly rising sustainment costs, and retains the operational capability of the aging aircraft fleet through aircraft subsystems improvement. Cross-cutting opportunities which will reduce total ownership costs are identified using business case analyses. 2.231 2.347 3.408 3.527</p> <p>(U) In FY 2004: Completed second year of a two-year project to systematically disassemble the actuators from aging systems and determine wear and damage mechanisms in order to improve reliability in legacy actuators and overall performance in new systems. Evaluated replacement materials identified in the project to increase component life-cycle. Began preliminary research on aircraft fuel systems to identify</p>					
Project 4685	R-1 Shopping List - Item No. 93-5 of 93-14	Exhibit R-2a (PE 0605011F)			

Exhibit R-2a, RDT&E Project Justification		DATE February 2005			
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE			
<b>05 System Development and Demonstration (SDD)</b>	<b>0605011F RDT&amp;E For Aging Aircraft</b>	<b>4685 Aging Aircraft</b>			
<p>warfighter needs and drive technology improvements to both the field and the depot. Continued work on identifying and analyzing aging wiring problems in fighter, cargo, and tanker aircraft fleets to minimize diagnostic and repair time improving aircraft availability. Developed an Air Force Wire Integrity Program to enable early detection and classification of failing aircraft wiring. Enhanced current database system to enable capture of all maintenance actions on aircraft wiring systems. Fostered the development and application of a 'tool set' which addresses the entire set of aging wiring issues, to include circuit analyzers, fault detection and location, safety analysis, automated test generation, and trending capabilities. Provided wiring system awareness training across all maintenance disciplines. Continued to develop viable procedures to correct the delamination of aging integral fuel tank coatings for improved corrosion protection and elimination of wing skin replacements. Continued efforts to evaluate material improvements in crack detection support tools.</p> <p>(U) In FY 2005: Develop electronic signatures of various aircraft electrical components to monitor changes that signify impending failure, thus allowing for the replacement of components before failure. Provide five production Universal Electrical Signature Analysis Systems to Air Materiel Command, Air Combat Command, and Warner Robins-Air Logistics Center to collect real-time data on operating weapon systems. Provide training and user manuals on the equipment. Continue research and data collection on aircraft fuel systems to identify warfighter needs and drive technology improvements to both the field and the depot. Integrate the Air Force Wire Integrity Program (AFWIP) web-based data collection system with the Air Force Knowledge database system. Formally integrate the AFWIP wire awareness computer-based training to field units. Develop wire troubleshooting fault isolation process procedures and incorporate in general series technical manual. Spiral-develop validated wiring diagnostic equipment to meet the demands of the maintenance community.</p> <p>(U) In FY 2006: Provide solutions to high maintenance man-hour items identified in FY 2004/2005 fuel systems research and data collection. Continue demonstration and development of wiring diagnostic equipment and data collection effort. Perform initial aircraft wire characterization evaluation of conductive path material, insulation, and arc fault protection systems.</p> <p>(U) In FY 2007: Continue to provide solutions to high maintenance man-hour items identified in FY 2004/2005 fuel systems research and data collection. Continue demonstration and development of wiring diagnostic equipment and data collection effort. Perform initial aircraft wire characterization evaluation of conductive path material, insulation, and arc fault protection systems.</p> <p>(U)</p> <p>(U) MAJOR THRUST: Enterprise Knowledge Management. Utilizes and enhances the advanced collaborative tools embedded in the Enterprise Knowledge Management (EKM) program. Facilitates the extraction, integration, and sharing of aging aircraft information, knowledge, technology, and solutions among Air Logistics Centers, Product Centers, System Program Offices, other Services and government</p>					
		4.101	0.312	0.000	0.000
Project 4685		R-1 Shopping List - Item No. 93-6 of 93-14		Exhibit R-2a (PE 0605011F)	

Exhibit R-2a, RDT&E Project Justification		DATE
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<b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE
	<b>0605011F RDT&amp;E For Aging Aircraft</b>	<b>4685 Aging Aircraft</b>
<p>agencies, and industry. Provides a knowledge capture/management system with collaboration capability for understanding the overall scope of aging aircraft problems, developing an integrated strategic plan for corrective actions, and using decision tools for the aging aircraft fleet. Supports the Capabilities Review and Risk Assessment in identifying and resolving capability gaps by capturing and automating the Roadmap Integration processes used by the Aeronautical, Air Armament, command and control, and space enterprises. Provides participants the ability to quickly see the impact of funding decisions on warfighting capability. Development completes after FY 2004 and EKM management transitions to fee for service.</p>		
<p>(U) In FY 2004: Continued to develop partnerships with government and commercial industry to foster shared technologies and processes and an information/knowledge portal tool to share aging aircraft technology and solutions across the aeronautical community. Continued identifying existing databases which contain aging aircraft information and continued connecting them to a single web portal. Continued web-based data mining views that turn the raw data into information to facilitate strategic planning and trend analysis for reducing total ownership costs. Continued to leverage knowledge of existing/legacy avionics issues (diminishing manufacturing sources, software languages, unique military interfaces, etc.). Analyzed the gathered data and initiated/continued cross-cutting solutions in data acquisition/recorders, displays, expanded aircraft internal data transfer techniques, and other similar efforts. Developed business strategies to address aging aircraft subsystem issues. Performed business case analyses to support subsystem design integrity decisions. Developed a suite of analysis tools for predicting imminent failure of aircraft systems. Developed an analysis tool to support diminishing manufacturing source issues and analysis, identification, and management of cross-cutting issues. Developed a data mining tool specifically designed to extract and analyze cross-cutting issues data from existing data systems. Fostered cross program sharing of information within both Department of Defense and industry.</p>		
<p>(U) In FY 2005: Facilitate transition of EKM to fee for service.</p>		
<p>(U) In FY 2006: Not Applicable.</p>		
<p>(U) In FY 2007: Not Applicable.</p>		
<p>(U)</p>		
<p>(U) CONGRESSIONAL ADD: Advanced Technology into Legacy Avionics Systems. <span style="float:right">1.935      0.000      0.000      0.000</span></p>		
<p>(U) In FY 2004: Affordable aerospace weapon systems require avionics possessing inherent features that can affordably accommodate change and rapidly exploit emerging technology opportunities. Established: software verification and re-verification methods and tools; methodologies and capabilities that facilitated tighter coupling with commercial practices, processes, and technology, thus reducing incurred avionics cycle upgrade times; and leading edge "design for change" capabilities and tools that helped facilitate long-term avionics viability.</p>		
Project 4685	R-1 Shopping List - Item No. 93-7 of 93-14	Exhibit R-2a (PE 0605011F)

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Exhibit R-2a, RDT&E Project Justification		DATE <b>February 2005</b>	
BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0605011F RDT&amp;E For Aging Aircraft</b>	PROJECT NUMBER AND TITLE <b>4685 Aging Aircraft</b>	
(U) In FY 2005: Not Applicable. (U) In FY 2006: Not Applicable. (U) In FY 2007: Not Applicable (U)			
(U) CONGRESSIONAL ADD: Aging Landing Gear Life Extension. (U) In FY 2004: Continued to integrate elements of emerging materials/technologies, improved designs, state-of-the-art repair/overhaul techniques, and optimized business/data processes for the purpose of extending the life of aging landing gear systems. The program provides a comprehensive and systematic approach to resolving technical and logistical landing gear concerns, addressing everything from technology exploration to solution implementation. In order of importance, emphasis was placed on improving mission safety, improving reliability and maintainability, and reducing cost of sustainment. (U) In FY 2005: Continue to integrate the elements of emerging materials/technologies, improved designs, state-of-the-art repair/overhaul technologies, and optimized business data processes for the purpose of extending the life of aging landing gear systems. (U) In FY 2006: Not Applicable. (U) In FY 2007: Not Applicable. (U)	1.451	4.562	0.000      0.000
(U) CONGRESSIONAL ADD: Academic Center for Aging Aircraft (ACAA). (U) In FY 2004: Established an academic center to transition and leverage research in academia to satisfy the Aging Aircraft needs identified by the Joint Council on Aging Aircraft. ACAA facilitates new partnerships with agencies and organizations to work aging fleet needs. This effort: 1) catalyzed the development of a self-sustaining infrastructure and academic network, which will serve the aging aircraft community in the future, and 2) focused on delivery of products in narrow problem areas, which act as pilot programs to exercise and prove out the infrastructure and methodologies established by the ACAA institutions. (U) In FY 2005: Continue to facilitate new partnerships with agencies and organizations to work aging fleet needs; focusing on delivery of products in narrow problem areas, providing the greatest benefit to the joint community, and which act as pilot programs to exercise and prove out the infrastructure and methodologies established by the Academic Center for Aging Aircraft institutions. (U) In FY 2006: Not Applicable. (U) In FY 2007: Not Applicable. (U)	4.063	4.163	0.000      0.000
(U) CONGRESSIONAL ADD: Enterprise Availability and Cost Optimization System. (U) In FY 2004: Implemented a standardized approach to identifying and optimizing aircraft modernization and sustainment program investments with the Enterprise Availability and Cost Optimization System;	1.161	0.991	0.000      0.000

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<b>Exhibit R-2a, RDT&amp;E Project Justification</b>		<b>DATE</b> <b>February 2005</b>			
<b>BUDGET ACTIVITY</b>	<b>PE NUMBER AND TITLE</b>	<b>PROJECT NUMBER AND TITLE</b>			
<b>05 System Development and Demonstration (SDD)</b>	<b>0605011F RDT&amp;E For Aging Aircraft</b>	<b>4685 Aging Aircraft</b>			
<p>focused on investment plans for the modernization and sustainment of the aging aircraft fleet.</p> <p>(U) In FY 2005: Provide warfighter aging aircraft availability and investment optimization tools for C-130 fleet and Air Combat Command cross-fleet modernization and sustainment.</p> <p>(U) In FY 2006: Not Applicable.</p> <p>(U) In FY 2007: Not Applicable.</p> <p>(U)</p> <p>(U) CONGRESSIONAL ADD: Fleet Capability Assessment Process. <span style="float:right">1.935</span> <span style="float:right">1.288</span> <span style="float:right">0.000</span> <span style="float:right">0.000</span></p> <p>(U) In FY 2004: Developed methodology to assess the current, programmed, and planned capabilities of the aeronautical fleet. The assessment provides information on current problem areas, future aging issues, and cross-cutting opportunities that support modernization and sustainment planning within the aeronautical enterprise. The tool determines the risks in effectiveness, availability, deployability, sustainability, and readiness of the aeronautical fleet, and assesses impacts on planned or proposed operations.</p> <p>(U) In FY 2005: Determine the risks in effectiveness, availability, deployability, sustainability, and readiness of the aeronautical fleet. Provide rapid impact assessments on planned or proposed operations.</p> <p>(U) In FY 2006: Not Applicable.</p> <p>(U) In FY 2007: Not Applicable.</p> <p>(U)</p> <p>(U) CONGRESSIONAL ADD: Fleet Readiness (referred to as Air Vehicle Health Management Improved Fleet Readiness in FY 2004). <span style="float:right">5.805</span> <span style="float:right">1.288</span> <span style="float:right">0.000</span> <span style="float:right">0.000</span></p> <p>(U) In FY 2004: Improvements to fleet readiness were made in the areas of fleet management/structural analysis, non-destructive inspection and health management, prevention, and repair/replacement by: 1) enhancing risk assessment capability for the fleet; 2) evaluating state-of-the-art non-destructive inspection equipment for assessment of damage in buried structure; 3) evaluating environmentally-friendly coating systems; 4) and assessing/utilizing modern design practices for depot implementation on legacy aircraft.</p> <p>(U) In FY 2005: Pursue additional improvements to fleet readiness in the areas of fleet management/structural analysis, non-destructive evaluation and health management, prevention, and repair/replacement by: enhanced structural analysis of aircraft center wing box structure, corrosion measurements on aircraft structural materials, non-destructive inspection of aircraft structural components, and pursuing the next transition spiral in the use of 3-D based electronic work instructions to reduce manufacturing operation down time at the depot and/or flight line. Plan is to transition 3-D technology to an additional weapon system/depot (KC-135/Oklahoma City-Air Logistics Center).</p> <p>(U) In FY 2006: Not Applicable.</p> <p>(U) In FY 2007: Not Applicable.</p>					
Project 4685	R-1 Shopping List - Item No. 93-9 of 93-14	Exhibit R-2a (PE 0605011F)			

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Exhibit R-2a, RDT&E Project Justification							DATE <b>February 2005</b>			
BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT NUMBER AND TITLE			
<b>05 System Development and Demonstration (SDD)</b>				<b>0605011F RDT&amp;E For Aging Aircraft</b>			<b>4685 Aging Aircraft</b>			
(U)	CONGRESSIONAL ADD: LEAN Depot Engine Repair.			0.000	1.288	0.000	0.000			
(U)	In FY 2004: Not Applicable.									
(U)	In FY 2005: Pursue improvements to reduce man-hours and increase production throughput on turbine engines to include prototyping engine fuel nozzle cleaning and testing equipment in the engine overhaul facilities at Oklahoma City-Air Logistics Center.									
(U)	In FY 2006: Not Applicable.									
(U)	In FY 2007: Not Applicable.									
(U)	CONGRESSIONAL ADD: TER-O MIL-STD-1760 ("SMART") Modification.			0.000	1.685	0.000	0.000			
(U)	In FY 2004: Not Applicable.									
(U)	In FY 2005: Pursue modification of existing conventional Triple Ejection Rack (TER) to allow delivery of both conventional and smart weapons. Modification will potentially provide each weapon station with increased smart weapon load capability over standard pylon carry.									
(U)	In FY 2006: Not Applicable.									
(U)	In FY 2007: Not Applicable.									
(U)	CONGRESSIONAL ADD: Advanced Aircraft Avionics and Electronics Insertion.			0.000	0.991	0.000	0.000			
(U)	In FY 2004: Not Applicable.									
(U)	In FY 2005: Identify, analyze, and demonstrate the use of advanced avionics thermal management technology from diverse military and commercial derivative aircraft. Conduct an architecture definition study focused on establishing an infrastructure that is easily integrated with existing airframe technology and supports long-term commercial technology compatibility and growth. Establish qualification testing requirements.									
(U)	In FY 2006: Not Applicable.									
(U)	In FY 2007: Not Applicable.									
(U)	Total Cost			38.950	31.783	24.384	25.597			
(U)	<b>C. Other Program Funding Summary (\$ in Millions)</b>									
		<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>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>Total Cost</u>
(U)	PE 0708026F, Productivity, Reliability, Availability,									

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2005

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0605011F RDT&amp;E For Aging Aircraft

PROJECT NUMBER AND TITLE

4685 Aging Aircraft

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

Maintainability.

**(U) D. Acquisition Strategy**

Funding may be executed internally within the Agile Combat Support Wing via full and open competition or released to other organizations for projects for which they are the Office of Primary Responsibility (OPR). The OPRs will determine the most appropriate contract vehicle, Design and Engineering Support Program (DESP) contract or full and open competition, to accomplish the project.

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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			
<b>05 System Development and Demonstration (SDD)</b>										<b>0605011F RDT&amp;E For Aging Aircraft</b>		<b>4685 Aging Aircraft</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &amp;</u> <u>Type</u>	<u>Performing</u> <u>Activity &amp;</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>															
S&K Technologies, Inc.	IDIQ		6.979			6.164							13.143		
Batelle/Ball	CPFF		4.101										4.101		
Edgewater	FFP		1.760			2.000							3.760		
AMETEK/Eaton	FFP		0.500										0.500		
ITB	FFP		0.500										0.500		
Oak Ridge National Lab	N/A (Govt Lab)		0.440			0.125							0.565		
Info Spectrum Systems	Cost Plus		0.693			0.716							1.409		
S&K Technologies, Inc. (here on down are Congressional Adds)	IDIQ		5.283			1.183							6.466		
Alion Science & Tech	T&M		1.761			1.465							3.226		
Northrop Grumman IT	T&M		1.057			0.910							1.967		
EDaptive Computing Inc.	CPFF		1.761										1.761		
UDRI/GTRI/TAMUS	DESP		3.697			3.822							7.519		
General Atomics	T&M		1.271			4.186							5.457		
Numerous	Various		9.147			11.212		24.384	Sep-06	25.597	Sep-07		70.340		
Subtotal Product Development			0.000	38.950		31.783		24.384		25.597		0.000	120.714	0.000	
Remarks:															
(U) <u>Support</u>															
In House													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 &amp; 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>													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	38.950		31.783		24.384		25.597		0.000	120.714	0.000	

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE  
0605011F RDT&E For Aging Aircraft

PROJECT NUMBER AND TITLE  
4685 Aging Aircraft

### Aging Aircraft Schedule

		FY 04				FY 05				FY 06				FY 07			
		1Q	2Q	3Q	4Q												
<b>Structures</b>																	
	Cont Proj	—————															
	RFP	—▲				—▲				—▲				—▲			
	Contract		—▲				—▲				—▲				—▲		
<b>Avionics</b>																	
	Cont Proj	—————															
	RFP	—▲				—▲				—▲				—▲			
	Contract		—▲				—▲				—▲				—▲		
<b>Subsystems</b>																	
	Cont Proj	—————															
	RFP	—▲				—▲				—▲				—▲			
	Contract		—▲				—▲				—▲				—▲		
<b>EKM</b>																	
	Cont Proj	—————															
	RFP	—▲															
	Contract		—▲														

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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2005</b>
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BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0605011F RDT&amp;E For Aging Aircraft</b>	PROJECT NUMBER AND TITLE <b>4685 Aging Aircraft</b>
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	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
<b>(U) <u>Schedule Profile</u></b>				
(U) Aging Aircraft Structures Projects	1-4Q	1-4Q	1-4Q	1-4Q
(U) Request for Proposal Release	1-2Q	1-2Q	1-2Q	1-2Q
(U) Contract Award	3-4Q	3-4Q	3-4Q	3-4Q
(U) Aging Aircraft Avionics Projects	1-4Q	1-4Q	1-4Q	1-4Q
(U) Request for Proposal Release	1-2Q	1-2Q	1-2Q	1-2Q
(U) Contract Award	3-4Q	3-4Q	3-4Q	3-4Q
(U) Aging Aircraft Subsystems Projects	1-4Q	1-4Q	1-4Q	1-4Q
(U) Request for Proposal Release	1-2Q	1-2Q	1-2Q	1-2Q
(U) Contract Award	3-4Q	3-4Q	3-4Q	3-4Q
(U) Enterprise Knowledge Management	1-4Q			
(U) Request for Proposal Release	1-2Q			
(U) Contract Award	3-4Q			

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PE NUMBER: 0207256F

PE TITLE: Joint Unmanned Combat Air System (J-UCAS)

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0207256F Joint Unmanned Combat Air System (J-UCAS)</b>
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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	2.300	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5118 Joint Unmanned Combat Air Systems. (J-UCAS)	2.300	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

Note: In FY06 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.

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

The Joint Unmanned Combat Air Systems (J-UCAS) program is a joint effort to develop and demonstrate unmanned combat capabilities for high-threat Suppression of Enemy of Air Defense (SEAD), Information Operations/ Electronic Attack, Persistent Surveillance/Reconnaissance, and related strike missions within the emerging global command and control architecture for the warfighting community.

The J-UCAS program combines and expands the efforts that were previously conducted under the DARPA/Air Force Unmanned Combat Air Vehicle (UCAV) program and the DARPA/Navy Naval UCAV (UCAV-N) program. Although these efforts were targeted towards service-specific needs, the Department recognized the potential for significant synergy by combining the programs. The accomplishments and ongoing efforts of the X-45A technology demonstrator, as well as the development of the X-47A demonstrator, are reducing the risk of the "operationalized" demonstration system being developed for a joint early operational assessment (OA) planned for the FY07-10 timeframe. The J-UCAS concept incorporates the next generation family of demonstrator air vehicles, together with common subsystems (e.g. sensors, payloads, communications) and a Common Operating System to achieve the system's diverse mission functionality. These common system elements will maximize mission flexibility and operational versatility while reducing overall costs and maintaining schedule toward a joint early OA.

The J-UCAS Office operates in close coordination with Service users and other operational components. The program is focused on demonstrating capabilities that support both Services and enable an operational system development decision by the end of the decade.

This PE only has FY 2004 funding. In FY 2005 funding was moved to PEs 0603400D8Z and 0604400D8Z. This program will be moving to PEs 0603400F and 0604400F in FY 2006.

This is a BA 05 program, System Development and Demonstration, to develop and demonstrate unmanned combat air system capabilities.

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2005

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0207256F Joint Unmanned Combat Air System (J-UCAS)

(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	2.372	2.911		
(U) Current PBR/President's Budget	2.300	0.000		
(U) Total Adjustments	-0.072	-2.911		
(U) Congressional Program Reductions		-2.911		
Congressional Rescissions				
Congressional Increases				
Reprogrammings				
SBIR/STTR Transfer	-0.072			

(U) **Significant Program Changes:**

FY06: 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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**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>					<b>PE NUMBER AND TITLE</b> <b>0207256F Joint Unmanned Combat Air System (J-UCAS)</b>			<b>PROJECT NUMBER AND TITLE</b> <b>5118 Joint Unmanned Combat Air Systems. (J-UCAS)</b>		
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
5118 Joint Unmanned Combat Air Systems. (J-UCAS)	2.300	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: In FY06 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.

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

The Joint Unmanned Combat Air Systems (J-UCAS) program is a joint effort to develop and demonstrate unmanned combat capabilities for high-threat Suppression of Enemy of Air Defense (SEAD), Information Operations/ Electronic Attack, Persistent Surveillance/Reconnaissance, and related strike missions within the emerging global command and control architecture for the warfighting community.

The J-UCAS program combines and expands the efforts that were previously conducted under the DARPA/Air Force Unmanned Combat Air Vehicle (UCAV) program and the DARPA/Navy Naval UCAV (UCAV-N) program. Although these efforts were targeted towards service-specific needs, the Department recognized the potential for significant synergy by combining the programs. The accomplishments and ongoing efforts of the X-45A technology demonstrator, as well as the development of the X-47A demonstrator, are reducing the risk of the "operationalized" demonstration system being developed for a joint early operational assessment (OA) planned for the FY07-10 timeframe. The J-UCAS concept incorporates the next generation family of demonstrator air vehicles, together with common subsystems (e.g. sensors, payloads, communications) and a Common Operating System to achieve the system's diverse mission functionality. These common system elements will maximize mission flexibility and operational versatility while reducing overall costs and maintaining schedule toward a joint early OA.

The J-UCAS Office operates in close coordination with Service users and other operational components. The program is focused on demonstrating capabilities that support both Services and enable an operational system development decision by the end of the decade.

This PE only has FY 2004 funding. In FY 2005 funding was moved to PEs 0603400D8Z and 0604400D8Z. This program will be moving to PEs 0603400F and 0604400F in FY 2006.

This is a BA 05 program, System Development and Demonstration, to develop and demonstrate unmanned combat air system capabilities.

<b>(U) B. Accomplishments/Planned Program (\$ in Millions)</b>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U)				
(U) Accomplishments/Planned Program	0.000	0.000		
(U) Other Government Cost	2.300	0.000		
-Mission support of the Joint Program Office, travel, computer costs, misc contracts, etc.				
(U) Total Cost	2.300	0.000	0.000	0.000

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2005

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0207256F Joint Unmanned Combat Air System (J-UCAS)

PROJECT NUMBER AND TITLE

5118 Joint Unmanned Combat Air Systems. (J-UCAS)

(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>Complete</u>							
(U) AF S&T (PE0603333F)										
(U) DARPA (PE0603765E)										
(U) DARPA (PE0603285E)	41.385	0.000								
(U) AF RDT&E (PE0604731F)	160.551	0.000	0.000	0.000	0.000	0.000	0.000	0.000		TBD
(U) Navy RDT&E (PE0603114N)	117.865	0.000	0.000	0.000	0.000	0.000	0.000	0.000		TBD
(U) Navy RDT&E (PE0604731N)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		TBD
(U) Navy RDT&E (PE0603111N)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		TBD
(U) Aircraft Procurement (PE0207255F)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		TBD
(U) Defense-wide RDT&E (PE0603400D8Z)	0.000	354.794	0.000	0.000	0.000	0.000	0.000	0.000		TBD
(U) Defense-wide RDT&E (PE0604400D8Z)	0.000	217.401	0.000	0.000	0.000	0.000	0.000	0.000		TBD
(U) AF (0603400F)	0.000	0.000	77.800	0.000	0.000	0.000	0.000	0.000		
(U) AF (0604400F)	0.000	0.000	272.300	400.100	554.100	785.500	955.200	1064.100	Continuing	TBD

(U) **D. Acquisition Strategy**

The J-UCAS program blends the advantages of both the Advanced Technology Demonstration (ATD) and the Advanced Concept Technology Demonstration (ACTD) concepts to facilitate rapid development and integration of advanced technologies in an experimental system that addresses operational needs. Using the next generation of demonstrator air vehicle families, together with common subsystems and a Common Operating System, this nontraditional approach also incorporates key acquisition considerations (i.e., user requirements, comprehensive system lifecycle perspective, and rigorous risk mitigation processes) to provide the necessary insights, operational data, and identified options for the services to make an informed decision for accelerated acquisition near the end of the decade.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2005**

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT NUMBER AND TITLE				
<b>05 System Development and Demonstration (SDD)</b>			<b>0207256F Joint Unmanned Combat Air System (J-UCAS)</b>							<b>5118 Joint Unmanned Combat Air Systems. (J-UCAS)</b>				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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>														
Various				2.300		0.000						Continuing	TBD	
Subtotal Support			0.000	2.300		0.000		0.000		0.000		Continuing	TBD	0.000
Remarks:														
(U) <u>Test &amp; 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	2.300		0.000		0.000		0.000		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0207256F Joint Unmanned Combat Air System (J-UCAS)

PROJECT NUMBER AND TITLE

5118 Joint Unmanned Combat Air Systems. (J-UCAS)

N/A – This PE provides funds for system development and demonstration of unmanned combat capabilities for high-threat missions.

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2005</b>
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BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0207256F Joint Unmanned Combat Air System (J-UCAS)</b>	PROJECT NUMBER AND TITLE <b>5118 Joint Unmanned Combat Air Systems. (J-UCAS)</b>
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(U) <b><u>Schedule Profile</u></b> (U) Stand up Joint Program Office This PE only has FY 2004 funding. In FY06 program funding is being realigned from PEs 0603400D8Z and 0604400D8Z to PEs 0603400F and 0604400F, respectively. The program is undergoing a restructure and will realign the adjusted resources in the next budget cycle to advance the J-UCAS program.	<u>FY 2004</u> 1Q	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
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<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2005</b>
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BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0207434F Link 16 Support and Sustainment</b>
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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	61.150	134.547	157.677	184.100	151.289	155.710	159.298	162.024	Continuing	TBD
5049 JINTACCS	5.107	8.734	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5050 TDL System Integration	56.043	125.813	157.677	184.100	151.289	155.710	159.298	162.024	Continuing	TBD

In FY06, 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.

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

TDLs 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), and Variable Message Format (VMF).

The Joint Interoperability of Tactical Command and Control Systems (JINTACCS) Program ensures platform/system interoperability through the development and management of the joint/combined architecture, tactical information exchange requirements (IERS), interface definitions and protocols, platform/system implementations, employment concepts, and operating procedures. This includes the coordination of all TDL and United States Message Text format (USMTF) message standards, USMTF configuration management, platform/system interoperability assessments, and interoperability certification testing. 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.

Utilization of TDLs in a joint environment requires the integration of terminals [e.g., Joint Tactical Information Distribution System (JTIDS) or Multifunctional Information Distribution System (MIDS)] into host platforms, and designing interoperability of Link 16 networks across all deployed joint and allied platforms. The Tactical Data Networks (TDN) Squadron performs several cross-platform activities to ensure proper integration of Link 16 capabilities and interoperability of Link 16 networks. TDL efforts include incorporating changes and additions to the TDL message standard (MIL-STD-6016C) and incorporating Interoperable Systems Management and Requirements Transformation (iSMART), a process which enables network centric interoperability assessments to be made more quickly and effectively. In addition, the TDN Squadron has management responsibility for the Air Force's Air Defense Systems Integrator (ADSI) systems.

The air portion of the Common Tactical Picture (CTP), the Single Integrated Air Picture (SIAP), consists of common, continual and unambiguous tracks of airborne objects of interest in the surveillance area. SIAP is derived from real time and near real time data and consists of correlated air object tracks and associated information. SIAP systems integration efforts include, but are not limited to: defining the SIAP Platform Independent Model (PIM) functionality, the required SIAP architecture, and the integration methodology for AF C2 weapons systems.

This program is in budget activity 5 (Engineering Manufacturing and Development) because it supports development, integration solutions, fielding, operational support activities, and support of special projects.

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2005

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0207434F Link 16 Support and Sustainment

(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	70.481	141.012	218.743	228.009
(U) Current PBR/President's Budget	61.150	134.547	157.677	184.100
(U) Total Adjustments	-9.331	-6.465		
(U) Congressional Program Reductions		-10.800		
Congressional Rescissions		-2.065		
Congressional Increases		6.400		
Reprogrammings	-7.700			
SBIR/STTR Transfer	-1.631			

(U) **Significant Program Changes:**

Beginning in FY05, the Family of Interoperable Pictures (FIOP) level of effort funding was transferred to PE 0207443F, Project #655137. In addition, funds in PE 27434F for FY06-07 were re-aligned to support JTRS network-centric efforts in PE 0207423F.

In FY05, Congress increased the program by \$6.4M: \$3M to fund Enhanced TDL Data Displays, part of the Link 16 integration in the Alaskan Aerospace Surveillance Range Operations Modernization (AASROM)/Link-16 Alaska (LAK) Program. \$3.4M to fund the Link 16 Pocket J Program, a deployable Link 16 capability that temporarily fills gaps in Link 16 coverage within the CONUS or in austere, remote locations. Also in FY05, the FY05 Defense Appropriations Bill reduced the PE, eliminating the Data Links Test Facility (DTF) Program (\$10.8M).

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>							PE NUMBER AND TITLE <b>0207434F Link 16 Support and Sustainment</b>		PROJECT NUMBER AND TITLE <b>5049 JINTACCS</b>	
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
5049 JINTACCS	5.107	8.734	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, Project #655049 funding will be consolidated into Project #655050 since these efforts include the development and deployment of Tactical Data Links.

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

The Joint Interoperability of Tactical Command and Control Systems (JINTACCS) Program is a Joint Staff-directed program that provides the sole Air Force (AF) activity responsible for ensuring the interoperability of AF Tactical Data Links (TDLs) [including, but not limited to Tactical Digital Information Links (TADILs) and Variable Message Formats (VMF)] and United States Message Text Format (USMTF) systems with the associated Joint and allied/coalition systems. The requirements for the program are delineated in DoDD 4630.5, DoDD 4630.8, CJCSI 6212.01B, and AFI 33-108. The program ensures platform/system interoperability through the development and management of the joint/combined architecture, tactical information exchange requirements (IERS), interface definitions and protocols, platform/system implementations, employment concepts, and operating procedures. This includes the coordination of all TDL and USMTF message standards configuration management, platform/system interoperability assessments and interoperability certification testing. Air Force platforms/systems participating in, and affected by, this program include, but are not limited to: Airborne Warning and Control System (AWACS); Modular Control Elements (MCE); Air Operations Centers (AOC); Joint Surveillance Target Attack Radar System (JSTARS); F-15 A/B/C/D/E; F-16 Block 30/40/50; F/A-22; A/OA-10; Joint Strike Fighter (JSF); Airborne Laser (ABL); B-1; B-2; B-52; F-117; RC-135; Regional/Sector Air Operations Centers (RAOC/SAOC), Command & Control Information Processing System (C2IPS); Space Based Infrared System (SBIRS); Air Support Operations Centers (ASOC); and Tactical Air Control Parties (TACPs), Theater Battle Management Core Systems (TBMCS), Contingency Automated Theater Automated Planning System (CTAPS), Combat Intelligence System (CIS), Air Defense System Integrator (ADSI), Distributed Common Ground System (DCGS), North American Aerospace Defense Command (NORAD)/United States Space Command (USSPACECOM) Warfighting Support System (N/UWSS), AWACS Digital Information Link, and Global Command and Control System (GCCS)-Air Force. The Air Force JINTACCS program supports the Assistant Secretary of Defense (ASD) directive on harmonization of US and NATO messages (e.g., Air Tasking Order and Air Control Order). This budget activity also includes TDL Roadmap configuration management and Interoperable System Management and Requirements Transformation (iSMART) implementation.

This program is in budget activity 5 (Engineering Manufacturing and Development) because it supports development, integration solutions, fielding, operational support activities, and support of special projects.

<b>(U) B. Accomplishments/Planned Program (\$ in Millions)</b>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Accomplishments/Planned Program	0.000			
(U) Interoperability Certification Testing. Specific platforms will be determined based on Link 16 message implementation, software upgrade, and system modification	0.633	0.645		
(U) US Message Text Formats Management and Updates - Support Joint, Allied/Coalition meetings and working groups - Support technology maturation for joint standards and DoD policy	1.583	1.603		

**UNCLASSIFIED**

Exhibit R-2a, RDT&E Project Justification								DATE <b>February 2005</b>			
BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>				PE NUMBER AND TITLE <b>0207434F Link 16 Support and Sustainment</b>			PROJECT NUMBER AND TITLE <b>5049 JINTACCS</b>				
(U)	Tactical Data Link Management and Architecture Development.			2.891	5.176						
	- Support Tactical Data Link and VMF meetings and working groups										
	- Support implementation and interoperability engineering efforts with the F-16, B-52, B-1, B-2, F-117, and other weapon systems										
	- Support software systems engineering updates and interoperability with the F-15C, E-3, E-8, Control and Reporting Center/Control and Reporting Element (CRC/CRE), interoperable Systems Management and Requirements Transformation (iSMART), and other weapon systems										
(U)	Tactical Data Link Roadmap Requirements and Configuration Management.					1.310					
(U)	Total Cost			5.107		8.734		0.000		0.000	
(U)	<b><u>C. Other Program Funding Summary (\$ in Millions)</u></b>										
		<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)	0207445F (Fighter TDL)	36.418	50.093	122.160	84.513	50.860	0.000	0.000	0.000		344.044
(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)	Aircraft Procurement, AF (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)	0207423F (JTRS I&I)	0.000	0.000	17.192	43.445	52.032	53.650	49.645	53.695	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, AF (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, 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
Project 5049				R-1 Shopping List - Item No. 96-5 of 96-17				Exhibit R-2a (PE 0207434F)			

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2005

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0207434F Link 16 Support and  
Sustainment

PROJECT NUMBER AND TITLE

5049 JINTACCS

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

Sus)

(U) D. Acquisition Strategy

As the Air Force lead agent for a jointly directed program, JINTACCS provides level of effort technical support for increasing interoperability of AF programs through message text and data link standards implementation.

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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					
<b>05 System Development and Demonstration (SDD)</b>				<b>0207434F Link 16 Support and Sustainment</b>					<b>5049 JINTACCS</b>					
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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 - Systems Engineering	SS/FFP	MITRE, Bedford MA	6.381	2.616	Dec-03	5.901	Dec-04					0.000	14.898	14.898
USMTF Standards Support	C/CPFF	B3H, Hampton VA	1.940	1.008	Dec-03	0.625	Dec-04					0.000	3.573	3.573
TDL Integration and Requirements	C/CPFF	Odyssey, Hampton VA	1.200	0.612	Dec-03	1.368	Dec-04					0.000	3.180	3.180
Subtotal Product Development			9.521	4.236		7.894		0.000		0.000		0.000	21.651	21.651
Remarks:														
(U) <u>Test &amp; Evaluation</u>														
AF Participating Test Unit (PTU)	MIPR	ACC/SC, Langley AFB VA	0.483	0.502	Jan-04	0.480	Jan-05					0.000	1.465	1.465
Subtotal Test & Evaluation			0.483	0.502		0.480		0.000		0.000		0.000	1.465	1.465
Remarks:														
(U) <u>Management</u>														
Program Office and Contractor Support	C/FFP	Various	0.355	0.369	Jan-04	0.360	Dec-04					0.000	1.084	1.084
Subtotal Management			0.355	0.369		0.360		0.000		0.000		0.000	1.084	1.084
Remarks:														
(U) Total Cost			10.359	5.107		8.734		0.000		0.000		0.000	24.200	24.200

Exhibit R-4, RDT&E Schedule Profile

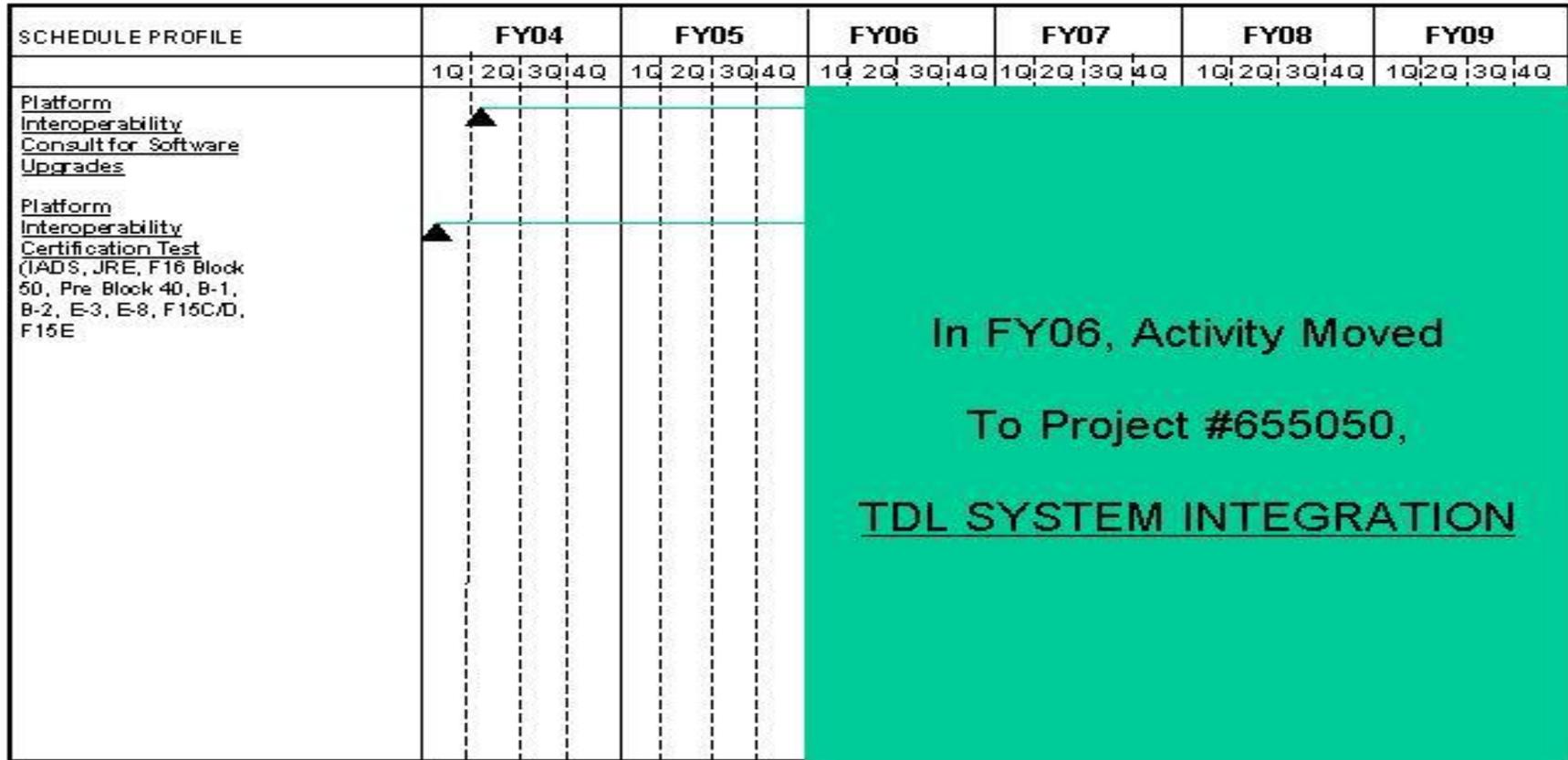
DATE

February 2005

BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE  
0207434F Link 16 Support and Sustainment

PROJECT NUMBER AND TITLE  
5049 JINTACCS



**Legend**

Contract Award    Development    Testing    Delivery

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0207434F Link 16 Support and Sustainment</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5049 JINTACCS</b>
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<b>(U) <u>Schedule Profile</u></b>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Platform Interoperability Consultation for Software Upgrades	1-4Q	1-4Q		
(U) Iceland Air Defense System Interoperability Tests	1-2Q	3Q		
(U) Joint Range Extension Interoperability Tests	1-2Q	3Q		
(U) F-16 Block 50 Interoperability Tests		1-2Q		
(U) F-16 Pre-Block 40 Interoperability Tests	1-2Q			
(U) B-1 Interoperability Tests		1-2Q		
(U) B-2 Interoperability Tests		3-4Q		
(U) E-3 AWACS Interoperability Tests	2-3Q	1-2Q		
(U) E-8 JSTARS Interoperability Tests	3-4Q	3-4Q		
(U) F-15C/D Interoperability Tests	4Q	1Q		
(U) F-15E Interoperability Tests		2-3Q		

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2005

BUDGET ACTIVITY		PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE		
05 System Development and Demonstration (SDD)		0207434F Link 16 Support and Sustainment						5050 TDL System 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
5050 TDL System Integration	56.043	125.813	157.677	184.100	151.289	155.710	159.298	162.024	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

In FY06, funding for the Joint Interoperability of Tactical Command and Control Systems (JINTACCS) program (currently residing in Project #655049), will be merged with Project #655050 resulting in the elimination of Project #655049.

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

Tactical Data Links (TDLs) are used in a combat environment to exchange information such as messages, data, radar tracks, target information, platform status, imagery, and mission assignments. TDLs provide interoperable data exchange, local and global connectivity, and situational awareness to the tactical user when operating under rapidly changing operational conditions. TDLs are used by the Air Force, Army, Navy, and Marine Corps Theater Command and Control (C2) Elements, weapons and sensor platforms.

TDLs include but are not limited to: Link 16, Link 11, Situational Awareness Data Link (SADL) and Variable Message Format (VMF).

The number of Air Force platforms hosting TDLs is expanding from C2 aircraft (E-3, E-8, etc.) into the fighter, bomber, ISR, tanker, airlift and other tactical fleets (F-15, F-16, F/A-22, Rivet Joint, B-1, B-2, B-52, etc.). Utilization of TDLs in a joint environment requires the integration of terminals into host platforms and interoperability of TDL networks across all deployed joint and allied platforms. Network Centric Transformation activities performed by the Tactical Data Networks (TDN) Squadron (previously the TDL System Program Office) include, but are not limited to; enabling and supporting the transformation to network-centric operations, Common Link Integration Processor (CLIP) software development, Network Enhanced Weapons (previously Weapons Data Link), analysis and integration efforts encompassing hardware, software, operational Link 16 enhancements, and training and logistics development, certification of individual TDL implementations to joint and allied standards, establishment of service-wide network management procedures and operations, system wide enhancements and test.

In addition, this project funds the integration of the Joint Interface Control Officer (JICO) - Support System (JSS) and TDL Gateways such as the Objective Gateway, the Joint Air Defense System Integrator (J-ADSI), the family of Joint Range Extension (JRE) functionality [which includes the JRE Transparent Multi-Platform Gateway (TMPG) Equipment Package (JTEP)], Pocket J, Enhanced Tactical Data Link and Data Display [previously called Link 16 Alaska (LAK)], and Beyond Line of Sight (BLOS) capabilities such as the Roll-on BLOS Enhancement (ROBE).

JINTACCS is a Joint Staff-directed program providing Air Force activities responsible for ensuring the interoperability of AF TDLs [including, but not limited to Tactical Digital Information Links (TADILs) and Variable Message Formats (VMF)] and United States Message Text Format (USMTF) systems with the associated Joint and allied/coalition systems. This includes the coordination of all TDL and USMTF message standards configuration management, platform/system interoperability assessments and interoperability certification testing. The Air Force JINTACCS program supports the Assistant Secretary of Defense (ASD) directive on harmonization of US and NATO messages (e.g., Air Tasking Order and Air Control Order). This budget activity also includes TDL Roadmap configuration management, Interoperable System Management and Requirements Transformation (iSMART) implementation. 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.

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0207434F Link 16 Support and Sustainment</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5050 TDL System Integration</b>
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The air portion of the Common Tactical Picture (CTP), the Single Integrated Air Picture (SIAP), consists of common, continual and unambiguous tracks of airborne objects of interest in the surveillance area. SIAP is derived from real time and near real time data and consists of correlated air object tracks and associated information. SIAP systems integration efforts include, but are not limited to: defining the SIAP Platform Independent Model (PIM) functionality, the required SIAP architecture, and the integration methodology for AF C2 weapons systems.

This activity is in Budget Activity 5 (Engineering, Manufacturing and Development) because it supports development, integration solutions, fielding, operational support activities, and support of special projects.

<b>(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
<b>(U) TDN MANAGEMENT AND INITIAL FIELDING:</b>	9.572	19.831	23.388	24.089
- Joint Interface Control Officer Support System (JSS): Finalizes risk reduction activities, down-selects to single development contractor, and provides development and test support of Engineering Development Models (EDM's).				
- TDL Integration, Fielding and Support: Provides initial fielding support for units/platforms fielding a datalink capability. This support consists of organic and contractor teams that provide Tactics, Techniques & Procedures (TTP) training, equipment and operations expertise needed to set-up initial TDL OPS, and field installations. Develops Tactical Data Link architectures for implementation at USAF and Joint locations worldwide resulting in a 20%-100% increase in TDL mission capability. Supports USAF and Joint TDL experiments.				
<b>(U) NETWORK CENTRIC TRANSFORMATION:</b>	2.078	23.914	48.169	55.990
- Network Centric Transformation activities include, but are not limited to: enabling and supporting the transformation to network-centric operations, Common Link Integration Processor (CLIP) software development, Network Enhanced Weapons (previously Weapons Data Link), Network Centric Capability Assessment, and Network Centric Transformation.				
- Maintain developmental equipment; test support; fielding/non-recurring training; network support; crypto support; spectrum support; gateway support; data link tool support; and support operational working groups				
<b>(U) GATEWAYS:</b>	2.418	15.200	44.646	62.122
- Efforts associated with Link 16 network management and network capability improvements--includes, but not limited to: Link 16 and other TDL Gateways and Interfaces, Near Term Gateways such as JRE, JTEP, TMPG, ADSI and Objective Gateway development.				
<b>(U) ROLL-ON BEYOND-LINE-OF-SIGHT ENHANCEMENT (ROBE):</b>	0.000	9.578	3.370	1.500
- Spiral 2 effort applied to the 40 ROBE-Spiral 1 equipped KC-135s (Group A and Group B kits). This effort will add capabilities such as, but not limited to: a Situational Awareness Data Link (SADL) gateway, Built in Test ( BIT), Remote Control, and additional Satellite Communications ( SATCOM)				

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<b>Exhibit R-2a, RDT&amp;E Project Justification</b>		DATE <b>February 2005</b>
<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0207434F Link 16 Support and Sustainment</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5050 TDL System Integration</b>

capability.				
(U) TDN INTEROPERABILITY TEST AND CONFIGURATION MANAGEMENT: - JINTACCS Tactical Data Link Management, Architecture Development and Certification Testing. - Implementation and interoperability scheduling with the F-16, B-52, B-1, B-2, F-117, and other weapon systems - Software updates and interoperability testing with the F-15C, E-3, E-8, Control and Reporting Center/Control and Reporting Element (CRC/CRE), interoperable Systems Management and Requirements Transformation (iSMART), and other weapon systems. - Tactical Data Link Roadmap Requirements, Configuration Management, and Air Force Participating Test Unit activities (AFPTU).		8.269	16.024	19.723
(U) TACTICAL DATA LINK ACQUISITION MANAGEMENT: Includes the TDN Squadron on-line collaboration tool [Integrated Digital Environment (IDE)], coalition interoperability management, contractor support and MITRE support	5.783	9.735	11.280	11.176
(U) CONGRESSIONAL ADDS: - Enhanced TDL and Data Display (previously Link-16 Alaska) - Pocket J: A deployable Link 16 capability for temporary, austere, or remote locations.	12.300	6.400		
(U) SINGLE INTEGRATED AIR PICTURE: - AF system engineering and infrastructure cost to execute SIAP initiatives.	23.892	32.886	10.800	9.500
(U) Total Cost	56.043	125.813	157.677	184.100

<b>(U) C. Other Program Funding Summary (\$ in Millions)</b>										
	<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>
	Actual	Estimate								
(U) AF RDT&E										
(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) 0207448F (C2ISR TDL)	25.003	25.150	14.838	4.479	1.952	1.948	1.953	1.939		77.262
(U) 0401839F (Airlift TDL)	0.000	0.000	0.000	31.967	0.000	0.000	0.000	0.000	Continuing	TBD
(U) 0207443F (SIAP Project-FIOP PE)	0.000	46.607	29.296	20.450	0.000	0.000	0.000	0.000	Continuing	TBD
(U) Other APPN Aircraft Procurement, AF (3010)										
(U) 0207423F (JTRS I&D)	0.000	0.000	17.192	43.445	52.032	53.650	49.645	53.695	Continuing	TBD

**Exhibit R-2a, RDT&E Project Justification**

DATE

**February 2005**

BUDGET ACTIVITY

**05 System Development and Demonstration (SDD)**

PE NUMBER AND TITLE

**0207434F Link 16 Support and Sustainment**

PROJECT NUMBER AND TITLE

**5050 TDL System Integration**

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

(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, AF (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, 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 Networks Squadron provides common enterprise management for development, integration, and interoperability across all Air Force platforms. It ensures tactical data links are procured and maintained as a joint, end-to-end, command and control system using evolutionary acquisition approaches and a combination of sole source and open competition contracts.

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**Exhibit R-3, RDT&E Project Cost Analysis**

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BUDGET ACTIVITY				PE NUMBER AND TITLE								PROJECT NUMBER AND TITLE			
<b>05 System Development and Demonstration (SDD)</b>				<b>0207434F Link 16 Support and Sustainment</b>								<b>5050 TDL System Integration</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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>															
-TDN Managment and Initial Fielding (JSS, IFS)	Various	Various		9.572	Feb-04	19.831	Jun-05	23.388	Dec-05	23.589	Dec-06	Continuing	TBD	TBD	
-Network Centric Transformation (CLIP, JAN-TE, NEW, NCCA, TSR, LET)	Various	Various	1.771	2.078	Dec-03	23.300	Mar-05	41.745	Dec-05	50.269	Dec-06	Continuing	TBD	TBD	
-Gateways (OG, Global Hawk/MMP, JRE, JTEP, TPMG, ADSI, ROBE)	Various	Various		2.418	Dec-03	24.778	Dec-04	48.016	Dec-05	62.622	Dec-06	Continuing	TBD	TBD	
-TDN Interoperability Test and Configuration Management (AFPTU, JINTACCS, iSMART)	Various	Various			Jan-04	8.269	Feb-05	16.024	Dec-05	19.723	Dec-06	Continuing	TBD	TBD	
-TDL Acquisition Management (IDE NEXUS, Coalition Interoperability)	Various	Various		0.891	Nov-03	3.270	Nov-04	3.313	Nov-05	2.732	Nov-06	Continuing	TBD	TBD	
-Single Integrated Air Picture (SIAP)	Various	Various	14.785	23.892	Mar-04	32.886	Jan-05	10.800	Dec-05	9.500	Dec-05	Continuing	TBD	TBD	
-* Enhanced TDL & Data Display (LAK)	C/CPFF	Pro-Logic, Inc., Manassas, VA	6.898	8.000	Aug-04	3.000	Apr-05					0.000	17.898	17.898	
-* Pocket J	SS/TBD	Pro-Logic, Inc., Fairmont, WV		4.300	Jul-04	3.400	Feb-05					0.000	7.700	7.700	
Subtotal Product Development			23.454	51.151		118.734		143.286		168.435		Continuing	TBD	TBD	
Remarks:	* Supports the Congressional Add - is a Small Business Set-Aside program award.														
(U) <u>Test &amp; Evaluation</u>															
-46th Test Squadron	MIPR	46th Test Squadron, Eglin AFB FL	0.625	0.675	Dec-03	0.614	Dec-04	6.424	Dec-05	7.221	Dec-06	Continuing	TBD	TBD	
Subtotal Test & Evaluation			0.625	0.675		0.614		6.424		7.221		Continuing	TBD	TBD	
Remarks:															
(U) <u>Management</u>															
-Program Office and Contractor Support	C/FFP	Various	0.685	4.217	Dec-03	6.465	Dec-04	7.967	Dec-05	8.444	Dec-06	Continuing	TBD	TBD	
Subtotal Management			0.685	4.217		6.465		7.967		8.444		Continuing	TBD	TBD	
Remarks:															
(U) Total Cost			24.764	56.043		125.813		157.677		184.100		Continuing	TBD	TBD	

Exhibit R-4, RDT&E Schedule Profile

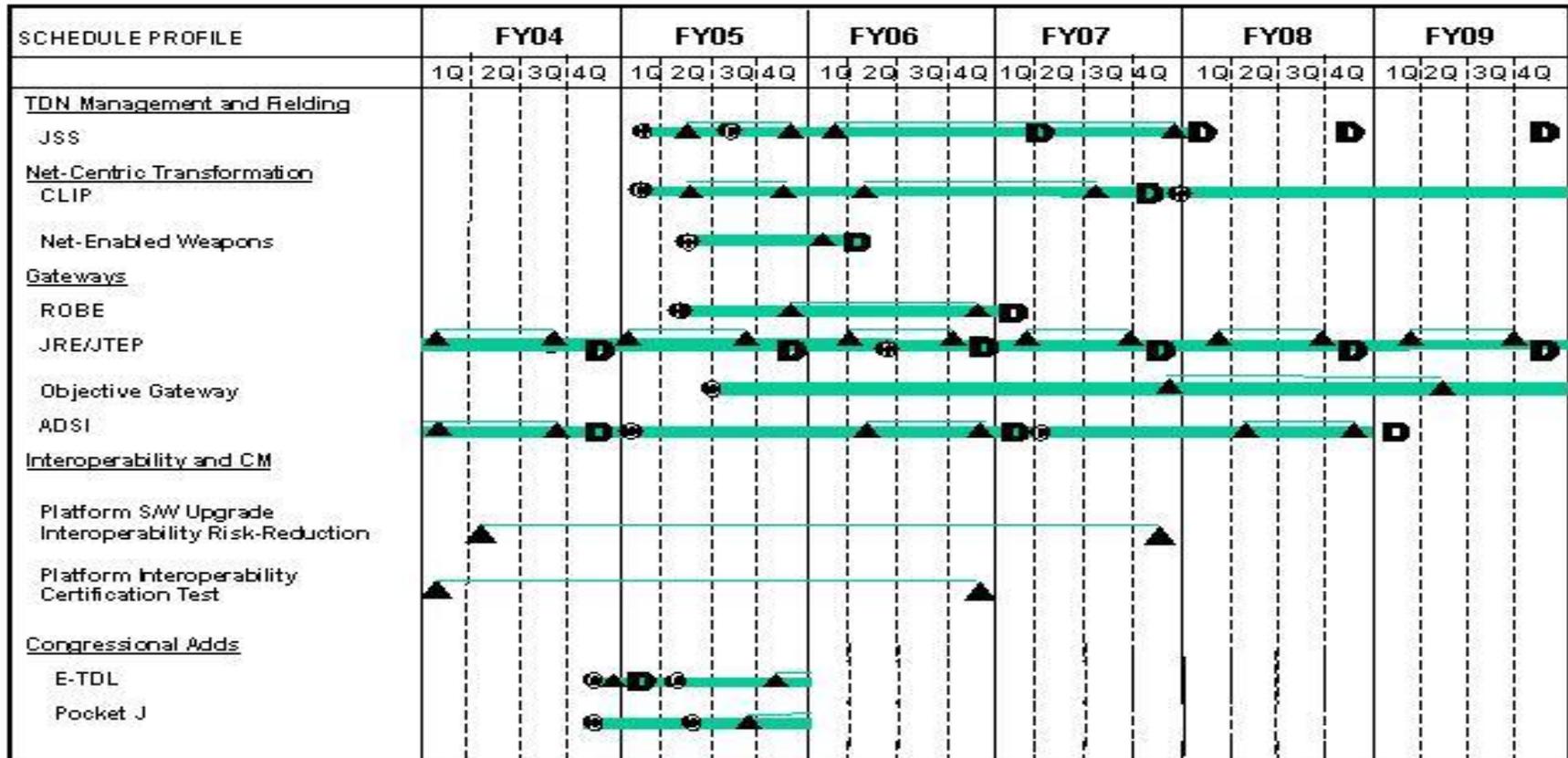
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BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE  
0207434F Link 16 Support and Sustainment

PROJECT NUMBER AND TITLE  
5050 TDL System Integration



**Legend**

Contract Award ⊕ Development Testing ▲ Delivery D

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Exhibit R-4a, RDT&E Schedule Detail		DATE February 2005		
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE		
<b>05 System Development and Demonstration (SDD)</b>	<b>0207434F Link 16 Support and Sustainment</b>	<b>5050 TDL System Integration</b>		
<b>(U) Schedule Profile</b>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) ADSI Contract Award		1Q		
(U) ADSI Development	1-4Q	1-4Q	1-4Q	1-4Q
(U) ADSI Test & Certification	1-3Q		2-4Q	
(U) ADSI Product Delivery	4Q			1Q
(U) ROBE Contract Award		2Q		
(U) ROBE Development		2-4Q	1-4Q	
(U) ROBE Test & Certification		4Q	1-4Q	
(U) ROBE Product Delivery				1Q
(U) CLIP Contract Award		1Q		
(U) CLIP Development		1-4Q	1-4Q	1-4Q
(U) CLIP Test & Certification		2-4Q	2-4Q	1-3Q
(U) CLIP Product Delivery				4Q
(U) E-TDL Contract Award	4Q	2Q		
(U) E-TDL Development	4Q	1-4Q		
(U) E-TDL Test & Certification		4Q		
(U) E-TDL Product Delivery		1Q		
(U) JSS Contract Award	4Q	3Q		
(U) JSS Development	4Q	1-4Q	1-4Q	1-4Q
(U) JSS Test & Certification	2-4Q	1-4Q	1-4Q	1-4Q
(U) JSS Product Delivery				2Q
(U) JRE/JTEP Contract Award			2Q	
(U) JRE/JTEP Development	1-4Q	1-4Q	1-4Q	1-4Q
(U) JRE/JTEP Test & Certification	1-3Q	1-3Q	2-4Q	1-3Q
(U) JRE/JTEP Product Delivery	4Q	4Q	4Q	4Q
(U) POCKET J Contract Award	4Q	2Q		
(U) POCKET J Development	4Q	1-4Q		
(U) POCKET J Test & Certification		3-4Q		
(U) Objective Gateway Contract Award		2Q		
(U) Objective Gateway Development		2-4Q	1-4Q	1-4Q
(U) Objective Gateway Test & Certification			4Q	
(U) Net Enabled Weapons Contract Award		2Q		
(U) Net Enabled Weapons Development		2-4Q		

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Exhibit R-4a, RDT&E Schedule Detail

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0207434F Link 16 Support and Sustainment

PROJECT NUMBER AND TITLE

5050 TDL System Integration

(U) Net Enabled Weapons Test & Certification

1Q

(U) Net Enabled Weapons Product Delivery

2Q

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PE NUMBER: 0207443F

PE TITLE: FAMILY OF INTEROP OPERATIONAL PIC (FIOP)

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0207443F FAMILY OF INTEROP OPERATIONAL PIC (FIOP)</b>
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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	46.607	29.296	20.450	0.000	0.000	0.000	0.000	Continuing	TBD
5137 Family of Interoperable Operational Pictures (FIOP)	0.000	46.607	0.000	0.000	0.000	0.000	0.000	0.000	0.000	46.607
5187 Single Integrated Air Picture (SIAP)	0.000	0.000	29.296	20.450	0.000	0.000	0.000	0.000	Continuing	TBD

In FY06, Project #655137, 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.

In FY05, this is a new PE. In FY05, all funds from PE 0604754F, Tactical Data Links Integration, Project #654992, and some funds from PE 0207438F, (Theater Battle Management C4I, Project #654790 and from PE 0603850F, Integrated Broadcast System, Project #635151 were transferred into this new Program Element to facilitate FIOP program funding consolidation.

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

The Family of Interoperable Operational Pictures (FIOP) is a program designed to implement web-based technologies into Systems of Record, making their data, and thus the Common Operational and Tactical Pictures, consistent throughout the Services and at all echelons of Combat Operations. The Joint Requirements Oversight Council (JROC) directed the FIOP program to "...provide an all-source picture of the Battlespace containing actionable, decision quality information through the fusion of existing databases". Ultimately, the FIOP effort will lead to the underpinnings of Network Centric Operational Warfare. The FIOP program focus includes the following areas:

- Joint Blue Force Situational Awareness (JBFSA)
- Situational Awareness Data Interoperability (SADI)
- Tactical Data Link Integration
- Precision Fires Support
- Network Based Services
- Web Enabled Execution Management
- Red Force Situational Awareness Picture
- Ground Moving Target Indicators (GMTI)
- Meteorology Oceanography (METOC)
- Targeting Interoperability

## Exhibit R-2, RDT&amp;E Budget Item Justification

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BUDGET ACTIVITY

**05 System Development and Demonstration (SDD)**

PE NUMBER AND TITLE

**0207443F FAMILY OF INTEROP OPERATIONAL PIC (FIOP)**

The air portion of the Common Tactical Picture (CTP), the Single Integrated Air Picture (SIAP), consists of common, continual and unambiguous tracks of airborne objects of interest in the surveillance area. SIAP is derived from real time and near real time data and consists of correlated air object tracks and associated information. SIAP systems integration efforts include, but are not limited to: defining the SIAP Platform Independent Model (PIM) functionality, the required SIAP architecture, and the integration methodology for AF C2 weapons systems.

These activities are in Budget Activity 5 (System Development and Demonstration) because they support development, integration solutions, fielding, operational support activities, and special projects.

**(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	44.947	45.201	41.438
(U) Current PBR/President's Budget	0.000	46.607	29.296	20.450
(U) Total Adjustments	0.000	1.660		
(U) Congressional Program Reductions		-4.000		
Congressional Rescissions		-0.540		
Congressional Increases		6.200		
Reprogrammings				
SBIR/STTR Transfer				

**(U) Significant Program Changes:**

In FY06, Project #655137, Family of Interoperable Operational Pictures (FIOP) was terminated by an OSD budget decision. OSD directed the Under Secretary of Defense (AT&L) with the Chairman of the Joint Chiefs of Staff to 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 FY05, Congress increased the program by \$6.2M: \$3.8M to fund Command and Control Enterprise Services (C2ES) and \$2.4M to fund Command and Control Service Level Management. Also in FY05, the FY05 Defense Appropriations Bill reduced the PE, eliminating \$4.0M for program growth.

The FY05 increase results from the consolidation of FIOP funds from PE 0604754F (Tactical Data Link Integration), #654992, PE 0207438F (Theater Battle Management C4I), #654790, and PE 0603850F (Integrated Broadcast System), #635151.

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

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BUDGET ACTIVITY		PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE		
<b>05 System Development and Demonstration (SDD)</b>		<b>0207443F FAMILY OF INTEROP OPERATIONAL PIC (FIOP)</b>						<b>5137 Family of Interoperable Operational Pictures (FIOP)</b>		
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
5137 Family of Interoperable Operational Pictures (FIOP)	0.000	46.607	0.000	0.000	0.000	0.000	0.000	0.000	0.000	46.607
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

In FY 2006, Project #655137, Family of Interoperable Operational Pictures was terminated. OSD directs the Under Secretary of Defense (AT&L) with the Chairman of the Joint Chiefs of Staff to leverage the Single Integrated Air Picture (SIAP) systems engineering 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 FY05, Congress increased the program by \$6.2M: \$3.8M to fund Command and Control Enterprise Services (C2ES) and \$2.8M to fund Comand and Control Service Level Management. Also in FY05, the FY05 Defense Appropriations Bill reduced the PE, eliminating \$4.0M for program growth.

For FY03 Task 1 program details, see PE 0207434F, Link 16 Support and Sustainment, Project #655051. For FY04 Task 1 Details, see PE 0207438F, Theater Battle Management C4I, Project #654790. For FY04 Task 2 program details, see PE 0604754F, Tactical Data Link Integration, Project #654992 and PE 0603850F, Integrated Broadcast Service, #635151.

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

FIOP is comprised of the following ten integrated product teams. They are of varying size, scope and longevity.

- (1) Joint Blue Force Situational Awareness (JBFSa) - Many DoD systems provide data regarding friendly forces. There is no single system or mission application that provides a totally integrated (i.e., all blue force data) set of data to the warfighter. This task will perform the systems engineering, architecture development, and integration activities leading to a secure, web-based blue force data dissemination network service. This task is being led by the Army and is being done in coordination with the Blue Force Tracking and Single Integrated Ground Picture programs and the Joint Blue Force Situational Awareness Advanced Concept Technology Demonstration.
- (2) Situational Awareness Data Interoperability - This task will allow the bidirectional sharing of data with our coalition partners through the development of a Common Operational Environment (COE)-compliant, web-based network gateway mission application and development of an Interface Control Document.
- (3) Tactical Data Link Integration -Improves the integration of the multi-Tactical Data Link (TADIL) networks of the Joint Data Network (JDN) and the Global Command and Control Systems (GCCS) Family of Systems (FoS) of the Joint Planning Network (JPN). The evolving primary mechanism for supporting this type of integration is the Multi-TADIL Capability segment, which provides the ability to establish two-way interfaces between GCCS FoS and Link 11/16 (via the Air Defense Systems Integrator). The objective of this effort is to expand and strengthen this integration, with a focus on near-term delivery of warfighting capability, but is simultaneously designed to support a longer range transition to architectures that converge the JDN and JPN environments and evolve the GCCS FoS to Joint Command and Control and finally the Link processors to a converged implementation.
- (4) Precision Fires Support - Ground Fires systems require accurate target coordinates. This task will provide web-based Global Positioning Systems enhanced target

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0207443F FAMILY OF INTEROP OPERATIONAL PIC (FIOP)</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5137 Family of Interoperable Operational Pictures (FIOP)</b>
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coordinates to those systems. This is a critical element of the DoD's efforts to reduce fratricide while increasing combat effectiveness.

(5) Network Based Services - For several FIOP tasks, an implicit requirement is that the network infrastructure can support the information being promulgated in a warfighting environment. The collective set of infrastructure components that can provide the network based services support can be referred to as the common integrated infrastructure (CII). This task includes support for the development of those CII components that will be made part of the Command and Control (C2) Enterprise and enable the use of the web-based network services that were developed for the C2 Community of Interest. The CII provides smart adaptive services that allow warfighters to rapidly access, manipulate and display trusted data in a changing environment.

(6) Web Enabled Execution Management - This task provides new, web-based tools to Operations Center personnel that are used during the execution of the battle. These tools are comprised of mission managers and task coordination managers and use the standard DoD COE set of mission applications and segments. These tools will provide greater horizontal and vertical integration of the Joint Forces Commander's decisions.

(7) Red Force Situational Awareness Picture - Similar to JBFSA, there is no single information capability that provides an integrated picture of the enemy forces. This effort will provide an integrated Red Force information service that will be made available to DoD C2 systems.

(8) Ground Moving Target Indicators (GMTI) - The data pertaining to moving ground targets that is collected by the DoD's airborne sensors has limited promulgation throughout the C2 Community of Interest. The GMTI effort will transform the data into a web-based format and make it available to appropriate users via a web browser.

(9) Meterology Oceanography (METOC) - There is currently no single repository in a standardized format for global weather services to include indigenous/local weather information. This effort develops a METOC common data format from a variety of sources such as Unmanned Aerial Vehicles (UAV), the National Imagery and Mapping Agency (NIMA), and the Air Force Weather Agency (AFWA). Commanders and warfighting systems require METOC data and information pertinent to the local geographical area, gathered and processed by both national and local systems and sensors. It will be available over the CII and provide weather information in a common format to the combatant commanders in a near real-time automated data push.

(10) Targeting Interoperability - There are a variety of efforts and systems that support the planning and execution of targeting processes both in the deliberate and time critical time domains. Multiple time critical targeting systems employed by the Services are not interoperable and do not share targeting information which affect fire support planning and execution. Also, targeting data is not sufficiently integrated across all Battle Management C2 Systems to the extent necessary to support actionable decision making.

This activity is in Budget Activity 5 (System Development and Demonstration) because it supports development, integration solutions, fielding, operational support activities, and special projects.

<b>(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Web Enabled Execution Management Spirals 4 & 5	0.000	15.660		0.000
(U) Situational Awareness Data Interoperability	0.000	1.410		0.000
(U) Network Based Services	0.000	7.047		

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0207443F FAMILY OF INTEROP OPERATIONAL PIC (FIOP)</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5137 Family of Interoperable Operational Pictures (FIOP)</b>
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(U) Precision Fires Support	0.000	4.920		
(U) Joint Blue Force Situational Awareness	0.000	13.860		
(U) Tactical Data Link Integration	0.000	3.710	0.000	0.000
(U) Targeting Interoperability	0.000	0.000	0.000	
(U) Ground Moving Target Indicators	0.000	0.000	0.000	
(U) Red Force Picture Distribution	0.000			
(U) Meteorology and Oceanographic				
(U) Total Cost	0.000	46.607	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>Complete</u>							
(U) AF RDT&E										
(U) 0604754F Tact. Data Link Integ.	22.376	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	22.376
(U) 0207438F TBMCS Ops	5.723	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5.723
(U) 0603850F Integ. Bdcst Sys.	5.636	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5.636
(U) O&M (3400)										
(U) 0207443F (FIOP)	0.000	0.000	0.072	0.145	0.156	0.168	0.165	0.168	Continuing	TBD

**(U) D. Acquisition Strategy**

JROC-directed activity to spiral develop, integrate, and sustain web-enabled COP capabilities that are interoperable with existing Service systems by identifying execution-level requirements and candidate solutions which will be tested and then migrated to Service Systems of Record for sustainment using an acquisition strategy normally composed of pre-competed existing contracts.

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Exhibit R-3, RDT&E Project Cost Analysis											DATE February 2005			
BUDGET ACTIVITY 05 System Development and Demonstration (SDD)						PE NUMBER AND TITLE 0207443F FAMILY OF INTEROP OPERATIONAL PIC (FIOP)					PROJECT NUMBER AND TITLE 5137 Family of Interoperable Operational Pictures (FIOP)			
(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>Web Enabled Execution Management</u>	Various	Various				15.660	Dec-04			0.000			15.660	14.000
Subtotal Web Enabled Execution Management			0.000	0.000		15.660		0.000		0.000		0.000	15.660	14.000
Remarks:	The WEEMC effort has been planned, programmed and budgeted in prior years in PE0207438F. This is not a New Start													
(U) <u>Tactical Data Link Integration</u>	MIPR	Various contractors managed by SPAWAR PM-157, San Diego, CA		0.000		3.710	Dec-04	0.000		0.000			3.710	3.710
Subtotal Tactical Data Link Integration			0.000	0.000		3.710		0.000		0.000		0.000	3.710	3.710
Remarks:	This effort has been planned, programmed and budgeted in prior years in PE0604754F. This is not a new start.													
(U) <u>Situational Awareness Data Interoperability</u>	MIPR	Various contractors managed by CECOM PEO/C3T				1.410	Feb-05			0.000			1.410	1,410.000
Subtotal Situational Awareness Data Interoperability			0.000	0.000		1.410		0.000		0.000		0.000	1.410	1,410.000
Remarks:	This effort has been planned, programmed and budgeted in prior years in PE0604754F. This is not a new start.													
(U) <u>Network Based Services</u>	Various	Various contractors managed by HQ ESC/NI-2, Hanscom AFB, MA				7.047	Jan-05						7.047	7.047
Subtotal Network Based Services			0.000	0.000		7.047		0.000		0.000		0.000	7.047	7.047
Remarks:	This effort has been planned, programmed and budgeted in prior years in PE0604754F. This is not a new start.													
(U) <u>Joint Blue Force Situational Awareness</u>	MIPR	Various contractors managed by HQ Dept of Army/G8, Washington DC				13.860	Mar-05						13.860	13.860

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis							DATE February 2005		
BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT NUMBER AND TITLE		
<b>05 System Development and Demonstration (SDD)</b>				<b>0207443F FAMILY OF INTEROP OPERATIONAL PIC (FIOP)</b>			<b>5137 Family of Interoperable Operational Pictures (FIOP)</b>		
Subtotal Joint Blue Force Situational Awareness	0.000	0.000	13.860	0.000	0.000	0.000	0.000	13.860	13.860
Remarks:	This effort has been planned, programmed and budgeted in prior years in PE0603850F. This is not a new start.								
(U) <u>Precision Fires Support</u>									
		MIPR	Various contractors managed by USMC Systems Command, Quantico, VA	4.920	Jan-05			4.920	4.920
Subtotal Precision Fires Support	0.000	0.000	4.920	0.000	0.000	0.000	0.000	4.920	4.920
Remarks:	This effort has been planned, programmed and budgeted in prior years in PE0604754F. This is not a new start.								
(U) <u>Red Force Picture Distribution</u>								0.000	0.000
Subtotal Red Force Picture Distribution	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Remarks:									
(U) <u>Targeting Interoperability</u>								0.000	0.000
Subtotal Targeting Interoperability	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Remarks:									
(U) <u>Ground Moving Target Indicators</u>								0.000	0.000
Subtotal Ground Moving Target Indicators	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Remarks:									
(U) <u>Meteorology and Oceanographic</u>								0.000	0.000
Subtotal Meteorology and Oceanographic	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Remarks:									
(U) Total Cost	0.000	0.000	46.607	0.000	0.000	0.000	0.000	46.607	1,453.537

**Exhibit R-4, RDT&E Schedule Profile**

DATE

**February 2005**

BUDGET ACTIVITY

**05 System Development and Demonstration (SDD)**

PE NUMBER AND TITLE

**0207443F FAMILY OF INTEROP  
OPERATIONAL PIC (FIOP)**

PROJECT NUMBER AND TITLE

**5137 Family of Interoperable  
Operational Pictures (FIOP)**

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**UNCLASSIFIED**

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0207443F FAMILY OF INTEROP OPERATIONAL PIC (FIOP)</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5137 Family of Interoperable Operational Pictures (FIOP)</b>
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<b>(U) <u>Schedule Profile</u></b>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) WEEMC Spiral 1 Delivery	1Q			
(U) WEEMC Spiral 2 Delivery	3Q			
(U) WEEMC Spiral 3 Delivery	4Q			
(U) WEEMC Spiral 4 Delivery		2Q		
(U) WEEMC Spiral 5 Delivery		4Q		
(U) Tactical COP Workstation Final Delivery	2Q			
(U) JBMC2 - FIOP Sys. Engineering Working Group (SEWG) and JFCOM Initial Engineering Plan Completed--Updates Follow	3Q	2Q		
(U) JBMC2 - Semi Annual Architectural Updates		1&3Q		
(U) JBFSA - CONOPS Complete		2Q		
(U) JBFSA - 1st iteration of Integrated and Operational Architectures feeding into Integrated Capability Delivery		4Q		
(U) TDL Integration - CONOPS	2Q			
(U) TDL Integration - Spiral 1 Delivery	3Q			
(U) TDL Integration - Spiral 2 Delivery		3Q		
(U) SADI - Spiral 1	4Q			
(U) SADI - Spiral 2		2Q		
(U) SADI - Spiral 3		3Q		
(U) NBS - Cross System Weapon Target Pairing Information Service	4Q			
(U) NBS - C2 Community of Interest Guidance published		2Q		
(U) Precision Fires Suppt. - Spiral 1	3Q			
(U) Precision Fires Suppt. - Spiral 2		3Q		

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**TERMINATION OF INVESTMENT-RELATED PROGRAMS**

**FY 2006 President's Budget**

**(Dollars in Millions)**

PE	BPAC	APPN	FY 2004		FY 2005		FY 2006		FY 2007		FY 2008		FY 2009		FY 2010		FY 2011	
			COST	QTY														
0207443F	655137	3600	0.000		0.000		45.201		41.438		51.720		40.531		41.342		42.169	

**Effort Title**

Family of Interoperable Operational Pictures (FIOP)

**Program Description**

FIOP is a program designed to implement web-based technologies into Systems of Record, making their data, and thus the Common Operational and Tactical Pictures, consistent throughout the Services and at all echelons of Combat Operations. The Joint Requirements Oversight Council (JROC) directed the FIOP program to "...provide an all-source picture of the Battlespace containing actionable, decision quality information through the fusion of existing databases" in JROC Memorandum 156-02. The goal of FIOP is to provide the underpinnings of Network Centric Operational Warfare. FIOP program focus includes the following Integrated Product Team (IPT) areas:

- Web Enabled Execution Management Capability (WEEMC)
- Joint Blue Force Situational Awareness (JBFSa)
- Situational Awareness Data Interoperability (SADI)
- Tactical Data Link Integration
- Precision Fires Support
- Network Based Services
- Red Force Situational Awareness Picture
- Ground Moving Target Indicators (GMTI)
- Meteorology Oceanography (METOC)
- Targeting Interoperability

**Status to Date**

All IPTs are in exploratory phases. Exceptions are WEEMC and JBFSa: WEEMC capability is 75% complete and JBFSa effort is near 50% complete.

**Rationale for Termination**

OSD terminated the FIOP program, project #655137, for FY06-FY11. OSD also directed the Under Secretary of Defense (AT&L) with the Chairman of the Joint Chiefs of Staff to 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.

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>					PE NUMBER AND TITLE <b>0207443F FAMILY OF INTEROP OPERATIONAL PIC (FIOP)</b>			PROJECT NUMBER AND TITLE <b>5187 Single Integrated Air Picture (SIAP)</b>		
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
5187 Single Integrated Air Picture (SIAP)	0.000	0.000	29.296	20.450	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 implementation of the SIAP Block 0 (zero) consists of the implementation of three Interface Change Proposals (ICPs) [Correlation/Decorrelation, ID Taxonomy, and ID Conflict Resolution] across ten AF weapons systems. The Block 0 schedule for implementation has various completion dates across the ten weapons systems with all being completed in 2006.

The Model Driven Architecture (MDA) approach will provide enhanced interoperability by implementing Joint common Battle Management Command and Control (BMC2) functionality in weapons systems, thus enabling more accurate situational awareness, and reduced fratricide. The SIAP funding in PE 0207443F integrates the SIAP functionality into initial Air Force weapons system (e.g., E-3 AWACS, Battle Control System [BCS], RC-135V/W RIVET JOINT).

The Air Force is applying expertise in the various AF weapons System Program Offices (SPOs) to assist with defining the SIAP Platform Independent Model (PIM) functionality, the required SIAP architecture, and the integration methodology for AF C2 weapons systems. This effort funds AF specific, SIAP-related engineering efforts and the independent verification/validation efforts for AF weapon system-specific models used in SIAP integration. Also, the Air Force has staff working on site with the Joint SIAP Systems Engineering Office (JSSEO) to help define and develop the functional content of the SIAP PIM scheduled for delivery 2005. Air Force platforms will be integrating and implementing this product through 2008.

This activity is in Budget Activity 5 (System Development and Demonstration) because it supports development, integration solutions, fielding, operational support activities, and special projects.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) BLOCK 0			6.200	
(U) MDA Integrating and Implementation			23.096	20.450
(U) Total Cost	0.000	0.000	29.296	20.450

**(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>Complete</u>							
(U) RDT&E										
(U) 0207434F Link 16 Support & Sustainment	61.150	134.547	157.677	184.100	151.289	155.710	159.298	162.024	Continuing	TBD

**(U) D. Acquisition Strategy**

The Air Force SIAP Program Office (SPO) provides for common development and integration across multiple Air Force platforms via existing contract mechanisms.

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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					
<b>05 System Development and Demonstration (SDD)</b>				<b>0207443F FAMILY OF INTEROP OPERATIONAL PIC (FIOP)</b>						<b>5187 Single Integrated Air Picture (SIAP)</b>					
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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>															
AWACS Block 30/35 Block 0 Corr/Decorr	CPIF	Boeing Seattle, WA						6.200	Nov-05				6.200		
Integration Resource Center	CPFF	Alphatech Burlington, MA						3.500	Nov-05	3.500	Nov-06	Continuing	TBD		
MDA Integration and Implementation	TBD	TBD						14.596	Nov-05	11.950	Nov-06	Continuing	TBD		
Subtotal Product Development			0.000	0.000		0.000		24.296		15.450		Continuing	TBD	0.000	
Remarks:															
(U) <u>Support</u>															
ESC	C/FFP	Titan Corp, Odyssey Consulting Group, BTAS, Inc, MITRE						5.000	Oct-05	5.000	Oct-06	Continuing	TBD		
Subtotal Support			0.000	0.000		0.000		5.000		5.000		Continuing	TBD	0.000	
Remarks:															
(U) <u>Test &amp; Evaluation</u>															
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000	
Remarks:															
(U) <u>Management</u>															
Subtotal Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000	
Remarks:															
(U)															
Subtotal			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000	
Remarks:															
(U) Total Cost			0.000	0.000		0.000		29.296		20.450		Continuing	TBD	0.000	



<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0207443F FAMILY OF INTEROP OPERATIONAL PIC (FIOP)</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5187 Single Integrated Air Picture (SIAP)</b>
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<b>(U) <u>Schedule Profile</u></b>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Support to Joint SIAP Systems Engineering Support Office	1-4Q	1-4Q	1-4Q	1-4Q
(U) Standup Integration Resource Center	2Q			
(U) Develop SPO software integration capabilities	3-4Q	1-4Q	1-4Q	1-4Q
(U) AF SIAP Flight Plan	2-4Q	1-4Q	1-4Q	1-4Q
(U) Integrated Capability Lab Test	2-4Q	1-4Q	1-4Q	1-4Q
(U) CAOC-X Demo	3-4Q	1-3Q		
(U) AWACS Risk Reduction Test		1-4Q	1-4Q	1-4Q
(U) E-10/SIAP Prototype Lab Demo		4Q	1-3Q	
(U) BCS Config 05 Integration		4Q	1-3Q	

**UNCLASSIFIED**

PE NUMBER: 0207450F  
 PE TITLE: E-10 Squadrons

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0207450F E-10 Squadrons</b>
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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	419.006	397.011	389.245	587.615	438.500	294.874	74.784	Continuing	TBD
5131 Airframe	0.000	217.986	250.582	205.263	420.642	315.545	248.953	74.784	Continuing	TBD
5132 Sensors	0.000	201.020	146.429	183.982	166.973	122.955	45.921	0.000	Continuing	TBD

1. 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.
2. 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.
3. 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.

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

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. 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.

The MP-RTIP program will also provide a radar for a robust Global Hawk reconnaissance capability. It also continues to support NATO Alliance Ground Surveillance (AGS) radar conceptual design and early decision analysis activities to support OSD's strategy for the United States' involvement in the NATO AGS program.

This program is categorized as Budget Activity (BA) 5 to reflect a program in System Development and Demonstration (SDD). MP-RTIP entered SDD in FY04; the E-10A program is in the Pre-SDD, or Technology Development, phase.

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2005

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0207450F E-10 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	0.000	538.860	530.458	438.500
(U) Current PBR/President's Budget	0.000	419.006	397.011	389.245
(U) Total Adjustments	0.000	-119.854		
(U) Congressional Program Reductions		-116.120		
Congressional Rescissions		-3.734		
Congressional Increases				
Reprogrammings				
SBIR/STTR Transfer				

(U) **Significant Program Changes:**

FY 2005 begins reporting for E-10 Squadrons, PE 0207450F. This activity continues from FY 2004 as previously reported in C2 Constellation, PE 0207449F in Project 5064 (Airframe) and Project 5065 (Sensor). The Current PBR/President's Budget reflects a restructured acquisition strategy.

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2005

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE		
05 System Development and Demonstration (SDD)				0207450F E-10 Squadrons				5131 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
5131 Airframe	0.000	217.986	250.582	205.263	420.642	315.545	248.953	74.784	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

- 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.
- 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.
- FYDP RDT&E Article Deliveries:  
FY 2008: 1 767-400ER/MP-RTIP Testbed for modification

**(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 & 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 BMC2 with growth potential for Unmanned Aerial Vehicle (UAV) control, space-based radar interface and Intelligence, Surveillance and Reconnaissance (ISR) management functions. 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 modify the "green" commercial 767-400ER platform to provide the technology testbed, (3) support Weapon System Integration activities to include development of key BMC2 communications and computing applications to prove out the MP-RTIP radar and establish future BMC2 architectures for the E-10A, (4) pursue future studies/spiral development to support continuous improvement and implementation of Command & Control, Intelligence, Surveillance, and Reconnaissance (C2ISR) capabilities.

**UNCLASSIFIED**

Exhibit R-2a, RDT&E Project Justification								DATE <b>February 2005</b>			
BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>				PE NUMBER AND TITLE <b>0207450F E-10 Squadrons</b>			PROJECT NUMBER AND TITLE <b>5131 Airframe</b>				
(U)	Continue systems engineering and design activities						21.226	22.075	21.458		
(U)	Continue Weapon System Integration (WSI) efforts (including BMC2 efforts)--beginning with a demonstration aircraft and necessary BMC2 to prove the Key Performance Parameters (KPPs) and basic radar requirements associated with the WAS/MP-RTIP sensor						153.626	165.248	155.417		
(U)	Purchase MP-RTIP Lab/Test Hardware (Development Unit) materials						30.000	30.000	0.000		
(U)	Conduct Future Studies/Spiral Development--includes concept exploration, program definition/risk reduction (including BMC2 efforts), technology insertion/development, 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.						0.500	0.520	0.540		
(U)	Continue SPO Ops Effort						1.207	1.255	1.305		
(U)	Continue Test & Evaluation Efforts (examples include Joint Test Force (JTF), Air Force Operational Test and Evaluation Center (AFOTEC), Operator-In-The-Loop (OITL), Joint Interoperability Test Center (JITC))						1.427	1.484	1.543		
(U)	Total Cost					0.000	217.986	250.582	205.263		
(U)	<b><u>C. Other Program Funding Summary (\$ in Millions)</u></b>										
		<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 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)	APAF										
(U)	PE 0207450F (E-10 Production)	0.000	0.000	0.000	0.000	0.000	69.535	705.502	773.687	Continuing	TBD
(U)	<b><u>D. Acquisition Strategy</u></b>										
	OSD directed a restructure of the E-10A program. The overall acquisition strategy will be based upon evolutionary acquisition using spiral development. The E-10A Increment 1 capability will deliver the core capability to perform focused AMTI for CMD and GMTI/SAR for surface surveillance, including data processing and advanced communications links. Future spirals will be incorporated as funding and technology allow.										

**Exhibit R-2a, RDT&E Project Justification**

DATE

**February 2005**

BUDGET ACTIVITY

**05 System Development and Demonstration (SDD)**

PE NUMBER AND TITLE

**0207450F E-10 Squadrons**

PROJECT NUMBER AND TITLE

**5131 Airframe**

The proposed acquisition strategy will focus on technology development/risk reduction, with emphasis on demonstrating a Cruise Missile Defense capability coupled with interleaved Ground Moving Target Indicator (GMTI) and Synthetic Aperture Radar (SAR) capabilities. This will allow entry into a low-risk SDD phase for the E-10 Weapon System.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2005**

<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0207450F E-10 Squadrons</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5131 Airframe</b>
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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>														
Weapon System Integration (WSI) and Battle Management Command and Control (BMC2)	SS/CPAF and C/CPAF (See Remark 1)	Northrop Grumman Corporation; Melbourne, FL				153.626	Nov-04	165.248	Nov-05	155.416	Nov-06	Continuing	TBD	TBD
767-400ER Testbed	SS/FFP	The Boeing Company; Seattle, WA				10.000	Nov-04	30.000	Nov-05	25.000	Nov-06	Continuing	TBD	TBD
MP-RTIP Lab/Test Hardware (Development Unit)	SS/CPAF	Northrop Grumman Corporation (MP-RTIP); El Segundo, CA				30.000	Nov-04	30.000	Nov-05	0.000	Nov-06	Continuing	TBD	TBD
Systems Engineering	Various (See Remark 2)	Various				11.507	Oct-04	12.064	Oct-04	11.147	Oct-04	Continuing	TBD	TBD
Future Studies/Spiral Development	Various (See Remark 2)	Various				0.500	Mar-05	0.520	Jan-06	0.540	Jan-07	Continuing	TBD	TBD
Subtotal Product Development			0.000	0.000		205.633		237.832		192.103		Continuing	TBD	TBD
Remarks:	1. A source selection was conducted for the BMC2 effort and awarded in Sep-04 which is why there are two contract methods annotated. 2. Where Various Contract Method & Types take place, earliest date funds will be obligated is noted.													
<u>(U) Test &amp; Evaluation</u>														
AFOTEC	MIPR	Various				0.155	Jan-05	0.161	Jan-06	0.167	Jan-07	Continuing	TBD	TBD
Joint Test Force (JTF)	SS/T&M	Titan Systems Corporation; Melbourne, FL				0.713	Jan-05	0.742	Jan-06	0.772	Jan-07	Continuing	TBD	TBD
Operator-In-The-Loop (OITL)	SS/T&M	Hanscom AFB, MA				0.450	Feb-05	0.468	Dec-05	0.487	Dec-06	Continuing	TBD	TBD
Joint Interoperability Test Center (JITC)	MIPR	Interop Joint Venture, VA				0.109	Feb-05	0.113	Dec-05	0.118	Dec-06	Continuing	TBD	TBD
Subtotal Test & Evaluation			0.000	0.000		1.427		1.484		1.544		Continuing	TBD	TBD
Remarks:														
<u>(U) Management</u>														
Program Office Support	Various (See Remark)	Various				1.207	Oct-04	1.255	Oct-05	1.305	Oct-06	Continuing	TBD	TBD

Project 5131

R-1 Shopping List - Item No. 98-7 of 98-15

Exhibit R-3 (PE 0207450F)

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2005**

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
<b>05 System Development and Demonstration (SDD)</b>				<b>0207450F E-10 Squadrons</b>				<b>5131 Airframe</b>				
Systems Engineering/IV&V (FFRDC)	SS/CPFF	MITRE Corporation; Bedford, MA		9.719	Oct-04	10.011	Oct-05	10.311	Oct-06	Continuing	TBD	TBD
Subtotal Management			0.000	0.000	10.926		11.266	11.616		Continuing	TBD	TBD
Remarks:	Where Various Contract Method & Types take place, earliest date funds will be obligated is noted.											
(U) Total Cost			0.000	0.000	217.986		250.582	205.263		Continuing	TBD	TBD
Remarks:	FY2003 and FY2004 reflected in PE 0207449F C2 Constellation, Project 5064 (Airframe).											

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

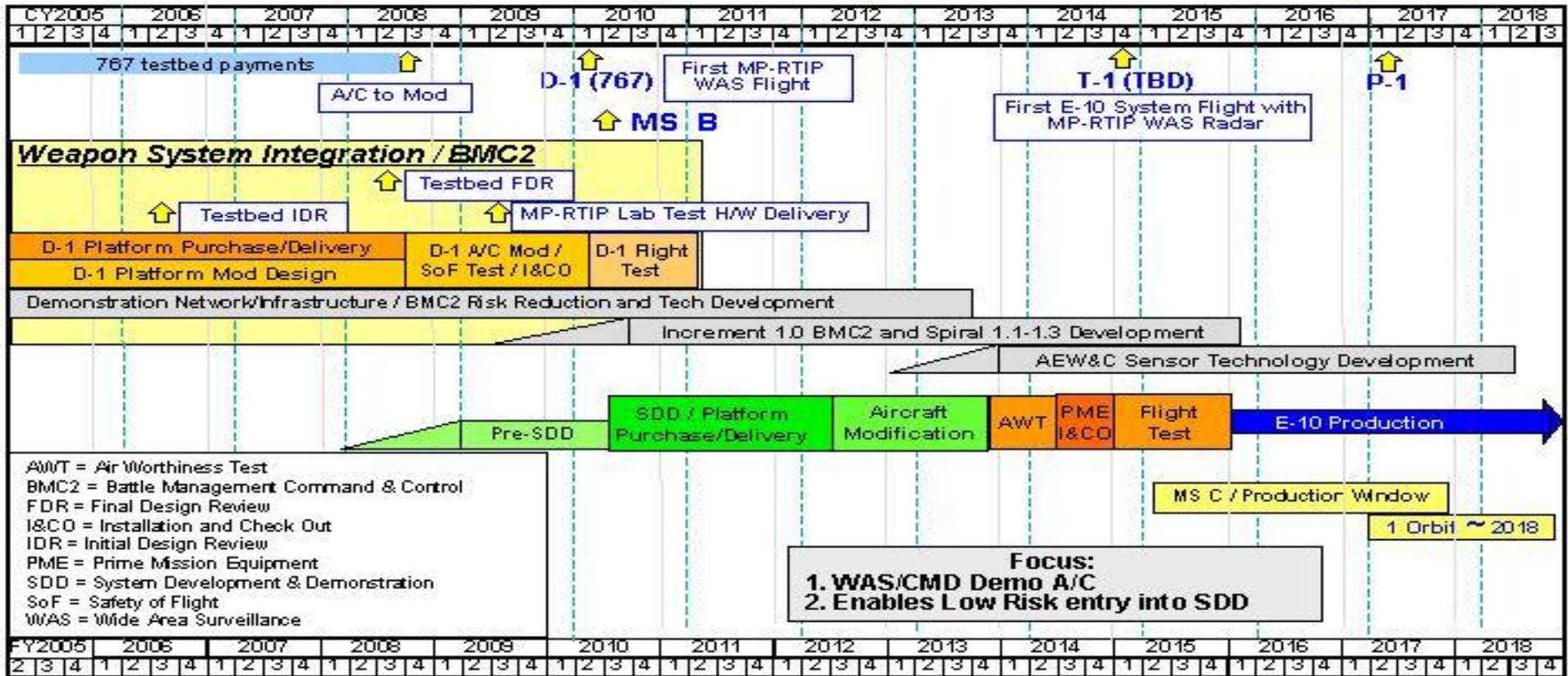
PE NUMBER AND TITLE

0207450F E-10 Squadrons

PROJECT NUMBER AND TITLE

5131 Airframe

# E-10A Program (restructured)



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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2005</b>
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BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0207450F E-10 Squadrons</b>	PROJECT NUMBER AND TITLE <b>5131 Airframe</b>
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	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) <b><u>Schedule Profile</u></b>				
(U) ** System Requirements Review	2Q			
(U) ** Downselect BMC2 Subcontractor	4Q			
(U) Delta System Requirements Review		1Q		
(U) Testbed Initial Design Review (IDR)			2Q	
** FY2003 and FY2004 events reflected in PE 0207449F C2 Constellation, Project 5064 (Airframe)				

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>				<b>PE NUMBER AND TITLE</b> <b>0207450F E-10 Squadrons</b>				<b>PROJECT NUMBER AND TITLE</b> <b>5132 Sensors</b>		
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
5132 Sensors	0.000	201.020	146.429	183.982	166.973	122.955	45.921	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

- 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.
- In FY 2006, Project 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.
- FYDP RDT&E Article Deliveries:  
 FY 2006: 1 Global Hawk (GH) Development Unit (DU) radar for integration  
 FY 2007: 1 GH DU radar for integration  
 FY 2008: 1 GH DU radar for radar lab mode checkout and troubleshooting  
 FY 2009: 1 Wide Area Surveillance (WAS) DU radar for System Integration Lab (SIL), concurrent mode development, testbed/flight test  
 FY 2010: 1 WAS DU radar for SIL, concurrent mode development, testbed/flight test

**(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 project also continues to support NATO Alliance Ground Surveillance (AGS) conceptual design and early design development activities.

This project is categorized as Budget Activity (BA) 5 to reflect a program in System Development and Demonstration (SDD).

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous activity reported in PE 0207449F, Project 5065				
(U) Continue MP-RTIP design and development of radars for integration on the E-10A and Global Hawk target platforms		198.639	143.972	181.597
(U) Continue Test Efforts (examples include Operator-In-The-Loop [OITL]; Joint Test Force Support; AFOTEC Support; and Independent Verification & Validation [IV&V])		1.139	1.185	1.232
(U) Continue Future Studies/Spiral Development insertion-- includes concept exploration, program definition/risk reduction, sensor technology insertion/development and spiral development efforts		0.500	0.500	0.350

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0207450F E-10 Squadrons</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5132 Sensors</b>
--	--	--

supporting continuous improvements and implementation of Command & Control, Intelligence, Surveillance, and Reconnaissance (C2ISR) capabilities enabling the joint air and missile defense architecture, joint decisive operations and the AEF Task Force CONOPS.

(U) Continue SPO Operations		0.742	0.772	0.803
(U) Total Cost	0.000	201.020	146.429	183.982

**(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>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 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 5131 (E-10 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) PE0305220F 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-10 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 program supports the evolutionary acquisition of the E-10A and Global Hawk by providing sensors for Increment 1 of the E-10A and Spiral 4 of the Global Hawk.

The MP-RTIP program currently plans to provide sensors for seven E-10A aircraft (1 testbed and 6 production aircraft) and 12 Global Hawk air vehicles. Funds to procure production MP-RTIP radars are reflected as part of the full E-10A weapon system procurement and the Global Hawk (PE 0305220F), respectively. LRIP quantities for Global Hawk (6 radars) were established at the MP-RTIP Milestone B in FY 2004. LRIP quantities for the E-10A will be addressed at the E-10A Milestone B.

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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			
<b>05 System Development and Demonstration (SDD)</b>										<b>0207450F E-10 Squadrons</b>		<b>5132 Sensors</b>			
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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> MP-RTIP (See Remark 1)	SS/CPAF	Northrop-Gru mman Corporation; El Segundo, CA				194.407	Nov-04	139.571	Nov-05	177.020	Nov-06	Continuing	TBD	TBD	
Future Studies/Spiral Development	Various (See Remark 2)	TBD				0.500	Nov-04	0.500	Nov-05	0.350	Nov-06	Continuing	TBD	TBD	
Subtotal Product Development			0.000	0.000		194.907		140.071		177.370		Continuing	TBD	TBD	
Remarks:	1. MP-RTIP Phase 1 Contract awarded Dec-00; MP-RTIP Phase 2 Contract awarded Apr-04. 2. Where Various Contract Method & Types take place, earliest date funds will be obligated is noted.														
(U) <u>Test &amp; Evaluation</u> JTF Support	SS/T&M	Titan Systems Corporation; Melbourne, FL				0.664	Dec-04	0.691	Dec-05	0.718	Dec-06	Continuing	TBD	TBD	
Test Support (AFOTEC, IV&V)	MIPR	Various				0.475	Oct-04	0.494	Oct-05	0.514	Oct-06	Continuing	TBD	TBD	
Subtotal Test & Evaluation			0.000	0.000		1.139		1.185		1.232		Continuing	TBD	TBD	
Remarks:	Where Various Contract Method & Types take place, earliest date funds will be obligated is noted.														
(U) <u>Management</u> Program Office Support	Various (See Remark)	Various				0.742	Oct-04	0.772	Oct-05	0.803	Oct-06	Continuing	TBD	TBD	
Systems Engineering/IV&V (FFRDC)	SS/CPFF	MITRE Corporation; Hanscom AFB, MA				4.232	Oct-04	4.401	Oct-05	4.577	Oct-06	Continuing	TBD	TBD	
Subtotal Management			0.000	0.000		4.974		5.173		5.380		Continuing	TBD	TBD	
Remarks:	Where Various Contract Method & Types take place, earliest date funds will be obligated is noted.														
(U) Total Cost			0.000	0.000		201.020		146.429		183.982		Continuing	TBD	TBD	
Remark:	FY 2002 and prior reflected in PE 0207581F, Joint STARS FY 2003 and FY 2004 reflected in PE 0207449F C2 Constellation, Project 5065 (Sensors)														

Exhibit R-4, RDT&E Schedule Profile

DATE

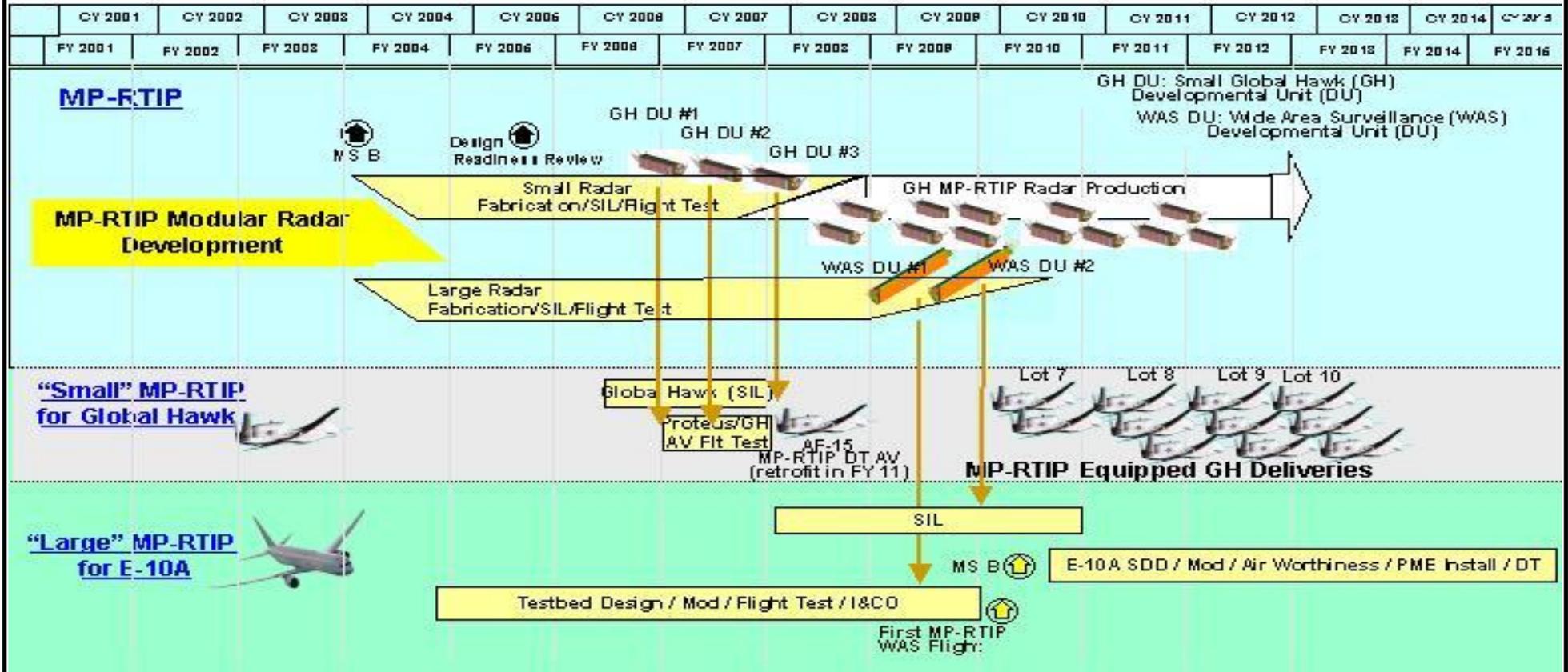
February 2005

BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE  
0207450F E-10 Squadrons

PROJECT NUMBER AND TITLE  
5132 Sensors

# MP-RTIP Schedule



**UNCLASSIFIED**

**Exhibit R-4a, RDT&E Schedule Detail**

DATE

**February 2005**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0207450F E-10 Squadrons</b>	PROJECT NUMBER AND TITLE <b>5132 Sensors</b>
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(U) <b>Schedule Profile</b>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) ** MILESTONE B	1Q			
(U) ** FINAL DESIGN REVIEW	3Q			
(U) BEGIN GLOBAL HAWK (GH) DEVELOPMENT UNIT (DU) #1 BUILD		2Q		
(U) BEGIN GH DU #2 BUILD		3Q		
(U) BEGIN WAS DU #1 BUILD			2Q	
(U) GH DU # 1 TO FLIGHT TEST (ON PROTEUS SURROGATE)			4Q	
(U) GH DU # 2 TO FLIGHT TEST (ON PROTEUS SURROGATE)				2Q
(U) GH DU#1 TO SIL/GH AIR VEHICLE				3Q

\*\* FY2004 reflected in PE 0207449F C2 Constellation, Project 5065 (Sensor)

**UNCLASSIFIED**

PE NUMBER: 0207701F  
 PE TITLE: Full Combat Mission Training

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0207701F Full Combat Mission Training</b>
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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	7.591	10.699	26.423	20.432	34.956	14.136	16.786	19.734	Continuing	TBD
4673 Distributed Mission Training (DMT)	0.000	0.000	19.589	15.300	28.707	8.676	11.512	14.705	Continuing	TBD
5012 Full Combat Mission Training	7.591	10.699	6.834	5.132	6.249	5.460	5.274	5.029	Continuing	TBD

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

Full Combat Mission Training supports Air Force Distributed Mission Operations (DMO). DMO is an operational readiness initiative enabling the USAF to exercise and train at the operational and strategic levels of war while facilitating unit-level training. Networked Live-Virtual-Constructive components form the integrated DMO battlespace by linking geographically distributed high fidelity combat and combat support training devices including C2 and ISR 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	6.946	5.894	7.240	6.804
(U) Current PBR/President's Budget	7.591	10.699	26.423	20.432
(U) Total Adjustments	0.645	4.805		
(U) Congressional Program Reductions				
Congressional Rescissions	-0.059	-0.095		
Congressional Increases	1.000	4.900		
Reprogrammings	-0.178			
SBIR/STTR Transfer	-0.118			

**(U) Significant Program Changes:**

**In FY 04 Funding**

- Increased by Congressional Add for F-16 Motion Cueing (originally added as O&M changed to RDT&E in Omnibus Aug 2004)
- Decreased by Congressional Rescissions, reprogramming to support higher Air Force Priorities and SBIR/STTR Transfer.

**FY 05 Funding:**

- Increased by Congressional Add for ANG F-16 Block 30 MTCs
- Decreased by Congressional Rescissions

**FY 06 Funding**

- Current PB increase from previous PB reflects a an \$18.8M investment in RDT&E to support F/A-22 trainer DMO integration

**Exhibit R-2, RDT&E Budget Item Justification**

DATE

**February 2005**

BUDGET ACTIVITY

**05 System Development and Demonstration (SDD)**

PE NUMBER AND TITLE

**0207701F Full Combat Mission Training**

FY 07 Funding

- Current PB reflects a \$15..3M investment in RDT&E to support F/A-22 trainer DMO integration

**UNCLASSIFIED**

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>							<b>PE NUMBER AND TITLE</b> <b>0207701F Full Combat Mission Training</b>		<b>PROJECT NUMBER AND TITLE</b> <b>4673 Distributed Mission Training (DMT)</b>		
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
4673	Distributed Mission Training (DMT)	0.000	0.000	19.589	15.300	28.707	8.676	11.512	14.705	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 Distributed Mission Training (DMT). DMT provides the research and development to facilitate the integration of fielded and newly acquired, Air Force owned, aircraft training devices into Distributed Mission Operations (DMO) networks. Enhances the quality of training for the systems added to the network. Enables aircrews to network with Live-Virtual-Constructive components to form the integrated DMO battlespace. Links geographically distributed, high-fidelity combat and combat support training devices including C2 and ISR systems. Allows the warfighters at home station to exercise and train at the operational and strategic levels of war as well as conduct networked unit-level training.

(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Study, research and develop solutions to multi-service standards, test asset implementation and platform specific multi-level security issues	0.000	0.000	0.389	0.000
(U) Research and development to provide for the DMO integration of fielded and newly introduced, Air Force high-fidelity flight and mission trainers. Includes but is not limited to studies and development to provide for integration of Air Operation Center [AOC], A-10, B-1, B-2, B-52, Control and Reporting Center [CRC] F/A-22 F-35, E-8, EC-130, Joint Terminal A tack Controller [JTAC] and Joint Theater Air-Ground Simulation System [JTAGSS])			0.400	0.000
(U) Research and development to provide for the DMO integration of F/A-22 high-fidelity flight trainers.			18.800	15.300
(U) Total Cost	0.000	0.000	19.589	15.300

(U) <b><u>C. Other Program Funding Summary (\$ in Millions)</u></b>	<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>Complete</u>							
(U) PE 0207701, Full Combat Mission Training, Aircraft Procurement , AF	0.000	0.000	0.000	10.424	87.960	66.570	33.860	41.889	Continuing	TBD
(U) PE 0207701, Full Combat Mission Training, other Procurement , AF	0.000	0.000	0.000	4.074	21.413	10.754	4.630	4.613	Continuing	TBD

(U) **D. Acquisition Strategy**  
 Each platform joining the Distributed Mission Operations (DMO) environment selects its own acquisition strategy based on using command needs, business base

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2005

BUDGET ACTIVITY

**05 System Development and Demonstration (SDD)**

PE NUMBER AND TITLE

**0207701F Full Combat Mission  
Training**

PROJECT NUMBER AND TITLE

**4673 Distributed Mission Training  
(DMT)**

considerations and the magnitude of the training system changes required to provide DMO capability. Fielded and newly acquired, Air Force owned Flight and Mission Training Systems will be modified to ensure compatibility with the DMO environment. Additional DMO capable trainers will be acquired for those systems where current quantities are inadequate to meet training requirements

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Exhibit R-3, RDT&E Project Cost Analysis											DATE <b>February 2005</b>			
BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>						PE NUMBER AND TITLE <b>0207701F Full Combat Mission Training</b>					PROJECT NUMBER AND TITLE <b>4673 Distributed Mission Training (DMT)</b>			
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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> Training Products System Group (ASC/YWI)		Training Systems Product Group, AFMC, Wright Patterson AFB, OH		0.000		0.000		0.789		0.000		Continuing	TBD	
F/A-22 System Program Office		F/A-22 System Program Office, AFMC, Wright Patterson AFB, OH						18.800		15.300		Continuing	TBD	
Subtotal Product Development Remarks:			0.000	0.000		0.000		19.589		15.300		Continuing	TBD	0.000
(U) <u>Support</u> Subtotal Support Remarks:			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
(U) <u>Test &amp; Evaluation</u> Subtotal Test & Evaluation Remarks:			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
(U) <u>Management</u> 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		19.589		15.300		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0207701F Full Combat Mission Training

PROJECT NUMBER AND TITLE

4673 Distributed Mission Training (DMT)

Exhibit R-4: BPAC 4673 Distributed Mission Training (Distributed Mission Operations)

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
Study, research and develop solutions to multi-service standards, test asset implementation and platform specific multi-level security issues										▲														
Research and development to provide for the DMO integration of fielded and newly introduced, Air Force high-fidelity flight and mission trainers. Includes but is not limited to studies and development to provide for integration of AOC, A-10, B-1, B-2, B-52, CRC F/A-22 F-35, E-8, EC-130, JTAC and JTAGSS										▲														
F/A -22 DMO Integration										△									▲					

- ▲ Studies Initiated
- △ Phase A Requirements Development
- ▲ IOC

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2005</b>
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BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0207701F Full Combat Mission Training</b>	PROJECT NUMBER AND TITLE <b>4673 Distributed Mission Training (DMT)</b>
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	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) <b>Schedule Profile</b>				
(U) Study, research and develop solutions to multi-service standards, test asset implementation and platform specific multi-level security issues			2Q	
(U) Research and development to provide for the DMO integration of fielded and newly introduced, Air Force high-fidelity flight and mission trainers. Includes but is not limited to studies and development to provide for integration of AOC, A-10, B-1, B-2, B-52, CRC F/A-22 F-35, E-8, EC-130, JTAC and JTAGSS			2Q	
(U) Research and development to provide for the DMO integration of F/A-22 high-fidelity flight trainers.			1Q	

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>					PE NUMBER AND TITLE <b>0207701F Full Combat Mission Training</b>			PROJECT NUMBER AND TITLE <b>5012 Full Combat Mission Training</b>			
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
5012	Full Combat Mission Training	7.591	10.699	6.834	5.132	6.249	5.460	5.274	5.029	Continuing	TBD
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

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

Full Combat Mission Training (FCMT) supports Air Force Distributed Mission Operations (DMO). DMO is an operational readiness initiative enabling the USAF to exercise and train at the operational and strategic levels of war while facilitating unit-level training. FCMT provides research in areas benefiting the AF DMO environment as a whole. In addition FCMT provides Mission Essential Competency studies and contract administration for new systems that support the initial CAF DMO capability

**(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, demonstration and insertion of multi-level security capability	1.170	0.000	0.000	0.000
(U) Continue development, demonstration, studies and insertion of DMO related technologies and proficiency based continuation training strategies. Includes but not limited to common databases, improved image generation fidelity, enhanced Brief/Debrief capabilities, Mission Essential Competencies, multi-level security	4.581	1.271	1.628	0.740
(U) RDT&E for the development of a F-16 DMO capable trainer for the Air National Guard (FY 05 Congressional Add)		4.900		
(U) Studies to assess and validate warfighter seasoning required/desired in continuation training and accreditation of portions of this experiencing process utilizing the Mission Essential Competencies (MECs) in the DMO environment		0.801	1.000	0.699
(U) Studies to Develop objective performance enhancement and measurement tools, for use in the DMO environment, which will be used for certification of a team and/or a team of teams proficiency/currency		0.801	1.000	0.699
(U) Identify training and rehearsal gaps in DMO architecture based on current weapons system and operational tactics, training, procedures (TTPs), especially those essential to operational Kill Chain		0.800	1.000	0.699
(U) Continue Program office support	1.840	2.126	2.206	2.295
(U) Total Cost	7.591	10.699	6.834	5.132

**(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>Complete</u>							
(U) PE 0207701, Full Combat Mission Training, O & M, AF	104.271	117.377	181.688	190.681	195.560	166.294	197.010	206.656	Continuing	TBD

**(U) D. Acquisition Strategy**

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2005

BUDGET ACTIVITY

**05 System Development and Demonstration (SDD)**

PE NUMBER AND TITLE

**0207701F Full Combat Mission  
Training**

PROJECT NUMBER AND TITLE

**5012 Full Combat Mission Training**

Each platform joining the Distributed Mission Operations (DMO) environment selects its own acquisition strategy based on using command needs, business base considerations and the magnitude of the training system changes required to provide DMO capability. The pioneer systems in DMO including F-15C, AWACS, F-16, Operations and Integration and F-15E all required new training systems. The Commercial Training Simulation Service (CTSS) acquisition strategy was used for these systems. In the CTSS approach, the contractor owns and provides the simulator equipment, maintains simulator concurrency with weapons system, and has incentives to keep the equipment up to date with simulator and network technologies

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE  
**February 2005**

<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0207701F Full Combat Mission Training</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5012 Full Combat Mission Training</b>
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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>														
- ASC, Training Products Systems Group		- Training Systems Product Group, AFMC, Wright Patterson AFB, OH - AFRL/HEA, Mesa, AZ		5.751		6.171		1.628		0.740		Continuing	TBD	
- AFRL Human Effectiveness Directorate, Warfighter Training Division														
Subtotal Product Development			0.000	5.751		6.171		1.628		0.740		Continuing	TBD	0.000
Remarks:	Prior to FY 02 these fund were reported under PE 0604227F													
<u>(U) Support</u>														
- Air Force Research Lab Human Effectiveness Directorate		AFRL/HEA, Mesa, AZ 505 DWG, Kirtland AFB, NM		0.000		2.402		3.000		2.097		Continuing	TBD	
Subtotal Support			0.000	0.000		2.402		3.000		2.097		Continuing	TBD	0.000
Remarks:	Study areas included in Product development in FY 04 broken out separately in FY 05													
<u>(U) Test &amp; 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 Support		Training Systems Product Group, AFMC, Wright Patterson AFB, OH		1.840		2.126		2.206		2.295		Continuing	TBD	
Subtotal Management			0.000	1.840		2.126		2.206		2.295		Continuing	TBD	0.000
Remarks:	Prior to FY 02 these fund were reported under PE 0604227F													
<u>(U) Subtotal</u>			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
Project 5012	R-1 Shopping List - Item No. 99-10 of 99-13												Exhibit R-3 (PE 0207701F)	

Exhibit R-3, RDT&E Project Cost Analysis

DATE

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0207701F Full Combat Mission Training

PROJECT NUMBER AND TITLE

5012 Full Combat Mission Training

(U) Total Cost	0.000	7.591	10.699	6.834	5.132	Continuing	TBD	0.000
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Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0207701F Full Combat Mission Training

PROJECT NUMBER AND TITLE

5012 Full Combat Mission Training

Exhibit R-4: BPAC 5012 Full Combat Mission Training (Distributed Mission Operations)

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
AWACS Tinker #2	▲																							
F-16: 2 Ship, Mt Home		▲																						
F-16: 4 Ship, Spangdahlem			▲																					
F-15C: 4 Ship, Kadena							▲																	
F-16: 4 Ship, Misawa							▲																	
AWACS, Kadena							▲																	
AWACS: Tinker #3								△																
F-15C Lakenheath											▲													
F-15E Mt. Home												▲												
F-15E Seymour Johnson												▲												
F-15E Lakenheath																▲								
F-15E Elmendorf																▲								



Start of Service



Scheduled Start of Service; Letter of Intent issued to Contractor



Scheduled Start of Service; Letter of Intent not yet issued to Contractor

**Note:** A number of factors including contract issues, facility availability, multiple level security and others preclude the development of a firm schedule for Start of Service of additional sites beyond FY 05.

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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0207701F Full Combat Mission Training</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5012 Full Combat Mission Training</b>
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<b>(U) <u>Schedule Profile</u></b>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) AWACS Operations begin: Tinker #2	1Q			
(U) F-16 2-ship operations begin (adds one device): Mt. Home #2:	2Q			
(U) F-16 4-ship operations begin: Spangdahlem	3Q			
(U) F-15C Operations begin: Kadena		3Q		
(U) F-16 4-ship operations begin: Misawa		3Q		
(U) AWACS operations begin: Kadena		3Q		
(U) AWACS Operations begin: Tinker #3		4Q		
(U) F-15C 2-ship operations begin: Lakenheath			2Q	
(U) F-15E 2-ship operations begin: Mt. Home			4Q	
(U) F-15E 2-ship operations begin: Seymour Johnson			4Q	
(U) F-15E 2-ship operations begin: Lakenheath				4Q
(U) F-15E 2-ship operations begin: Elmendorf				4Q

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PE NUMBER: 0305176F  
 PE TITLE: Combat Survivor Evader Locator

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0305176F Combat Survivor Evader Locator</b>
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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	13.862	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	50.950
4522 CSAR EMD	13.862	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	50.950

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

The Combat Survivor Evader Locator (CSEL) joint program, with the Air Force as lead service, will provide enhanced Combat Search and Rescue (CSAR) communications and location capabilities by replacing antiquated PRC-90 and -112 survivor radios with a new end-to-end system. The CSEL system will be used by all the services and, potentially, non-DoD government agencies. Components of the system include a hand-held radio (HHR), radio loading equipment, four Ultra-High Frequency Base Stations (UBS), and workstations installed in rescue coordination centers. CSEL features include a new hand-held radio that incorporates secure two-way over-the-horizon messaging, line-of-sight voice, near-real time geopositioning, verification of evader identity and condition, and low probability of intercept/low probability of detection communications. The system is now being developed in an evolutionary fashion per the Operational Requirements Document approved in February 2000. Block 1 will meet threshold requirements for Initial Operational Capability and Block 2 will add technical interoperability enhancements. This program is in Budget Activity 5, System Development and Demonstration, because it is in the development and demonstration phase and has not received Full-Rate Production (FRP) approval.

**(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	14.684			
(U) Current PBR/President's Budget	13.862	0.000		
(U) Total Adjustments	-0.822	0.000		
(U) Congressional Program Reductions	-0.167			
Congressional Rescissions				
Congressional Increases				
Reprogrammings				
SBIR/STTR Transfer	-0.655			
(U) <u>Significant Program Changes:</u>				

**Exhibit R-2a, RDT&E Project Justification**

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BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>							PE NUMBER AND TITLE <b>0305176F Combat Survivor Evader Locator</b>		PROJECT NUMBER AND TITLE <b>4522 CSAR EMD</b>	
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
4522 CSAR EMD	13.862	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	50.950
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

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

The Combat Survivor Evader Locator (CSEL) joint program, with the Air Force as lead service, will provide enhanced Combat Search and Rescue (CSAR) communications and location capabilities by replacing antiquated PRC-90 and -112 survivor radios with a new end-to-end system. The CSEL system will be used by all the services and, potentially, non-DoD government agencies. Components of the system include a hand-held radio (HHR), radio loading equipment, four Ultra-High Frequency Base Stations (UBS), and workstations installed in rescue coordination centers. CSEL features include a new hand-held radio that incorporates secure two-way over-the-horizon messaging, line-of-sight voice, near-real time geopositioning, verification of evader identity and condition, and low probability of intercept/low probability of detection communications. The system is now being developed in an evolutionary fashion per the Operational Requirements Document approved in February 2000. Block 1 will meet threshold requirements for Initial Operational Capability and Block 2 will add technical interoperability enhancements. This program is in Budget Activity 5, System Development and Demonstration, because it is in the development and demonstration phase and has not received Full-Rate Production (FRP) approval.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) CSEL Engineering and Manufacturing Development	11.828			
(U) Government Test and Operational Assessment	1.004			
(U) Other Government Support	1.030			
(U) Total Cost	13.862	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>Complete</u>							
(U) PE 35176F, Other Procurement, Air Force - WSC 837170 (Budget Activity 3)	7.384	13.882	24.726	27.380	27.165	27.453	28.137	28.595	51.993	236.715

Note: Army and Navy procurement of CSEL radios is funded separately by those Services.

**(U) D. Acquisition Strategy**

The Full Rate Production (FRP) contract is planned to be a Sole Source award to Boeing; however, all previous major contracts within this Program Element were awarded after full and open competition.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2005**

<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0305176F Combat Survivor Evader Locator</b>	<b>PROJECT NUMBER AND TITLE</b> <b>4522 CSAR EMD</b>
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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>														
Boeing	CPAF	Anaheim, CA	75.795	11.828	Mar-04							0.000	87.623	
SMC (COBRA)	Multiple	Multiple	4.000									0.000	4.000	
Subtotal Product Development			79.795	11.828		0.000		0.000		0.000		0.000	91.623	0.000
Remarks:														
<u>(U) Support</u>														
SPAWAR	MIPR	San Diego, CA	3.059	0.230	Dec-03							0.000	3.289	
PRC/ARINC/BD Systems	CPAF	Multiple	3.003									0.000	3.003	
FFRDC (MITRE/Aerospace)	CPAF	Multiple	5.688	0.800	Jan-04							0.000	6.488	
MANTECH	CPAF	Alliant Tech Systems Hopkins, MN	0.600									0.000	0.600	
SMC	CPAF	Los Angeles, CA	0.777									0.000	0.777	
JPRA	MIPR	Ft. Belvoir, VA	0.200									0.000	0.200	
Miscellaneous	Multiple	various	0.801									0.000	0.801	
Subtotal Support			14.128	1.030		0.000		0.000		0.000		0.000	15.158	0.000
Remarks:														
<u>(U) Test &amp; Evaluation</u>														
AFOTEC	MIPR	Kirtland AFB, NM	0.357									0.000	0.357	
746TS	MIPR	Kirtland AFB, NM	1.308									0.000	1.308	
Joint Spectrum Center	CPAF	IIT Research Institute Chicago, IL	0.514									0.000	0.514	
ESC (TBMCS SPO)	CPAF	Lockheed Martin Colorado Springs, CO	0.500									0.000	0.500	
EPG	MIPR	Ft. Huachuca, AZ	1.380	0.904	Nov-03							0.000	2.284	
JITC	MIPR	Multiple	0.940	0.100	Oct-03							0.000	1.040	
DISA	MIPR		0.000									0.000	0.000	
CECOM	MIPR		0.000									0.000	0.000	
SPAWAR	MIPR	San Diego, CA	0.077									0.000	0.077	
Army Research Labs	MIPR	White Sands,	0.030									0.000	0.030	

Project 4522

R-1 Shopping List - Item No. 100-4 of 100-7

Exhibit R-3 (PE 0305176F)

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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		
<b>05 System Development and Demonstration (SDD)</b>				<b>0305176F Combat Survivor Evader Locator</b>				<b>4522 CSAR EMD</b>		
GCCS-A (Integration Support)	MIPR	NM						0.000	0.000	
GCCS-M	MIPR	SPAWAR San Diego, CA	0.200					0.000	0.200	
PRMS	MIPR							0.000	0.000	
Subtotal Test & Evaluation			5.306	1.004	0.000	0.000	0.000	0.000	6.310	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			99.229	13.862	0.000	0.000	0.000	0.000	113.091	0.000

**Exhibit R-4, RDT&E Schedule Profile**

DATE

**February 2005**

BUDGET ACTIVITY

**05 System Development and Demonstration (SDD)**

PE NUMBER AND TITLE

**0305176F Combat Survivor Evader  
Locator**

PROJECT NUMBER AND TITLE

**4522 CSAR EMD**

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Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2005

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0305176F Combat Survivor Evader  
Locator

PROJECT NUMBER AND TITLE

4522 CSAR EMD

(U) Schedule Profile

FY 2004

FY 2005

FY 2006

FY 2007

(U)

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PE NUMBER: 0401318F  
PE TITLE: CV-22

Exhibit R-2, RDT&E Budget Item Justification									DATE <b>February 2005</b>	
BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>					PE NUMBER AND TITLE <b>0401318F CV-22</b>					
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	53.459	16.295	39.532	6.635	29.470	47.143	56.792	61.654	Continuing	TBD
4103 CV-22	53.459	16.295	39.532	6.635	29.470	47.143	56.792	61.654	Continuing	TBD

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

The CV-22 is a Special Operations Forces (SOF) variant of the V-22 vertical lift, multi-mission aircraft. The CV-22 will provide critical capability to insert, extract, and resupply special operation forces into politically or militarily denied areas, not currently provided by existing aircraft. The CV-22 configuration adds terrain following radar, additional fuel tanks, additional radios, flare/chaff dispensers, a RF warning receiver and jammer, and infrared countermeasures to the MV-22 aircraft (CV-22 Block 10 configuration).

Funding is required for Block 10 to continue the design, integration, testing and certification of Communication Navigation Surveillance/ Air Traffic Management (CNS/ATM) components for compliance with the CNS/ATM Capstone Requirements Document for worldwide deployment; to continue the development, test, and test support of two Production Representative Test Vehicles (PRTV) used in Initial Operational Test and Evaluation (IOT&E); and to integrate the Navy and Air Force maintenance information systems used on the V-22.

Funding is required for Block C to incorporate the baseline V-22 improvements developed by the lead Service (USMC) into the CV-22 variant. This funding is required to maximize commonality between the MV-22 and CV-22 and optimize long term affordability. Block C is scheduled for inline production incorporation in FY09.

Funding is required for Block 20 to design, integrate, and test improvements to enhance the CV-22 ability to execute the SOF mission as well as comply with OSD mandated interoperability requirements. Initial risk reduction and trade studies will be pursued prior to starting System Development and Demonstration in FY08.

**(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	65.703	16.439	56.648	6.512
(U) Current PBR/President's Budget	53.459	16.295	39.532	6.635
(U) Total Adjustments	-12.244	-0.144		
(U) Congressional Program Reductions				
Congressional Rescissions	-1.676	-0.144		
Congressional Increases				
Reprogrammings	-8.883			
SBIR/STTR Transfer	-1.685			

**(U) Significant Program Changes:**

- FY06 RDT&E requirement was reduced due to a 6 month slip in the flight test schedule. Funding was used to fully fund procurement requirements including initial spares

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**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>							PE NUMBER AND TITLE <b>0401318F CV-22</b>		PROJECT NUMBER AND TITLE <b>4103 CV-22</b>	
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
4103 CV-22	53.459	16.295	39.532	6.635	29.470	47.143	56.792	61.654	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

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

The CV-22 is a Special Operations Forces (SOF) variant of the V-22 vertical lift, multi-mission aircraft. The CV-22 will provide critical capability to insert, extract, and resupply special operation forces into politically or militarily denied areas, not currently provided by existing aircraft. The CV-22 configuration adds terrain following radar, additional fuel tanks, additional radios, flare/chaff dispensers, a RF warning receiver and jammer, and infrared countermeasures to the MV-22 aircraft (CV-22 Block 10 configuration).

Funding is required for Block 10 to continue the design, integration, testing and certification of Communication Navigation Surveillance/ Air Traffic Management (CNS/ATM) components for compliance with the CNS/ATM Capstone Requirements Document for worldwide deployment; to continue the development, test, and test support of two Production Representative Test Vehicles (PRTV) used in Initial Operational Test and Evaluation (IOT&E); and to integrate the Navy and Air Force maintenance information systems used on the V-22.

Funding is required for Block C to incorporate the baseline V-22 improvements developed by the lead Service (USMC) into the CV-22 variant. This funding is required to maximize commonality between the MV-22 and CV-22 and optimize long term affordability. Block C is scheduled for inline production incorporation in FY09.

Funding is required for Block 20 to design, integrate, and test improvements to enhance the CV-22 ability to execute the SOF mission as well as comply with OSD mandated interoperability requirements. Initial risk reduction and trade studies will be pursued prior to starting System Development and Demonstration in FY08.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Accomplishment/Planned Program				
(U) Continue Navy/Air Force maintenance information system integration (Block 10)	2.567	2.451	1.800	
(U) Continue development of CNS/ATM/TCAS for CV-22 including integration and test (Block 10)	5.762	5.095	6.880	6.635
(U) Complete development of two PRTVs (Block 10)	45.130			
(U) Support for operational test and evaluation of CV-22 (Block 10)		8.749	27.640	
(U) Risk reduction studies (Block 20)			3.212	
(U) Total Cost	53.459	16.295	39.532	6.635

**(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>Complete</u>							
(U) AF RDT&E										
(U) Other APPN										
(U) 3010 BP10/11/16/AP, PE	191.311	355.468	271.777	303.807	586.856	538.754	542.816	464.988	1,479.056	4,734.833

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## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2005

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0401318F CV-22

PROJECT NUMBER AND TITLE

4103 CV-22

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

0401318F

Total Cost number does not include 226.819M procurement funding prior to FY04.

**(U) D. Acquisition Strategy**

All development activities for the V-22 program have been performed by the prime contractor (a consortium of the Bell and Boeing companies) selected on a sole source basis.

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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			
<b>05 System Development and Demonstration (SDD)</b>										<b>0401318F CV-22</b>		<b>4103 CV-22</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; 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>															
Development of 2 PRTVs (Block10)	SS, CPIF	Bell-Boeing	140.292	45.130	May-04							0.000	185.422	185.422	
Development CNS/ATM/TCAS (Block 10)	SS, CPAF	Bell-Boeing	6.704	5.762	May-04	5.095	Oct-04	6.880	Oct-05	6.635	Oct-06	0.000	31.076	31.076	
Development of Navy/Air Force maintenance information system integration (Block 10)	MIPR	TBD	3.000	2.567	Feb-04	2.451	Dec-04	1.800	Dec-05			0.000	9.818	9.818	
Block C incorporation	TBD	TBD										Continuing	TBD		
Block 20 development and integration	TBD	TBD										Continuing	TBD		
Subtotal Product Development			149.996	53.459		7.546		8.680		6.635		Continuing	TBD	226.316	
Remarks:															
(U) <u>Support</u>															
Logistics and technical support of operational test and evaluation	SS, CPAF	Bell-Boeing	0.000	0.000	Jan-04	7.600	Dec-04	25.660	Dec-05			Continuing	TBD		
Logistics and technical support of operational test and evaluation	SS, CPFF	Rolls Royce		0.000		1.149	Oct-04	1.980	Oct-05			Continuing	TBD		
Technical Support	TBD	TBD		0.000		0.000		3.212	Feb-06			Continuing	TBD		
Subtotal Support			0.000	0.000		8.749		30.852		0.000		Continuing	TBD	0.000	
Remarks:															
(U) <u>Test &amp; 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			149.996	53.459		16.295		39.532		6.635		Continuing	TBD	226.316	

Exhibit R-4, RDT&E Schedule Profile

DATE

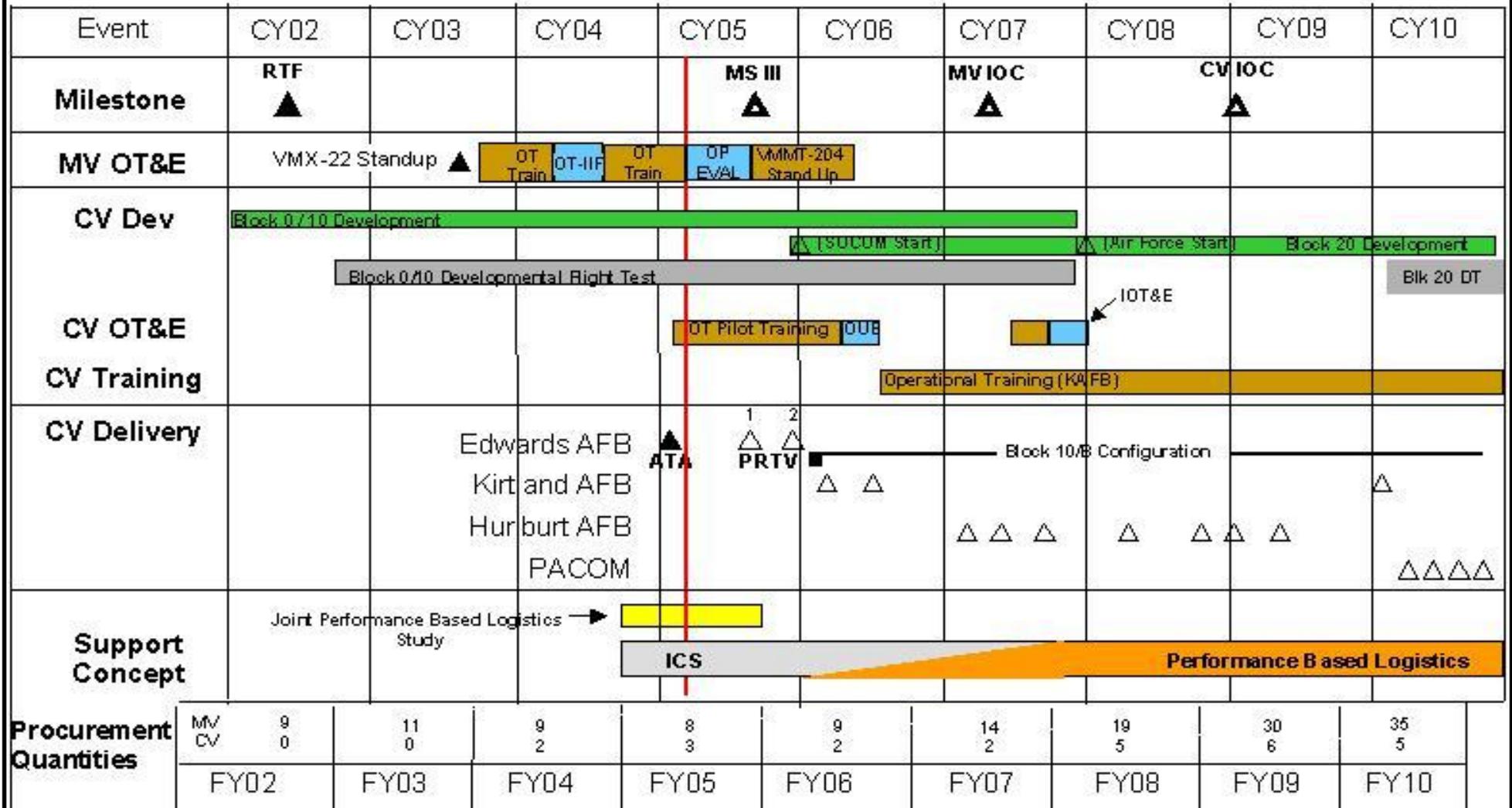
February 2005

BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE  
0401318F CV-22

PROJECT NUMBER AND TITLE  
4103 CV-22

# CV-22 Program Schedule



**UNCLASSIFIED**

**Exhibit R-4a, RDT&E Schedule Detail**

DATE

**February 2005**

BUDGET ACTIVITY

**05 System Development and Demonstration (SDD)**

PE NUMBER AND TITLE

**0401318F CV-22**

PROJECT NUMBER AND TITLE

**4103 CV-22**

**(U) Schedule Profile**

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Production Representative Test Vehicle contract	2Q			
(U) CNS/ATM/TCAS development cotntract (incremental funding)	3Q	1-2Q	1-2Q	1-2Q
(U) Navy/Air Force maintenance information system development contract (incremental funding)	2Q	1-2Q	1-2Q	
(U) Support for operational test and evaluation contract		1-2Q	1-2Q	

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1238 - Amended 3/2/05

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PE NUMBER: 0604256F  
 PE TITLE: Threat Simulator Development

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>06 RDT&amp;E Management Support</b>	<b>PE NUMBER AND TITLE</b> <b>0604256F Threat Simulator Development</b>
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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	34.895	34.213	32.546	37.551	37.757	37.832	38.430	38.666	Continuing	TBD
2907 Electronic Combat Intel Support	1.328	1.990	1.836	1.992	2.101	2.028	1.916	1.954	Continuing	TBD
3321 Electronic Warfare Ground Test Resources	26.492	24.957	23.334	28.147	28.033	28.152	28.925	29.065	Continuing	TBD
7500 Foreign Materiel Acquisition/Exploitation	7.075	7.266	7.376	7.412	7.623	7.652	7.589	7.647	Continuing	TBD

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

This PE provides funding for the elements necessary to support the Air Force Electronic Warfare (EW) Test Process. This test process provides a scientific methodology to ensure the effective disciplined and efficient testing of EW and avionics systems. Each capability or facility improvement is pursued in concert with the others so as to avoid duplicate capabilities while at the same time producing the proper mix of test resources needed to support the AF EW Test Process and testing of EW systems which can be used in any military action involving the use of electromagnetic and directed energy to control the electromagnetic spectrum or to attack the enemy. This PE provides funding for the management and technical oversight of implementation activities, development and improvement of digital EW models, measurement facilities operation and improvements, hardware in the loop test facilities operation and improvements, installed system test facility improvements, and development and improvement of open air threat simulators for flight testing. This PE also provides funding for planning, budgetary management, and technical support of the Air Force for corporate-level implementation of the EW Test Process, improvement and modernization (I&M) activities and application of the test and evaluation (T&E) infrastructure. Support includes requirements definition and analysis, project planning, programming and budgeting, technical oversight, and application of T&E facility I&M. Products include studies, analyses, and related documentation. This PE provides funding to support the acquisition and exploitation efforts of the Foreign Materiel Program as well as to support EW intelligence efforts.

This PE is in Budget Activity 6, Management Support, because it is a Research and Development (R&D) effort for I&M of T&E capabilities at AF Test Centers.

(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	36.283	34.517	34.496	38.887
(U) Current PBR/President's Budget	34.895	34.213	32.546	37.551
(U) Total Adjustments	-1.388	-0.304		
(U) Congressional Program Reductions				
Congressional Rescissions		-0.304		
Congressional Increases				
Reprogrammings	-0.925			
SBIR/STTR Transfer	-0.463			

(U) **Significant Program Changes:**

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

BUDGET ACTIVITY <b>06 RDT&amp;E Management Support</b>						PE NUMBER AND TITLE <b>0604256F Threat Simulator Development</b>			PROJECT NUMBER AND TITLE <b>2907 Electronic Combat Intel Support</b>		
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
2907	Electronic Combat Intel Support	1.328	1.990	1.836	1.992	2.101	2.028	1.916	1.954	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 provides funding to support Foreign Materiel Operational Test and Evaluation (FMOT&E), which ensures the ability of operational commands to test and develop effective Electronic Attack/Electronic Protection (EA/EP) techniques and tactics. Funds are required for: deployment of blue systems to test facilities, travel of personnel to the test sites to evaluate and validate test results; range and laboratory costs; costs for instrumentation of blue systems; and contracted engineering support for the conduct of tests and subsequent reporting. Funding for this program is required to prevent future aircraft losses due to improper and inaccurate aircrew tactics (e.g., lack of evasive action or proper tactics training to avoid missile attack).

Budget Activity Justification: This Program Element is in Budget Activity 6, Management Support, because it is a Research and Development (R&D) effort for Improvement and Modernization of T&E capabilities at Air Force Test Centers.

**(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) Funds fighter and bomber testing for foreign materiel operational exploitation. Extensive evaluations and reporting of blue system effectiveness to be accomplished.	1.078	1.230	1.151	1.267
(U) Funds mobility/special operations transport/helicopter testing for foreign materiel operational exploitation. Extensive evaluations and reporting of blue system effectiveness to be accomplished.	0.200	0.685	0.610	0.650
(U) Funds classified operational assessments for foreign materiel operational exploitation. Extensive evaluations and reporting to be accomplished.	0.050	0.075	0.075	0.075
(U) Total Cost	1.328	1.990	1.836	1.992

**(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>Complete</u>							
(U) Other APPN None										

**(U) D. Acquisition Strategy**

Not applicable.

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

BUDGET ACTIVITY <b>06 RDT&amp;E Management Support</b>					PE NUMBER AND TITLE <b>0604256F Threat Simulator Development</b>			PROJECT NUMBER AND TITLE <b>3321 Electronic Warfare Ground Test Resources</b>		
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
3321 Electronic Warfare Ground Test Resources	26.492	24.957	23.334	28.147	28.033	28.152	28.925	29.065	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

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

The AF requires a comprehensive set of test facilities to implement the Air Force Electronic Warfare (EW) Test Process in order to test EW systems. To manage program risk effectively throughout the weapons system acquisition process, and conduct test and evaluation (T&E) effectively and efficiently, a broad multi-spectrum, integrated set of T&E capabilities for modeling and simulation (M&S) through open-air ranges (OAR) is required. The EW Test Process Support task provides for investment management, coordinated technical oversight, and application of EW T&E facilities, including studies, analyses, and related documentation. The EW T&E M&S program leads correlation, verification and validation (V&V) activities of integrated simulations of validated models across the EW test facilities using the Silver Bullet measurement capability. The Electronic Warfare Test Analysis Tools & Methodologies (EWTATM) project new start will leverage advances made by EW T&E M&S to provide tools standardization for data reduction. The National Radar Cross Section (RCS) Test Facility - NRTF (formerly Radar Target Scatter (RATSCAT)) upgrades provide improvements to the NRTF at Holloman AFB, NM, to support RCS measurement requirements of DoD and commercial customers, with either conventional or stealth systems. The Air Force Electronic Warfare Evaluation Simulator (AFEWES) and the Digital Integrated Air Defense System (DIADS) provide the ability to realistically evaluate hardware components and simulated weapon systems against manned hardware threat representations throughout the acquisition process. AFEWES provides simulations of advanced Infrared (IR) & Radio Frequency (RF) semi-automatic Surface-to-Air Missiles (SAMs), Air-to-Air Missiles (AAMs), RF missile warning, IR and Laser countermeasure functions; integration of actual threat hardware and ground clutter into advanced threat RF and IR missile simulations. DIADS provides algorithm based enemy command and control (C2) capabilities plus early warning radar detection, limited ground control intercept features and also allows man-in-the-loop interaction for the enemy C2 positions. The DIADS Upgrades project new start will provide improvements to the existing DIADS system. The Installed Test Integration Program (ITIP) capitalizes on the capabilities developed by Electronic Combat Integrated Test (ECIT) and develops a multi-spectral synthetic battlespace with virtual and constructive modeling and simulation test and evaluation capabilities at Edwards AFB, CA. The Air Warfare Mission Simulator (AWMS) program develops an electronic warfare capability with high fidelity reconfigurable cockpits. This program will also provide the capability to link high fidelity cockpits to the information battlespace via High Level Architecture (HLA).

Budget Activity Justification: This Program Element is in Budget Activity 6, Management Support, because it is a Research and Development (R&D) effort for Improvement and Modernization of T&E capabilities at Air Force Test Centers.

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

Accomplishments/Planned Program:	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Electronic Combat (EC) Test Process Support. Conduct requirements analyses and other studies in support of Air Force investments in EW test infrastructure. Provide systems engineering/technical assistance (SETA) support for Air Force implementation of the EW Test Process, including I&M of the EW test infrastructure.	0.350	1.064	1.084	1.070
(U) EW T&E M&S. Develop and deploy the V&V process for scalable integration with simulations to	2.818	2.731		

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Exhibit R-2a, RDT&E Project Justification			DATE <b>February 2005</b>	
BUDGET ACTIVITY <b>06 RDT&amp;E Management Support</b>	PE NUMBER AND TITLE <b>0604256F Threat Simulator Development</b>	PROJECT NUMBER AND TITLE <b>3321 Electronic Warfare Ground Test Resources</b>		
support developmental and operational testing and training. Develop simulation based EW T&E tools and methodologies in support of EW test engineer's implementation of the EW Test Process. Integrate and correlate the process between EW T&E and training facilities supported by Silver Bullet.				
(U) NRTF Upgrades. Enhance efficiency of operations and accuracy of low observable measurements. Assess and develop initial studies and concept design for advanced target suspension systems. Improve secure test program capability.	1.768	1.969	1.578	2.560
(U) AFEWES. Operation in support of DoD and non-DoD test customers to include upgrades to the IR laboratory, test capability, development of an IR Missile Warning System Pointer-Tracker eval capability, and V&V effort on all threat simulators. Integration and V&V of SAM-G, SAM-E, SAM-E2, and IR SAM-H. Development of SAM-D capability to produce semi-active missile miss distance results and continue SAM-D validation using OAR flight test data. Development and integration of SAM-F and transition IR flyout models to PC-based software. Integration of Joint Research and Assessment Center (JRAAC) semi-active radar simulation with AFEWES semi-active suite. Development of IR background scene environment.	5.140	5.264	6.103	8.157
(U) DIADS. Providing mission level simulation for evaluating the survivability of aircraft penetrating an enemy air defense system by updating the Integrated Air Defense System scenario and C2 player library with current intelligence data. Continue integrating DIADS with other Avionics Test & Integration Complex (ATIC) components, including Joint Communication Simulator (JCS), Combat Electromagnetic Environment Simulator (CEESIM), Advanced Radar Environment Simulator (ARES), and AWMS. Perform parametric validation comparisons and OAR side-by-side correlation with DIADS C2 player library. Upgrade model to match new & improved air defense functions of potential threat systems and maintain model currency. Maintain external interfaces using high level architecture (HLA) and Distributed Interactive Simulation (DIS) capability to support exercises and current and future users: F/A-22, F-35, Virtual Strike Warfare Environment, Simulation and Analysis Facility (SIMAF), F-117, UCAV/UCAS, and others. Complete initial development of interfaces to Blue C4ISR models such as Distributed Mission Operations Center (DMOC) Rivet Joint, AWACS, and Joint STARS simulations.	3.000	3.268		
(U) ITIP. Integration of ATIC RF and IR stimulators to replicate an EW battlespace to support testing of advanced weapons systems such as the F/A-22, F-35, and Compass Call. Includes upgrade of existing stimulators: Generic Radar Target Generator (GRTG), ARES, IR Sensor Stimulator (IRSS), RF Threat Simulators, and Communication, Navigation, Intelligence (CNI) simulator and integration of those upgrades into the electronic battlespace. Newly integrated capabilities are ARES free space and direct injection radar target generation, EW simulator direct injection, IR/UV missile warning stimulators, and improvements to test control, scenario development, data reduction, and analysis functions. Integration with DIADS.	11.421	8.378	7.040	8.300
Project 3321	R-1 Shopping List - Item No. 102-4 of 102-6	Exhibit R-2a (PE 0604256F)		

Exhibit R-2a, RDT&E Project Justification							DATE February 2005				
BUDGET ACTIVITY <b>06 RDT&amp;E Management Support</b>			PE NUMBER AND TITLE <b>0604256F Threat Simulator Development</b>		PROJECT NUMBER AND TITLE <b>3321 Electronic Warfare Ground Test Resources</b>						
(U)	AWMS. Integrating EW capabilities into flight simulator modernization reconfigurable cockpits 1 and 2. Requirements study and site preparation of phase 2 of site preparation for high fidelity simulators 3 and 4. Construction and integration of second helmet mounted display. Design aircraft specific cockpit console set.			1.995	2.283	2.015	1.770				
(U)	DIADS UPGRADES improve fidelity of the DIADS model by maintaining currency with the MATLAB architecture for models and upgrading individual elements such as the radar model. DIADS will also be improved by incorporating changes in the threat as evidenced by updates to intelligence databases and with the addition of Blue (e.g. friendly) C4ISR models to complete the synthetic battlespace for the Integrated Air Defense System (IADS). An architecture update will be incorporated to move from large proprietary computers to a non-proprietary personal computer based system as well as other technical refresh updates to the system.					3.916	4.750				
(U)	EWTATM provides tools to standardize data reduction across the Combined Test Facilities. These tools will be interfaced with the Measure of Performance Analysis Tool (MOPAT) developed under an earlier program. EWTATM will also expand the MOPAT with the addition of new MOPs. As these tools are developed, the results will be incorporated in the Test Methodology Reference.					1.598	1.540				
(U)	Total Cost			26.492	24.957	23.334	28.147				
(U)	<b><u>C. Other Program Funding Summary (\$ in Millions)</u></b>										
		<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)	Related RDT&E PE 0604759F, Major T&E Investment; PE 0604940D, Central T&E Investment Program; PE 0603941D, Test and Evaluation Science and Technology; PE 0605807F, T&E Support; PE 0605978F, Facilities Sustainment - T&E Support; PE 0605976F, Facility Restoration and Modernization; PE 0605804D, Development Test and Evaluation.										
(U)	<b><u>D. Acquisition Strategy</u></b> Contracts funded from this program are predominately awarded on the basis of full and open competition.										

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

<b>BUDGET ACTIVITY</b> <b>06 RDT&amp;E Management Support</b>						<b>PE NUMBER AND TITLE</b> <b>0604256F Threat Simulator Development</b>			<b>PROJECT NUMBER AND TITLE</b> <b>7500 Foreign Materiel Acquisition/Exploitation</b>		
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
7500	Foreign Materiel Acquisition/Exploitation	7.075	7.266	7.376	7.412	7.623	7.652	7.589	7.647	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's specific purpose is to support USAF Foreign Materiel Program requirements through the acquisition and exploitation of foreign materiel. Items considered for these Foreign Materiel Acquisition and Exploitation (FMA&E) funds are included in the prioritized Air Force FMA list established each year. Each MAJCOM prepares and approves a Foreign Materiel - Mission Need Statement for each requirement. Annually, the MAJCOM commanders establish a list of their top 20 requirements. The MAJCOM's requirements lists are then integrated into an Air Force requirement list. Each MAJCOM then approves the AF list and requirements, and final validation comes from the Air Force Vice Chief of Staff. Exploitations are based on and driven by acquisitions. The list is classified secret. The USAF is tasked by OSD to be the DoD Executive Agent for all threat aircraft, air-to-air missiles, air-to-ground bomb/missiles, satellites, early warning radars, and Intercontinental Ballistic Missiles. As the Executive Agent, the AF is tasked to acquire, exploit and provide data to all DoD components.

Budget Activity Justification: This Program Element is in Budget Activity 6, Management Support, because it is a Research and Development (R&D) effort for Improvement and Modernization of T&E capabilities at Air Force Test Centers.

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

Accomplishments/Planned Program:	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Funds the acquisition of Foreign Materiel IAW the prioritized Air Force Foreign Materiel Acquisition list; subject to assets availability.	3.139	3.400	3.490	3.479
(U) Funds the exploitation of acquired Foreign Materiel IAW prioritized lists and specific exploitation plans.	2.936	3.066	3.086	3.133
(U) Funds the operations and maintenance of the specialized Foreign Materiel assets.	1.000	0.800	0.800	0.800
(U) Total Cost	7.075	7.266	7.376	7.412

**(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>Complete</u>							
(U) Other APPN None.										

**(U) D. Acquisition Strategy**

Not applicable.

**UNCLASSIFIED**

PE NUMBER: 0604759F  
 PE TITLE: Major T&E Investment

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>06 RDT&amp;E Management Support</b>	<b>PE NUMBER AND TITLE</b> <b>0604759F Major T&amp;E Investment</b>
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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	58.682	63.965	55.339	58.304	56.735	60.081	62.851	63.869	Continuing	TBD
4597 Air Force Test Investments	58.682	63.965	55.339	58.304	56.735	60.081	62.851	63.869	Continuing	TBD

In FY 2006, Project 4597, Air Force Test Investments, includes new start efforts

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

This PE provides planning, improvements, and modernization for test capabilities at four Air Force test organizations: 46 Test Wing of the Air Armament Center (AAC) (to include 46 Test Group at Holloman), Arnold Engineering Development Center (AEDC), Detachment 12 of the Space & Missile Center (Det 12, SMC), and Air Force Flight Test Center (AFFTC). The purpose is to help test organizations keep pace with emerging weapon system technologies. For example, advances in missile seeker technology and capabilities drive the requirements for improvement in missile seeker test capabilities such as the Scene Characterization and Reconstruction for Advanced Munitions (SCRAM) project; advances in the Global Positioning System (GPS), providing greater time-space-position accuracy, will be integrated into the ranges at Eglin and Edwards Air Force Bases; and advances in computer capabilities, which will enhance efficiencies in data collection, analysis, and distribution, will be exploited in the Data Processing Multi-Stage Improvement Program (DPMSIP). Test investment activities are also funded for activities supporting the Test and Evaluation (T&E) Board of Directors and for the Technology Insertion & Risk Reduction (TIRR), formerly the Test Technology Development (TTD) Program. The TIRR program will provide funds to initiate studies of new technologies and test methodologies to determine their feasibility for future T&E investment. The intent is to reduce the cost and risk associated with new technologies and methodologies using short term (1-3 years) limited funding studies prior to investing in larger projects. The first TIRR sub-project is Flight Safety System (FSS), which provides the interface standards and an initial ground processor operations station to support over-the-horizon long range operational test requirements of Unmanned Air Vehicles (UAVs). Additional TIRR subprojects are Enhanced Time Space Position Information (ETSPI) and Low Observable Instrumented Tow-Target (LOIT).

The fluctuations in the funding at these locations are due to changing priorities in the improvement and modernization requirements as defined through the AF Test Investment Planning & Programming Process. Also, all projects have been reviewed through the Tri-Service Reliance process (to communicate AF efforts to the other Services and avoid unwarranted duplication of effort) and are documented in Reliance Area Capability Summaries (RACS). Further, each project has its own planning, development, equipment acquisition/facility construction, equipment installation, and checkout phases which often requires significant differences in funding from one year to the next. As such, the changes in funding from year to year do not necessarily indicate program growth, but rather a planned phasing of improvement and modernization efforts. The test capabilities at these locations enable testing through all phases of weapon system acquisition, from system concept exploration through component and full scale integrated weapon system testing to operational testing. These test organizations are a national asset operated and maintained by the Air Force for DoD test and evaluation missions, but they are available to others having a requirement for their unique capabilities.

The 46TW, located at Eglin AFB, FL, conducts and supports developmental test and evaluation (DT&E) and operational test and evaluation (OT&E) of non-nuclear air armaments, Command, Control, Communications, Computers and Intelligence (C4I) systems, and target acquisition and weapon delivery systems; navigation systems; provides a climatic simulation capability; and determines target/test item spectral signatures. Advanced Airborne Instrumentation Integration (AII) provides standardized airborne test instrumentation to enhance interoperability and commonality. C4I Advanced Simulation and Test Environment (CASTE) will provide

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2005

BUDGET ACTIVITY

**06 RDT&E Management Support**

PE NUMBER AND TITLE

**0604759F Major T&E Investment**

connectivity to existing capabilities and add needed networks and hardware to develop a C4I test bed. Operational Facilities (OPFACs) for Link-16 Weapon-Platform Integration (formerly Link-16 Support) will provide a host platform simulator for C4I testing. Scene Characterization and Reconstruction for Advanced Munitions (SCRAM) will measure, characterize, and reconstruct high fidelity multispectral target scenes that will be integrated into the Guided Weapon Evaluation Facility (GWEF). Weapon Integration Compatibility Support (WICS) will provide upgrades to support post System Development and Demonstration (SDD) of F/A-22 weapons integration and certification. Climatic Lab Upgrades will provide upgrades to instrumentation and climatic simulation equipment. Test Control & Visualization will upgrade telemetry systems and network infrastructure to handle higher data rates. Advanced GPS/Hybrid Simulation (AGHS) capability, under development at Holloman AFB, will support laboratory testing with the new GPS signal structure and provide digital modeling of modernized GPS equipment. Armament and Munitions Digital Modeling and Simulation will develop, verify, and validate a standard set of reusable models and simulations to support armament and munitions T&E. These projects ensure test center technology is compatible with weapon systems to be tested such as Advanced Medium Range Air-to-Air Missile (AMRAAM), Joint Direct Attack Munition (JDAM), Advanced Short Range Air-to-Air Missile (ASRAAM), AGM-130, Joint Tactical Information Distribution System (JTIDS), Joint Surveillance Target Attack Radar System (JSTARS), Combat Talon, etc.. Over-Water Impact Scoring System (OWISS) is an FY06 new start program. C4ISR Modeling & Simulation, Command & Control Test Operations Center (C2TOC), Advanced Range Telemetry (ARTM), and Operational Ground Test (OGT) are FY07 new start programs.

AEDC, located at Arnold AFB, TN, provides pre-flight ground environmental test support for DoD aeropropulsion, flight systems, and space and missile programs. The center has 53 test facilities providing: aerodynamic testing of scale model aircraft, missiles, and space systems; testing of large and full-scale satellites, sensors, and space vehicles in a simulated space environment; altitude environmental testing for aircraft, missile, and spacecraft propulsion systems; and testing of large-scale models such as space boosters together with their propulsion systems. The Propulsion Wind Tunnel (PWT) Upgrades project improves long-term operation of tunnels 16T and 16S to meet transonic/supersonic test needs. The Improve Turbine Engine Structural Integrity project will provide new state-of-the-art structural test monitoring and data analysis systems to support turbine engine structural tests to detect and analyze high cycle fatigue. Real-Time Display and Analysis System will provide upgraded displays and analysis systems to several key test facilities to help achieve a portion of AEDC's vision of integrating test/plant/utilities operations. The Enhance Turbine Engine Installation and Productivity (formerly JSF STOVL Engine Test Cells Upgrade) will modernize the sea level test cells (SL2 and SL3) transferred from Trenton NAS under BRAC and installed at AEDC. These cells will be upgraded for environmental and structural endurance testing of the Joint Strike Fighter (JSF) and other aircraft engines, F119/F120 derivatives. Propulsion Consolidation and Streamlining (PC&S) program invests in modernization of AEDC jet engine test capability by consolidating major industrial aeropropulsion test facilities, improving plant and test cell reliability, increasing test cell capability, and streamlining test processes. Von Karman Facility (VKF) Modernization is a new start program for FY07.

AFFTC, located at Edwards AFB, CA, conducts and supports DT&E and OT&E of aircraft and aircraft systems, aerospace research vehicles, unmanned aerial vehicles, cruise missiles, parachute delivery/recovery/systems, and cargo handling systems. The Flight Simulation Modernization (FSM) project upgrades the Test and Evaluation Modeling and Simulation (TEMS) facility to meet future man-in-the loop simulator requirements. The Modeling and Simulation T&E Resources (MASTER) program is a joint development effort between the Air Force Flight Test Center (AFFTC) and Arnold Engineering Development Center (AEDC). The goal is for the two centers to integrate modeling and simulation (M&S) more closely to ground and open-air range flight test to reduce the cost and time of developmental testing. MASTER has been divided into five separate development efforts to meet this goal: the Consolidated Model and Data Repository; the development of a Configuration Management, Scheduling and Asset Tracking System; the Propulsion Data Validation and Analysis System; the Store Separation Simulation Capability and the Fluid Structural Interaction Capability project will provide the TEMS facility with subsystem models to build future simulations and the tools to validate

## Exhibit R-2, RDT&amp;E Budget Item Justification

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**06 RDT&E Management Support**

PE NUMBER AND TITLE

**0604759F Major T&E Investment**

real-time modeling with ground tests and open-air range flight test. The Advanced Range Telemetry (ARTM) Integration project will procure and integrate improved range telemetry instrumentation, aircraft instrumentation suites, and ground support systems. It also provides a quick reaction capability for future weapon systems and enhancements required by AFFTC customers. The Advanced GPS Range Sensors (AGRS) project will provide increased Time, Space, Position Information (TSPI) accuracy and data link capabilities for pod and internal mount configurations. These objectives will be accomplished by integrating state of the art GPS and data transfer commercial-off-the-shelf (COTS) equipment, upgrading software to provide high accuracy kinematics GPS processing and near-real-time data processing, and utilizing the Enhanced Range Application Program (EnRAP) Central Test and Evaluation Investment Program (CTEIP) project to procure tri-service interoperable GPS and datalink equipment. DPMSIP will provide a common system for real-time data display, near-real-time analysis, and post-test analysis. DPMSIP will also be compliant with current modeling and simulation data interface standards. The Next Generation Instrumentation (NexGenInst) project will upgrade instrumentation systems on test and test support aircraft in addition to improving the ground support systems used to program and preflight these systems and the AFFTC modification program management capability. The AFFTC Range Systems Upgrade (ARSU) program will provide upgrades to the current open air range systems to support future range programs in four specific areas: range communications, range imaging/display, range safety/surveillance, and command/control. AFFTC Real-Time and Post Flight System Upgrade (ARPSU) and AFFTC Time Space Position Information System Upgrade (ATSU) are new start programs for FY07.

Det 12, SMC, located at Kirtland AFB, NM, is the primary provider of launch capability, spaceflight, an on-orbit operations demonstrating transformation technologies and managing the Space Test Program, Rocket Systems Launch Program, and RDT&E Space and Missile Operations Program. Det 12, SMC has one FY06 new start program, Next Generation Satellite Telemetry, Tracking, & Control (Nxt Gen Sat TT&C) which will modernize the Kirtland AFB to Schriever AFB communication link to provide greater throughput and a sustainable baseline. The program replaces obsolete satellite COTS based C2 hardware and software components. Integrate X-Band and Unified S-Band antenna support capabilities, commercial and NASA resources. Nxt Gen Sat TT&C also replaces obsolete data recording and data trending systems.

This Program Element is in Budget Activity 6, Management and Support, because it is a Research and Development (R&D) effort for Improvement and Modernization of T&E capabilities at Air Force Test Centers.

**(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	60.992	58.933	56.551	59.963
(U) Current PBR/President's Budget	58.682	63.965	55.339	58.304
(U) Total Adjustments	-2.310	5.032		
(U) Congressional Program Reductions				
Congressional Rescissions		-0.568		
Congressional Increases		5.600		
Reprogrammings	-0.893			
SBIR/STTR Transfer	-1.417			

**(U) Significant Program Changes:**

Congressional Action, FY05 plus up of \$5.600: 3 Data Sensor System, \$2.100; Instrumentation Loading, Integration, Analysis, and Documentation (ILIAD), \$3.500 (\$1.500 for AFFTC and \$2.000 for 46 TW).

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

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BUDGET ACTIVITY <b>06 RDT&amp;E Management Support</b>				PE NUMBER AND TITLE <b>0604759F Major T&amp;E Investment</b>				PROJECT NUMBER AND TITLE <b>4597 Air Force Test Investments</b>			
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	
4597 Air Force Test Investments	58.682	63.965	55.339	58.304	56.735	60.081	62.851	63.869	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0			

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

This PE provides planning, improvements, and modernization for test capabilities at four Air Force test organizations: 46 Test Wing of the Air Armament Center (AAC) (to include 46 Test Group at Holloman), Arnold Engineering Development Center (AEDC), Detachment 12 of the Space & Missile Center (Det 12, SMC), and Air Force Flight Test Center (AFFTC). The purpose is to help test organizations keep pace with emerging weapon system technologies. For example, advances in missile seeker technology and capabilities drive the requirements for improvement in missile seeker test capabilities such as the Scene Characterization and Reconstruction for Advanced Munitions (SCRAM) project; advances in the Global Positioning System (GPS), providing greater time-space-position accuracy, will be integrated into the ranges at Eglin and Edwards Air Force Bases; and advances in computer capabilities, which will enhance efficiencies in data collection, analysis, and distribution, will be exploited in the Data Processing Multi-Stage Improvement Program (DPMSIP). Test investment activities are also funded for activities supporting the Test and Evaluation (T&E) Board of Directors and for the Technology Insertion & Risk Reduction (TIRR), formerly the Test Technology Development (TTD) Program. The TIRR program will provide funds to initiate studies of new technologies and test methodologies to determine their feasibility for future T&E investment. The intent is to reduce the cost and risk associated with new technologies and methodologies using short term (1-3 years) limited funding studies prior to investing in larger projects. The first TIRR sub-project is Flight Safety System (FSS), which provides the interface standards and an initial ground processor operations station to support over-the-horizon long range operational test requirements of Unmanned Air Vehicles (UAVs). Additional TIRR subprojects are Enhanced Time Space Position Information (ETSPI) and Low Observable Instrumented Tow-Target (LOIT).

The fluctuations in the funding at these locations are due to changing priorities in the improvement and modernization requirements as defined through the AF Test Investment Planning & Programming Process. Also, all projects have been reviewed through the Tri-Service Reliance process (to communicate AF efforts to the other Services and avoid unwarranted duplication of effort) and are documented in Reliance Area Capability Summaries (RACS). Further, each project has its own planning, development, equipment acquisition/facility construction, equipment installation, and checkout phases which often requires significant differences in funding from one year to the next. As such, the changes in funding from year to year do not necessarily indicate program growth, but rather a planned phasing of improvement and modernization efforts. The test capabilities at these locations enable testing through all phases of weapon system acquisition, from system concept exploration through component and full scale integrated weapon system testing to operational testing. These test organizations are a national asset operated and maintained by the Air Force for DoD test and evaluation missions, but they are available to others having a requirement for their unique capabilities.

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## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2005

BUDGET ACTIVITY

**06 RDT&E Management Support**

PE NUMBER AND TITLE

**0604759F Major T&E Investment**

PROJECT NUMBER AND TITLE

**4597 Air Force Test Investments**

(GWEF). Weapon Integration Compatibility Support (WICS) will provide upgrades to support post System Development and Demonstration (SDD) of F/A-22 weapons integration and certification. Climatic Lab Upgrades will provide upgrades to instrumentation and climatic simulation equipment. Test Control & Visualization will upgrade telemetry systems and network infrastructure to handle higher data rates. Advanced GPS/Hybrid Simulation (AGHS) capability, under development at Holloman AFB, will support laboratory testing with the new GPS signal structure and provide digital modeling of modernized GPS equipment. Armament and Munitions Digital Modeling and Simulation will develop, verify, and validate a standard set of reusable models and simulations to support armament and munitions T&E. These projects ensure test center technology is compatible with weapon systems to be tested such as Advanced Medium Range Air-to-Air Missile (AMRAAM), Joint Direct Attack Munition (JDAM), Advanced Short Range Air-to-Air Missile (ASRAAM), AGM-130, Joint Tactical Information Distribution System (JTIDS), Joint Surveillance Target Attack Radar System (JSTARS), Combat Talon, etc.. Over-Water Impact Scoring System (OWISS) is an FY06 new start program. C4ISR Modeling & Simulation, Command & Control Test Operations Center (C2TOC), Advanced Range Telemetry (ARTM), and Operational Ground Test (OGT) are FY07 new start programs.

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<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>06 RDT&amp;E Management Support</b>	<b>PE NUMBER AND TITLE</b> <b>0604759F Major T&amp;E Investment</b>	<b>PROJECT NUMBER AND TITLE</b> <b>4597 Air Force Test Investments</b>
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accuracy and data link capabilities for pod and internal mount configurations. These objectives will be accomplished by integrating state of the art GPS and data transfer commercial-off-the-shelf (COTS) equipment, upgrading software to provide high accuracy kinematics GPS processing and near-real-time data processing, and utilizing the Enhanced Range Application Program (EnRAP) Central Test and Evaluation Investment Program (CTEIP) project to procure tri-service interoperable GPS and datalink equipment. DPMSIP will provide a common system for real-time data display, near-real-time analysis, and post-test analysis. DPMSIP will also be compliant with current modeling and simulation data interface standards. The Next Generation Instrumentation (NexGenInst) project will upgrade instrumentation systems on test and test support aircraft in addition to improving the ground support systems used to program and preflight these systems and the AFFTC modification program management capability. The AFFTC Range Systems Upgrade (ARSU) program will provide upgrades to the current open air range systems to support future range programs in four specific areas: range communications, range imaging/display, range safety/surveillance, and command/control. AFFTC Real-Time and Post Flight System Upgrade (ARPSU) and AFFTC Time Space Position Information System Upgrade (ATSU) are new start programs for FY07.

Det 12, SMC, located at Kirtland AFB, NM, is the primary provider of launch capability, spaceflight, an on-orbit operations demonstrating transformation technologies and managing the Space Test Program, Rocket Systems Launch Program, and RDT&E Space and Missile Operations Program. Det 12, SMC has one FY06 new start program, Next Generation Satellite Telemetry, Tracking, & Control (Nxt Gen Sat TT&C) which will modernize the Kirtland AFB to Schriever AFB communication link to provide greater throughput and a sustainable baseline. The program replaces obsolete satellite COTS based C2 hardware and software components. Integrate X-Band and Unified S-Band antenna support capabilities, commercial and NASA resources. Nxt Gen Sat TT&C also replaces obsolete data recording and data trending systems.

This Program Element is in Budget Activity 6, Management and Support, because it is a Research and Development (R&D) effort for Improvement and Modernization of T&E capabilities at Air Force Test Centers.

<b>(U) B. Accomplishments/Planned Program (\$ in Millions)</b>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) 46 Test Wing, Air Armament Center				
(U) Advanced GPS Hybrid Simulation (AGHS): Develops new GPS simulator with hybrid capability for both conventional Radio Frequency (RF) GPS receivers and new Digital Receiver Modules (DRM). Procures, receives, and installs hardware and software required to simulate the new GPS signal structure. Performs verification and validation efforts on new a simulator.	0.937	1.197		
(U) Weapon Integration Compatibility Support (WICS): Provides F/A-22 flutter, loads, stability and control M&S as well as Eglin-Edwards, Eglin-AEDC, Eglin-Patuxent River NAS high-speed encrypted data links for near real-time data analysis.	2.889	3.136		
(U) Armament and Munitions Digital Modeling and Simulation (AMD M&S): Develops and coordinates Modeling and Simulation Master Plan and Modeling and Simulation activities.	2.474	1.843	4.031	3.536
(U) Advanced Airborne Instrumentation Integration (AII): Acquires and integrates state-of-the-art airborne instrumentation such as Advanced Common Airborne Instrumentation System (CAIS) and Central Test & Evaluation Investment Program (CTEIP) developed ARTM. Acquires ground support equipment to support pre/post flight operations.	1.650	2.443	3.136	6.232
(U) Scene Characterization and Reconstruction for Advanced Munitions (SCRAM): Acquires	4.260	5.164	3.921	

**UNCLASSIFIED**

Exhibit R-2a, RDT&E Project Justification			DATE <b>February 2005</b>	
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE		
<b>06 RDT&amp;E Management Support</b>	<b>0604759F Major T&amp;E Investment</b>	<b>4597 Air Force Test Investments</b>		
instrumentation to support scene characterization and reconstruction for Test & Evaluation (T&E) of Electro Opical/Infra Red, RF/MMW, and GPS seeker/sensors.				
(U) Test Control & Visualization (TVC): Upgrades TM systems and network infrastructure to handle higher data rates. Acquires and integrates real-time computing servers, data recorders, and video displays.	1.558	1.926	2.941	1.469
(U) C4I Advanced Simulation and Test Environment (CASTE): Acquires equipment, instrumentation, hardware, software, and connectivity for C4I testing.	1.396	2.060	2.451	0.881
(U) OPFACs for Link 16 Weapon-Platform Integration (formerly Link-16 Support): Acquires platform simulators and related datalink equipment.	2.998	2.362	1.962	
(U) Climatic Lab Upgrade: Upgrades instrumentation systems, climatic simulation equipment and facility equipment for environmental testing.	0.927	1.038		
(U) Over Water Impact Scoring System (OWISS): Develops the capability necessary to test long-range precision strike munitions in an overwater environment.			5.110	5.832
(U) C4ISR Modeling and Simulation: Acquires and develops comprehensive digital models and integrates real and synthetic environments to provide a realistic battlespace for testing C2 systems.				0.903
(U) Command and Control Test Operations Center (C2TOC): Develops a Joint Air Operations Center level test capability to conduct functional, performance and load/stress testing on C2 Weapons Systems.				1.619
(U) Advanced Range Telemetry System (ARTM): Improves and upgrades critical telemetry infrastructure for higher throughput rates. Improves quality of real-time data and more efficient utilization of the frequency spectrum.				2.906
(U) Operational Ground Test Facility (OGT): Develops the capability to test munitions in a more operationally realistic hardware in the loop/simulated environment to include the addition of vibration, scene generators, and climatic simulations.				0.531
(U) Holloman High Speed Test Track (HHSTT): Extends Maglev guideway foundation and girder. Demonstrate magnetic levitation of test sled at higher velocities on the extended guideway. (FY03 and FY04 Congressional Insert)	3.335			
(U) 3 Data Sensor System: Installs an operating laser and integrates software for ranging. Modifies software for range input/output. Improves tracking capabilities. (FY04/05 Congressional Insert)	0.953	2.100		
(U) Instrumentation Loading, Integration, Analysis, and Decommuation (ILIAD): Develops enhanced capabilities to program, load, operational check, and troubleshoot airborne data acquisition systems installed on test and evaluation vehicles. Modernizes flight line ground support unit and engineering support unit hardware to current technological specification. Performs InterRange Instrumentation Group (IRIG) 106, Chapter 10 core upgrades as well as the Microsoft NET and Operating System upgrades. Provides improved and Range Commanders Council standardized enhancement and IRIG standard compliance to the components that decommutate, display, and process the data generated by the data acquisition system for preflight checkout, troubleshooting, and analysis. (FY05 Congressional		2.000		

Project 4597

R-1 Shopping List - Item No. 103-7 of 103-11

Exhibit R-2a (PE 0604759F)

**UNCLASSIFIED**

Exhibit R-2a, RDT&E Project Justification			DATE <b>February 2005</b>	
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE		
<b>06 RDT&amp;E Management Support</b>	<b>0604759F Major T&amp;E Investment</b>	<b>4597 Air Force Test Investments</b>		
Insert)				
(U) Air Force Flight Test Center				
(U) Flight Simulation Modernization (FSM): Fabricates second and third console sets (Joint Strike Fighter). Provides multiple simulation networking hardware and linking software. Provides capability to simulate flight of two-ship configuration in Performance and Flying Qualities (P&FQ) testing, and capability to upgrade simulation to link live and simulated avionics and Electronic Warfare software and hardware into simulation environment. Provides capability for separable simulations in a secure (Secret and higher) facility over a secure network.	0.175			
(U) Modeling and Simulation Test and Evaluation Resource (MASTER): Develops on-line comparisons of predictions with flight trajectories and the resolution of anomalies between predictions and flight. Documents the result of F/A-22 simulation and re-usable code validation. Develops 4th Generation information distribution interface and automated model-based fault detection and diagnostic capability for ground and flight test. Enhances capabilities of fluid-structural technology to ground and flight test requirements will also be provided. Develops the facility management, configuration management and data management capabilities providing control of pre-test, test, and post test operations. Develops the initial operational capability enabling collaboration between AFFTC and AEDC engineers. Develops and validates enhanced capabilities of Fluid-Structural Technology to Ground and Flight Test requirements at the AFFTC. Executes code validation plan and places validated codes and data in MASTER repository as well as the documented results of simulations and re-usable code validation. Develops unclassified and classified capable information systems to provide configuration, data and facility management. Develops, stores, and transitions models in the MASTER repository to support current and future test programs. Enhances the 4th Generation Propulsion Analysis System's information distribution interfaces and automated model-based fault detection and diagnostic capabilities for ground and flight test. Validates towed device cable model using flight data.	2.427	3.127	0.443	
(U) Advanced Range Telemetry (ARTM) Integration. Integrate ARTM-developed Multi-h Continuous Phase Modulation (CPM) technology (Tier 1/Tier 2 modulation) into telemetry ground stations. Migrate airborne telemetry users from S-band to L-band (Tier 0, Tier 1, and Tier 2 modulation technology, as required by user). Refurbish old and integrate new antennas based on integration roadmap to support high-data rate users. Integrate high-data rate receivers and high-data rate telemetry communication systems for ground stations based on implementation roadmap. Integrate ARTM-developed technology and upgrade the telemetry support infrastructure to improve spectral efficiency, link reliability, and spectrum utilization. Upgrade data communication and integrate high data rate recorders for test support ground stations based on roadmap.	4.988	3.602	3.748	
(U) Advanced GPS Range Sensors (AGRS): Produces the first iteration of the Modular Affordable GPS IMU Receiver (MAGIR I) that integrates a miniature Inertial Measurement Unit (IMU) into a compact	1.468	1.346	0.982	5.143
Project 4597	R-1 Shopping List - Item No. 103-8 of 103-11			Exhibit R-2a (PE 0604759F)

**UNCLASSIFIED**

Exhibit R-2a, RDT&E Project Justification			DATE	
			<b>February 2005</b>	
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE		
<b>06 RDT&amp;E Management Support</b>	<b>0604759F Major T&amp;E Investment</b>	<b>4597 Air Force Test Investments</b>		
<p>GPS internal mount instrumentation unit. Upgrades and delivers high-accuracy kinematic GPS TSPI processing software. Initiates low cost commercial spectrum datalink effort. Provides AFFTC inputs to the Range Instrumentation System Program Office (RISPO) for GPS and datalink equipment to be developed under their Enhanced Range Applications Program (EnRAP). Integrates the second iteration of the MAGIR I into next generation software receiver GPS instrumentation. Purchases Enhanced Range Applications Program (EnRAP) equipment. Integrate low cost GPS/IMU and low cost real-time GPS. Delivers user interface for TSPI processing software upgrades.</p>				
(U) Data Processing Multi-Stage Improvement Program (DPMSIP): Deployed the first telemetry processor upgrade to support higher data rates and large data formats. Develops second telemetry processor upgrade kit to improve data transfer between systems. Develops a PC based common display system. Developed the first control room display upgrade kit. Develops additional standard post-test analysis software to support avionics flight-testing. Deploys common display system at three mission control centers.	2.027	3.787	3.056	
(U) Next Generation Test Instrumentation: Integrates new measurement technology into multiple aircraft and support labs. Provides enhancements and improvements to the Internet based Instrumentation Management Information Systems to improve modification cost accounting and program management. Expands the capabilities of ILIAD to program multiple vendor hardware suites and preflight test articles and airframes. Develops airborne instrumentation components to address new sensor interfaces. Purchases instrumentation components to upgrade obsolete and unreliable instrumentation components. Replaces obsolete data systems (ATIS, Metraplex) and unreliable data recorders on Test aircraft, support fleet, and Test Pilot School aircraft.	2.087	1.897	2.585	2.628
(U) AFFTC Range System Upgrade (ARSU). Expand the range digital voice communication system to meet increasing customer requirements. Implement range data command and control system to automate the setup, configuration, monitoring and reconfiguration of networks and widely dispersed end equipment supporting data, telemetry, voice, video and other real-time and non-real time data thereby increasing the number and quality of missions supported.		3.568	0.584	0.200
(U) Instrumentation Loading, Integration, Analysis, and Decommutation (ILIAD): Develops enhanced capabilities to program, load, operational check, and troubleshoot airborne data acquisition systems installed on test and evaluation vehicles. Modernizes flight line ground support unit and engineering support unit hardware to current technological specification. Performs InterRange Instrumentation Group (IRIG) 106, Chapter 10 core upgrades as well as the Microsoft NET and Operating System upgrades. Provides improved and Range Commanders Council standardized enhancement and IRIG standard compliance to the components that decommutate, display, and process the data generated by the data acquisition system for preflight checkout, troubleshooting, and analysis. (FY03 and FY04 Congressional Insert)	3.240	1.500		

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Exhibit R-2a, RDT&E Project Justification			DATE	
			<b>February 2005</b>	
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE		
<b>06 RDT&amp;E Management Support</b>	<b>0604759F Major T&amp;E Investment</b>	<b>4597 Air Force Test Investments</b>		
(U) Advanced Range Communications System (ARCS): Procures the next generation digital voice communication system to support AFFTC Flight Test Range customers. Provides an enhanced digital voice capability with special emphasis placed on software controls, supportability and commonality for AFFTC customers. (FY04 Congressional Insert)	1.620			
(U) B-52 Flight Test Instrumentation: Upgrades current flight data recorders to solid state technology. Builds pallets to integrate the solid state recorders to the B-52. Establishes a long term digital data archive for the flight data. Upgrades decom hardware/software to support flight test activities. (FY04 Congressional Insert)	1.620			
(U) AFFTC RT & Post Flight System Upgrade (ARPSU): Upgrades the TM processing to handle new data formats and increased data rates. Upgrades the data distribution network that transfers data from multiple data sources into the control rooms. Implements solutions for bi-directional TM (being developed under CTEIP programs) into the control rooms which increases the speed and capacity of the data analysis systems.			2.606	
(U) AFFTC TSPI System Upgrade (ATSU): Acquires and implements Digital High speed Video Systems (DHVS), automated TSPI architecture, continuous wave radars, and upgrade with off the shelf GPS related packages.			2.803	
(U) Arnold Engineering Development Center				
(U) Propulsion Wind Tunnel (PWT) Upgrades: Finalizes installation and checkout of electric motor upgrades. Finalizes installation and checkout of plant control systems. Acquires planning of flow quality improvements.	2.450			
(U) Improve Turbine Engine Structural Integrity (ITESI): Develops the Non-Intrusive Stress Measurement System (NSMS) software and hardware systems. Validates and fabricates final software of the second NSMS. Procures a dynamic data system. Provides the NSMS optical system. Improves C, J, and SL cells on-line dynamic data monitoring/processing bandwidth capability. Develops inlet flow distortion generator for High Cycle Fatigue (HCF) studies.	2.439	2.577	3.728	
(U) Enhanced Turbine Engine Installation and Productivity (ETEIP) (formerly JSF STOVL Engine Test Cells Upgrade): Designs, procures, and fabricates efforts for sea level (SL3) upgrades for JSF, F/A-22, F-15, F-16, F-18, and other programs. Designs environmental systems (steam, sand, corrosion). Installs and checks out SL3 Thrust Stand, Inlet, and Service Systems. Designs and fabricates thrust stand and designs electrical distribution system for SL2.	2.189	1.335	2.576	
(U) Real Time Display and Analysis System (RDAS): Designs, procures, installs, checks out and turns over the J2 Test Unit Supervisory Systems (TUSS), 4T Test Article Control System, SL2 TUSS, C1 TUSS, 4T Pretest System, 4T Operations Center, and partial SL3 TUSS. Installs and checks out the 4T Test System. Integrates checkout and turnover of the 4T Data Acquisition Processing Systems (DAPS). Designs and procures activities for the 4T Plant Automation effort.	2.509	2.845	3.060	2.523

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Exhibit R-2a, RDT&E Project Justification					DATE						
					<b>February 2005</b>						
BUDGET ACTIVITY		PE NUMBER AND TITLE		PROJECT NUMBER AND TITLE							
<b>06 RDT&amp;E Management Support</b>		<b>0604759F Major T&amp;E Investment</b>		<b>4597 Air Force Test Investments</b>							
(U)	Propulsion Consolidation and Streamlining (PC&S): Improves plant and test cell reliability, increasing test cell capability, and streamlining test processes of the jet engine test facility.	4.916		12.462	9.929	10.156					
(U)	VKF Plant Modernization: Provides pressurized air support for hypersonic wind tunnel and turbine engine test requirements.					3.385					
(U)	Other Projects										
(U)	Next Generation Satellite TT&C (Nxt Gen Sat TT&C): Modernizes the Kirtland AFB to Schriever AFB communication link to provide greater throughput and a sustainable baseline. Replaces obsolete satellite COTS based C2 hardware and software components. Integrates X-Band and Unified S-Band antenna support capabilities, commercial and NASA resources. Replaces obsolete data recording and data trending systems.				0.446	4.301					
(U)	T&E Board of Directors Support: Coordinates tri-service investment efforts. Coordinates joint Reliance documents.	0.150		0.150	0.150	0.150					
(U)	Technology Insertion & Risk Reduction (TIRR): Flight Safety System (FSS) subproject develops ground processor station for Over-the-Horizon UAV operations, range safety interface and display software/hardware. Enhanced Time Space Position Information (ETSPI) subproject develops a low-cost miniature instrumentation package that provides accurate position, pitch and heading, in real-time, on air-to-ground weapons throughout its flight path. Low Observable Instrumented Tow-Target (LOIT) subproject involves development, signature evaluation, and instrumentation of a low observable tow target. Joint Tactical Radio System (JTRS) project started and planned to work into a CTEIP follow-on.	1.000		0.500	0.500	0.500					
(U)	Total Cost			58.682	63.965	55.339					
(U)	<b>C. Other Program Funding Summary (\$ in Millions)</b>										
		<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 Related RDT&E: PE 0604256F, Threat Simulator Development; PE 0604940D, Central Test and Evaluation Investment Program; PE 0605804D, Development Test and Evaluation; PE 0603941D, Test and Evaluation Science and Technology; PE 0605807F, Test and Evaluation Support; PE 0605978F, Facilities Sustainment - T&E Support; and PE 0605976F, Facility Restoration and Modernization.										
(U)	<b>D. Acquisition Strategy</b> This program element uses several different contracting strategies to provide the most cost effective T&E investment solutions. The main acquisition strategy is to use full and open competition wherever possible to improve and modernize existing test capabilities.										

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>06 RDT&amp;E Management Support</b>	<b>PE NUMBER AND TITLE</b> <b>0605101F RAND Project Air Force</b>
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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	31.025	22.802	28.354	29.703	30.929	32.165	33.548	34.623	Continuing	TBD
1110 Project Air Force	31.025	22.802	28.354	29.703	30.929	32.165	33.548	34.623	Continuing	TBD

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

(U) This program provides for continuing analytical research across a broad spectrum of aerospace issues and concerns. The Project AIR FORCE (PAF) research agenda is focused primarily on mid- to long-term problems; in addition, PAF provides quick response assistance for senior Air Force officials on high priority, near term issues. Within these areas, PAF addresses difficult and complex, far-reaching and inter-related questions linked to future strategies, approaches and policies, in order to enhance Air Force senior leadership's deliberations and decisionmaking on major issues. The Air Force Steering Group, chaired by the Vice Chief of Staff, reviews, monitors, and approves PAF annual research efforts. Each project is initiated, processed, and approved IAW PAF Sponsoring Agreement which requires General Officer (or SES equivalent) sponsorship and involvement on a continuing basis.

(U) PAF is organized in four primary research program areas: strategy and doctrine; aerospace force development; manpower, personnel and training; and resource management. Integrative research projects are also conducted at the division level with direct support provided through the most applicable program. Research programs address organizational crosscutting issues as defined by specific research themes approved by the Air Force Steering Group. These research themes encompass a wide spectrum of topics including external challenges to national security; terrorism and homeland defense; joint and coalition operations; integrated roadmap for ISR capabilities; enhancing, tailoring and reducing infrastructure to meet new force requirements; potential changes to the Active/Reserve/National Guard/Civilian/Contractor manpower mix; and improved weapon system costing.

(U) The FY04 research program investigated a range of transformation issues with both a long-term perspective and a focus on immediate concerns such as the Global War on Terrorism (GWOT). Strategy research investigated regional stability and threats, joint expeditionary operations, and counter-terrorism. Force development analysis emphasized innovative and transformational operational concepts, and the force structures and capabilities to realize these. Manpower studies included defining the personnel mix and their appropriate training, development, and utilization in order to effectively meet future requirements and operations tempo; and analysis of senior leader development and utilization. Resources research focused on maturing agile combat support and force sustainment concepts to efficiently support global joint operations, and assessed the cost and viability of current and possible future force elements. Integrative research continued to examine the survivability of aerospace capabilities while operating in severe threat environments and analyzed options for recapitalizing the aging aerial refueling aircraft fleet.

(U) The FY05 research program has been developed to emphasize strategic and transformational options for the future force structure and capabilities. Topics range from the GWOT and stability operations, to developing our total force, to force structure recapitalization. Strategy research will investigate regional stability and threats, managing the current security environment, and counter-terrorism. Aerospace force development analysis will emphasize innovative and transformational operational concepts, and the force structures and capabilities to best execute joint operations; and the implications of reliance on space-based capabilities. Manpower studies will include developing and managing elements of the force from enlisted personnel through executives, assessing training approaches and their impacts on readiness, and defining future needs for pilot training aircraft. Resources research will include programming methods focused on resulting capabilities, efficient combat support, supportability of unmanned aerial vehicles and options for providing this support; maintenance of low-observable aircraft; contracting approaches to

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## BUDGET ACTIVITY

**06 RDT&E Management Support**

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**0605101F RAND Project Air Force**

support contingency operations; weapon system costing; and the transformation of the Air National Guard combat support functions. Integrative research will assess the survivability of aerospace capabilities that are required to persist in denied airspace; examine issues related to force structure aging and eventual recapitalization; and complete the requested aerial refueling aircraft analysis of alternatives. These studies will continue to take into consideration the GWOT, including engagements in Afghanistan, Iraq, and elsewhere.

(U) The FY06 research program will continue to build upon research foundations, examining the evolving security environment, emerging threats, national and military strategy, transformation approaches including investment strategies to provide capabilities within changing Defense budgets, operational concepts to meet evolving and increasingly joint missions, exploiting advanced technologies, increasing the effectiveness and efficiency of combat support, and developing the total force (Active/Reserve/National Guard/Civilian/Contractor). These efforts will continue to inform and support the senior Air Force leadership regarding personnel management and training; improving logistical efficiencies and force sustainment; ongoing conflicts and joint operations; force structure capabilities, limitations, and operational concepts; and making force structure tradeoffs within resource constraints to meet future national security and Air Force needs.

(U) Looking into the future, the FY07 research program will build upon FY06 and earlier work to continue to help the Air Force to rapidly and appropriately adapt to the changing world environment and emerging threats; continue to modernize and employ its force structure to provide capabilities within changing DoD budgets; assess lessons learned from recent and ongoing conflicts; develop and utilize its total force; and enhance the support of our aerospace forces, ranging from sustainment of the force structure to agile combat support.

(U) PAF research spans functional and organizational boundaries and is managed in a manner to facilitate independence and freedom from organizational bias thereby providing perspectives and insights to senior Air Force leaders free from parochial influences not necessarily in the best interest of the Air Force at large.

(U) Benefits of independent non-Department of Defense analysis of complex present day and emerging issues are shared beyond the immediacy of the Air Force. PAF study results are given wide dissemination within the DOD on a routine basis and are deposited with the Defense Technical Information Center available to a broad range of qualified government and commercial-sector individuals and activities.

(U) This program is in budget activity 6- Management and Support, because it funds RAND Project AIR FORCE (PAF), the only Air Force Federally Funded Research and Development Center for studies and analyses.

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PE NUMBER AND TITLE

0605101F RAND Project Air 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	24.586	24.970	26.101	26.650
(U) Current PBR/President's Budget	31.025	22.802	28.354	29.703
(U) Total Adjustments	6.439	-2.168		
(U) Congressional Program Reductions	-0.209	-2.168		
Congressional Rescissions				
Congressional Increases				
Reprogrammings	6.648			
SBIR/STTR Transfer				
(U) <u>Significant Program Changes:</u>				
N/A				

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BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE			
<b>06 RDT&amp;E Management Support</b>				<b>0605101F RAND Project Air Force</b>				<b>1110 Project Air Force</b>			
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	
1110 Project Air Force	31.025	22.802	28.354	29.703	30.929	32.165	33.548	34.623	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0			

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

(U) This program provides for continuing analytical research across a broad spectrum of aerospace issues and concerns. The Project AIR FORCE (PAF) research agenda is focused primarily on mid- to long-term problems; in addition, PAF provides quick response assistance for senior Air Force officials on high priority, near term issues. Within these areas, PAF addresses difficult and complex, far-reaching and inter-related questions linked to future strategies, approaches and policies, in order to enhance Air Force senior leadership's deliberations and decisionmaking on major issues. The Air Force Steering Group, chaired by the Vice Chief of Staff, reviews, monitors, and approves PAF annual research efforts. Each project is initiated, processed, and approved IAW PAF Sponsoring Agreement which requires General Officer (or SES equivalent) sponsorship and involvement on a continuing basis.

(U) PAF is organized in four primary research program areas: strategy and doctrine; aerospace force development; manpower, personnel and training; and resource management. Integrative research projects are also conducted at the division level with direct support provided through the most applicable program. Research programs address organizational crosscutting issues as defined by specific research themes approved by the Air Force Steering Group. These research themes encompass a wide spectrum of topics including external challenges to national security; terrorism and homeland defense; joint and coalition operations; integrated roadmap for ISR capabilities; enhancing, tailoring and reducing infrastructure to meet new force requirements; potential changes to the Active/Reserve/National Guard/Civilian/Contractor manpower mix; and improved weapon system costing.

(U) The FY04 research program investigated a range of transformation issues with both a long-term perspective and a focus on immediate concerns such as the Global War on Terrorism (GWOT). Strategy research investigated regional stability and threats, joint expeditionary operations, and counter-terrorism. Force development analysis emphasized innovative and transformational operational concepts, and the force structures and capabilities to realize these. Manpower studies included defining the personnel mix and their appropriate training, development, and utilization in order to effectively meet future requirements and operations tempo; and analysis of senior leader development and utilization. Resources research focused on maturing agile combat support and force sustainment concepts to efficiently support global joint operations, and assessed the cost and viability of current and possible future force elements. Integrative research continued to examine the survivability of aerospace capabilities while operating in severe threat environments and analyzed options for recapitalizing the aging aerial refueling aircraft fleet.

(U) The FY05 research program has been developed to emphasize strategic and transformational options for the future force structure and capabilities. Topics range from the GWOT and stability operations, to developing our total force, to force structure recapitalization. Strategy research will investigate regional stability and threats, managing the current security environment, and counter-terrorism. Aerospace force development analysis will emphasize innovative and transformational operational concepts, and the force structures and capabilities to best execute joint operations; and the implications of reliance on space-based capabilities. Manpower studies will include developing and managing elements of the force from enlisted personnel through executives, assessing training approaches and their impacts on readiness, and defining future needs for pilot training aircraft. Resources research will include programming methods focused on resulting capabilities, efficient combat support, supportability of unmanned aerial vehicles and options for providing this support; maintenance of low-observable aircraft; contracting approaches to support contingency operations; weapon system costing; and the transformation of the Air National Guard combat support functions. Integrative research will assess

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the survivability of aerospace capabilities that are required to persist in denied airspace; examine issues related to force structure aging and eventual recapitalization; and complete the requested aerial refueling aircraft analysis of alternatives. These studies will continue to take into consideration the GWOT, including engagements in Afghanistan, Iraq, and elsewhere.

(U) The FY06 research program will continue to build upon research foundations, examining the evolving security environment, emerging threats, national and military strategy, transformation approaches including investment strategies to provide capabilities within changing Defense budgets, operational concepts to meet evolving and increasingly joint missions, exploiting advanced technologies, increasing the effectiveness and efficiency of combat support, and developing the total force (Active/Reserve/National Guard/Civilian/Contractor). These efforts will continue to inform and support the senior Air Force leadership regarding personnel management and training; improving logistical efficiencies and force sustainment; ongoing conflicts and joint operations; force structure capabilities, limitations, and operational concepts; and making force structure tradeoffs within resource constraints to meet future national security and Air Force needs.

(U) Looking into the future, the FY07 research program will build upon FY06 and earlier work to continue to help the Air Force to rapidly and appropriately adapt to the changing world environment and emerging threats; continue to modernize and employ its force structure to provide capabilities within changing DoD budgets; assess lessons learned from recent and ongoing conflicts; develop and utilize its total force; and enhance the support of our aerospace forces, ranging from sustainment of the force structure to agile combat support.

(U) PAF research spans functional and organizational boundaries and is managed in a manner to facilitate independence and freedom from organizational bias thereby providing perspectives and insights to senior Air Force leaders free from parochial influences not necessarily in the best interest of the Air Force at large.

(U) Benefits of independent non-Department of Defense analysis of complex present day and emerging issues are shared beyond the immediacy of the Air Force. PAF study results are given wide dissemination within the DOD on a routine basis and are deposited with the Defense Technical Information Center available to a broad range of qualified government and commercial-sector individuals and activities.

(U) This program is in budget activity 6- Management and Support, because it funds RAND Project AIR FORCE (PAF), the only Air Force Federally Funded Research and Development Center for studies and analyses.

(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Accomplishments/Planned Program				
(U) Strategy and Doctrine	6.119	5.903	7.231	7.474
(U) Aerospace Force Development	6.119	5.762	6.590	6.927
(U) Manpower, Personnel, and Training	5.974	5.762	6.530	6.877
(U) Resource Management	8.439	4.122	5.805	6.129
(U) Integrative Research/Direct Support	4.374	1.253	2.198	2.296
(U) Total Cost	31.025	22.802	28.354	29.703

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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>Complete</u>							

(U) N/A

Non-PE O&M funding no longer reported to maintain consistency with previous exhibits prior to PB 04.

(U) **D. Acquisition Strategy**

A comprehensive review of RAND/Project AIR FORCE was completed in Sep 00 and led to a 5-year (FY01-FY05) Cost Plus / Fixed Fee contract, awarded on 01 Oct 00. A subsequent comprehensive review will be conducted in FY05. Pending a favorable decision to continue the AF's efforts with RAND Project AIR FORCE, a follow-on (FY06-FY10) Cost Plus / Fixed Fee contract will be awarded in Oct 05.

**UNCLASSIFIED**

PE NUMBER: 0605306F  
 PE TITLE: Ranch Hand II Epidemiology Study

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<b>BUDGET ACTIVITY</b> <b>06 RDT&amp;E Management Support</b>	<b>PE NUMBER AND TITLE</b> <b>0605306F Ranch Hand II Epidemiology Study</b>
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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	4.649	4.771	4.188	0.000	0.000	0.000	0.000	0.000	0.000	39.142
2767 Ranch Hand II Epidemiology Study	4.649	4.771	4.188	0.000	0.000	0.000	0.000	0.000	0.000	39.142

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

As a result of Presidential direction, PE 0605306F was established to conduct a 25-year epidemiology investigation of approximately 1,200 Air Force personnel who were involved with aerial spraying of herbicides in Vietnam from 1962 to 1971 (Operation Ranch Hand). The objective of this investigation is to determine whether long-term health effects exist and can be attributed to occupational exposure to phenoxy herbicides and their associated dioxins.

This project involves a 25-year study, initiated in 1980, that compares United States Air Force (USAF) Ranch Hand personnel to a control group of USAF crew members and support personnel who were not exposed to herbicides while serving in Southeast Asia. Approximately 20,000 individuals (exposed personnel group plus control group) are participating in the annual mortality study, with approximately 2,200 (exposed personnel group plus control group) of these participating in the detailed morbidity study during each physical examination cycle. The detailed physical examination cycle includes follow-up health examinations at the 3-, 5-, 10-, 15-, and 20-year time periods. The study includes examination of the possible occurrence of birth defects in children as determined from children's medical records and family medical histories. The Congressionally-established Ranch Hand Advisory Committee has directed that all study findings be reported to the scientific community as peer-reviewed journal articles. Note: This program is comprised of six cycles and each cycle consists of participant physical examinations followed by data analysis and report generation. The largest expenditure of funds occurred during the physical exam cycles such as in 1997-1998 and 2002-2003. The program is in the final cycle and is scheduled to terminate in FY 2006.

This program is in Budget Activity 6, Management and Support, since it includes research and development efforts directed towards support of installations or operations required for general research and development 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	4.692	4.813	4.167	0.000
(U) Current PBR/President's Budget	4.649	4.771	4.188	0.000
(U) Total Adjustments	-0.043	-0.042		
(U) Congressional Program Reductions	-0.040	-0.042		
Congressional Rescissions				
Congressional Increases				
Reprogrammings	-0.003			
SBIR/STTR Transfer				
(U) <u>Significant Program Changes:</u>				
None.				

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

<b>BUDGET ACTIVITY</b> <b>06 RDT&amp;E Management Support</b>				<b>PE NUMBER AND TITLE</b> <b>0605306F Ranch Hand II Epidemiology Study</b>			<b>PROJECT NUMBER AND TITLE</b> <b>2767 Ranch Hand II Epidemiology Study</b>			
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
2767 Ranch Hand II Epidemiology Study	4.649	4.771	4.188	0.000	0.000	0.000	0.000	0.000	0.000	39.142
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

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

As a result of Presidential direction, PE 0605306F was established to conduct a 25-year epidemiology investigation of approximately 1,200 Air Force personnel who were involved with aerial spraying of herbicides in Vietnam from 1962 to 1971 (Operation Ranch Hand). The objective of this investigation is to determine whether long-term health effects exist and can be attributed to occupational exposure to phenoxy herbicides and their associated dioxins.

This project involves a 25-year study, initiated in 1980, that compares United States Air Force (USAF) Ranch Hand personnel to a control group of USAF crew members and support personnel who were not exposed to herbicides while serving in Southeast Asia. Approximately 20,000 individuals (exposed personnel group plus control group) are participating in the annual mortality study, with approximately 2,200 (exposed personnel group plus control group) of these participating in the detailed morbidity study during each physical examination cycle. The detailed physical examination cycle includes follow-up health examinations at the 3-, 5-, 10-, 15-, and 20-year time periods. The study includes examination of the possible occurrence of birth defects in children as determined from children's medical records and family medical histories. The Congressionally-established Ranch Hand Advisory Committee has directed that all study findings be reported to the scientific community as peer-reviewed journal articles. Note: This program is comprised of six cycles and each cycle consists of participant physical examinations followed by data analysis and report generation. The largest expenditure of funds occurred during the physical exam cycles such as in 1997-1998 and 2002-2003. The program is in the final cycle and is scheduled to terminate in FY 2006.

This program is in Budget Activity 6, Management and Support, since it includes research and development efforts directed towards support of installations or operations required for general research and development 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) Complete the sixth and final cycle of physical examinations, questionnaires, and participant database. Complete data processing and statistical analysis of examination data. Document all analyses and findings and initiate work on the 3,000 page Sixth Cycle Final Report. Conduct analyses as directed by Congressionally-established Ranch Hand II Advisory Committee based on morbidity data trends and findings. Complete work on comprehensive longitudinal report in FY06.	2.337	1.632	0.899	0.000
(U) Continue to process and document examination data and to verify the physical examination database. Continue new medical records coding and verify existing medical records coding. Perform the annual mortality analysis of approximately 1,200 Ranch Hand personnel and 19,000 comparison personnel. Conduct data analysis for articles to be submitted to peer-reviewed journals as directed. Process and document Cycle 6 examination data to include updating of the participant database. Complete collaborative studies with other agencies/universities supporting scientific effort; complete morbidity and mortality mathematical modeling. Prepare for project termination and turnover of archives/biological	1.181	1.554	1.677	0.000

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>06 RDT&amp;E Management Support</b>	<b>PE NUMBER AND TITLE</b> <b>0605306F Ranch Hand II Epidemiology Study</b>	<b>PROJECT NUMBER AND TITLE</b> <b>2767 Ranch Hand II Epidemiology Study</b>
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samples to designated agencies. Terminate project in FY06. (U) Continue to process and document examination data. Continue archiving previous cycles' examination data and digitize and archive the Cycle 6 data as received. Conduct medical records coding and verification of examination database and Cycles 1 through 6 coding. Perform annual mortality analysis support. Conduct data analysis for journals and reports to Congress. Continue maintenance of Ranch Hand II LAN. Prepare for and complete transition or turnover of archives and specimens to designated agencies. Terminate project in FY06.	1.131	1.585	1.612	0.000
(U) Total Cost	4.649	4.771	4.188	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>Complete</u>							

(U) Not Applicable.

(U) **D. Acquisition Strategy**  
Not Applicable.

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PE NUMBER: 0605712F  
 PE TITLE: Initial Operational Test & Evaluation

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>06 RDT&amp;E Management Support</b>	<b>PE NUMBER AND TITLE</b> <b>0605712F Initial Operational Test &amp; Evaluation</b>
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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	44.343	30.567	34.615	33.739	31.548	31.565	31.937	32.025	Continuing	TBD
0191 Initial Operational Test & Eval	44.343	30.567	34.615	33.739	31.548	31.565	31.937	32.025	Continuing	TBD

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

Initial Operational Test and Evaluation (IOT&E) is conducted to determine the operational effectiveness and suitability of systems undergoing research and development (R&D) efforts. It is an evaluation of a system's performance when the complete system is tested and evaluated against operational criteria by personnel with the same qualifications as those who will operate, maintain and support the system when deployed. In general, IOT&E is performed on new systems in development, major modifications, and other systems as directed. This PE funds Congressionally mandated IOT&E to support major weapon system acquisition decisions beyond Low-Rate Initial Production (LRIP), Milestone C, full rate production, fielding, and declaration of Initial Operational Capability (IOC). For major systems designated for use in combat, the law requires IOT&E be completed under realistic field conditions before proceeding beyond LRIP. IOT&E will be planned to completely and unambiguously answer all critical operational issues (COI) as thoroughly as possible. This PE funds the OT participation in Combined Developmental Test/Operational Test (DT/OT), the Air Force participation in Multiservice Operational Test and Evaluation (MOT&E), and Follow-on Operational Test and Evaluation (FOT&E) when it is the continuation of IOT&E activities past the full rate production decision. FOT&E answers specific questions about unresolved COIs and test issues, or completes areas not finished during the IOT&E. This PE also funds related operational test and evaluation (OT&E) activities such as, Operational Utility Evaluations (OUE), Early Operational Assessments (EOA) and Operational Assessments (OA), and independent IOT&E which support major milestones and decision points prior to Milestone C, full rate production, fielding, or declaration of IOC. IOT&E programs are identified in several system categories: Air; Space; Weapons; Command, Control, Communications, Computers, and Intelligence (C4I); Combat Support; and Test Support. Air Force Operational Test and Evaluation Center (AFOTEC) obtains general support services from contracts awarded after employing full and open competition contracting strategies.

This program element is in Budget Activity 6, RDT&E Management Support, because it funds weapon system IOT&E tests conducted to evaluate a system's operational effectiveness and suitability and to identify any operational deficiencies or need for modifications in support of the acquisition process.

**(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	34.344	28.839	32.776	33.331
(U) Current PBR/President's Budget	44.343	30.567	34.615	33.739
(U) Total Adjustments	9.999	1.728		
(U) Congressional Program Reductions		-0.272		
Congressional Rescissions				
Congressional Increases		2.000		
Reprogrammings	9.999			
SBIR/STTR Transfer				

**(U) Significant Program Changes:**

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2005

BUDGET ACTIVITY <b>06 RDT&amp;E Management Support</b>						PE NUMBER AND TITLE <b>0605712F Initial Operational Test &amp; Evaluation</b>		PROJECT NUMBER AND TITLE <b>0191 Initial Operational Test &amp; Eval</b>		
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
0191 Initial Operational Test & Eval	44.343	30.567	34.615	33.739	31.548	31.565	31.937	32.025	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

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

Initial Operational Test and Evaluation (IOT&E) is conducted to determine the operational effectiveness and suitability of systems undergoing research and development (R&D) efforts. It is an evaluation of a system's performance when the complete system is tested and evaluated against operational criteria by personnel with the same qualifications as those who will operate, maintain and support the system when deployed. In general, IOT&E is performed on new systems in development, major modifications, and other systems as directed. This PE funds Congressionally mandated IOT&E to support major weapon system acquisition decisions beyond Low-Rate Initial Production (LRIP), Milestone C, full rate production, fielding, and declaration of Initial Operational Capability (IOC). For major systems designated for use in combat, the law requires IOT&E be completed under realistic field conditions before proceeding beyond LRIP. IOT&E will be planned to completely and unambiguously answer all critical operational issues (COI) as thoroughly as possible. This PE funds the OT participation in Combined Developmental Test/Operational Test (DT/OT), the Air Force participation in Multiservice Operational Test and Evaluation (MOT&E), and Follow-on Operational Test and Evaluation (FOT&E) when it is the continuation of IOT&E activities past the full rate production decision. FOT&E answers specific questions about unresolved COIs and test issues, or completes areas not finished during the IOT&E. This PE also funds related operational test and evaluation (OT&E) activities such as, Operational Utility Evaluations (OUE), Early Operational Assessments (EOA) and Operational Assessments (OA), and independent IOT&E which support major milestones and decision points prior to Milestone C, full rate production, fielding, or declaration of IOC. IOT&E programs are identified in several system categories: Air; Space; Weapons; Command, Control, Communications, Computers, and Intelligence (C4I); Combat Support; and Test Support. Air Force Operational Test and Evaluation Center (AFOTEC) obtains general support services from contracts awarded after employing full and open competition contracting strategies.

This program element is in Budget Activity 6, RDT&E Management Support, because it funds weapon system IOT&E tests conducted to evaluate a system's operational effectiveness and suitability and to identify any operational deficiencies or need for modifications in support of the acquisition process.

**(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) CATEGORY: AIR SYSTEMS. Plan, execute, and report IOT&E activities, to include:	35.050	19.950	19.374	20.948

FY04

- ALR-69A Radar Warning Receiver Capability Improvement (ALR-69A RWR CI): Conduct IOT&E.
- Advanced Strategic and Tactical Infrared Expendable (ASTE): Complete Transport Phase IOT&E.
- B-1B Conventional Mission Upgrade Program (CMUP BLK F): Complete IOT&E.
- B-52 Avionics Mid-Life Improvement (AMI): Plan and conduct IOT&E Phase I.
- C-130X Aircraft Modernization Program (AMP): Conduct planning for OA.
- C-17 Global Air Traffic Management (GATM): Conduct Block 14 IOT&E.
- Compass Call: Conduct DT/OT on Block 35.

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2005

BUDGET ACTIVITY

**06 RDT&E Management Support**

PE NUMBER AND TITLE

**0605712F Initial Operational Test & Evaluation**

PROJECT NUMBER AND TITLE

**0191 Initial Operational Test & Eval**

- CV-22: Continue DT/OT and OA. Complete advanced planning for OAs, DT/OT and IOT&E.
- E-10A: Plan for EOA.
- F-16 Common Configuration Improvement Program Multi Function Info Distro System Low Volume Terminal (CCIP MIDS LVT): Planning for IOT&E.
- F/A-22: Conduct IOT&E.
- Global Hawk High Altitude Endurance Unmanned Aerial Vehicle (HAE UAV): Conduct OA and planning for IOT&E.
- Large Aircraft Infrared Counter Measure (LAIRCM): Conduct IOT&E.
- Miniature Air Launched Decoy (MALD): Early involvement.
- MQ-9: Early involvement.
- Panoramic Night Vision Goggles (PNVG): Conduct IOT&E.
- Other systems.

## FY05

- AOA-10A Precision Engagement (AOA-10A PE): Early Involvement.
- ALR-69A Radar Warning Receiver Capability Improvement (ALR-69A RWR CI): Conduct C-130 IOT&E.
- B-2 Radar Modernization Program (RMP): Early Involvement.
- B-52 Avionics Mid-Life Improvement (AMI): Conduct IOT&E phase 2.
- C-130X Aircraft Modernization Program (AMP): Early Involvement.
- CV-22: Continue DT/OT.
- E-10A: Conduct EOA.
- F-16 Common Configuration Improvement Program Multi Function Info Distro System Low Volume Terminal (CCIP MIDS LVT): Conduct IOT&E.
- F/A-22: Conduct FOT&E.
- Global Hawk High Altitude Endurance Unmanned Aerial Vehicle (HAE UAV): Conduct DT/OT and planning for IOT&E.
- Miniature Air Launched Decoy (MALD): Early involvement.
- MQ-9: Conduct OA.
- Other systems.

## FY06

- ALR-69A Radar Warning Receiver Capability Improvement (ALR-69A RWR CI): Conduct F-16 IOT&E.

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>06 RDT&amp;E Management Support</b>	<b>PE NUMBER AND TITLE</b> <b>0605712F Initial Operational Test &amp; Evaluation</b>	<b>PROJECT NUMBER AND TITLE</b> <b>0191 Initial Operational Test &amp; Eval</b>
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- AOA-10A Precision Engagement (AOA-10A PE): Conduct IOT&E.
- B-2 Radar Modernization Program (RMP): Conduct OA.
- C-130X Aircraft Modernization Program (AMP): Conduct OA.
- CV-22: Conduct IOT&E Phase I.
- E-10A: Early Involvement.
- F/A-22: Conduct FOT&E.
- F-16 Common Configuration Improvement Program Multi-Function Distribution System Low Volume Terminal (CCIP MIDS LVT): Planning for SEAD/DEAD IOT&E.
- Global Hawk High Altitude Endurance Unmanned Aerial Vehicle (HAE UAV): Planning for IOT&E.
- Miniature Air Launched Decoy (MALD): Planning for OA.
- MQ-9: Planning for IOT&E.
- Personnel Recovery Vehicle (PRV): Early Involvement.
- Other systems.

FY07

- AOA-10A Precision Engagement (AOA-10A PE): Conduct FOT&E.
- B-1 Threat Situational Awareness System (TSAS): Planning for IOT&E.
- B-2 Radar Modernization Program (RMP): Conduct IOT&E.
- C-130X Aircraft Modernization Program (AMP): Planning for IOT&E.
- CV-22: Conduct IOT&E Phase II.
- E-10A: Planning for OA.
- F/A-22: Conduct FOT&E.
- F-16 Common Configuration Improvement Program Multi-Function Distribution System Low Volume Terminal (CCIP MIDS LVT): Conduct SEAD/DEAD IOT&E.
- Global Hawk High Altitude Endurance Unmanned Aerial Vehicle (HAE UAV): Conduct IOT&E.
- Miniature Air Launched Decoy (MALD): Conduct OA, planning for IOT&E.
- MQ-9: Conduct IOT&E.
- Personnel Recovery Vehicle (PRV): Early Involvement.
- Other systems.

(U)

(U) (U) CATEGORY: SPACE SYSTEMS. Plan, execute, and report IOT&E activities, to include: 1.701                      2.074                      1.594                      2.061

FY04

- Advanced EHF: Conduct OA1.

Exhibit R-2a, RDT&E Project Justification		DATE February 2005
BUDGET ACTIVITY <b>06 RDT&amp;E Management Support</b>	PE NUMBER AND TITLE <b>0605712F Initial Operational Test &amp; Evaluation</b>	PROJECT NUMBER AND TITLE <b>0191 Initial Operational Test &amp; Eval</b>
<p>- Global Broadcast System (GBS): Plan and conduct DT/OT. Planning for MOT&amp;E.</p> <p>- Global Positioning Satellite (GPS): Plan and conduct OA2 and OA3.</p> <p>- National Polar-Orbit Ops Environment Satellite System (NPOESS): Plan for OA2.</p> <p>- Space Based Infrared System (SBIRS): Plan for OUE.</p> <p>- Wideband Gap Filler System (WGS): Conduct DT/OT and plan for MOT&amp;E.</p> <p>- Other systems.</p> <p><b>FY05</b></p> <p>- Advanced EHF: Conduct OA2.</p> <p>- Combat Commanders Integrated Command &amp; Control System (CCIC2S) Missile Warning Release (MWR): Conduct IOT&amp;E and publish final report.</p> <p>- Global Broadcast System (GBS): Conduct MOT&amp;E 1.</p> <p>- Global Positioning Satellite (GPS): Conduct OA.</p> <p>- National Polar-Orbit Ops Environment Satellite System (NPOESS): Planning for OA2.</p> <p>- Space Based Infrared System (SBIRS): Conduct OUE.</p> <p>- Space Based Radar (SBR): Conduct EOA1.</p> <p>- Transformational Satellite Communications System (TSAT): Early Involvement.</p> <p>- Wideband Gap Filler System (WGS): Planning for MOT&amp;E.</p> <p>- Other systems.</p> <p><b>FY06</b></p> <p>- Advanced EHF Satellite Communications (Advanced EHF): Complete OA2, planning for OA3.</p> <p>- Communication-Navigation Outage Forecasting System (C_NOFS): Early Involvement.</p> <p>- Global Broadcast System (GBS): Conduct MOT&amp;E2.</p> <p>- Global Positioning Satellite (GPS): Conduct EOA.</p> <p>- National Polar-Orbit Ops Environment Satellite System (NPOESS): Planning for OA2.</p> <p>- NPOESS User Ground Segment (NUGS): Early Involvement.</p> <p>- Operationally Responsive Spacelift (ORS): Early Involvement.</p> <p>- Space Based Infrared System (SBIRS): Conduct OUE.</p> <p>- Space Based Radar (SBR): Planning for EOA2.</p> <p>- Satellite Control Network (SCN): Early Involvement.</p> <p>- Transformational Satellite Communications System (TSAT): Conduct EOA.</p> <p>- Wideband Gap Filler System (WGS): Conduct MOT&amp;E.</p> <p>- Other systems.</p>		
Project 0191	R-1 Shopping List - Item No. 107-6 of 107-12	Exhibit R-2a (PE 0605712F)

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>06 RDT&amp;E Management Support</b>	<b>PE NUMBER AND TITLE</b> <b>0605712F Initial Operational Test &amp; Evaluation</b>	<b>PROJECT NUMBER AND TITLE</b> <b>0191 Initial Operational Test &amp; Eval</b>
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FY07

- Advanced EHF Satellite Communications (Advanced EHF): Conduct OA3, planning for MOT&E.
- Communication-Navigation Outage Forecasting System (C\_NOFS): Early Involvement.
- Global Positioning Satellite (GPS): Planning for DT/OT.
- National Polar-Orbit Ops Environment Satellite System (NPOESS): Conduct OA2.
- NPOESS User Ground Segment (NUGS): Early Involvement.
- Operationally Responsive Spacelift (ORS): Early Involvement.
- Space Based Infrared System (SBIRS): Complete OUE.
- Space Based Radar (SBR): Conduct EOA2.
- Satellite Control Network (SCN): Planning.
- Transformational Satellite Communications System (TSAT): Conduct OA1.
- Other systems.

(U) (U) CATEGORY: WEAPONS. Plan, execute, and report IOT&E activities, to include:	2.259	4.215	6.651	2.616
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FY04

- Minuteman III Safety Enhanced Reentry Vehicle (ICBM-SERV): Plan for IOT&E.
- Joint Air-to-Surface Standoff Missile (JASSM): Conduct FOT&E.
- Joint Air-to-Surface Standoff Missile Extended Range (JASSM-ER): Plan for DT/OT.
- Joint Direct Attack Munition (JDAM MK 82): Conduct IOT&E.
- Small Diameter Bomb (SDB): Early Involvement.
- Wind Corrected Munitions Dispense Extended Range (WCMD-ER): Conduct OA1.
- Other systems.

FY05

- Minuteman III Safety Enhanced Reentry Vehicle (ICBM-SERV): Conduct IOT&E.
- Joint Air-to-Surface Standoff Missile (JASSM): Conduct FOT&E.
- Joint Air-to-Surface Standoff Missile Extended Range (JASSM-ER): Plan for DT/OT.
- Joint Direct Attack Munition (JDAM MK 82): Publish final report.
- Small Diameter Bomb (SDB): Conduct OA.
- Wind Corrected Munitions Dispenser Extended Range (WCMD-ER): Conduct DT/OT.
- Other systems.

FY06

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>06 RDT&amp;E Management Support</b>	<b>PE NUMBER AND TITLE</b> <b>0605712F Initial Operational Test &amp; Evaluation</b>	<b>PROJECT NUMBER AND TITLE</b> <b>0191 Initial Operational Test &amp; Eval</b>
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- Common Aero Vehicle (CAV): Early Involvement.
- Minuteman III Safety Enhanced Reentry Vehicle (ICBM-SERV): Conduct IOT&E.
- Joint Air-to-Surface Standoff Missile (JASSM): Publish final report.
- Joint Air-to-Surface Standoff Missile Extended Range (JASSM-ER): Conduct DT/OT and planning for IOT&E.
- Land Based Strategic Deterrent (LBSD): Early Involvement.
- Small Diameter Bomb (SDB): Conduct IOT&E.
- Wind Corrected Munitions Dispenser Extended Range (WCMD-ER): Conduct OUE.
- Other systems.

FY07

- Common Aero Vehicle (CAV): Early Involvement.
- Joint Air-to-Surface Standoff Missile Extended Range (JASSM-ER): Conduct IOT&E.
- Land Based Strategic Deterrent (LBSD): Early Involvement.
- Small Diameter Bomb (SDB): Publish final report.
- Wind Corrected Munitions Dispenser Extended Range (WCMD-ER): Complete OUE2.
- Other systems.

(U) (U) CATEGORY: COMMMAND, CONTROL, COMMUNICATIONS, COMPUTERS, AND INTELLIGENCE (C4I). Plan, execute, and report IOT&E activities, to include:	2.571	3.437	5.802	6.926
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FY04

- Air Operations Center as a Weapons System (AOC): Planning and testing throughout spiral development. (Includes TBMCS and TCT).
- Family of Advanced Beyond Line Of Sight Terminals (FAB T): Conduct DT/OT and OA.
- Ground Multi-band Terminal (GMT): Plan for IOT&E.
- Integrated Broadcast System (IBS): Conduct MOT&E.
- Joint STARS Blk 30: Plan for OUE.
- Joint Precision Approach and Landing System (JPALS): Conduct DT/OT.
- Mobile Approach Control System (MACS): Complete OA.
- Other systems.

FY05

- Air Operations Center as a Weapons System (AOC): Conduct OUE.
- Advanced Point Mensuration Tool (APMT): Conduct IOT&E.

Exhibit R-2a, RDT&E Project Justification		DATE February 2005
BUDGET ACTIVITY <b>06 RDT&amp;E Management Support</b>	PE NUMBER AND TITLE <b>0605712F Initial Operational Test &amp; Evaluation</b>	PROJECT NUMBER AND TITLE <b>0191 Initial Operational Test &amp; Eval</b>
<ul style="list-style-type: none"> <li>- Advanced Remote Ground Unattended System (ARGUS): Plan for IOT&amp;E.</li> <li>- Airborne Signals Intelligence Payload (ASIP): Early Involvement.</li> <li>- Cobra Judy Replacement (CJR): Plan for ship OA.</li> <li>- Distributed Common Ground Station (DCGS): Conduct IOT&amp;E.</li> <li>- Expeditionary Combat Support System (ECSS): Early involvement.</li> <li>- Family of Advanced Beyond Line Of Sight Terminals (FAB T): Plan for OA2.</li> <li>- Ground Element Minimum Essential Emergency Communications Network System (GEMS): Early Involvement.</li> <li>- Ground Multi-band Terminal (GMT): Conduct IOT&amp;E.</li> <li>- Integrated Broadcast System (IBS): Conduct MOT&amp;E.</li> <li>- Joint STARS Blk 30: Conduct OUE.</li> <li>- Joint Command and Control Capability (JC2): Early Involvement.</li> <li>- Joint Precision Approach and Landing System (JPALS): Early Involvement.</li> <li>- Joint Interface Control Officer (JICO) Support System (JSS): Plan for OA.</li> <li>- Joint Tactical Radio System (JTRS): Conduct Cluster 1 EOA.</li> <li>- Mobile Approach Control System (MACS): Conduct IOT&amp;E.</li> <li>- Multi-Platform Common Data Link (MP CDL): Plan for DT/OT.</li> <li>- Rapid Attack Identification, Detection, and Reporting System (RAIDRS): Conduct OA.</li> <li>- Other systems.</li> </ul> <p>FY06</p> <ul style="list-style-type: none"> <li>- Air Force Tactical Data Links (AF TDL): Early Involvement.</li> <li>- Air Operations Center as a Weapons System (AOC): Planning and Execution throughout spiral development.</li> <li>- Advanced Point Mensuration Tool (APMT): Complete IOT&amp;E.</li> <li>- Advanced Remote Ground Unattended System (ARGUS): Conduct IOT&amp;E.</li> <li>- Airborne Signals Intelligence Payload (ASIP): Planning for IOT&amp;E.</li> <li>- Battle Control Systems-Mobile (BCS-M): Planning, conduct OA.</li> <li>- Cobra Judy Replacement (CJR): Conduct Ship OA.</li> <li>- Distributed Common Ground System (DCGS): IOT&amp;E final report.</li> <li>- Expeditionary Combat Support System (ECSS): Early involvement.</li> <li>- Family of Advanced Beyond Line Of Sight Terminals (FAB T): Conduct OA2.</li> <li>- Ground Element Minimum Essential Emergency Communications Network System (GEMS): Early involvement.</li> </ul>		
Project 0191	R-1 Shopping List - Item No. 107-9 of 107-12	Exhibit R-2a (PE 0605712F)

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2005

BUDGET ACTIVITY

**06 RDT&E Management Support**

PE NUMBER AND TITLE

**0605712F Initial Operational Test & Evaluation**

PROJECT NUMBER AND TITLE

**0191 Initial Operational Test & Eval**

- Integrated Broadcast System (IBS): Conduct MOT&E.
- Joint Command and Control Capability (JC2): Early Involvement.
- Joint Precision Approach and Landing System (JPALS): Plan for OA.
- Joint Interface Control Officer (JICO) Support System (JSS): Conduct OA.
- Joint Tactical Radio System (JTRS): Cluster 1 planning.
- Mobile Approach Control System (MACS): Complete IOT&E.
- Multi-Mission Payload (MMP): Early Involvement.
- Mark XIIA MODE 5 IFF (MODE 5): Early involvement.
- Multi-Platform Common Data Link (MP CDL): Conduct DT/OT.
- Rapid Attack Identification, Detection and Reporting System (RAIDRS): OA final report.
- Other systems.

FY07

- Air Force Tactical Data Links (AF TDL): Early Involvement.
- Air Operations Center as a Weapons System (AOC): Planning and Execution throughout spiral development.
- Advanced Point Mensuration Tool (APMT): Early Involvement.
- Advanced Remote Ground Unattended System (ARGUS): Conduct Spiral 2 DT/OT.
- Airborne Signals Intelligence Payload (ASIP): Conduct IOT&E.
- Battle Control Systems-Mobile (BCS-M): Conduct IOT&E.
- Cobra Judy Replacement (CJR): Conduct X-Band Radar OA.
- Expeditionary Combat Support System (ECSS): Early involvement.
- Family of Advanced Beyond Line Of Sight Terminals (FAB T): Conduct IOT&E.
- Ground Element Minimum Essential Emergency Communications Network System (GEMS): Early involvement.
- Integrated Broadcast System (IBS): Conduct MOT&E.
- Joint Command and Control Capability (JC2): Early Involvement.
- Joint Precision Approach and Landing System (JPALS): Plan for OA.
- Joint Interface Control Officer (JICO) Support System (JSS): Conduct MOT&E.
- Joint Tactical Radio System (JTRS): Conduct Cluster 1 DT/OT.
- Multi-Mission Payload (MMP): Early Involvement
- Mark XIIA MODE 5 IFF (MODE 5): Early involvement.
- Multi-Platform Common Data Link (MP CDL): Conduct DT/OT.
- Rapid Attack Identification Detection and Reporting System (RAIDRS): Conduct IOT&E 1.

Exhibit R-2a, RDT&E Project Justification		DATE
BUDGET ACTIVITY <b>06 RDT&amp;E Management Support</b>		PROJECT NUMBER AND TITLE <b>0191 Initial Operational Test &amp; Eval</b>
PE NUMBER AND TITLE <b>0605712F Initial Operational Test &amp; Evaluation</b>		
(U) (U) CATEGORY: COMBAT SUPPORT. Plan, execute, and report IOT&E activities, to include:	2.762	0.891      1.194      1.188
<p>FY04</p> <ul style="list-style-type: none"> <li>- Other systems.</li> <li>- Common Low Observable Verification System (CLOVerS): Plan for DT/OT.</li> <li>- Combat Survivor Evader Locator (CSEL): Plan for FOT&amp;E.</li> <li>- Joint Mission Planning System (JMPS): Conduct IOT&amp;E.</li> <li>- Other systems.</li> </ul> <p>FY05</p> <ul style="list-style-type: none"> <li>- Common Low Observable Verification System (CLOVerS): Plan for DT/OT.</li> <li>- Combat Survivor Evader Locator (CSEL): Plan for FOT&amp;E.</li> <li>- Joint Mission Planning System (JMPS): Conduct F-15 and RC-135 mission planning IOT&amp;E.</li> <li>- Laser Warning and Detection (Laser WARDET): Early Involvement.</li> <li>- Other systems.</li> </ul> <p>FY06</p> <ul style="list-style-type: none"> <li>- Common Low Observable Verification System (CLOVerS): Conduct DT/OT and Plan for IOT&amp;E.</li> <li>- Combat Survivor Evader Locator (CSEL): Conduct FOT&amp;E.</li> <li>- Ground Contingency Medical Support System (GCMSS): Conduct OA.</li> <li>- Joint Mission Planning System (JMPS): Conduct A-10, F-16 Blk 30/50, and B-1 IOT&amp;E.</li> <li>- Laser Warning Detection (LASER WARDET): Early Involvement.</li> <li>- Other systems.</li> </ul> <p>FY07</p> <ul style="list-style-type: none"> <li>- Common Low Observable Verification System (CLOVerS): Conduct IOT&amp;E.</li> <li>- Ground Contingency Medical Support System (GCMSS): Conduct IOT&amp;E.</li> <li>- Joint Mission Planning System (JMPS): Conduct F/A-22, U-2, and B-52 IOT&amp;E.</li> <li>- Laser Warning Detection (LASER WARDET): Early Involvement.</li> <li>- Other systems.</li> </ul>		
<p>(U) B. Budget Activity Justification</p> <p>This program element is in Budget Activity 6, RDT&amp;E Management Support, because it funds weapon system IOT&amp;E tests conducted to evaluate a system's operational effectiveness and suitability and to</p>		
Project 0191	R-1 Shopping List - Item No. 107-11 of 107-12	Exhibit R-2a (PE 0605712F)

Exhibit R-2a, RDT&E Project Justification

DATE

February 2005

BUDGET ACTIVITY <b>06 RDT&amp;E Management Support</b>	PE NUMBER AND TITLE <b>0605712F Initial Operational Test &amp; Evaluation</b>	PROJECT NUMBER AND TITLE <b>0191 Initial Operational Test &amp; Eval</b>
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identify any operational deficiencies or need for modifications in support of the acquisition process.

(U) Total Cost 44.343 30.567 34.615 33.739

(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>Complete</u>							

(U) N/A

(U) **D. Acquisition Strategy**

N/A

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PE NUMBER: 0605807F  
 PE TITLE: Test and Evaluation Support

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>06 RDT&amp;E Management Support</b>	<b>PE NUMBER AND TITLE</b> <b>0605807F Test and Evaluation Support</b>
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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	336.751	356.632	692.665	672.848	733.231	744.754	774.422	780.826	Continuing	TBD
06TG 46 Test Group	20.903	23.623	26.807	27.805	29.334	30.462	31.825	32.470	Continuing	TBD
06TS Test and Evaluation Support	315.848	333.009	665.858	645.043	703.897	714.292	742.597	748.356	Continuing	TBD

In FY 2006, Project 6606TS, Test and Evaluation Support, includes a new start effort

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

Test facilities, capabilities and resources operated through this program include wind tunnels, rocket and jet engine test cells, limited space environmental simulation chambers, armament test ranges, climatic test facilities, avionics test facilities, aircraft testbeds, dry lakebed landing sites, instrumented test ranges, civilian payroll, and contractor services. It also provides resources for maintaining and modifying as required Air Force Materiel Command (AFMC) assigned test and test support coded aircraft. No acquisition contracts are funded from this program; test support contracts for services and supplies and equipment are predominantly awarded on the basis of full and open competition.

This program element is in Budget Activity 6, RDT&E Management Support, because it funds institutional infrastructure resources (civilians, aircraft, facilities and ranges) to operate the Air Force test activities which are included in the Department of Defense (DoD) Major Range and Test Facility Base (MRTFB). Due to administrative limitations the R-1 shows \$50M for FY06 in Budget Activity 5, System Development and Demonstration. For documentation purposes the \$50M is included in this Budget Activity 6 documentation.

**(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	324.665	356.266	503.983	363.289
(U) Current PBR/President's Budget	336.751	356.632	692.665	672.848
(U) Total Adjustments	12.086	0.366		
(U) Congressional Program Reductions				
Congressional Rescissions		-3.134		
Congressional Increases		3.500		
Reprogrammings	12.086			
SBIR/STTR Transfer				

**(U) Significant Program Changes:**

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 0605807F.

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

BUDGET ACTIVITY <b>06 RDT&amp;E Management Support</b>							PE NUMBER AND TITLE <b>0605807F Test and Evaluation Support</b>		PROJECT NUMBER AND TITLE <b>06TG 46 Test Group</b>	
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
06TG 46 Test Group	20.903	23.623	26.807	27.805	29.334	30.462	31.825	32.470	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 institutional test infrastructure support including: Command and supervisory staffs; supply stocks; upkeep, refurbishment, repair, and replacement of non-repairable or obsolete test equipment; test infrastructure for data collection, transmission, reduction, and analysis; civilian salaries, utilities, temporary duty travel, support contract costs for hardware and software engineering and maintenance. Project infrastructure support is provided for the unique capabilities of the 46th Test Group (TG) facilities: Central Inertial Guidance Test Facility (CIGTF/746th Test Squadron), the Holloman High Speed Test Track (HHSTT/846th Test Squadron) and the National Radar Cross Section (RCS) Test Facility (NRTF), the 586th Flight Test Squadron and Detachment 1 (DET 1). CIGTF provides independent assessments of inertial components, aircraft navigation systems, and missile guidance systems. HHSTT capabilities include full-scale testing in flight environments, realistic live-fire simulations, test item and target fragment recovery, and precision trajectory analysis and high speed photography. NRTF provides radar cross section (RCS) monostatic and bi-static amplitude and phase measurements, antenna pattern measurements, glint and near field measurements for low observable targets. The DET 1 provides liaison function for coordination of all AF test and training operations at White Sands Missile Range (WSMR). A growing number of the WSMR tests support Directed Energy Systems. The 586th Flight Test Squadron provides flight test support for weapon system, missile, guided bomb and spaceplane test and evaluation. The 46th TG support services contracts are awarded on the basis of full and open competition.

**Budget Activity Justification:**

This Program Element is in Budget Activity 6, RDT&E Management Support, because it funds institutional infrastructure resources (civilians, aircraft, facilities and ranges) to operate the Air Force test activities which are included in the Department of Defense (DoD) Major Range and Test Facility Base (MRTFB).

**(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) Provide infrastructure to support testing of DoD, FMS and commercial weapon systems.				
(U) Continue institutional test infrastructure support to enable testing for unclassified programs such as Miniaturized Airborne Global Positioning Upgrade, Joint Global Positioning System (GPS) Combat Effectiveness, GPS jamming and electronic countermeasures, NAVWAR, Federal Aviation Authority (FAA), GPS integrated and embedded Inertial Navigation System (INS) programs, aircraft navigation systems including B-2 and F-22, munitions navigation systems such as Joint Air-to-Surface Standoff Missile (JASSM), F-22 ejection seat, Advanced Concept Ejection Seat (ACES) II Cooperative Modification Project (CMP), SM-3 Live Fire T&E (LFT&E), Theater High Altitude Area Defense (THAAD) LFT&E, Compact Energy Missile (CKEM) LFT&E, RCS testing, as well as multiple classified programs. Continue GPS-Joint Program Office (JPO) Responsible Test Organization (RTO) responsibilities.	2.324	4.233	4.371	4.149

**Exhibit R-2a, RDT&E Project Justification**

DATE

**February 2005**

BUDGET ACTIVITY <b>06 RDT&amp;E Management Support</b>	PE NUMBER AND TITLE <b>0605807F Test and Evaluation Support</b>	PROJECT NUMBER AND TITLE <b>06TG 46 Test Group</b>
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(U) Contractor Services (in-house contract support activities)	8.062	10.838	12.659	13.759
(U) T&E Civilian Pay	10.517	8.552	9.777	9.897
(U) Total Cost	20.903	23.623	26.807	27.805

(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>Complete</u>							

(U) Related RDT&E:  
 PE 0604759F, Major T&E Investment; PE 0604256F Threat Simulator Development; PE 0604940D, Central T&E Investments; PE 0605976F, Facility Restoration and Modernization - T&E and PE 0605978F Facility Sustainment - T&E Support

(U) **D. Acquisition Strategy**

Not applicable

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2005

BUDGET ACTIVITY <b>06 RDT&amp;E Management Support</b>					PE NUMBER AND TITLE <b>0605807F Test and Evaluation Support</b>			PROJECT NUMBER AND TITLE <b>06TS Test and Evaluation Support</b>		
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
06TS Test and Evaluation Support	315.848	333.009	665.858	645.043	703.897	714.292	742.597	748.356	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 provides resources to operate the Air Force test activities which are included in the Department of Defense (DoD) Major Range and Test Facility Base (MRTFB). Test facilities/capabilities operated through this program include wind tunnels, rocket and jet engine test cells, limited space environmental simulation chambers, armament test ranges, climatic test facilities, avionics test facilities, aircraft testbeds, dry lakebed landing sites, instrumented test ranges, and test aircraft maintenance, as well as USAF Test Pilot School. Test and Evaluation (T&E) Support funds institutional test infrastructure activities including: Command and supervisory staffs; supply stocks; maintenance, repair, and replacement of worn or obsolete test equipment and facilities; test infrastructure for data collection, transmission, reduction, and analysis; civilian salaries; temporary duty travel; range operations and material support contract costs for hardware and software engineering and maintenance; and minor improvement and modernization projects. It also funds institutional test aircraft depot level maintenance such as: Programmed Depot Maintenance (PDM), the calendar-based cyclic scheduling of aircraft into depots for update/inspection; modifications and any other depot level repairs required by the aircraft System Program Directors (SPD); engine overhauls; depot-provided area assistance; and assorted ground support equipment overhauls. Three major Air Force test centers are supported by this project: (1) Arnold Engineering and Development Center (AEDC), located at Arnold Air Force Base (AFB), TN, whose institutional test infrastructure supports operations of the largest complex of ground test facilities in the free world (includes transonic, supersonic, and hypersonic wind tunnels; rocket motor and turbine engine test cells; space environmental test chambers, hyperballistic ranges; and other specialized facilities). (2) Air Force Flight Test Center (AFFTC), located at Edwards AFB, CA, whose institutional test infrastructure supports weapons system development and operational test and evaluation for aircraft, aircraft subsystems and aircraft weapon systems, aerospace research vehicles, unmanned miniature vehicles, cruise missiles, parachute delivery/recovery systems, cargo handling systems, communications, information operations, and Electronic Warfare (EW) systems for DoD and allied forces. The AFFTC mission includes the United States Air Force (USAF) Test Pilot School. (3) Air Armament Center (AAC) 46th Test Wing (TW) located at Eglin AFB, FL, is comprised of 724 square miles of land area, and approximately 123,000 square miles of water space. AAC 46TW provides the institutional test infrastructure required for the conduct of developmental and operational test and evaluation of non-nuclear air armaments (including aircraft guns, ammunition, bombs, and missiles); Command, Control, Communications, Computers and Intelligence (C4I) systems; target acquisition and weapon delivery systems; a multi-service climatic simulation capability, and determines target/test item spectral signatures for DOD and allied forces. AAC 46TW provides a scientific test process that supports the development and enhancement of munitions systems that support tri-service smart weapons development. AAC 46TW technology is compatible with weapon systems to be tested such as Advanced Medium Range Air-to-Air Missile (AMRAAM), Joint Direct Attack Munition (JDAM), AGM-130, Advanced Short Range Air-to-Air Missile (ASRAAM), Joint Tactical Information Distribution System (JTIDS), Joint Surveillance Target Attack Radar System (JSTARS), Combat Talon, etc. T&E support services contracts are awarded on the basis of full and open competition.

**Budget Activity Justification:**

This program element is in Budget Activity 6, RDT&E Management Support, because it funds institutional infrastructure resources (civilians, aircraft, facilities and ranges) to operate the Air Force test activities which are included in the Department of Defense (DoD) Major Range and Test Facility Base (MRTFB). Due to administrative limitations the R-1 shows \$50.000M for FY06 in Budget Activity 5, System Development and Demonstration. For documentation purposes the

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Exhibit R-2a, RDT&E Project Justification		DATE February 2005			
BUDGET ACTIVITY 06 RDT&E Management Support	PE NUMBER AND TITLE 0605807F Test and Evaluation Support	PROJECT NUMBER AND TITLE 06TS Test and Evaluation Support			
\$50.000M is included in this Budget Activity 6 documentation.					
(U) <b>B. Accomplishments/Planned Program (\$ in Millions)</b>		<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Accomplishments/Planned Program:					
(U) Provide infrastructure to support testing of DoD, FMS and commercial weapon systems.					
(U) ARNOLD ENGINEERING AND DEVELOPMENT CENTER (AEDC)					
(U) Continue institutional test infrastructure support to enable ground testing for classified programs, and unclassified programs (F-22, JDAM, F-15, F-16, JSF, B-1B, B-2, X-37, X-38, KC-10, Global Hawk, AMRAAM, AIM 9X, Minuteman, Peace Keeper, MDA, EELV, THAAD, Hyper-X CTS, Delta IV, F-18, TF39, F404, F414, F100, F110, F415, F118, F119, and Tunnel 9).		4.601	5.989	8.811	11.245
(U) Utilities.		7.448	6.921	7.216	7.385
(U) Contractor Services (in-house contract support activities).		81.428	94.902	130.008	131.680
(U) T&E Civilian Pay.		13.334	13.008	15.600	14.685
(U) AIR FORCE FLIGHT TEST CENTER (AFFTC)					
(U) Continue to provide institutional test infrastructure support enabling testing of the B-1B, B-2, B-52, F-16, F-15, F-15E, F-22, F-117, AFTI/F-16, C-17, ATIC, ECCM, EW (B-1B ALQ-161, F-16 AN/ASQ-213, C-130 ALQ-172, etc.), communications, information systems, and classified programs. Operate the Test Pilot School. Significant increase from FY04 to FY05 reflects the planned execution of a "direct conversion" of previously identified A-76 study personnel (mil to civ) into a High Performance Organization manned by civilians. FY 06 increase includes \$50M for aircraft modifications to provide an airborne communications test bed and a secure communications test bed.		9.325	52.433	80.150	20.657
(U) Utilities.		0.798	3.053	5.482	5.077
(U) Contractor services (in-house contract support activities)		22.624	9.690	42.051	99.506
(U) T&E Civilian Pay		87.459	44.189	152.165	147.525
(U) Aircraft flying hour costs for pilot proficiency for sustained readiness to include programmed depot maintenance (PDM), engine overhauls, petroleum, oils, and lubricants (POL), depot level reparables (DLR) and related support. Increase in FY05 is due to a higher requirement for time and calendar based maintenance. Flying proficiency funded at minimum levels to meet AFFTC proficiency flying goals.		14.161	27.102	89.155	77.536
(U) AIR ARMAMENT CENTER (AAC) 46th Test Wing (TW)					
(U) Continue institutional test infrastructure support for non-nuclear air armaments (JASSM, SEEK EAGLE, WCMD, F-22, AIM 9X, AMRAAM, ASRAAM, Hellfire, PATRIOT, DIRCM, AAV, UCAV, etc.); C2 (TMBCS, Link 16, BISS, and aircraft software upgrades (AFMSS)).		19.431	17.643	9.951	9.154
(U) Utilities.		0.007	4.239	4.387	4.457
(U) Contractor Services (in-house contract support activities).		18.329	8.073	42.336	32.568

Project 06TS

R-1 Shopping List - Item No. 108-6 of 108-7

Exhibit R-2a (PE 0605807F)

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<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>06 RDT&amp;E Management Support</b>	<b>PE NUMBER AND TITLE</b> <b>0605807F Test and Evaluation Support</b>	<b>PROJECT NUMBER AND TITLE</b> <b>06TS Test and Evaluation Support</b>
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(U) T&E Civilian Pay	24.529	32.365	50.169	50.617
(U) Aircraft flying hours costs include: pilot proficiency flying for sustained readiness; deferred and projected programmed depot maintenance (PDM); engine overhauls; petroleum, oils, and lubricants (POL); depot level reparables (DLR); fuel and fuel price increases; and related support. Funds proficiency flying to minimum levels allowing AAC 46TW to meet proficiency flying goals.	12.374	13.402	28.377	32.951
(U) Total Cost	315.848	333.009	665.858	645.043

(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>Complete</u>							
(U) Related RDT&E: PE 0604759F, Major T&E Investment; PE 0604256F Threat Simulator Development; PE 0604940D, Central T&E Investments; PE 0605976F, Facility Restoration and Modernization - T&E and PE 0605978F Facility Sustainment -T&E Support										

(U) **D. Acquisition Strategy**

Not applicable.

**UNCLASSIFIED**

PE NUMBER: 0605860F  
 PE TITLE: Rocket Systems Launch Program (RSLP)

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>06 RDT&amp;E Management Support</b>	<b>PE NUMBER AND TITLE</b> <b>0605860F Rocket Systems Launch Program (RSLP)</b>
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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	21.551	22.782	13.773	15.466	15.732	15.968	16.311	16.564	Continuing	TBD
1023 Rocket System Launch Program (RSLP)	21.551	22.782	13.773	15.466	15.732	15.968	16.311	16.564	Continuing	TBD

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

Rocket Systems Launch Program (RSLP) is tasked to provide Research, Development, Test and Evaluation (RDT&E) launch vehicle support to DoD and other government agencies using excess ballistic missile assets. The RSLP mission was established by the Secretary of Defense in 1972. It provides mission planning, payload integration, launch support, booster storage and disposition, aging surveillance, maintenance and logistics support for selected DoD RDT&E launches. Costs directly attributable to a specific launch or program are paid by the user (Air Force, Navy, Army, Missile Defense Agency (MDA), etc.). RSLP maintains exclusive control of deactivated Minuteman and Peacekeeper assets used in testing to include refurbishment, transportation and handling, storage, as well as logistics and launch services. The RSLP program also funds general research and development efforts for launch support operations (e.g., Global Positioning System (GPS) Metric Tracking capability integration).

This program is in Budget Activity 06 - RDT&E Management Support, since RSLP provides research and development effort and/or operations support for general research and development 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	22.976	7.984	14.811	15.282
(U) Current PBR/President's Budget	21.551	22.782	13.773	15.466
(U) Total Adjustments	-1.425	14.798		
(U) Congressional Program Reductions				
Congressional Rescissions		-0.202		
Congressional Increases		15.000		
Reprogrammings	-0.379			
SBIR/STTR Transfer	-1.046			

**(U) Significant Program Changes:**

FY05: \$15M Congressional add to fund Ballistic Missile Range Safety Technology (BMRST) expanded system capability, downrange reentry support, and expedite full Eastern Range certification

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

BUDGET ACTIVITY <b>06 RDT&amp;E Management Support</b>					PE NUMBER AND TITLE <b>0605860F Rocket Systems Launch Program (RSLP)</b>			PROJECT NUMBER AND TITLE <b>1023 Rocket System Launch Program (RSLP)</b>		
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
1023 Rocket System Launch Program (RSLP)	21.551	22.782	13.773	15.466	15.732	15.968	16.311	16.564	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

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

Rocket Systems Launch Program (RSLP) is tasked to provide Research, Development, Test and Evaluation (RDT&E) launch vehicle support to DoD and other government agencies using excess ballistic missile assets. The RSLP mission was established by the Secretary of Defense in 1972. It provides mission planning, payload integration, launch support, booster storage and disposition, aging surveillance, maintenance and logistics support for selected DoD RDT&E launches. Costs directly attributable to a specific launch or program are paid by the user (Air Force, Navy, Army, Missile Defense Agency (MDA), etc.). RSLP maintains exclusive control of deactivated Minuteman and Peacekeeper assets used in testing to include refurbishment, transportation and handling, storage, as well as logistics and launch services. The RSLP program also funds general research and development efforts for launch support operations (e.g., Global Positioning System (GPS) Metric Tracking capability integration).

This program is in Budget Activity 06 - RDT&E Management Support, since RSLP provides research and development effort and/or operations support for general research and development 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) Continue storage and refurbishment of deactivated Minuteman, Peacekeeper and other missile flight test assets and perform research and development support operations as required	6.257	6.572	9.960	10.155
(U) Continue performing aging surveillance-related activities on stored motors; continue performing analyses/studies to identify and evaluate potential safety-related issues affecting stored motors	2.318	1.210	3.813	5.311
(U) Upgrade the two BMRST units and certify them for Eastern Range use	12.976			
(U) Expand BMRST system capability, downrange reentry support, and expedite full Eastern Range certification		15.000		
(U) Total Cost	21.551	22.782	13.773	15.466

**(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>Complete</u>							
(U) None										

**(U) D. Acquisition Strategy**

Not Required.

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>									DATE <b>February 2005</b>	
BUDGET ACTIVITY <b>06 RDT&amp;E Management Support</b>					PE NUMBER AND TITLE <b>0605864F Space Test Program</b>					
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	38.579	44.129	48.157	47.953	58.454	59.497	60.866	61.901	Continuing	TBD
2617 Free-Flyer Spacecraft Missions	38.579	44.129	48.157	47.953	58.454	59.497	60.866	61.901	Continuing	TBD

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

(U) The Space Test Program (STP) conducts space test missions for the purpose of accelerating DoD space technology transformation while lowering developmental risk and enabling future US space superiority. The program flies an optimal number of DoD sponsored experiments consistent with priority, opportunity, and funding. STP missions are the most cost effective way to flight test new space system technologies, concepts and designs, providing an inexpensive way to:

- Demonstrate the feasibility of new space systems and technologies
- Provide early operational capabilities to evaluate usefulness or quickly react to new developments
- Perform operational risk reduction through direct flight test of prototype components
- Improve operational design by characterizing the space environment, event, or sensor physics proposed for an operational system/system upgrade
- Develop, test, acquire advanced payload support hardware for Launch Vehicles/Shuttle/International Space Station
- Demonstrate and develop responsive R&D space capabilities

(U) The Deputy Secretary of Defense issued a 'Space Test Program Management & Funding Policy' in Jul 02 reaffirming STP as the primary provider of spaceflight for the entire DoD space research community. "The STP funding level must be sufficient to provide spaceflight for DoD Space Experiments Review Board (SERB) approved experiments in a timely manner." "As a goal, the Air Force funding level should provide for a Small-Launch-Vehicle-Class mission every 2 years and a Medium-Launch-Vehicle-Class mission every 4 years." This is in addition to funding required to support secondary payload and spacecraft missions on other organizations' spacecraft and launch vehicles. The Jul 02 policy statement also reaffirms STP role as the single manager for all DoD payloads on the Space Shuttle and the International Space Station. Air Force Space Command policy establishes STP as the front door for all agencies requesting launch services as a piggyback payload or secondary satellite on a Combatant Command mission.

(U) STP has a constantly evolving mission portfolio, whereby space experiments and technology payloads are selected for spaceflight from the most recent list approved by the SERB. STP is authorized to initiate new missions from the prioritized, SERB-approved list. STP may also support non-SERB customers, both DoD and other US government, on a cost reimbursable basis. Selection of the most appropriate spaceflight mode for a payload is dependent on optimizing the combination of SERB list priority, timing and readiness of experiments, launch opportunity, and availability of funding. STP support for these payloads includes some or all of the following: mission planning (SERB and non-SERB payloads), and related support activities; acquisition of a dedicated satellite, launch vehicle, and/or associated integration hardware; integration onto a host satellite, launch vehicle, NASA shuttle and or the International Space Station; readiness reviews, launch support and approximately one year of on-orbit operations. This flexible approach is essential in order to take advantage of 'target of opportunity' space hardware, including operational spacecraft, and ensures the maximum amount of DoD space research is accomplished with the limited resources available.

STP is in Budget Activity 6, RDT&E Management Support, because it supports RDT&E satellite launches.

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2005

BUDGET ACTIVITY

06 RDT&E Management Support

PE NUMBER AND TITLE

0605864F Space Test Program

(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	42.909	44.521	45.100	46.094
(U) Current PBR/President's Budget	38.579	44.129	48.157	47.953
(U) Total Adjustments	-4.330	-0.392		
(U) Congressional Program Reductions	-4.330	-0.392		
Congressional Rescissions				
Congressional Increases				
Reprogrammings				
SBIR/STTR Transfer				

(U) **Significant Program Changes:**

\$3M added in FY06 and \$1M added FY07 to cover increased integration costs caused by launch vehicle change for STP-1 mission. Launch vehicle changed from Boeing Delta IV to Lockheed Martin Atlas V due to Boeing Procurement Integrity Act (PIA) violations.

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2005

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE			
06 RDT&E Management Support				0605864F Space Test Program				2617 Free-Flyer Spacecraft Missions			
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	
2617 Free-Flyer Spacecraft Missions	38.579	44.129	48.157	47.953	58.454	59.497	60.866	61.901	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 Space Test Program (STP) conducts space test missions for the purpose of accelerating DoD space technology transformation while lowering developmental risk and enabling future US space superiority. The program flies an optimal number of DoD sponsored experiments consistent with priority, opportunity, and funding. STP missions are the most cost effective way to flight test new space system technologies, concepts and designs, providing an inexpensive way to:

- Demonstrate the feasibility of new space systems and technologies
- Provide early operational capabilities to evaluate usefulness or quickly react to new developments
- Perform operational risk reduction through direct flight test of prototype components
- Improve operational design by characterizing the space environment, event, or sensor physics proposed for an operational system/system upgrade
- Develop, test, acquire advanced payload support hardware for Launch Vehicles/Shuttle/International Space Station
- Demonstrate and develop responsive R&D space capabilities

(U) The Deputy Secretary of Defense issued a 'Space Test Program Management & Funding Policy' in Jul 02 reaffirming STP as the primary provider of spaceflight for the entire DoD space research community. "The STP funding level must be sufficient to provide spaceflight for DoD Space Experiments Review Board (SERB) approved experiments in a timely manner." "As a goal, the Air Force funding level should provide for a Small-Launch-Vehicle-Class mission every 2 years and a Medium-Launch-Vehicle-Class mission every 4 years." This is in addition to funding required to support secondary payload and spacecraft missions on other organizations' spacecraft and launch vehicles. The Jul 02 policy statement also reaffirms STP role as the single manager for all DoD payloads on the Space Shuttle and the International Space Station. Air Force Space Command policy establishes STP as the front door for all agencies requesting launch services as a piggyback payload or secondary satellite on a Combatant Command mission.

(U) STP has a constantly evolving mission portfolio, whereby space experiments and technology payloads are selected for spaceflight from the most recent list approved by the SERB. STP is authorized to initiate new missions from the prioritized, SERB-approved list. STP may also support non-SERB customers, both DoD and other US government, on a cost reimbursable basis. Selection of the most appropriate spaceflight mode for a payload is dependent on optimizing the combination of SERB list priority, timing and readiness of experiments, launch opportunity, and availability of funding. STP support for these payloads includes some or all of the following: mission planning (SERB and non-SERB payloads), and related support activities; acquisition of a dedicated satellite, launch vehicle, and/or associated integration hardware; integration onto a host satellite, launch vehicle, NASA shuttle and or the International Space Station; readiness reviews, launch support and approximately one year of on-orbit operations. This flexible approach is essential in order to take advantage of 'target of opportunity' space hardware, including operational spacecraft, and ensures the maximum amount of DoD space research is accomplished with the limited resources available.

STP is in Budget Activity 6, RDT&E Management Support, because it supports RDT&E satellite launches.

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

(U) Initiate, develop and continue piggyback/secondary payload missions and associated hardware,

FY 2004

16.311

FY 2005FY 2006FY 2007

**Exhibit R-2a, RDT&E Project Justification**

DATE

**February 2005**

<b>BUDGET ACTIVITY</b> <b>06 RDT&amp;E Management Support</b>	<b>PE NUMBER AND TITLE</b> <b>0605864F Space Test Program</b>	<b>PROJECT NUMBER AND TITLE</b> <b>2617 Free-Flyer Spacecraft Missions</b>		
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spaceflight partnerships; planning and risk reduction; and program support				
(U) Initiate, develop and continue DoD-sponsored human spaceflight (Shuttle/ISS) payloads and associated hardware, spaceflight partnerships; planning and risk reduction; and program support	1.480			
(U) Initiate, develop and continue Small Launch Vehicle Class missions and associated hardware, spaceflight partnerships; planning and risk reduction; and program support	6.306			
(U) Initiate, develop and continue Medium Launch Vehicle Class missions and associated hardware, spaceflight partnerships; planning and risk reduction; and program support	14.482			
(U) Provide program support for piggyback/secondary, Small Launch Vehicle, Medium Launch Vehicle, and manned spaceflight missions		1.945	1.797	1.821
(U) Initiate, develop, and continue integration of payloads onto piggyback/secondary, Small Launch Vehicle, Medium Launch Vehicle, and manned spaceflight missions to include acquisition of associated spacecraft and integration hardware		10.848	17.186	24.471
(U) Initiate and continue purchase of launch vehicles and launch vehicle support for piggyback/secondary, Small Launch Vehicle, Medium Launch Vehicle, and manned spaceflight missions		16.464	17.283	7.882
(U) Initiate, develop, and continue first year operations and operations planning for piggyback/secondary, Small Launch Vehicle, Medium Launch Vehicle, and manned spaceflight missions		10.479	6.933	6.240
(U) Conduct studies to explore future launch opportunities/risk reduction activities and mission planning		4.393	4.958	7.539
(U) Total Cost	38.579	44.129	48.157	47.953

**(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>Complete</u>							
(U) Related Procurement:										
Not Required										

**(U) D. Acquisition Strategy**

Not Required

**UNCLASSIFIED**

PE NUMBER: 0605976F

PE TITLE: Facility Restoration and Modernization - T&E

**Exhibit R-2, RDT&E Budget Item Justification**

DATE

**February 2005**

BUDGET ACTIVITY

**06 RDT&E Management Support**

PE NUMBER AND TITLE

**0605976F Facility Restoration and Modernization - T&E**

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	32.634	62.917	60.561	63.535	64.239	62.140	63.584	64.665	Continuing	TBD
06MC Facility Restoration and Modernization - T&E	32.634	62.917	60.561	63.535	64.239	62.140	63.584	64.665	Continuing	TBD

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

Restoration includes repair and replacement work to restore damaged facilities due to accident or failure attributable to inadequate sustainment, excessive age, or other causes. Modernization includes alteration of facilities to implement a new, higher standard (including regulatory changes), to accommodate new functions, or to replace building components that typically last more than 50 years (such as foundations and structural components). Other tasks associated with facilities operations (such as custodial services, grass cutting, and the provision of central utilities) are not included.

These restoration/modernization funds support the following Air Force test facilities: 46th Test Group (TG) at Holloman AFB, NM, the 46th Test Wing (TW) at Eglin AFB, FL, the Arnold Engineering and Development Center (AEDC) at Arnold AFB, TN and the Air Force Flight Test Center (AFFTC) at Edwards AFB. The activities were previously funded within PEC 06050807F, Test and Evaluation Support.

These funds will also restore and modernize the National Full-scale Aerodynamic Complex (NFAC) located at NASA's Ames Research Center, California from its current mothball condition to an operational capability. Restoration activities include repair and replacement work to restore damaged facilities due to failure attributable to inadequate sustainment, excessive age, or other causes. Modernization includes alteration of facilities to implement a new higher standard to accommodate new functions, or to replace building components that typically last more than 50 years.

This program element is in Budget Activity 6, RDT&E Management Support, because it funds the restoration/modernization of the institutional test infrastructure at the Air Force test activities which are included in the Department of Defense (DoD) Major Range and Test Facility Base (MRTFB).

**(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	33.652	58.936	59.359	57.352
(U) Current PBR/President's Budget	32.634	62.917	60.561	63.535
(U) Total Adjustments	-1.018	3.981		
(U) Congressional Program Reductions				
Congressional Rescissions		-0.519		
Congressional Increases				
Reprogrammings	-1.018	4.500		
SBIR/STTR Transfer				
(U) <u>Significant Program Changes:</u>				

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

<b>BUDGET ACTIVITY</b> <b>06 RDT&amp;E Management Support</b>				<b>PE NUMBER AND TITLE</b> <b>0605976F Facility Restoration and Modernization - T&amp;E</b>				<b>PROJECT NUMBER AND TITLE</b> <b>06MC Facility Restoration and Modernization - T&amp;E</b>			
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	
06MC Facility Restoration and Modernization - T&E	32.634	62.917	60.561	63.535	64.239	62.140	63.584	64.665	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0			

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

Restoration includes repair and replacement work to restore damaged facilities due to accident or failure attributable to inadequate sustainment, excessive age, or other causes. Modernization includes alteration of facilities to implement a new, higher standard (including regulatory changes), to accommodate new functions, or to replace building components that typically last more than 50 years (such as foundations and structural components). Other tasks associated with facilities operations (such as custodial services, grass cutting, and the provision of central utilities) are not included.

These restoration/modernization funds support the following Air Force test facilities: 46th Test Group (TG) at Holloman AFB, NM, the 46th Test Wing (TW) at Eglin AFB, FL, the Arnold Engineering and Development Center (AEDC) at Arnold AFB, TN and the Air Force Flight Test Center (AFFTC) at Edwards AFB. The activities were previously funded within PEC 06050807F, Test and Evaluation Support.

These funds will also restore and modernize the National Full-scale Aerodynamic Complex (NFAC) located at NASA's Ames Research Center, California from its current mothball condition to an operational capability. Restoration activities include repair and replacement work to restore damaged facilities due to failure attributable to inadequate sustainment, excessive age, or other causes. Modernization includes alteration of facilities to implement a new higher standard to accommodate new functions, or to replace building components that typically last more than 50 years.

This program element is in Budget Activity 6, RDT&E Management Support, because it funds the restoration/modernization of the institutional test infrastructure at the Air Force test activities which are included in the Department of Defense (DoD) Major Range and Test Facility Base (MRTFB).

**(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) Restoration and modernization funds were previously within PE 0605807F, T&E Support and restoration and modernization planning and design.	0.000			
(U) 46TG: Restoration/modernization of test unique infrastructure at the 46th Test Group (TG), located at Holloman AFB, NM. Restoration projects include Test Group (TG) facility safety repairs, National Radar Cross Section (RCS) Test Facility (NRTF) Mainsite roof repairs, video tracking equipment repairs, secure phone replacement and Building 1265 (746th Test Squadron HQ Building) facility repairs and general restoration and modernization planning and design.	0.365			
(U) 46TG: Projects include Kranko drive upgrade at NRTF, main site power validation/repair at NRTF, repaving camera pad/connector roads at 846th TS, and general restoration and modernization planning and design.		1.141		

**UNCLASSIFIED**

Exhibit R-2a, RDT&E Project Justification		DATE <b>February 2005</b>
BUDGET ACTIVITY <b>06 RDT&amp;E Management Support</b>	PE NUMBER AND TITLE <b>0605976F Facility Restoration and Modernization - T&amp;E</b>	PROJECT NUMBER AND TITLE <b>06MC Facility Restoration and Modernization - T&amp;E</b>
(U) 46TG: Projects include repairing the holes on the RAMS Range due to weather erosion, repairing and resealing the range surface as well as continuing to repave camera pad/connector roads at 846 TS and general restoration and modernization planning and design.		1.168
(U) 46TG: Projects include Mainsite Pit Hoist Tilt Mechanism restoration at two measurement pits including brakes, cables, hydraulics, and controls. Antenna System restoration as well as the structure, wave guides, mechanical & electrical components. Projects also continue repaving camera pad/connector roads at 846 TS and general restoration and modernization planning and design.		1.178
(U) 46TW: Restoration/modernization of test unique infrastructure at the 46th Test Wing (TW), located at Eglin AFB, FL. Restoration projects include repairing piping in Climatic Lab, installing additional cooling in Test Hangar, repairing roof of Armament Research Test Facility (Bldg 463), repairing roof of Gun Test Facility (Bldg 410), repairing fire detection-alarm system in the Climatic Laboratory, repairing roof of a test facility, replacing chain link fence at Bldg 410, replacing compressed air lines at test facilities, repairing roof at Radar Facility, and repairing fence in Test Area A-24 and general restoration and modernization planning and design.	3.519	
(U) 46TW: The 46th Test Wing has an excess of 200 restoration/modernization projects effecting T&E facilities to include but not limited to the following categories: roofing, windows & doors, roads, fire protection, erosion, and HVAC. Some of these restoration/modernization projects include Bldg 8320-replacing seawall, Bldg 8550-replacing HVAC, Bldg 9270-refilling seawall, Bldg 9292-replacing soil around building foundation, Bldg 12722-replacing septic tank, Bldg 12722-replacing AC, Bldg 9403-inspecting and replacing tower bolts, Climatic Laboratory (Bldg 440) - repairing roof leaks, Climatic Laboratory (Bldg 440) - replacing existing asphalt roadway, Climatic Laboratory (Bldg 440) - refurbishing two main chamber doors, Climatic Laboratory (Bldg 440) - replacing corrosion piping for air makeup #1, Bldg 955-repairing Range Road 234, Bldg 68-repairing/replacing windows, Range Site-renovating Control Bldg, Range Site-providing & installing NEC Infrastructure Communication Power and general restoration and modernization planning and design.		4.231
(U) 46TW: Replace roof of building 9604 at TA C-82. Replace well at TA B-70 control site. D-84 Restoration: build 50 x 50 concrete pad for Chicken Little. Expand compound at A-19. Repair/replace Coupeland tower at TA B-70. C-7 Hangar: erect Calibration Tower at D-3. Consolidation Remote Control Targets Facilities: Restoration of the Electro Optical Evaluation Facility Site C1 (Bldg 8777). Repaint Bldg. 9285 at A-13A. Repaint Bldg. 9287 at A-13A. Corrosion control of stair rails on IHAWK at A-13. Corrosion control of NIKE steel tower at A-13. Replace 20+ year old CATV system between C-7 Control and C-7A Launch Facility with fiber optic cable system. Replace 20+ year old CATV system on Range 72 with fiber optic cable system. Replace fabric on E294, the Hellfire hanger. Replace safety rails on stairs and roof of Bldg 8550. Replace Condenser Coils on 80-Ton Chiller Unit for Radar (Bldg		4.287

**UNCLASSIFIED**

Exhibit R-2a, RDT&E Project Justification		DATE <b>February 2005</b>	
BUDGET ACTIVITY <b>06 RDT&amp;E Management Support</b>	PE NUMBER AND TITLE <b>0605976F Facility Restoration and Modernization - T&amp;E</b>	PROJECT NUMBER AND TITLE <b>06MC Facility Restoration and Modernization - T&amp;E</b>	
<p>9960). Repair dock or seawall at Test Site A-10. Enclose heavy equipment pole barn at RMT. Complete construction of paint booth cover at 46TW. Transportation Expansion project: Improve ventilation equipment racks for vehicle. Fabricate a building to accommodate the RHIB boat(s) at building 963 and general restoration and modernization planning and design.</p>			
(U) 46TW: Replace roof of building 8970 at TA B-70 control site. Rework parking area to enhance drainage at TA B-70 control site. Install fiber-optic cable to service building 9300 at TA B-70 control site. Refurbish interior of building 9400 at TA B75 control. Paint/refurbish exterior of building 963 and general restoration and modernization planning and design.			4.247
(U) AEDC: Restoration/modernization of test unique infrastructure at the Arnold Engineering and Development Center (AEDC), located at Arnold AFB, TN. Restoration projects which will revitalize the reliability and availability of aged equipment include repairing Tunnel A actuators, replacing low and high pressure dryer filters, replacing C-Plant heater fuel pipe, replacing T3 high pressure air valves, replacing vacuum systems control panel (G) and general restoration and modernization planning and design.	26.378		
(U) AEDC: Projects such as: revitalizing Engine Test Facilities, Propulsion Wind Tunnels, Von Karman Test Facilities, Space and Missile chambers and facilities, supporting plant facilities and general restoration and modernization planning and design. The increased funding is required for large-scale, well-documented R&M projects at AEDC test facilities that directly support military and commercial engine development, Joint Strike Fighter, hypersonic programs and the National Missile Defense and Spacecraft test and evaluation. AEDC will manage the restoration and modernization of the National Full-scale Aerodynamic Complex (NFAC) located at NASA's Ames Research Center, California from its current mothball condition to an operational capability.		55.190	51.983 55.041
(U) AFFTC: Restoration/modernization of test unique infrastructure at the Air Force Flight Test Center (AFFTC), located at Edwards AFB, CA. Restoration projects include Benefield Anechoic Facility (BAF) Electrical Upgrades, repair air conditioning system (Bldg 1030), repairing radio frequency personnel doors (Bldg 1030), replacing network communications cable (Bldg 1440) and replacing control room floor (Bldg 145) and general restoration and modernization planning and design.	2.372		
(U) AFFTC: Projects include expanding fire sprinkler system Bldg 1020 Integrated Facility for Avionics Systems Test (IFAST), upgrading fire alarm panels and detection system in the data acquisition center, repairing radio frequency shielded personnel doors at Bldg 1030 Benefield Anechoic Facility (BAF), designing future facility modifications to IFAST and BAF, replacing control room floor (Bldg 145), replacing roof (Bldg 4795, modifying control rooms 248/249/250 phase 1 (Bldg 1440, replacing UPS (Bldg 5790), installing utility meters (Bldgs 1830 & 1440), paving drainage ditch between spurs 3 & 4 (airfield), abating and resurfacing hangar floor (Bldgs 1630 & 1635), installing tiedowns pad 29		2.355	
Project 06MC	R-1 Shopping List - Item No. 111-4 of 111-5		Exhibit R-2a (PE 0605976F)

Exhibit R-2a, RDT&E Project Justification							DATE February 2005			
BUDGET ACTIVITY <b>06 RDT&amp;E Management Support</b>			PE NUMBER AND TITLE <b>0605976F Facility Restoration and Modernization - T&amp;E</b>		PROJECT NUMBER AND TITLE <b>06MC Facility Restoration and Modernization - T&amp;E</b>					
(airfield), repainting taxi lines ramp 12, and general restoration and modernization planning and design.										
(U)	AFFTC: Projects include modifying Mission Control Rooms 248/249/250 in Bldg 1440; installing showers in Bldg 1020; repairing raised computer flooring, Rm 224, Bldg 1020; replacing deluge tank fill line in Bldg 1020; repairing raised computer flooring, Rm 127, Bldg 1020; replacing power distribution units, F-15 Test Bay; installing UPS power, F-16 Test Bay; installing fire detection system in Bldg 4389; installing double door in Bldg 1440; installing addressable alarm system in Bldg 1440; repairing freight elevator in Bldg 1020; repairing/upgrading passenger elevator in Bldg 1020, repairing emergency generator tracking station in Bldg 4970; repairing HVAC in ABL facility Bldg 369); repairing heating in Bldg 1830; and general restoration/modernization planning and design.						3.123			
(U)	AFFTC: Projects include repairing HVAC chillers in Bldg 1440; repairing EMCS system interface in Bldg 1440; installing Simulator/Dome Equipment in Bldg 1020; repairing generator in SC Lab (Bldg 1440); replacing of air compressor in Bldg 1830; upgrading conference room A/B in Bldg 1020; and general restoration/modernization planning and design. Design Funds for FY06 & contingency for 05: Expanding fire sprinkler system to remove halon (Bldg 1020), maintaining roof of BAF (Bldg 1030), repairing gas and electric meters, installing water meters Bldg 1440, replacing crane in Bldg 1830, repairing/upgrading raised computer flooring Rm 214 (Bldg 1020), replacing Halon 1301 Suppression System (Bldg 1030), modifying Rooms 124, 125, 126 in IFAST Security Office (Bldg 1020), and modifying new generator to alleviate wet-stacking problem (Bldg 4790).						3.069			
(U)	Total Cost		32.634	62.917	60.561	63.535				
(U)	<b>C. Other Program Funding Summary (\$ in Millions)</b>									
	<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									
	Related RDT&E: PE 0604256F, Threat Simulator Development; PE 0604759F, Major T&E Investment, PE 0604940D, Central T&E Investments, PE 0605807F, Test and Evaluation Support, and PE 0605978F, Facility Sustainment - T&E support.									
(U)	<b>D. Acquisition Strategy</b>									
	Not applicable									

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PE NUMBER: 0605978F  
 PE TITLE: Facility Sustainment - T&E Support

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>									<b>DATE</b> <b>February 2005</b>	
<b>BUDGET ACTIVITY</b> <b>06 RDT&amp;E Management Support</b>					<b>PE NUMBER AND TITLE</b> <b>0605978F Facility Sustainment - T&amp;E Support</b>					
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	15.663	23.363	26.238	28.738	28.613	28.315	28.912	29.343	Continuing	TBD
06MR Facility Sustainment - T&E Support	15.663	23.363	26.238	28.738	28.613	28.315	28.912	29.343	Continuing	TBD

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

Provides resources for sustainment activities required for an inventory of Air Force Materiel Command (AFMC) T&E facilities. Facility sustainment includes regularly scheduled adjustments and inspections, preventive maintenance tasks, and emergency response and service calls for minor repairs. It also includes major repairs or replacement of facility components (usually accomplished by contract) that are expected to occur periodically throughout the life cycle of facilities. This work includes roof replacement, refinishing of wall surfaces, repairing and replacement of heating and cooling systems, replacing tile and carpeting, and similar types of work. Other tasks associated with facilities operations (such as custodial services, grass cutting, landscaping, waste disposal, and the provision of central utilities) are not included.

These sustainment funds support the following Air Force test facilities: 46th Test Group (TG) at Holloman AFB, NM, the 46th Test Wing (TW) at Eglin AFB, FL, the Arnold Engineering and Development Center (AEDC) at Arnold AFB, TN and the Air Force Flight Test Center (AFFTC) at Edwards AFB. The activities were previously funded within PE 06050807F, Test and Evaluation Support.

Funds will be utilized to perform sustainment activities at the National Full-scale Aerodynamic Complex (NFAC) located at NASA's Ames Research Center, California. These include regular adjustments and inspections, preventative maintenance tasks, emergency response and service calls for minor repairs, and major repairs or replacement of facility components that expected to occur periodically throughout the life cycle of the facility. Sustainment activities will be executed by AEDC.

This program element is in Budget Activity 6, RDT&E Management Support, because it funds the sustainment of the institutional test infrastructure at the Air Force test activities which are included in the Department of Defense (DoD) Major Range and Test Facility Base (MRTFB).

**(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	15.163	23.067	23.097	25.204
(U) Current PBR/President's Budget	15.663	23.363	26.238	28.738
(U) Total Adjustments	0.500	0.296		
(U) Congressional Program Reductions				
Congressional Rescissions				
Congressional Increases				
Reprogrammings	0.500	0.296		
SBIR/STTR Transfer				
(U) <u>Significant Program Changes:</u>				

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

BUDGET ACTIVITY <b>06 RDT&amp;E Management Support</b>					PE NUMBER AND TITLE <b>0605978F Facility Sustainment - T&amp;E Support</b>			PROJECT NUMBER AND TITLE <b>06MR Facility Sustainment - T&amp;E Support</b>		
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
06MR Facility Sustainment - T&E Support	15.663	23.363	26.238	28.738	28.613	28.315	28.912	29.343	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

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

Provides resources for sustainment activities required for an inventory of Air Force Materiel Command (AFMC) T&E facilities. Facility sustainment includes regularly scheduled adjustments and inspections, preventive maintenance tasks, and emergency response and service calls for minor repairs. It also includes major repairs or replacement of facility components (usually accomplished by contract) that are expected to occur periodically throughout the life cycle of facilities. This work includes roof replacement, refinishing of wall surfaces, repairing and replacement of heating and cooling systems, replacing tile and carpeting, and similar types of work. Other tasks associated with facilities operations (such as custodial services, grass cutting, landscaping, waste disposal, and the provision of central utilities) are not included.

These sustainment funds support the following Air Force test facilities: 46th Test Group (TG) at Holloman AFB, NM, the 46th Test Wing (TW) at Eglin AFB, FL, the Arnold Engineering and Development Center (AEDC) at Arnold AFB, TN and the Air Force Flight Test Center (AFFTC) at Edwards AFB. The activities were previously funded within PE 06050807F, Test and Evaluation Support.

Funds will be utilized to perform sustainment activities at the National Full-scale Aerodynamic Complex (NFAC) located at NASA's Ames Research Center, California. These include regular adjustments and inspections, preventative maintenance tasks, emergency response and service calls for minor repairs, and major repairs or replacement of facility components that expected to occur periodically throughout the life cycle of the facility. Sustainment activities will be executed by AEDC.

This program element is in Budget Activity 6, RDT&E Management Support, because it funds the sustainment of the institutional test infrastructure at the Air Force test activities which are included in the Department of Defense (DoD) Major Range and Test Facility Base (MRTFB).

**(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) Sustainment of test unique infrastructure located at the 46th Test Group (TG), located at Holloman AFB, NM.	0.169	0.449	0.459	0.497
(U) Sustainment of test unique infrastructure at the 46th Test Wing (TW), located at Eglin AFB, FL.	1.225	1.650	1.668	1.889
(U) Sustainment of test unique infrastructure at the Arnold Engineering and Development Center (AEDC), located at Arnold AFB, TN. Efforts include plant asset maintenance and manufacturing, fabrication maintenance and management, test building maintenance, and core and support facility maintenance. Beginning in FY05 AEDC will execute sustainment activities at the National Full-scale Aerodynamic Complex (NFAC) located at NASA's Ames Research Center, California. These include regular adjustments and inspections, preventative maintenance tasks, emergency response and service calls for minor repairs, and major repairs or replacement of facility components that expected to occur periodically throughout the life cycle of the facility.	13.088	20.317	22.941	24.956

Exhibit R-2a, RDT&E Project Justification							DATE <b>February 2005</b>		
BUDGET ACTIVITY <b>06 RDT&amp;E Management Support</b>			PE NUMBER AND TITLE <b>0605978F Facility Sustainment - T&amp;E Support</b>			PROJECT NUMBER AND TITLE <b>06MR Facility Sustainment - T&amp;E Support</b>			
(U)	Sustainment of test unique infrastructure at the Air Force Flight Test Center (AFFTC), located at Edwards AFB, CA.			1.181	0.947	1.170	1.396		
(U)	Total Cost			15.663	23.363	26.238	28.738		
(U)	<b><u>C. Other Program Funding Summary (\$ in Millions)</u></b>								
	<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>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 Related RDT&E: PE 0604256F, Threat Simulator Development, PE 0604759F, Major T&E Investment, PE 0604940F, Central T&E Investments, PE 0605807F, Test and Evaluation Support, and PE 0605976F, Facility Restoration and Modernization - T&E.								
(U)	<b><u>D. Acquisition Strategy</u></b> Not applicable.								

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**UNCLASSIFIED**

PE NUMBER: 0804731F  
 PE TITLE: GENERAL SKILL TRAINING

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>06 RDT&amp;E Management Support</b>	<b>PE NUMBER AND TITLE</b> <b>0804731F GENERAL SKILL TRAINING</b>
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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	0.285	0.320	0.331	0.342	0.348	0.357	0.365	0.372	Continuing	TBD
4980 Research and Development of Computer Forensic Anaylst Tools	0.285	0.320	0.331	0.342	0.348	0.357	0.365	0.372	Continuing	TBD

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

The DoD Cyber Crime Center (DC3) is a service organization that provides on demand state-of-the-art electronic forensic services and cyber investigative and operational support to the Department of Defense (DoD). DC3 also provides leadership as a DoD center of excellence in processing and analyzing digital evidence. It provides professional special investigative services for the protection of DoD people, investigations, operations, material and critical infrastructures worldwide. The DC3's objective is to support and address the proliferation of cyber crimes within or directed at the DoD. Within DC3, the DoD Cyber Crime Institute (DCCI) develops the foundation for accepted standards and practices based on valid research, science, and law with innovative ideas and methods. It serves as a resource for sound research to produce unique tools and procedures for the DoD law enforcement, counter terrorism, counterintelligence, force protection, information assurance, information operations and war fighting communities. It strives to develop national electronic forensics standards, cyber investigative tools and techniques, effective plans, policies and procedures and implement a knowledge management system. It provides the DoD community with analytical services and produces relevant intelligence reports, criminal intelligence reports and cyber investigation trend analyses. It focuses on new issues facing the DoD critical infrastructure protection efforts and those facing the cyber investigative discipline. DC3 must continue to expand its capabilities and continue to develop effective plans, policies, and procedures for addressing cybercrime and electronic forensic needs in DoD both now and in the future. The primary goal is to ensure the DoD has the ability to successfully perform its mission of electronic media processing and analysis in the future. Without funding, critical projects will be terminated. The DoD's ability to process digital evidence in a future environment of increasing case loads that have a large amount of data that is also hidden by sophisticated techniques will be greatly degraded.

This program is in Budget Activity 6 - Management and Support

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2005

BUDGET ACTIVITY

06 RDT&E Management Support

PE NUMBER AND TITLE

0804731F GENERAL SKILL TRAINING

(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	0.315	0.320	0.331	0.342
(U) Current PBR/President's Budget	0.285	0.320	0.331	0.342
(U) Total Adjustments	-0.030	0.000		
(U) Congressional Program Reductions				
Congressional Rescissions	-0.030			
Congressional Increases				
Reprogrammings				
SBIR/STTR Transfer				
(U) <u>Significant Program Changes:</u>				

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

BUDGET ACTIVITY <b>06 RDT&amp;E Management Support</b>					PE NUMBER AND TITLE <b>0804731F GENERAL SKILL TRAINING</b>			PROJECT NUMBER AND TITLE <b>4980 Research and Development of Computer Forensic Anaylst Tools</b>		
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
4980 Research and Development of Computer Forensic Anaylst Tools	0.285	0.320	0.331	0.342	0.348	0.357	0.365	0.372	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 Cyber Crime Center (DC3) is a service organization that provides on demand state-of-the-art electronic forensic services and cyber investigative and operational support to the Department of Defense (DoD). DC3 also provides leadership as a DoD center of excellence in processing and analyzing digital evidence. It provides professional special investigative services for the protection of DoD people, investigations, operations, material and critical infrastructures worldwide. The DC3's objective is to support and address the proliferation of cyber crimes within or directed at the DoD. Within DC3, the DoD Cyber Crime Institute (DCCI) develops the foundation for accepted standards and practices based on valid research, science, and law with innovative ideas and methods. It serves as a resource for sound research to produce unique tools and procedures for the DoD law enforcement, counter terrorism, counterintelligence, force protection, information assurance, information operations and war fighting communities. It strives to develop national electronic forensics standards, cyber investigative tools and techniques, effective plans, policies and procedures and implement a knowledge management system. It provides the DoD community with analytical services and produces relevant intelligence reports, criminal intelligence reports and cyber investigation trend analyses. It focuses on new issues facing the DoD critical infrastructure protection efforts and those facing the cyber investigative discipline. DC3 must continue to expand its capabilities and continue to develop effective plans, policies, and procedures for addressing cybercrime and electronic forensic needs in DoD both now and in the future. The primary goal is to ensure the DoD has the ability to successfully perform its mission of electronic media processing and analysis in the future. Without funding, critical projects will be terminated. The DoD's ability to process digital evidence in a future environment of increasing case loads that have a large amount of data that is also hidden by sophisticated techniques will be greatly degraded.

This program is in Budget Activity 6 - Management and Support

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Accomplished/Planned Programs				
(U) Next Generation Electronic Media Analysis System		0.030	0.070	
(U) Damaged Storage Device Data Recovery Tools		0.110	0.060	
(U) Knowledge Management System		0.110	0.201	
(U) Vulnerability Assessment Environment (V.A.E.)	0.143			0.172
(U) Fused Analysis System/Data Analysis Tools	0.142	0.070		0.170
(U) Total Cost	0.285	0.320	0.331	0.342

**Exhibit R-2a, RDT&E Project Justification**

DATE

**February 2005**

BUDGET ACTIVITY

**06 RDT&E Management Support**

PE NUMBER AND TITLE

**0804731F GENERAL SKILL TRAINING**

PROJECT NUMBER AND TITLE

**4980 Research and Development of  
Computer Forensic Analyst Tools**

**(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>Complete</u>							
(U) General Information	0.267	0.548	0.277	0.282	0.580	0.293	0.357	0.364	Continuing	TBD
(U) Technology/PE 834010										

**(U) D. Acquisition Strategy**

All major contracts were awarded sole source contract due to the sensitivity of the technologies involved.

**UNCLASSIFIED**

PE NUMBER: 0909980F  
 PE TITLE: JUDGEMENT FUND REIMBURSEMENT

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>06 RDT&amp;E Management Support</b>	<b>PE NUMBER AND TITLE</b> <b>0909980F JUDGEMENT FUND REIMBURSEMENT</b>
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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	45.500	99.119	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
0JFR AC-130U CLAIM	45.500	99.119	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

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

Funding is for repayment of the Treasury Judgment Fund for contractor claims against the Air Force for the Rail Garrison and the AC-130U Gunship programs. The Air Force and contractors settled the claims under the Contract Disputes Act of 1978 and the Treasury Judgement Fund paid the judgements. The Air Force repaid the Rail Garrison settlement in FY01 and is repaying the AC-130U settlement annually from FY02 to FY05 from amounts budgeted for that purpose.

This Judgement Fund line is to reimburse the U.S. Treasury for the AC-130U Gunship judgement against the government. This is a Must-Pay Bill. The Air Force will move funds back into this PE during the execution years.

**(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	36.434	100.000		
(U) Current PBR/President's Budget	45.500	99.119		
(U) Total Adjustments	9.066	-0.881		
(U) Congressional Program Reductions	-0.309	-0.881		
Congressional Rescissions				
Congressional Increases				
Reprogrammings	9.375			
SBIR/STTR Transfer				
(U) <u>Significant Program Changes:</u>				

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

BUDGET ACTIVITY <b>06 RDT&amp;E Management Support</b>					PE NUMBER AND TITLE <b>0909980F JUDGEMENT FUND REIMBURSEMENT</b>			PROJECT NUMBER AND TITLE <b>0JFR AC-130U CLAIM</b>		
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
0JFR AC-130U CLAIM	45.500	99.119	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**

Funding is for repayment of the Treasury Judgment Fund for contractor claims against the Air Force for the Rail Garrison and the AC-130U Gunship programs. The Air Force and contractors settled the claims under the Contract Disputes Act of 1978 and the Treasury Judgement Fund paid the judgements. The Air Force repaid the Rail Garrison settlement in FY01 and is repaying the AC-130U settlement annually from FY02 to FY05 from amounts budgeted for that purpose.

This Judgement Fund line is to reimburse the U.S. Treasury for the AC-130U Gunship judgement against the government. This is a Must-Pay Bill. The Air Force will move funds back into this PE during the execution years.

**(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) Reimburse Treasury Judgement Fund for AC-130U settlement	45.500	99.119		
(U) Total Cost	45.500	99.119	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>
	Actual	Estimate	Complete							
(U) Not Applicable										

**(U) D. Acquisition Strategy**

Repayment of Treasury Judgment Fund for contractor claim against the Air Force

**UNCLASSIFIED**

PE NUMBER: 1001004F  
 PE TITLE: International Activities

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	<b>DATE</b> <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>06 RDT&amp;E Management Support</b>	<b>PE NUMBER AND TITLE</b> <b>1001004F International Activities</b>
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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	3.594	3.910	3.739	3.867	3.939	4.006	4.099	4.175	Continuing	TBD
4645 International Cooperative Research & Development	3.594	3.910	3.739	3.867	3.939	4.006	4.099	4.175	Continuing	TBD

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

The mission of this program is to gain access to our Allies' best defense technologies, eliminate costly duplication of Research and Development (R&D) efforts, accelerate availability of defense systems, and to deploy and sustain common or interoperable USAF and Allied equipment through International Cooperative Research and Development (ICR&D).

The USAF is party to multiple international cooperative agreements to solve common US and Allied military scientific and technological problems and to develop materiel solutions to harmonize coalition requirements. This program funds the USAF to support, develop, process, negotiate, implement, and manage these international cooperative agreements and projects in compliance with statutory reporting provisions and exacting legal statutes, fiscal constraints, technology transfer controls, intellectual property rights, third party transfer provisions, quid-pro-quo criteria, industrial base factors, and political-military interests. Included in this budget are domestic and international technology assessment teams; specialized working groups; Long-Term Technology Project developments; support for cooperative opportunity assessments; developing, processing, negotiating and managing international agreements; oversight of ICR&D projects; overseas R&D liaison and coordination offices; bilateral and multilateral staff talks; Engineering and Scientist Exchange Program (ESEP); and Administrative and Professional Exchange Program (APEP). Funds USAF participation in the NATO Research and Technology Organization (RTO). Funding in support of International Space Cooperation.

This program is in Budget Activity 6, Management and Support, funding provides for general R&D Management support for all aspects of ICR&D activities in the USAF.

**(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	3.834	3.945	4.026	4.099
(U) Current PBR/President's Budget	3.594	3.910	3.739	3.867
(U) Total Adjustments	-0.240	-0.035		
(U) Congressional Program Reductions				
Congressional Rescissions				
Congressional Increases				
Reprogrammings	-0.240	-0.035		
SBIR/STTR Transfer				
(U) <u>Significant Program Changes:</u>				
N/A				

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2005**

BUDGET ACTIVITY <b>06 RDT&amp;E Management Support</b>					PE NUMBER AND TITLE <b>1001004F International Activities</b>			PROJECT NUMBER AND TITLE <b>4645 International Cooperative Research &amp; Development</b>		
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
4645 International Cooperative Research & Development	3.594	3.910	3.739	3.867	3.939	4.006	4.099	4.175	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 this program is to gain access to our Allies' best defense technologies, eliminate costly duplication of Research and Development (R&D) efforts, accelerate availability of defense systems, and to deploy and sustain common or interoperable USAF and Allied equipment through International Cooperative Research and Development (ICR&D).

The USAF is party to multiple international cooperative agreements to solve common US and Allied military scientific and technological problems and to develop materiel solutions to harmonize coalition requirements. This program funds the USAF to support, develop, process, negotiate, implement, and manage these international cooperative agreements and projects in compliance with statutory reporting provisions and exacting legal statutes, fiscal constraints, technology transfer controls, intellectual property rights, third party transfer provisions, quid-pro-quo criteria, industrial base factors, and political-military interests. Included in this budget are domestic and international technology assessment teams; specialized working groups; Long-Term Technology Project developments; support for cooperative opportunity assessments; developing, processing, negotiating and managing international agreements; oversight of ICR&D projects; overseas R&D liaison and coordination offices; bilateral and multilateral staff talks; Engineering and Scientist Exchange Program (ESEP); and Administrative and Professional Exchange Program (APEP). Funds USAF participation in the NATO Research and Technology Organization (RTO). Funding in support of International Space Cooperation.

This program is in Budget Activity 6, Management and Support, funding provides for general R&D Management support for all aspects of ICR&D activities in the USAF.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) NC3A - Funds the US R&D Coordination Office and administrative support for the assigned US Engineering and Technical professionals and cooperative Research and Development activities assigned to the NC3A.	0.100	0.100	0.100	0.000
(U) ESEP/APEP - Funds the USAF execution and the management oversight of ESEP and APEP agreements. Funds approximately eight to ten field level military and civilian personnel from AFMC Facilities, Product Centers, Test Centers, Logistic Centers, and the Academy for two-year tours at selected European and Asian government laboratories or other institutions. By FY06, the USAF will have signed ESEP agreements with 18 countries and be in negotiation with an additional 3 countries. By FY06, the USAF will have signed APEP agreements with 2 countries and be in negotiations with at least one other country.	0.175	0.175	0.175	0.175
(U) ICR&D - Funds USAF overseas R&D liaison offices. Funds management support and oversight of International Affairs Armaments Cooperation Division (SAF/IAPQ). Funds USAF participation at the	1.799	2.140	1.994	2.222

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<b>Exhibit R-2a, RDT&amp;E Project Justification</b>			<b>DATE</b> <b>February 2005</b>	
<b>BUDGET ACTIVITY</b> <b>06 RDT&amp;E Management Support</b>	<b>PE NUMBER AND TITLE</b> <b>1001004F International Activities</b>	<b>PROJECT NUMBER AND TITLE</b> <b>4645 International Cooperative Research &amp; Development</b>		
<p>NATO Five-Power Forum to promote NATO harmonization of requirements, standardization, and new cooperative R&amp;D programs. Funds USAF participation at the US-Japan Systems and Technology Forum and Defense Cooperation Committee Meetings with Singapore and South Korea. Partially funds technical assessments and international agreements negotiation start-up costs associated with promising cooperative R&amp;D programs. Funds upgrades to the DoD International Agreements Management System. Funds negotiation and support costs associated with the NATO AWACS Board of Directors. Funds periodic bilateral/multilateral meetings to define new areas of possible cooperation and exploratory visits to Brazil, Czech Republic, Denmark, India, Israel, Italy, Netherlands, Poland, Portugal, Spain, Singapore, Sweden, Taiwan, Ukraine, and other countries on new technology exchange projects.</p>				
(U) Armaments Cooperation - Funds the USAF's ability to develop and negotiate the increasing number of proposals for ICR&D bi-lateral and multi-lateral Agreements with key allies. Work will continue on agreements developed, but not signed, during FY05 and work will be initiated in the areas of: Communication and Information; Interoperability; Coalition Warfare; Reconnaissance and Surveillance; Global Positioning Satellites; SATCOM; Space Surveillance; Ground Based Relay Stations; Unmanned Combat Air System; Airborne Radar; Early Warning Systems; Counter Air Weapons; Command and Control; Biological Warfare Protection; Distributed Simulation Technology; Non-lethal Technologies; Laser Technology; Propulsion; Directed-Energy Technology; and Electromagnetic Technology.	0.800	0.800	0.800	0.800
(U) AFRL - Funds support and oversight of International Armaments Cooperation R&D efforts within the Air Force Research Laboratories (AFRL). Funds AFRL technical assessments and discussions to identify, create, and develop promising cooperative R&D programs. Funds AFMC participation in panel meetings of The Technical Coordination Program (TTCP), Air Standardization Coordinating Committee and NATO Conference of National Armaments Directors (CNAD) Working Groups.	0.600	0.600	0.600	0.600
(U) NATO RTO - Funds USAF participation in the NATO RTO activities. The FY06/07 activities will include but are not limited to: 1) Mitigation and Control of High Cycle Fatigue; 2) Critical Technologies for Hypersonic Vehicle Development; 3) Unmanned Material Vehicles as Force Multipliers; 4) Network Centric Operations Security; 5) Testing of Precision Airdrop Systems; 6) Information and Knowledge; 7) Mission Management; and 8) Sensors, Electronics, Processing and Components.	0.075	0.050	0.025	0.025
(U) International Space Cooperation - New and growing mission requirement to be supported by the International Activities. Funds research and development cooperation to provide a foundation upon which to develop operational strategies, concepts, and technologies with our allies which in turn provides a foundation for long-term operational cooperation. Cooperation with our allies in space will allow the USAF to geographically distributed ground systems and provides invaluable access to remote test ranges for test and evaluation of space systems	0.045	0.045	0.045	0.045
(U) Total Cost	3.594	3.910	3.739	3.867
Project 4645	R-1 Shopping List - Item No. 117-3 of 117-4	Exhibit R-2a (PE 1001004F)		

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>February 2005</b>
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BUDGET ACTIVITY <b>06 RDT&amp;E Management Support</b>	PE NUMBER AND TITLE <b>1001004F International Activities</b>	PROJECT NUMBER AND TITLE <b>4645 International Cooperative Research &amp; Development</b>
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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>Complete</u>	<u></u>						

(U) N/A

(U) **D. Acquisition Strategy**

This program element is the only source of USAF funds to identify and initiate opportunities for international armaments cooperation to (a) deploy and support common or interoperable equipment with our allies; (b) leverage USAF resources with our allies through cost sharing and economies of scale; and (c) exploit the best US and allied technologies for equipping coalition forces. We obtain these benefits only after international cooperative opportunities are identified, explored, developed, assessed and international agreements are negotiated and concluded. This PE provides funds to execute up-front armaments cooperation responsibilities, realize cooperative opportunities, assess allied technologies, and generate sound, cost-effective cooperative programs between the USAF and our international partners. Once these initiatives and programs are started as international efforts they are transferred to the appropriate technology or systems program office and are then funded by the program office.

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PE NUMBER: 0702806F  
 PE TITLE: ACQUISITION AND MANAGEMENT SUPPORT

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2005</b>
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BUDGET ACTIVITY <b>06 RDT&amp;E Management Support</b>	PE NUMBER AND TITLE <b>0702806F ACQUISITION AND MANAGEMENT SUPPORT</b>
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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	1.582	3.404	4.737	4.738	4.743	4.767	4.784	Continuing	TBD
ACSI ACSI	0.000	1.582	3.404	4.737	4.738	4.743	4.767	4.784	Continuing	TBD

In FY05, this is a new PE.

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

The funding is for the research required to perform upfront indentificaiton and evaluation of the acqisiton business processess in order to determine those processess needing redesign to meet the requirements of Agile Acquisition.

This program is in Budget Activity 06 - Mangement Support because it provides overall support to research and development 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	0.000	1.596	0.997	0.998
(U) Current PBR/President's Budget	0.000	1.582	3.404	4.737
(U) Total Adjustments	0.000	-0.014		
(U) Congressional Program Reductions		-0.014		
Congressional Rescissions				
Congressional Increases				
Reprogrammings				
SBIR/STTR Transfer				
(U) <u>Significant Program Changes:</u>				

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>February 2005</b>
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<b>BUDGET ACTIVITY</b> <b>06 RDT&amp;E Management Support</b>	<b>PE NUMBER AND TITLE</b> <b>0702806F ACQUISITION AND MANAGEMENT SUPPORT</b>	<b>PROJECT NUMBER AND TITLE</b> <b>ACSI ACSI</b>
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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
ACSI ACSI	0.000	1.582	3.404	4.737	4.738	4.743	4.767	4.784	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

In FY05, this is a new PE.

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

The funding is for the research required to perform upfront identification and evaluation of the acquisition business processes in order to determine those processes needing redesign to meet the requirements of Agile Acquisition.

This program is in Budget Activity 06 - Management Support because it provides overall support to research and development activities.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Acquisition business process research.		1.582	3.404	4.737
(U)				
(U)				
(U) Total Cost	0.000	1.582	3.404	4.737

**(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>Complete</u>							
(U) Not Applicable										

**(U) D. Acquisition Strategy**

Contracts will be awarded through full and open competition.