

**UNCLASSIFIED**

**DEPARTMENT OF THE AIR FORCE**

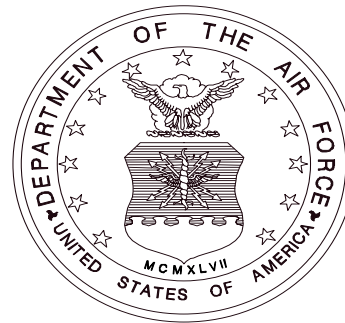
**FISCAL YEAR (FY) 2005 BUDGET ESTIMATES**

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

**DESCRIPTIVE SUMMARIES, VOLUME II**

**BUDGET ACTIVITIES 4 - 6**

**FEBRUARY 2004**



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**Fiscal Year 2005 Budget Estimates  
RDT&E Descriptive Summaries, Volume II  
Budget Activities 4 - 6  
February 2004**

**INTRODUCTION AND EXPLANATION OF CONTENTS**

1. (U) GENERAL

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

2. (U) CLASSIFICATION

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

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Productivity, Reliability, Availability, Maintainability Program	0708026F	1951
Ranch Hand II Epidemiology Study	0605306F	1097
RAND Project Air Force	0605101F	1091
RDT&E For Aging Aircraft	0605011F	1057
REGION/ SECTOR OPERATIONS CONTROL CENTER	0102326F	1193
Rocket Systems Launch Program (RSLP)	0605860F	1117

Satellite Control Network	0305110F	1609
Security And Investigative Activities	0305128F	1633
Seek Eagle	0207590F	1431
SERVICE-WIDE SUPPORT	0901212F	1997
Shared Early Warning System	0308699F	1849
Small Diameter Bomb	0604329F	861
Space Architect	0305917F	1835
Space Based Infrared Systems (SBIRS) High EMD	0604441F	883
Space Control Technology	0603438F	517
Space Technology 1	0602601F	197
Space Test Program	0605864F	1121
SPACE WARFARE CENTER	0305174F	1673
Space-Based Radar Dem/Val	0603858F	619
Spacelift Range System	0305182F	1679
SPACETRACK	0305910F	1795
SPECIAL TACTICS/COMBAT CONTROL	0408011F	1911
Specialized Undergraduate Pilot Training	0604233F	789
STRAT WAR PLANNING SYS - USSTRATCOM	0101313F	1187
Submunitions	0604604F	915
Support Systems Development	0708611F	1959
Tactical AIM Missiles	0207161F	1265
Tactical Data Link Integration	0604754F	991
Test and Evaluation Support	0605807F	1111
Theater Battle Management (TBM) C4I	0207438F	1355



Threat Simulator Development	0604256F	1073
Transformational SATCOM (TSAT)	0603845F	559
Joint Unmanned Combat Air System (J-UCAS)	0207256F	675
University Research Initiatives	0601103F	47
Unmanned Air Vehicle Dev/Demo	0603333F	367
Joint Unmanned Combat Air System (J-UCAS)	0604731F	949
USAF Modeling and Simulation	0207601F	1437
Warfighter Rapid Acquisition Program	0203761F	1199
Wargaming and Simulation Centers	0207605F	1469
WEATHER SERVICE	0305111F	1617
Wideband MILSATCOM (Space)	0603854F	599
WWMCCS/GLOBAL COMMAND & CONTROL SYSTEM	0303150F	1573

**PROGRAM ELEMENT COMPARISON SUMMARY**

**PROGRAM ELEMENT (By BUDGET ACTIVITY)**

**REMARKS**

**BUDGET ACTIVITY #1: BASIC RESEARCH (Volume I)**

0601102F Defense Research Sciences

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

0601102F

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

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

**BUDGET ACTIVITY #2: APPLIED RESEARCH (Volume I)**

None

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

0603216F Aerospace Propulsion and Power Technology

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

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

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

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

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

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

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

0603791F International Space Cooperative R&D

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

0603850F Integrated Broadcast System (IBS)

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

0604015F Next Generation Bomber

In FY 2005, this is a new PE.

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

0207256F            Joint-Unmanned Combat Air System (JUCAS)

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

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

0207434F            Link 16 Support & Sustainment

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

0207601F

USAF Modeling & Simulation

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

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

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

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

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

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

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

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

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

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

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



**UNCLASSIFIED**

PE NUMBER: 0305178F

PE TITLE: National Polar-Orbiting Op Env Satellite

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	<b>DATE</b> <b>February 2004</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>
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Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	0.000	307.668	236.563	224.503	103.626	85.921	Continuing	TBD
4056 National Polar-orbiting Operational Env. Sat. Syst.	0.000	0.000	307.668	236.563	224.503	103.626	85.921	Continuing	TBD

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 0305178F NPOESS, funding was transferred from PE 0603434F, Project 4056, 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. NPOESS will provide operational military commanders and civilian leaders timely, quality weather and environmental information to effectively employ weapon systems and protect national resources. 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-orbit at all times (sun synchronous means the satellites cross the equator at the same local sun time on each of their 14 orbits/day). The first NPOESS launch is scheduled for FY10, with Initial Operational Capability (IOC) in FY11 and Final Operational Capability (FOC) in FY13.

In Aug 02, the NPOESS program was approved to enter Key Decision Point C (KDP-C) Acquisition and Operations (A&O) phase. KDP-C is equivalent to a DoD 5000 milestone B. As a result, the BA is in the process of being changed to BA 5 (System Development and Demonstration).

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2004

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0305178F National Polar-Orbiting Op Env Satellite

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget			297.668
(U) Current PBR/President's Budget	0.000	0.000	307.668
(U) Total Adjustments	0.000	0.000	
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			

(U) **Significant Program Changes:**

Funding: Additional funds were added to the program in FY05 to match Air Force funding levels with the Department of Commerce funding levels, as mandated by Congress.

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

DATE  
**February 2004**

<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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
4056 National Polar-orbiting Operational Env. Sat. Syst.	0.000	0.000	307.668	236.563	224.503	103.626	85.921	Continuing	TBD
Quantity of RDT&E Articles	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 0305178F NPOESS, funding was transferred to PE 0305178F, Project 4056, in order to accomplish System Development and Demonstration.

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Continue DoD funded program office support for Acquisition and Operations (A&O) efforts.			0.989
(U) Continue System A&O effort including ground and space system development, design and fabrication for risk reduction missions.			306.679
(U) Total Cost	0.000	0.000	307.668

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

DATE

February 2004

BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	PE NUMBER AND TITLE <b>0305178F National Polar-Orbiting Op Env Satellite</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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Related NOAA PAC funding: Polar Convergence*	222.874	276.700	307.646	358.185	330.149	439.356	201.000	Continuing	TBD
(U) Related NPOESS RDT&E: PE 0603434F	232.082	264.681	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
(U) NPOESS RDT&E: PE 0305178F	0.000	0.000	307.668	236.563	224.503	103.626	85.921	Continuing	TBD
(U) Related NPOESS MPAF: PE 0305178F	0.000	0.000	0.000	10.242	30.590	286.755	71.590	Continuing	TBD
(U) Related EELV MPAF: PE 0305953F**	0.000	0.000	0.000	0.000	0.000	138.278	138.278	497.492	774.048
(U) Total NPOESS Air Force	232.082	264.681	307.668	246.805	255.093	528.659	295.789	Continuing	TBD
(U) Other operations and sustainment funding***	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

\* National Oceanic and Atmospheric Administration Procurement, Acquisition, and Construction (NOAA PAC) appropriation. The Air Force (DoD) and NOAA (DoC) fund NPOESS 50/50. Total cost includes prior-year amount of \$425.617K. 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 payload development, enhancing data utility to users, and protecting maximum flexibility to ensure the best overall system design. The program pursues a significant investment in the development and on-orbit testing of selected payload sensors while deferring individual sensor selections among competing international, NASA, military, and industry alternatives to assess and determine the optimum technical performance potential of each candidate sensor. NPOESS is currently pursuing two missions to reduce sensor development and data user segment risk. The WindSat/Coriolis mission will prove technologies to be used for the NPOESS Conical-Scanning Microwave Imager/Sounder (CMIS) sensor. The NPOESS Preparatory Project will fly and test-out four of NPOESS's most complex sensors: the Visible/Infrared Imager Radiometer Suite (VIIRS), the Cross Track Infrared Sounder (CrIS), the Advanced Technology Microwave Sounder (ATMS), and the Ozone Mapper/Profiler Suite (OMPS). Overall system prime contractor selection was deferred until 2002 to minimize system level preliminary costs, allow sensor complement maturation, and delay the commitment to full system acquisition until approximately six years before the first satellite need date. The first two satellites will be incrementally funded with RDT&E funding. The rest will be fully funded with Missile Procurement funding.

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Exhibit R-3, RDT&E Project Cost Analysis										DATE February 2004		
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) Cost Categories	Contract Method	Performing Activity &	Total	FY	FY	FY	FY	FY	FY	Cost to	Total	Target
(Tailor to WBS, or System/Item	& Type	Location	Prior to FY	2003	2003	2004	2004	2005	2005	Complete	Cost	Value of
Requirements)			2003	Cost	Award	Cost	Award	Cost	Award		Contract	
(\$ in Millions)			Cost		Date		Date		Date			
(U) <u>Product Development</u>												
Syst. Arch. Studies	C/CPFF		12.820								12.820	
TRW (PDRR)	C/FFP	Primary, Los Angeles, CA	27.955								27.955	
Lockheed Martin (PDRR)	C/FFP	Primary, Sunnyvale, CA	39.434								39.434	
Lockheed Martin	C/CPAF	Primary, Sunnyvale, CA	4.489								4.489	
Raytheon (VIIRS & CrIS)	C/CPFF	Sensor, Santa Barbara, CA	28.716								28.716	
Ball Aerospace (CMIS & OMPS)	C/CPFF	Sensor, Boulder, CO	29.746								29.746	
Ball Aerospace (OMPS)	C/CPAF	Sensor, Boulder, CO	35.730								35.730	
ITT Aerospace (VIIRS & CrIS)	C/CPFF	Sensor, Fort Wayne, IN	30.475								30.475	
Boeing (formerly Hughes) Space and Communications (CMIS)	C/CPFF	Sensor, El Segundo, CA	27.195								27.195	
Orbital Sciences (OMPS)	C/CPFF		2.578								2.578	
SAAB Ericsson (GPSOS)	C/CPFF	Sensor, Goteborg, Sweden	2.786								2.786	
SAAB Ericsson (GPSOS)	SS/FFP	Sensor, Goteborg, Sweden	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	6.486					306.679	Aug-02	Continuing	TBD	
Other Contracts	Various	Various	21.975								21.975	
Government Led Studies	Gov. Orgs.	Various	26.302							Continuing	TBD	
Subtotal Product Development			411.869	0.000		0.000		306.679		Continuing	TBD	0.000
Remarks: FY03-04 funding shown in PE 0603434F												
(U) <u>Support</u>												

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Exhibit R-3, RDT&E Project Cost Analysis							DATE February 2004			
BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT NUMBER AND TITLE			
<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>			
Integrated Program Office (IPO) Support	Various	Program Office, Silver Spring, MD	15.098			0.989	Continuing	TBD		
Subtotal Support			15.098	0.000	0.000	0.989	Continuing	TBD	0.000	
Remarks: FY03-04 funding shown in PE 0603434F										
<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
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
Remarks:										
<u>(U) Total Cost</u>			426.967	0.000	0.000	307.668	Continuing	TBD	0.000	

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

BUDGET ACTIVITY

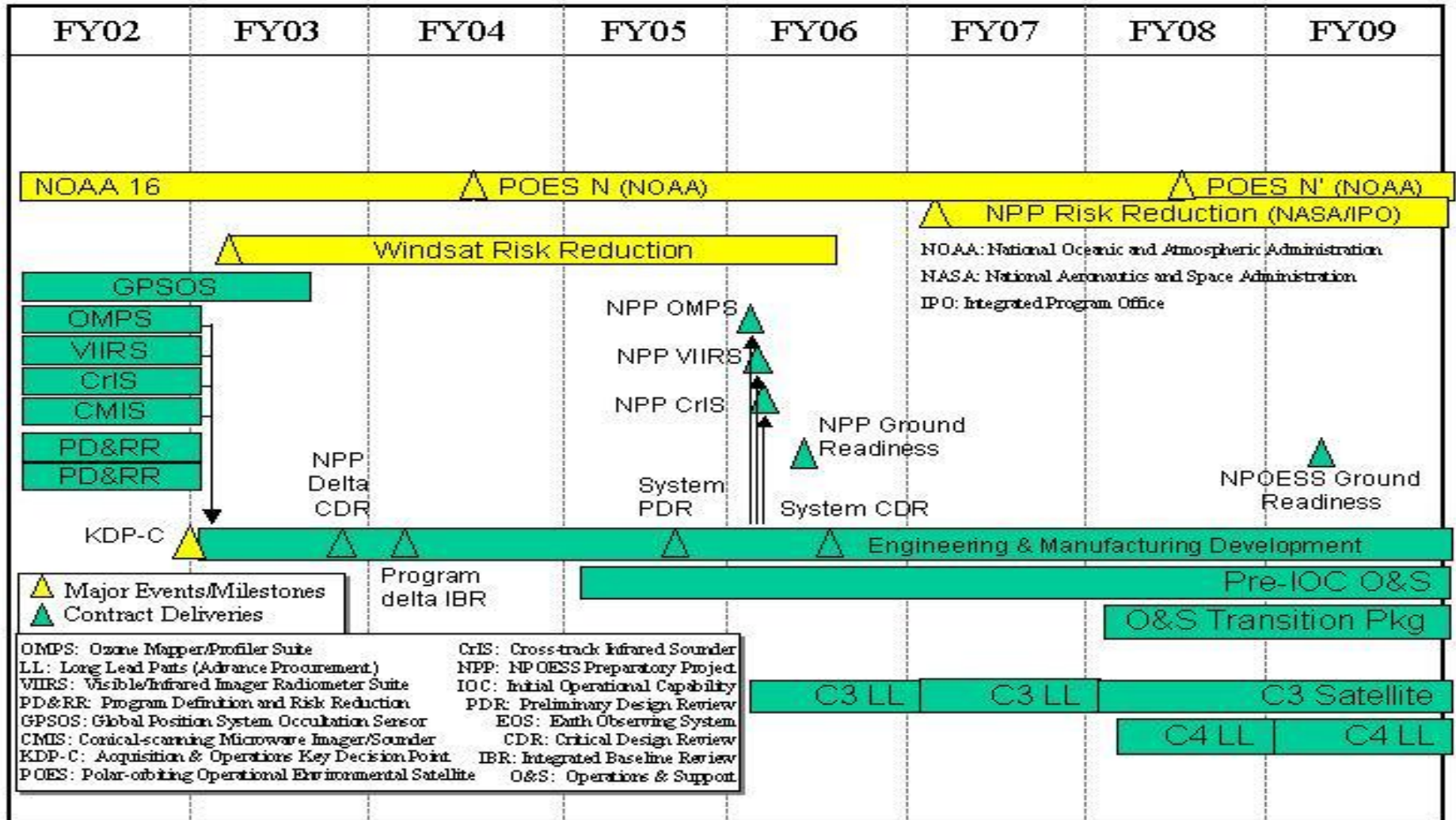
04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0305178F National Polar-Orbiting Op  
Env Satellite

PROJECT NUMBER AND TITLE

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



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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2004</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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <b><u>Schedule Profile</u></b>			
(U) Sensors Critical Design Reviews	2-3Q		
(U) System Delta Preliminary Design Review			3Q
(U) Initial Baseline Review	2Q	1Q	
(U) NPOESS Replan		1Q	
(U) Executive Committee Review	3Q	2-4Q	1-3Q
(U) NPP Critical Design Review	4Q		



**UNCLASSIFIED**

PE NUMBER: 0603260F  
 PE TITLE: Intelligence Advanced Development

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2004</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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	7.144	4.453	4.612	4.655	4.740	4.812	4.893	0.000	0.000
3479 Advanced Sensor Exploitation	3.525	0.785	0.830	0.838	0.853	0.871	0.898	0.000	0.000
3480 Automated Imagery Exploitation	1.297	1.297	1.336	1.348	1.372	1.391	1.408	0.000	0.000
3481 Knowledge Based Tech For Intelligence	1.290	1.320	1.361	1.374	1.399	1.417	1.435	0.000	0.000
3482 Science & Tech Intelligence Methodology	1.032	1.051	1.085	1.095	1.116	1.133	1.152	0.000	0.000

**(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.

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2004

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603260F Intelligence Advanced Development

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	4.422	4.513	4.624
(U) Current PBR/President's Budget	7.144	4.453	4.612
(U) Total Adjustments	2.722	-0.060	
(U) Congressional Program Reductions		-0.022	
Congressional Rescissions		-0.038	
Congressional Increases			
Reprogrammings	2.722		
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			
FY 2003 increases were to fund additional PE efforts in support of CSAF-directed Kill Chain Enhancement Initiative			

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

DATE  
**February 2004**

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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total	
3479 Advanced Sensor Exploitation	3.525	0.785	0.830	0.838	0.853	0.871	0.898	0.000	0.000	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

FY03 includes funding increases for CSAF-directed Kill Chain Enhancement Initiative

**(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 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.

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Complete Enhanced Intel Prep of the Battlespace (EIPB)	0.095		
(U) Complete Moving Target Information Exploitation (MTIX) Tracking Enhancements	0.346		
(U) Initiate Advanced Fusion Workstation (AFWS)	0.216		
(U) Initiate Predictive Battlespace Awareness (PBA) Fusion 2+	0.146		
(U) Initiate Kill Chain Enhancement Initiative, Joint Targetting Toolbox Element	2.722		
(U) Complete Advanced Fusion Workstation (AFWS)		0.409	
(U) Continue Predictive Battlespace Awareness (PBA) Fusion 2+		0.376	0.830
(U) Total Cost	3.525	0.785	0.830

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E									
(U) Other APPN									
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 2004		
BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)					PE NUMBER AND TITLE 0603260F Intelligence Advanced Development					PROJECT NUMBER AND TITLE 3479 Advanced Sensor Exploitation		
(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</u> Prior to FY 2003 Cost	<u>FY</u> 2003 Cost	<u>FY</u> 2003 Award Date	<u>FY</u> 2004 Cost	<u>FY</u> 2004 Award Date	<u>FY</u> 2005 Cost	<u>FY</u> 2005 Award Date	<u>Cost to Complete</u>	<u>Total</u> Cost	<u>Target</u> Value of Contract
(U) <u>Product Development</u>												
Zel-Tech, Inc. -- Enhanced Intelligence Preparation of the Battlespace	C/CPFF		0.793	0.100	Nov-02	0.000		0.000		0.000	0.893	0.893
Northrop-Grumman Corp. -- Moving Target Information eXploitation (MTIX)	C/CPFF		0.103	0.250	Nov-02	0.000		0.000		0.000	0.353	0.353
Northrop-Grumman Corp. -- Advanced Fusion Workstation (AFWS)	C/CPFF		0.000	0.278	Mar-03	0.465	Nov-03	0.000		0.000	0.743	0.743
Zel-Tec, Inc. -- Predictive Battlespace Awareness (PBA)	C/CPFF		0.200	0.175	Nov-02	0.320	Nov-03	0.830	Nov-04	0.838	2.363	2.363
Northrop-Grumman Corp. -- Joint Targeting Toolbox	C/CPFF		0.850	2.722	Jan-03	0.000		0.000		0.000	3.572	3.572
Subtotal Product Development			1.946	3.525		0.785		0.830		0.838	7.924	7.924
Remarks:												
(U) Total Cost			1.946	3.525		0.785		0.830		0.838	7.924	7.924

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603260F Intelligence Advanced Development

PROJECT NUMBER AND TITLE

3479 Advanced Sensor Exploitation

Fiscal Year	2001				2002				2003				2004				2005				2006				2007				2008				2009			
	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
<u>Advanced Sensor Exploitation</u>																																				
<u>(BPAC 3479) Efforts</u>																																				
- Enhanced Intel Preparation of the Battlespace	◆								◆																											
- Moving Target Information Exploitation (MTIX) Enhancements	◆								◆																											
- Advanced Fusion Work Station									◆				◆																							
- Predictive Battlespace Awareness Fusion 2+									◆				◆				◆																			
- Joint Targeting Toolbox—Kill Chain Enhancement Initiative					◆				◆				◆																							

**UNCLASSIFIED**

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2004</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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Complete Enhanced Intel Prep of the Battlespace (EIPB)	4Q		
(U) Complete Moving Target Information Exploitation (MTIX) Tracking Enhancements	4Q		
(U) Initiate Advanced Fusion Work Station (AFWS)	1Q		
(U) Complete Advanced Fusion Work Station (AFWS)		4Q	
(U) Initiate Predictive Battlespace Awareness (PBA) Fusion 2+	3Q		
(U) Continue Predictive Battlespace Awareness (PBA) Fusion 2+		1-4Q	1-4Q
(U) Joint Targeting Toolbox - Kill Chain Enhancement Initiative	1-4Q		

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

DATE

**February 2004**

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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total	
3480 Automated Imagery Exploitation	1.297	1.297	1.336	1.348	1.372	1.391	1.408	0.000	0.000	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

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

This 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.

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Complete NATO Secondary Imagery Interoperability	0.202		
(U) Complete eXploitation Tools for Video (XTV)	0.298		
(U) Initiate/Complete Metadata Archival & Retrieval System (MARS) Geospacial Intel Tools	0.198		
(U) Initiate/Complete Hypershops/Imagery Viewer	0.175		
(U) Initiate/Complete Video Annotation/Imagery Viewer	0.148		
(U) Initiate Imagery Assurance and Exploitation	0.276		
(U) Continue Imagery Assurance and Exploitation		0.144	
(U) Initiate Distributed Common Ground Systems (DCGS) Video Processing Capability (VPC)		0.344	
(U) Initiate J-View Integration into AF Research Laboratory (AFRL) Imagery Viewer		0.194	
(U) Initiate Map-Based Interface to Geospacial Product Library Client		0.194	
(U) Initiate UAV Motion Imagery Exploitation (MIE)		0.421	
(U) Complete Imagery Assurance and Exploitation			0.150
(U) Complete Distributed Common Ground Systems (DCGS) Video Processing Capability (VPC)			0.100
(U) Complete J-View Integration into AFRL Imagery Viewer			0.150
(U) Complete Map-Based Interface to Geospacial Product Library Client			0.150
(U) Continue UAV Motion Imagery Exploitation (MIE)			0.377
(U) Initiate Dynamic Motion Imagery Annotation & Exploitation Tools			0.200
(U) Initiate Operational Imagery Protection and Authentication			0.209
(U) Total Cost	1.297	1.297	1.336

Exhibit R-2a, RDT&E Project Justification

DATE

February 2004

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

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

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

(U) AF RDT&E

(U) Other APPN

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 2004			
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			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total	FY	FY	FY	FY	FY	FY	Cost to	Total	Target	
			Prior to FY 2003 Cost	2003 Cost	2003 Award Date	2004 Cost	2004 Award Date	2005 Cost	2005 Award Date	Complete	Cost	Value of Contract	
(U) Product Development													
PAR Government Systems Corp. -- NATOC/CPFF Secondary Imagery Interoperability			0.050	0.202	Nov-03	0.000			0.000		0.000	0.252	0.350
PAR Government Systems Corp. -- eXploitation Tools for Video (XTV)	C/CPFF		0.200	0.298	Nov-03	0.000			0.000		0.000	0.498	0.498
PAR Government Systems Corp. -- Metadata Archival & Retrieval System (MARS)	C/CPFF		0.150	0.198	Nov-03	0.000			0.000		0.000	0.348	0.348
PAR Government Systems Corp. -- AFRL Hypershops Imagery Viewer (AIV) and Video Annotation/Imagery Viewer	C/CPFF		0.000	0.323	Nov-03	0.000			0.000		0.000	0.323	0.323
PAR Government Systems Corp. -- Imagery Assurance and Exploitation Contractor TBD -- Distributed Common Ground Systems (DCGS) Video Processing Capability (VPC) Video Annotation Capability	C/CPFF		0.000	0.276	Nov-03	0.144	Nov-03	0.150	Nov-04		0.000	0.570	0.570
Contractor TBD -- J-View Integration into AFRL Imagery Viewer	C/CPFF			0.000		0.344	Mar-04	0.100	Nov-04		0.000	0.444	0.444
Contractor TBD -- Map-Based Interface for Geospacial Product Library Client	C/CPFF		0.000	0.000		0.194	Mar-04	0.150	Nov-04		0.000	0.344	0.344
Contractor TBD -- UAV Motion Imagery Exploitation (MIE)	C/CPFF		0.000	0.000		0.421	Mar-04	0.377	Nov-04		0.400	1.198	1.198
Contractor TBD -- Dynamic Motion Imagery Annotation & Exploitation Tools	C/CPFF		0.000	0.000		0.000		0.200	Mar-05		0.498	0.698	0.698
Contractor TBD -- Operational Imagery Protection and Authentication	C/CPFF		0.000	0.000		0.000		0.209	Mar-05		0.450	0.659	0.658
Subtotal Product Development			0.400	1.297		1.297		1.336			1.348	5.678	5.775
Remarks:													

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

DATE

**February 2004**

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**

(U) Total Cost

0.400	1.297	1.297	1.336	1.348	5.678	5.775
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Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

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	2001				2002				2003				2004				2005				2006				2007				2008				2009			
	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
<i>Automated Imagery Exploitation (BPAC 3480)</i>																																				
- NATO Secondary Imagery Interoperability	◆											◆																								
- eXploitation Tools for Video (XTV)	◆											◆																								
- Metadata Archival & Retrieval System (MARS) Geospacial Intel Tools									◆				◆																							
- Hypershop/Imagery Viewer									◆				◆																							
- Video Annotation/Imagery Viewer									◆				◆																							
- Imagery Assurance & Exploitation									◆				◆				◆																			
- Distributed Common Ground Systems (DCGS) Video Processing 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																	◆				◆				◆				◆							

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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2004</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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Complete NATO Secondary Imagery Interoperability	4Q		
(U) Complete eXploitation Tools for Video	4Q		
(U) Initiate/Complete Metadata Archival & Retrieval System (MARS) Geospacial Intel Tools	1-4Q		
(U) Initiate/Complete Hypershop/Imagery Viewer	1-4Q		
(U) Initiate/Complete Video Annotation/Imagery Viewer	1-4Q		
(U) Initiate Imagery Assurance & Exploitation	2Q		
(U) Initiate Distributed Common Ground Systems (DCGS) Video Processing Capability (VPC)		2Q	
(U) Initiate J-View Integration into AFRL Imagery Viewer		2Q	
(U) Initiate Map-Based Interface for Geospacial Product Library Client		2Q	
(U) Initiate UAV Motion Imagery Exploitation (MIE)		1Q	
(U) Continue Imagery Assurance & Exploitation		1-4Q	
(U) Complete Imagery Assurance & Exploitation			4Q
(U) Complete Map-Based Interface for Geospacial Product Library Client			4Q
(U) Complete J-View Integration into AFRL Imagery Viewer			4Q
(U) Complete Distributed Common Ground Systems (DCGS) Video Processing Capability (VPC)			4Q
(U) Continue UAV Motion Imagery Exploitation (MIE)			1-4Q
(U) Initiate Dynamic Motion Imagery Annotation Exploitation Tools			2Q
(U) Initiate Operational Imagery Protection and Authentication			2Q

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

DATE

February 2004

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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
3481 Knowledge Based Tech For Intelligence	1.290	1.320	1.361	1.374	1.399	1.417	1.435	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

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

This 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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Completed Broadsword Enhancements	0.302		
(U) Completed WebTAS Transition into the Combined Air Operations Center Experimental (CAOC-X)	0.137		
(U) Initiate/Complete Web-Based Messaging Application (WMA)	0.288		
(U) Continued Trusted Transfer Agent (TTA) -- Continue Phase 2, Reach Up	0.258		
(U) Continued Trusted Transfer Agent (TTA) -- Initiate Phase 3, Starguard	0.105		
(U) Initiate Infrastructure Operations Tool Access/Secure Intelligence Data Enterprise (IOTA/SIDEARM)	0.200		
(U) Continue Trusted Transfer Agent (TTA) -- Complete Phase 2, Reach Up		0.205	
(U) Continue Trusted Transfer Agent (TTA) -- Continue Phase 3, Starguard		0.342	
(U) Initiate Counter Terrorism / Information Operations (CT / IO) Target Data Access		0.331	
(U) Initiate High Throughput Imagery Guard (H-TIG)		0.142	
(U) Initiate Multi Information Domain Access Web Server (MIDAS)		0.200	
(U) Continue IOTA/SIDEARM		0.100	
(U) Complete Trusted Transfer Agent (TTA) -- Complete Phase 3, Starguard			0.250
(U) Continue IOTA/SIDEARM			0.100
(U) Continue Counter Terrorism / Information Operations (CT / IO) Target Data Access			0.200
(U) Continue High Throughput Imagery Guard (H-TIG)			0.250
(U) Continue Multi Information Domain Access Web Server (MIDAS)			0.331
(U) Initiate Enterprise Workflow Management			0.230
(U) Total Cost	1.290	1.320	1.361

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

DATE

February 2004

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) C. Other Program Funding Summary (\$ in Millions)****(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 <b>February 2004</b>		
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>		
<u>(U) Cost Categories</u>	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2003 Cost</u>	<u>FY 2003 Cost</u>	<u>FY 2003 Award Date</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Synectics Corp. -- Broadsword Enhancements	C/CPFF		0.300	0.302	Nov-02	0.000		0.000		0.000	0.602	0.602
Northrup Grumman, Logicon & Intelligent Software Solutions, Inc. -- WebTAS Transition into Consolidated Air Operations Center-Experimental (CAOC-X)	C/CPFF		0.100	0.137	Nov-02	0.000		0.000		0.000	0.237	0.237
Northrup Grumman -- Web-Based Messaging Application (WMA)	C/CPFF		0.000	0.288	Mar-03	0.000		0.000		0.000	0.288	0.288
Dolphin Technology, Inc. -- Trusted Transfer Agent (TTA) Phase 2 - Reach U <sub>F</sub>	C/IDIQ		0.100	0.258	Nov-02	0.205	Nov-03	0.000		0.000	0.563	0.563
Dolphin Technology, Inc. -- Trusted Transfer Agent (TTA) Phase 3 - Secure Trusted Automated Routing (STAR) Guard	C/IDIQ		0.000	0.105	Mar-03	0.342	Nov-03	0.250	Nov-04	0.000	0.697	0.697
Northrup Grumman -- Information Operations Tool Access (IOTA) / Secure Intelligence Data Enterprise-Aware Repository Middleware (SIDEARM)	C/IDIQ		0.000	0.200	Mar-03	0.100	Nov-03	0.100	Nov-04	0.000	0.400	0.400
Northrup Grumman -- Counter Terrorism /Information (CT / IO) Operations Target Data Access	C/CPFF		0.000	0.000		0.331	Mar-04	0.200	Nov-04	0.275	0.806	0.806
Dolphin Technology, Inc. -- High Throughput Imagery Guard (H-TIG)	C/IDIQ		0.000	0.000		0.142	Feb-04	0.250	Nov-04	0.325	0.717	0.717
Dolphin Technology, Inc. -- Multi-Information Domain Access Web Server (MIDAS)	C/IDIQ		0.000	0.000		0.200	Mar-04	0.331	Nov-04	0.449	0.980	0.980
Contractor TBD -- Enterprise Workflow	C/CPFF		0.000	0.000		0.000		0.230	Mar-05	0.325	0.555	0.555

**UNCLASSIFIED**

<b>Exhibit R-3, RDT&amp;E Project Cost Analysis</b>	DATE <b>February 2004</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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Management						0.000		
Subtotal Product Development	0.500	1.290	1.320	1.361	1.374	5.845	5.845	
Remarks:								
(U) Total Cost	0.500	1.290	1.320	1.361	1.374	5.845	5.845	



Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

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	2001				2002				2003				2004				2005				2006				2007				2008				2009			
	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
<i><u>Knowledge Based Technologies for Intelligence (BPAC 3481)</u></i>																																				
- Broadsword Enhancements	◆											◆																								
- Web Timeline Analysis System (WebTAS) Transition into CAOC-X						◆						◆																								
- Web-based Messaging Agent (WMA)											◆	◆																								
- Trusted Transfer Agent (TTA)	◆															◆																				
- TTA Phase 2, Reach Up						◆										◆																				
- TTA Phase 3, Star Guard											◆	◆																								
- Initiate Infrastructure Operations Tools Access / Secure Intelligence Data Enterprise Aware Repository Middleware (IOTA / SIDEARM)											◆	◆																								
- Counter Terrorism / Information Operations (CT / IO) Target Data Access														◆																						
- High Throughput Imagery Guard (H-TIG)														◆																						
- Multi-Information Domain Access Web-Server (MIDAS)														◆																						
- Enterprise Workflow Management																																				

**UNCLASSIFIED**

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2004</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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<b>(U) <u>Schedule Profile</u></b>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Complete Broadsword Enhancements	4Q		
(U) Complete WebTAS Transition into CAOC-X	4Q		
(U) Initiate / Complete Web-Based Messaging Agent (WMA)	1-4Q		
(U) Continue Trusted Transfer Agent (TTA) -- Continued Phase 2, Reach Up	1-4Q		
(U) Continue Trusted Transfer Agent--Initiated Phase 3, Starguard	2Q		
(U) Initiate Infrastructure Operations Tools Access (IOTA) / Secure Intelligence Data Enterprise -Aware Repository Middleware (IOTA / SIDEARM)	2Q		
(U) Continue Trusted Transfer Agent (TTA) -- Complete Phase 2, Reach Up		4Q	
(U) Continue Trusted Transfer Agent (TTA) -- Continue Phase 3, Starguard		1-4Q	
(U) Continue IOTA / SIDEARM		1-4Q	
(U) Initiate Counter-Terrorism / Information Operations (CT / IO) Target Data Access		2Q	
(U) Initiate Multi Information Domain Access Web Server (MIDAS)		2Q	
(U) Initiate High Throughput Imagery Guard (H-TIG)		2Q	
(U) Complete Trusted Transfer Agent (TTA) -- Complete Phase 3, Starguard			4Q
(U) Complete IOTA / SIDEARM			4Q
(U) Continue Counter-Terrorism / Information Operations (CT / IO) Target Data Access			1-4Q
(U) Continue Multi-Information Domain Access Web Server (MIDAS)			1-4Q
(U) Continue High Throughput Imagery Guard (H-TIG)			1-4Q
(U) Initiate Enterprise Workflow Management Tool			2Q

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

DATE

**February 2004**

<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>		
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
3482 Science & Tech Intelligence Methodology	1.032	1.051	1.085	1.095	1.116	1.133	1.152	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

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

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.

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Complete Dynamic Information Operations Development Environment (DIODE) Interface to Electronic Intelligence Preparation of the Battlefield (EIPB)	0.258		
(U) Continue Tel-Scope Situation Awareness	0.332		
(U) Initiate Joint DIODE Integration Tools	0.283		
(U) Initiate Joint Integrated Air Defense System (IADS) View	0.159		
(U) Complete Tel-Scope Situation Awareness		0.293	
(U) Complete Joint DIODE Integration Tools		0.311	
(U) Continue Joint IADS View		0.278	
(U) Initiate DIODE / Automated Correspondence Analysis System (ACAS)		0.169	
(U) Complete Joint IADS View			0.377
(U) Continue DIODE / Automated Correspondence Analysis System (ACAS)			0.350
(U) Initiate Command & Control (C2) Process Models			0.358
(U) Total Cost	1.032	1.051	1.085

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E									
(U) Other APPN									
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 2004		
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		
(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</u> <u>Prior to FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
(U) <u>Product Development</u>												
PRC, Inc. -- Dynamic Information Operations Decision Environment (DIODE) for Electronic Intelligence Preparation of the Battlefield (EIPB)	C/CPFF		0.100	0.258	Nov-02	0.000		0.000		0.000	0.358	0.358
PRC, Inc. -- Tel-Scope	C/FFP		0.200	0.332	Nov-02	0.325	Nov-03	0.000		0.000	0.857	0.857
Northrup-Grumman IT -- Joint DIODE Integration Tools	C/CPFF		0.000	0.283	Mar-03	0.250	Nov-03	0.000		0.000	0.533	0.533
SAIC -- Joint Integrated Air Defense System (IADS) View	C/CPFF		0.000	0.159	Mar-03	0.300	Nov-03	0.377	Nov-04	0.000	0.836	0.836
Contractor TBD -- DIODE / Automated Correspondent Analysis System (ACAS)	C/CPFF		0.000			0.176	Mar-04	0.350	Nov-04	0.425	0.951	0.951
Contractor TBD, Contract No. TBD -- Command and Control (C2) Process Models	C/CPFF		0.000			0.000		0.358	Mar-05	0.400	0.758	0.758
Subtotal Product Development			0.300	1.032		1.051		1.085		0.825	4.293	4.293
Remarks:												
(U) Total Cost			0.300	1.032		1.051		1.085		0.825	4.293	4.293

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

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	2001				2002				2003				2004				2005				2006				2007				2008				2009							
	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				
<i>Science and Technology Intelligence Methodology (BPAC 3482)</i>																																								
- Dynamic Information Operations Development Environment (DIODE) Interface to Electronic Intelligence Preparation of the Battlefield (EIPB)	◆											◆																												
- Tel-Scope Situation Awareness	◆															◆																								
- Joint DIODE Integration Tools									◆				◆																											
- Joint Integrated Air Defense System (IADS) View									◆							◆																								
- DIODE / Automated Correspondence Analysis System (ACAS)													◆																				◆							
- Command and Control (C2) Process Models																	◆																				◆			
-																																								

UNCLASSIFIED

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2004</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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Completed Dynamic Information Operations Development Environment (DIODE) Interface to Electronic Intelligence Preparation of the Battlefield (EIPB)	4Q		
(U) Continued Tel-Scope Situation Awareness	1-4Q		
(U) Initiated Joint DIODE Integration Tools	2Q		
(U) Initiated Joint Integrated Air Defense System (IADS) View	2Q		
(U) Complete Tel-Scope Situation Awareness		4Q	
(U) Complete Joint DIODE Integration Tools		4Q	
(U) Continue Joint IADS View		1-4Q	
(U) Initiate DIODE / Automated Correspondence Analysis System (ACAS)		2Q	
(U) Complete Joint IADS View			4Q
(U) Continue DIODE / Automated Correspondence Analysis System (ACAS)			1-4Q
(U) Initiate Command and Control (C2) Process Models			2Q

**UNCLASSIFIED**

PE NUMBER: 0603287F  
 PE TITLE: Physical Security Equipment

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>								DATE <b>February 2004</b>	
<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>					
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	24.275	22.640	21.819	25.560	30.111	29.767	0.000	0.000
5121 Physical Security Equipment	0.000	24.275	22.640	21.819	25.560	30.111	29.767	0.000	0.000

In FY 2004, this is a new PE, efforts were transferred from PE 0603228D8Z.

**(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. Funding for critical RDT&E security improvements within Service channels fluctuated widely over the years and prompted the 1989 Congressionally directed consolidation of the Services and former Defense Special Weapons Agency (DSWA) / Defense Threat Reduction Agency (DTRA) PSE RDT&E funds into a single OSD controlled program element. 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 Command, Control and Communications (ASD(C3I)), 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.

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

DATE

February 2004

BUDGET ACTIVITY

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

PE NUMBER AND TITLE

0603287F Physical Security Equipment

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	0.000	24.483	22.699
(U) Current PBR/President's Budget	0.000	24.275	22.640
(U) Total Adjustments	0.000	-0.208	
(U) Congressional Program Reductions		-0.208	
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			

(U) **Significant Program Changes:**

OSD PBD 203C transferred funding for this existing program, along with PE 0604287F, from OUSD(AT&L) PE 0603228D8Z to the Air Force for management and execution, effective October 1, 2003.



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

DATE

February 2004

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>			
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total	
5121 Physical Security Equipment	0.000	24.275	22.640	21.819	25.560	30.111	29.767	0.000	0.000	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

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

This program 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. Funding for critical RDT&E security improvements within Service channels fluctuated widely over the years and prompted the 1989 Congressionally directed consolidation of the Services and former Defense Special Weapons Agency (DSWA) / Defense Threat Reduction Agency (DTRA) PSE RDT&E funds into a single OSD controlled program element. 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 Command, Control and Communications (ASD(C3I)), 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)**FY 2003FY 2004FY 2005

(U) This is a new Air Force program element. Effective October 1, 2003, funding for this program transfers from OUSD(AT&L) PE 0603228D8Z. Please refer to that PE for FY 2003 plans.

**(U) FORCE PROTECTION/TACTICAL SECURITY EQUIPMENT**

12.114

- Issue Federal Business Opportunities Announcement for the tactical video Surveillance System (TVSS).
- Conduct Market Survey for the TVSS.
- Complete an Aircraft Self -Protection Security System (ASPSS) prototype.
- Conduct ASPSS Design Testing
- Continue Pre-Planned Product Improvements (P3I) to the Tactical Automated Security System (TASS) annunciator.
- Continue TASS P3I efforts to incorporate long range detection, remotely operated weapons, and Unmanned Aerial Vehicle (UAV) capabilities.
- Complete the Electronic Trip Flare (ETF) Acquisition Strategy/Acquisition Plan.

Exhibit R-2a, RDT&E Project Justification		DATE <b>February 2004</b>
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>-Complete the ETF Milestone B Decision Review Package.</li> <li>-Complete the ETF Life Cycle Cost Estimate and Acquisition Program Baseline.</li> <li>-Complete the development of the Remote Detection and Tracking Sensor (RDTS) and accomplish testing.</li> <li>-Begin the development of a RDTS Over-Water Detection Enhancement.</li> <li>-Develop 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.</li> <li>-Begin development of a long range laser break-beam sensor.</li> <li>-Conduct user assessment of 30 Battlefield Anti-Intrusion System (BAIS) - an upgraded replacement for PEWDII - systems deployed to Iraq in support of Stryker mission.</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 programs, 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>		
(U) FORCE PROTECTION/TACTICAL SECURITY EQUIPMENT		13.671
<ul style="list-style-type: none"> <li>-ETF Award SDD contract. Conduct Production Qualification Testing</li> <li>-Continue TASS P3I efforts including improvements to the annunciator.</li> <li>-Conduct Concept Exploration for best technical approach to integrate TVSS with other phenomenology for Tactical Intrusion Detection.</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 programs, 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>		
(U) ROBOTIC SECURITY SYSTEMS INTEGRATION		0.425
<ul style="list-style-type: none"> <li>-Investigate/develop motion detection algorithms for a Mission Payload Prototype (MPP)</li> <li>-Investigate COTS computer hardware, acoustical/chemical/biological sensors for integration with the MPP.</li> <li>-Continue to develop and analyze hardware and software to support the development of intrusion detection from an external robotics platform.</li> </ul>		
(U) ROBOTIC SECURITY SYSTEMS INTEGRATION		0.850
<ul style="list-style-type: none"> <li>-Design MPP modular architecture.</li> </ul>		
Project 5121	R-1 Shopping List - Item No. 39-4 of 39-9	Exhibit R-2a (PE 0603287F)

Exhibit R-2a, RDT&E Project Justification		DATE February 2004
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>-Build a smaller weatherized/ruggedized MPP prototype</li> <li>-Perform lab and field analysis of mobile intrusion detection from an external robotics platform.</li> </ul>		
(U) WATERSIDE SECURITY SYSTEM		2.900
<ul style="list-style-type: none"> <li>-Continue efforts with a foreign ally to develop the next generation of the WQX-2 sonar in support of Subsurface Threat Detection.</li> <li>-Continue pre-planned production improvements (P3I) efforts for COTS sonar technologies in support of Subsurface Threat Detection.</li> <li>-Conduct market investigations of anti-swimmer nets, barriers, and communications devices in order to enhance Swimmer Delay, Denial, and Response.</li> <li>-Develop software that addresses the weaknesses of video motion detection in support of Shoreline Intrusion Detection.</li> <li>-Provide report on the performance evaluation of selected animal recall devices that assist in developing a Non-Lethal Diver Deterrence.</li> <li>-Begin 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> <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 animal testing in support of Non-Lethal Diver Deterrence.</li> <li>-Begin human 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> </ul>		
(U) EXPLOSIVE DETECTION EQUIPMENT		5.615
<ul style="list-style-type: none"> <li>-Provide support to the Counter Bomb/Counter Bomber (CB2) Advanced Concept Technology Demonstration (ACTD).</li> <li>-Test two non-imaging Millimeter Wave (MMW) prototype systems for effective range, sensitivity, resolution, penetration, and vulnerability to countermeasures.</li> <li>-Redesign the Laser IMS Handheld Explosive Detector pre-prototype into a production model.</li> <li>-Complete the conceptual design of the Remote/Stand-off Explosive Detection System and provide a test-bed demonstration.</li> <li>-Provide support to the effort to find solutions to the Improvised Explosive Detection (IED) threat.</li> <li>-Continue to develop logistic support plans, summaries, operational manuals for selected COTS products.</li> <li>-Update and maintain 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) LOCKS, SAFES, VAULTS		0.621
<ul style="list-style-type: none"> <li>-Develop a universal mounting system for the Integrated Locking Device (ILD).</li> </ul>		
Project 5121	R-1 Shopping List - Item No. 39-5 of 39-9	Exhibit R-2a (PE 0603287F)

Exhibit R-2a, RDT&E Project Justification							DATE <b>February 2004</b>		
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>-Complete the ILD User Data Package.</li> <li>-Provide ILD information and installation support.</li> <li>-Investigate and review storage magazine test data regarding the Physical Security of Storage Magazines.</li> <li>-Prioritize storage magazine types based on quantity, risk to sensitive weapons/ammunition and delay times.</li> <li>-Publish a findings report and propose a way-ahead regarding the security of Storage Magazines.</li> <li>-Develop a Test and Evaluation Master Test Plan (TEMP).</li> <li>-Act as a repository/center of excellence for ILD information and provide IKD 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 IKD installation coordination, support and training for DoD activities.</li> </ul>									
(U)	COMMERCIAL-OFF-THE-SHELF TESTING							2.600	
<ul style="list-style-type: none"> <li>-Begin preparations for Force Protection Equipment Demonstration (FPED) V.</li> <li>-Provide support to the effort to find solutions to the Improvised Explosive Detection (IED) in Iraqi and Afghanistan.</li> <li>-Continue efforts that increase the situational awareness for system operators.</li> <li>-Investigate COTS capability that avoids increases in the manpower footprint.</li> <li>-Continue 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	
<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)	Total Cost					0.000	24.275	22.640	
(U)	<b><u>C. Other Program Funding Summary (\$ in Millions)</u></b>								
		<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>
		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>
(U)	AF RDT&E								<u>Total Cost</u>
(U)	Other APPN								
	Not Applicable								
(U)	<b><u>D. Acquisition Strategy</u></b>								
	Not Applicable								

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Exhibit R-3, RDT&E Project Cost Analysis										DATE February 2004		
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		
(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</u> <u>Prior to FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
(U) <u>Product Development</u>												
HQ ESC (Air Force)	PO					6.525	Jan-04	6.140		Continuing	TBD	
PM-PSE (US Army)	MIPR					5.954	Dec-03	4.610		Continuing	TBD	
CNO-N34 (US Navy)	MIPR					7.708	Dec-03	6.910		Continuing	TBD	
DTRA	MIPR					1.850	Jan-04	1.540		Continuing	TBD	
Subtotal Product Development			0.000	0.000		22.037		19.200		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												0.000
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												0.000
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u>												
Program Office Support						2.238		3.440		Continuing	TBD	
Subtotal Management			0.000	0.000		2.238		3.440		Continuing	TBD	0.000
Remarks:												
(U) <u>Not Applicable</u>												
(U) Total Cost			0.000	0.000		24.275		22.640		Continuing	TBD	0.000
Remarks:												

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

DATE  
**February 2004**

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 2004																											
BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)														PE NUMBER AND TITLE PE 0603287F Physical Security Equipment									Project Number and Name 5121 Physical Security Equipment																											
Fiscal Year	2001				2002				2003				2004				2005				2006				2007				2008				2009																	
	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 Storage Magazines Security																																																		
Develop a light weight ILD for armory doors																																																		
Begin prep for FPED V																																																		
Execute FPED V																																																		

R-4 Schedule Profile

Exhibit R-4, RDT&E Schedule Profile

DATE  
**February 2004**

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 2004																																							
BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)		PE NUMBER AND TITLE PE 0603287F Physical Security Equipment																																							
Project Number and Name 5121 Physical Security Equipment		2001				2002				2003				2004				2005				2006				2007				2008				2009							
Fiscal Year		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				
TV SS Market Survey																																									
RD TS Over-Water Detection Development																																									
ETF Milestone B Decision Review																																									
Long Range Laser Break-Beam Sensor																																									
Award ETF SDD contract																																									
MPP Motion Detection algorithms																																									
MPP-COTS Sensor Integration																																									
Smart Gate P3I																																									
Design MPP modular architecture																																									
Anti-Swimmer Tech market investigations																																									

<b>Exhibit R-4, RDT&amp;E Schedule Profile</b>		DATE <b>February 2004</b>
<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>

Exhibit R-4, Schedule Profile		Date: February 2004																																		
<b>BUDGET ACTIVITY</b> 04 Advanced Component Development and Prototypes (ACD&P)												<b>PE NUMBER AND TITLE</b> PE 0603287F Physical Security Equipment												<b>Project Number and Name</b> 5121 Physical Security Equipment												
Fiscal Year	2001				2002				2003				2004				2005				2006				2007				2008				2009			
	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
Shore line Intrusion Detection VMD Assessment																▲																				
T&E CO TS VMD products for Shore line Intrusion Detection																▲																				
Provide support to CE2 ACTD												▲																								
Find IED Solutions												▲																								
Redesign the Laser IMS HH ED prototype																▲																				
Test MMW prototypes																▲																				
Refine MMW technology to counter standoff and suicide bomber threats																				▲																
Initiate LRIP of Laser IMS HH ED																																				



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Exhibit R-4a, RDT&E Schedule Detail		DATE
		<b>February 2004</b>
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>
	<u>FY 2003</u>	<u>FY 2004</u>
		<u>FY 2005</u>
(U) <b>Schedule Profile</b>		
(U) Conduct market survey for the TVSS		2Q
(U) Begin to develop a RDTS Over-Water Detection Capability		2Q
(U) Complete ETF Milesone B decision review package		2Q
(U) Begin development of the long range laser break-beam sensor		1Q
(U) Award ETF SDD contract		
(U) Investigate motion detection alorithms for MPP		1Q
(U) Investigate COTS sensors for integration with MPP		2Q
(U) Begin Smart Gate P3I		
(U) Design MPP modular architecture		
(U) Conduct market investigations for anti-swimmer technology		2Q
(U) Develop sorftware to assess the weaknesses of Shoreline Intrusion Detection VMD		
(U) T&E COTS VMD products for Shoreline Intrusion Detection		1Q
(U) Provide support to CB2 ACTD		1Q
(U) Provide support to find solutions to the IED threat		1Q
(U) Redesign the Laser IMS HH ED prototype for production		3Q
(U) Test two MMW prototypes		4Q
(U) Refine MMW technology to counter standoff and suicide bomber threats		
(U) Initiate LRIP of Laser IMS HH ED		2Q
(U) Develop universal mounting system for the ILD		3Q
(U) Publish Report on the security of Storage Magazines		3Q
(U) Develop a light weight ILD for weapons armory doors		
(U) Begin prep for FPED V		4Q
(U) Execute FPED V		1Q
		3Q

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PE NUMBER: 0603421F  
 PE TITLE: GLOBAL POSITIONING SYSTEM

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2004</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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	46.633	0.000	40.568	180.023	291.035	779.493	794.030	Continuing	TBD
4993 GPS BLOCK III	46.633	0.000	40.568	180.023	291.035	779.493	794.030	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 with the potential of hosting the GPS PNT system on multi-mission service satellites, 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.

GPS Modernization Stewardship funds efforts which are of a national scale, joint civil-military in nature, and benefit two or more agencies. Stewardship funding transfers to PE 0305165F starting in FY04.

This program is Budget Activity 4 - Advanced Component Development and Prototypes because it is a Phase A effort, pre-Key Decision Point (KDP)-B (Risk Reduction and Design Phase Approval).

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	55.580	0.000	40.674
(U) Current PBR/President's Budget	46.633	0.000	40.568
(U) Total Adjustments	-8.947	0.000	
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings	-7.132		
SBIR/STTR Transfer	-1.815		

**(U) Significant Program Changes:**

The GPS III program has been restructured to focus on supporting a FY12 first launch. FY03 funds were used to continue ongoing Phase A (concept definition) through

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

DATE

**February 2004**

BUDGET ACTIVITY

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

PE NUMBER AND TITLE

**0603421F GLOBAL POSITIONING SYSTEM**

FY04 with two contractors. Plan to award a single contract for development in FY06.

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

DATE  
**February 2004**

BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				PE NUMBER AND TITLE <b>0603421F GLOBAL POSITIONING SYSTEM</b>			PROJECT NUMBER AND TITLE <b>4993 GPS BLOCK III</b>			
Cost (\$ in Millions)		FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
4993	GPS BLOCK III	46.633	0.000	40.568	180.023	291.035	779.493	794.030	Continuing	TBD
	Quantity of RDT&E Articles	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 with the potential of hosting the GPS PNT system on multi-mission service satellites, 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.

GPS Modernization Stewardship funds efforts which are of a national scale, joint civil-military in nature, and benefit two or more agencies. Stewardship funding transfers to PE 0305165F starting in FY04.

This program is Budget Activity 4 - Advanced Component Development and Prototypes because it is a Phase A effort, pre-Key Decision Point (KDP)-B (Risk Reduction and Design Phase Approval).

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Continue GPS Modernization Stewardship	4.600	0.000	0.000
(U) Continue Program Support for GPS III/Modernization	4.121	0.000	3.533
(U) Continue GPS III/Modernization Development	37.912	0.000	37.035
(U) Total Cost	46.633	0.000	40.568

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E									
(U) PE 0305165F Navstar GPS (Space & Ground), R-187	284.036	144.790	148.344	117.813	94.558	43.657	39.758	Continuing	TBD
(U) Other APPN									

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>February 2004</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) C. Other Program Funding Summary (\$ in Millions)**

Operations and Maintenance (PE									
(U) 0305165F, BA 1 - Operating Forces, SAG 13D)	41.663	53.205	65.991	67.497	78.468	81.947	82.354	Continuing	TBD
Missile Procurement (PE									
(U) 0305165F, BA 5-Space and Other Support, P-31, 32)	249.794	255.758	330.530	341.482	265.975	132.051	82.367	Continuing	TBD
Other Procurement (PE									
(U) 0305165F, BP 83-Electronics and Telecommunications Equipment, WSC 6790, P-70 and WSC 6730; BP 86 - Spares & Repair Parts WSC 190A, P-111)	19.926	12.495	7.804	13.547	12.051	10.359	22.889	Continuing	TBD

**(U) D. Acquisition Strategy**

In Nov 00, GPS III awarded one-year contracts to Boeing and Lockheed Martin for \$16M each. Both companies completed the System Architecture and Requirements Definition (SA/RD) studies to survey GPS user needs, develop feasible concepts to address those needs, and provide lifecycle cost estimates associated with achieving various levels of needs satisfaction. Efforts accomplished prior to FY02 are included in PE 0305165F. During FY01, changes were made in the DoD space acquisition process. As a result, the next phase is termed Concept Definition (Phase A, similar to Component Advanced Development) followed by a Key Decision Point B (KDP-B). After a full and open competition for Phase A continuation contracts, two contracts were awarded in January 2004 to Boeing and Lockheed Martin. The GPS JPO plans to release an RFP following KDP-B (3Q FY05) to conduct a Full and Open Competition for a single contract to complete development. The exact scope and strategy for this competitive award will be determined during 3QFY04 reviews with the Undersecretary of the Air Force.

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Exhibit R-3, RDT&E Project Cost Analysis										DATE February 2004		
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</u> Prior to FY 2003 Cost	<u>FY</u> 2003 Cost	<u>FY</u> 2003 Award Date	<u>FY</u> 2004 Cost	<u>FY</u> 2004 Award Date	<u>FY</u> 2005 Cost	<u>FY</u> 2005 Award Date	<u>Cost to Complete</u>	<u>Total</u> Cost	<u>Target</u> Value of Contract
(U) <u>Product Development</u>												
Concept Defn and Risk Reduction											0.000	
Boeing	FPLOE	Seal Beach, CA	3.234								3.234	
Lockheed Martin	FPLOE	King of Prussia, PA	3.290								3.290	
Spectrum Astro	FPLOE	Gilbert, AZ	3.234								3.234	
Phase A Continuation Contracts											0.000	
Boeing	CPIF	Seal Beach, CA		12.774	Jan-04	0.000		8.042	Oct-04	Continuing	TBD	20.816
Lockheed Martin	CPIF	King of Prussia, PA		12.774	Jan-04	0.000		8.042	Oct-04	Continuing	TBD	20.816
GPS III/Modernization System Engineering & Technical Support	Various	Various	43.347	14.290		0.000		20.951		Continuing	TBD	
Subtotal Product Development			53.105	39.838		0.000		37.035		Continuing	TBD	41.632
Remarks:												
(U) <u>Support</u>												
JPO Support for GPS III / Modernization	Various	Various	7.812	2.295		0.000		3.533		Continuing	TBD	
GPS Modernization Stewardship	Various	Various	4.700	4.500		0.000		0.000		Continuing	TBD	
Subtotal Support			12.512	6.795		0.000		3.533		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			65.617	46.633		0.000		40.568		Continuing	TBD	41.632

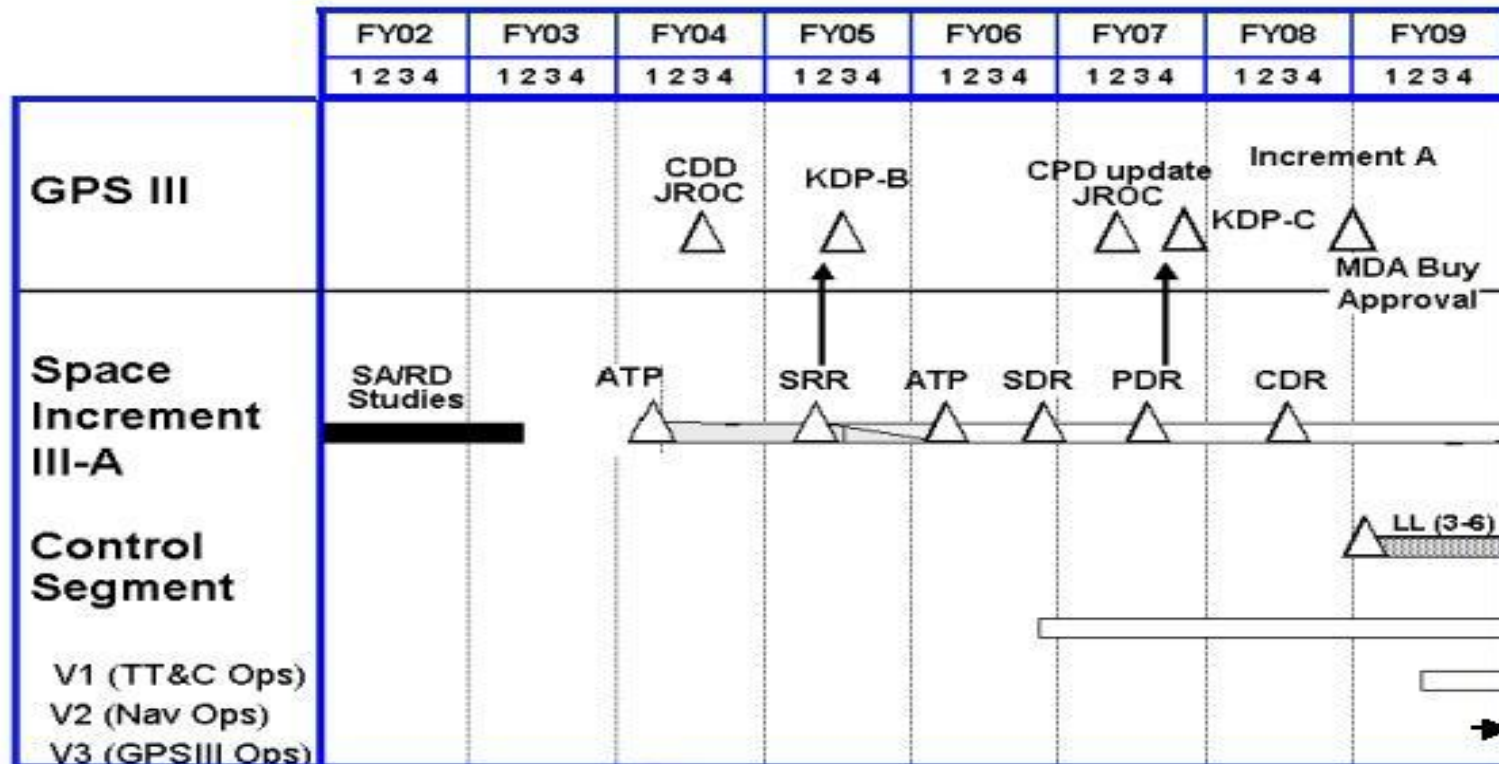
Exhibit R-4, RDT&E Schedule Profile

DATE  
February 2004

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



CDD – Capabilities Development Document    KDP – Key Decision Point    JROC – Joint Requirements Oversight Council  
 MDA – Milestone Decision Authority    ATP – Authority to Proceed    SRR – System Requirements Review  
 SDR – System Design Review    PDR – Preliminary Design Review    CDR – Critical Design Review  
 LL – Long Lead    CPD – Capability Production Document  
 TT&C – Tracking, Telemetry and Commanding



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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>		DATE <b>February 2004</b>
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BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	PE NUMBER AND TITLE <b>0603421F GLOBAL POSITIONING SYSTEM</b>	PROJECT NUMBER AND TITLE <b>4993 GPS BLOCK III</b>
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<b>(U) <u>Schedule Profile</u></b>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Phase A		2Q	
(U) Joint Requirements Oversight Council Capabilities (JROC) Development Document (CDD)		4Q	
(U) System Requirements Review (SRR)			1Q
(U) KDP-B			3Q
(U) Phase B/C development Request for Proposal (RFP) released			3Q

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

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>								<b>DATE</b> <b>February 2004</b>	
<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>					
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	802.648	802.341	612.049	409.972	316.777	189.477	131.102	Continuing	TBD
4050 Advanced MILSATCOM	802.648	802.341	612.049	409.972	316.777	189.477	131.102	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. Additionally, this program focuses on leveraging commercial technology to the maximum extent possible. 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 decision for Satellite 3 will be in 4th Qtr FY04. Satellites 1 and 2 are funded with RDT&E funds and satellite 3 is funded with procurement funds. A program Interim Progress Review is scheduled for Nov 04 to decide if a fourth AEHF satellite will be required to be added to the program. 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 (ACD&P), since it funds Advanced EHF technology validation and modeling.

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	822.477	778.078	573.652
(U) Current PBR/President's Budget	802.648	802.341	612.049
(U) Total Adjustments	-19.829	24.263	
(U) Congressional Program Reductions		-10.737	
Congressional Rescissions			
Congressional Increases		35.000	
Reprogrammings	-6.499		
SBIR/STTR Transfer	-13.330		

**(U) Significant Program Changes:**

FY04: Congress added \$35M for production gap between satellites 2 and 3  
 FY05: Increased funding \$40M due to production gap and revised crypto costs

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

DATE  
**February 2004**

<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>			
Cost (\$ in Millions)		FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
4050	Advanced MILSATCOM	802.648	802.341	612.049	409.972	316.777	189.477	131.102	Continuing	TBD
	Quantity of RDT&E Articles	0	0	0	0	1	1	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. Additionally, this program focuses on leveraging commercial technology to the maximum extent possible. 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 decision for Satellite 3 will be in 4th Qtr FY04. Satellites 1 and 2 are funded with RDT&E funds and satellite 3 is funded with procurement funds. A program Interim Progress Review is scheduled for Nov 04 to decide if a fourth AEHF satellite will be required to be added to the program. 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 (ACD&P), since it funds Advanced EHF technology validation and modeling.

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishment/Planned Program			
(U) Continued SDD of the AEHF satellites and Mission Control System (MCS), continue build of satellite engineering development models and brassboards, and complete initial software increments for bus, payload and MCS	706.200		
(U) Continued SDD of the AEHF satellites and MCS, begin build of Satellite 1 and 2 flight hardware, and begin intermediate software increments for bus, payload and MCS		711.941	
(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			549.949
(U) Continue satellite cryptographic development	35.900	36.200	7.100
(U) Continued JTEO support (Starting in FY04, the JTEO effort transferred to PE 0303601F, MILSATCOM Terminals)	3.500		
(U) Continue qualification and productization of radiation-hardened components for USAF/DOD space programs	19.000	19.000	21.000
(U) Continue Program Office and related support activities	38.048	35.200	34.000
(U) Total Cost	802.648	802.341	612.049

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

DATE

February 2004

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Related Proc:									
(U) MPAF, PE 0303604F, Advanced EHF, P-28	0.000	0.000	98.590	392.244	0.000	11.811	15.142	16.043	533.830
(U) RDT&E, PE 0603854F, Wideband MILSATCOM (Space), Project #644870, CCS-C, R-51	13.801	36.271	20.297	8.269	6.999	5.701	6.357	Continuing	TBD
(U) OPAF, PE 03033600F									
(U) Wideband Gapfiller System, Project #836780, CCS-C	5.320	8.049	2.124	0.288	0.000	0.000	0.000	0.000	15.781
(U) RDT&E, PE 0303601F, MILSATCOM Terminals, BA-7, R-173	65.090	171.860	272.149	241.099	161.529	186.802	173.957	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 ACD&P 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.

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Exhibit R-3, RDT&E Project Cost Analysis										DATE February 2004		
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				
(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</u> Prior to FY 2003 Cost	<u>FY</u> 2003 Cost	<u>FY</u> 2003 Award Date	<u>FY</u> 2004 Cost	<u>FY</u> 2004 Award Date	<u>FY</u> 2005 Cost	<u>FY</u> 2005 Award Date	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
NSA	MIPR	Camden, NJ	68.682	35.900		36.200		7.100		0.000	147.882	
JTEO	PR	San Diego, CA	11.991	3.500						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	0.000	
SDD Contractor (Lockheed Martin)	CPAF		397.284	706.200		711.941		549.949		Continuing	TBD	
Radiation Hardened parts developers	Various		0.000	19.000		19.000		21.000		84.205	143.205	
None											0.000	
Subtotal Product Development			903.873	764.600		767.141		578.049		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												
Various	Various		50.448	38.048		35.200		34.000		Continuing	TBD	
None											0.000	
Subtotal Support			50.448	38.048		35.200		34.000		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
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			954.321	802.648		802.341		612.049		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

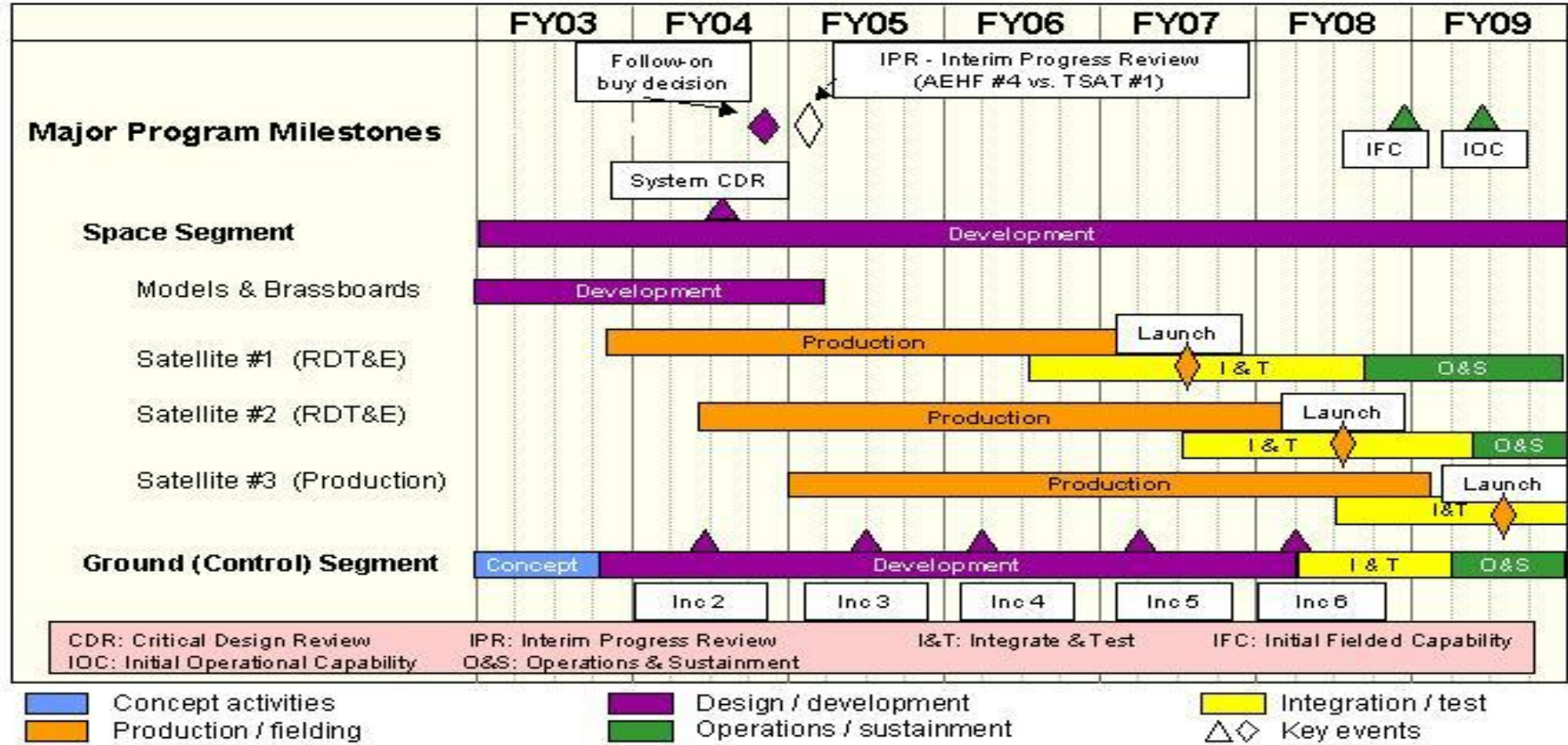
DATE

February 2004

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



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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2004</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>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <b><u>Schedule Profile</u></b>			
(U) System Critical Design Review (CDR)		3Q	
(U) Follow-On Buy Decision (previously referred to as Milestone C)		4Q	
(U) Interim Progress Review			1Q
(U) Mission Control Segment: first operational ground software delivery			4Q



**UNCLASSIFIED**

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

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2004</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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	22.398	5.533	0.960	0.000	0.000	0.000	0.000	0.000	300.003
4052 Polar Satellite Communications	22.398	5.533	0.960	0.000	0.000	0.000	0.000	0.000	300.003

In FY 2003, Project A005, National Strategic SATCOM System (NSSS) was terminated. Advanced Polar System (PE 0604435F) will satisfy north polar region requirements beginning in FY13.

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

This program element acquires the Interim Polar System that provides protected communications (anti jam, anti scintillation, and low probability of intercept) for tactical users in the north polar region.

Project 4052, Polar Satellite Communications, continues funding the addition of scaled-down low data rate Milstar packages on three classified host satellites as an expedited, interim solution to protected communications requirements in the north polar region. Polar MILSATCOM is studying the feasibility of maintaining the Interim Polar capability beyond three satellites.

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 (Interim Polar).

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	19.347	5.580	0.963
(U) Current PBR/President's Budget	22.398	5.533	0.960
(U) Total Adjustments	3.051	-0.047	
(U) Congressional Program Reductions		-0.047	
Congressional Rescissions			
Congressional Increases			
Reprogrammings	3.051		
SBIR/STTR Transfer			

**(U) Significant Program Changes:**

FY03: Increased Polar Satellite Communications funding for program cost growth at classified host program office.

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

DATE  
**February 2004**

<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>			<b>PROJECT NUMBER AND TITLE</b> <b>4052 Polar Satellite Communications</b>			
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total	
4052 Polar Satellite Communications	22.398	5.533	0.960	0.000	0.000	0.000	0.000	0.000	300.003	
Quantity of RDT&E Articles	0	0	1	1	0	0	0			

FY03: Added \$9,872 from Project A005, National Strategic SATCOM System to address Project 4052 overrun. NSSS will be addressed via the Transformational Communication Architecture. Advanced Polar System (PE 0604635F) will satisfy north polar region requirements beginning in FY09.

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

This program element acquires the Interim Polar System that provides protected communications (anti jam, anti scintillation, and low probability of intercept) for tactical users in the north polar region.

Project 4052, Polar Satellite Communications, continues funding the addition of scaled-down low data rate Milstar packages on three classified host satellites as an expedited, interim solution to protected communications requirements in the north polar region. Polar MILSATCOM is studying the feasibility of maintaining the Interim Polar capability beyond three satellites.

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 (Interim Polar).

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Assemble payload and integrate with host vehicle for Interim Polar packages 2 and 3. (Through the classified host contract)	22.398		
(U) Conduct final integration and tests of Polar package 2. Integrate Polar package 3 with host vehicle. (Through the classified host contract)		5.533	
(U) Continue integration and test of Polar package 3 with host vehicle. (Through the classified host contract)			0.960
(U) Total Cost	22.398	5.533	0.960

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

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

(U) None.  
The Navy has used its own PE(s) to modify control systems and terminals to work with Interim Polar.

**(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.

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

DATE

**February 2004**

BUDGET ACTIVITY		PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE				
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>		<b>0603432F Polar MILSATCOM (Space)</b>						<b>4052 Polar Satellite Communications</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>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to</u>	<u>Total</u>	<u>Target</u>
			<u>Prior to FY</u>	<u>2003</u>	<u>2003</u>	<u>2004</u>	<u>2004</u>	<u>2005</u>	<u>2005</u>	<u>Complete</u>	<u>Cost</u>	<u>Value of</u>
			<u>2003</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Contract</u>
			<u>Cost</u>	<u>Date</u>	<u>Date</u>	<u>Date</u>	<u>Date</u>	<u>Date</u>	<u>Date</u>			
(U) <u>Product Development</u>												
Classified	Classified		271.112	22.398		5.533		0.960			300.003	
N/A											0.000	
Subtotal Product Development			271.112	22.398		5.533		0.960		0.000	300.003	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
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
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			271.112	22.398		5.533		0.960		0.000	300.003	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

BUDGET ACTIVITY

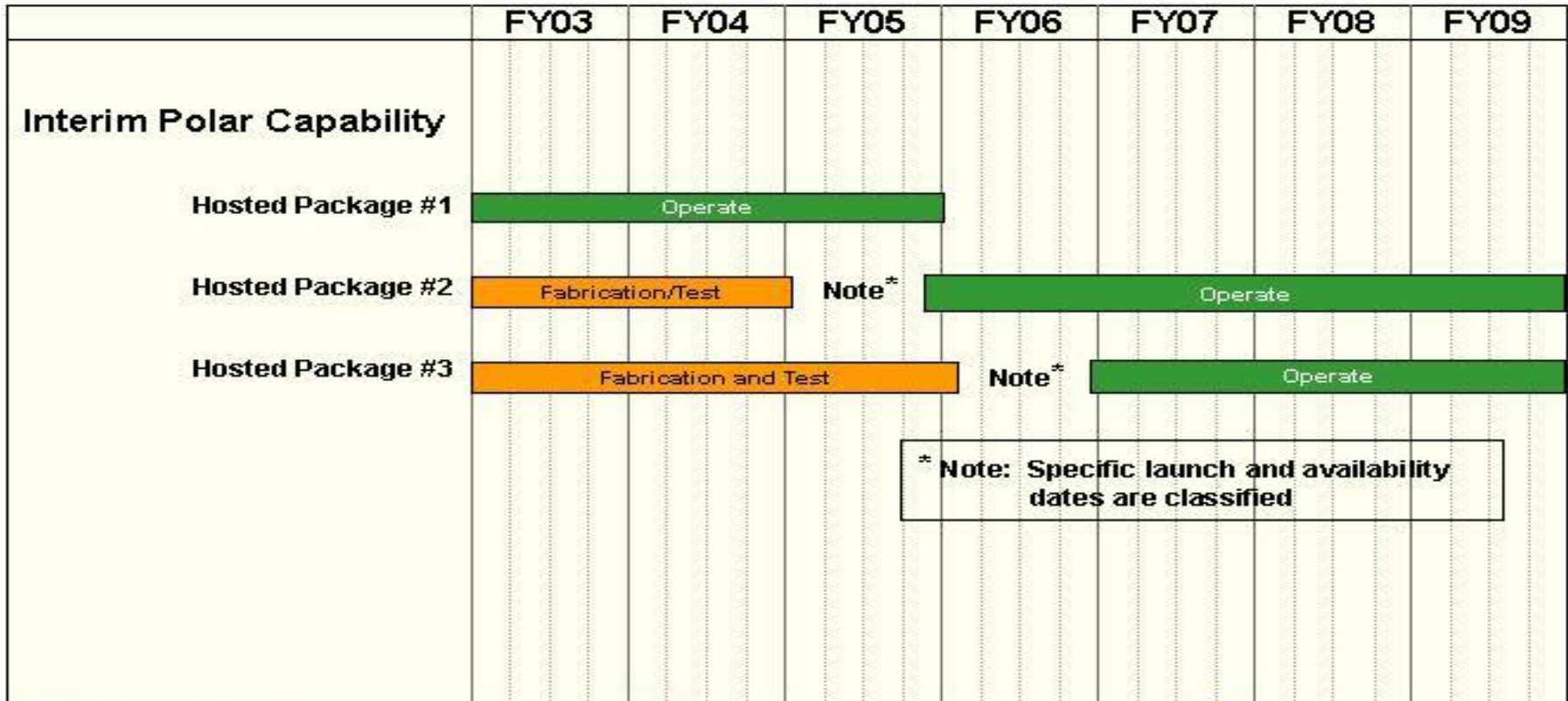
04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603432F Polar MILSATCOM (Space)

PROJECT NUMBER AND TITLE

4052 Polar Satellite Communications



■ Concept activities  
■ Production / fielding

■ Design / development  
■ Operations / sustainment

■ Integration / test  
 △◇ Key events

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2004</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>
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(U) <b>Schedule Profile</b>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Acquisition activities and dates are classified			

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PE NUMBER: 0603434F

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

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>								<b>DATE</b> <b>February 2004</b>	
<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>					
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	232.082	264.681	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
4056 National Polar-orbiting Operational Env. Sat. Syst.	232.082	264.681	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

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 05, 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. NPOESS will provide operational military commanders and civilian leaders timely, quality weather and environmental information to effectively employ weapon systems and protect national resources. 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-orbit at all times (sun synchronous means the satellites cross the equator at the same local sun time on each of their 14 orbits/day). The first NPOESS launch is scheduled for FY10, with Initial Operational Capability (IOC) in FY11 and Final Operational Capability (FOC) in FY13.

Currently, this PE is in Budget Activity 4 (Advance Component Development and Prototypes) because it supported sensor and satellite bus development. 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). As a result, the program transitions to Budget Activity 5, System Development and Demonstration, beginning in FY05.

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2004

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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	232.082	267.716	297.668
(U) Current PBR/President's Budget	232.082	264.681	0.000
(U) Total Adjustments	0.000	-3.035	
(U) Congressional Program Reductions		-3.035	
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			
Consolidation of PE 0603434F to PE 0305178F beginning in FY05.			



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

DATE  
**February 2004**

<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>			<b>PROJECT NUMBER AND TITLE</b> <b>4056 National Polar-orbiting Operational Env. Sat. Syst.</b>		
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
4056 National Polar-orbiting Operational Env. Sat. Syst.	232.082	264.681	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	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 05 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. NPOESS will provide operational military commanders and civilian leaders timely, quality weather and environmental information to effectively employ weapon systems and protect national resources. 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-orbit at all times (sun synchronous means the satellites cross the equator at the same local sun time on each of their 14 orbits/day). The first NPOESS launch is scheduled for FY10, with Initial Operational Capability (IOC) in FY11 and Final Operational Capability (FOC) in FY13.

Currently, this PE is in Budget Activity 4 (Advance Component Development and Prototypes) because it supported sensor and satellite bus development. 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). As a result, the program transitions to Budget Activity 5, System Development and Demonstration, beginning in FY05.

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Continue DoD funded program office support for Acquisition and Operations (A&O) efforts.	0.623	0.972	0.000
(U) Continue System A&O effort including ground and space system development, design and fabrication for risk reduction missions.	231.459	263.709	0.000
(U) Total Cost	232.082	264.681	0.000

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>February 2004</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>	<b>PROJECT NUMBER AND TITLE</b> <b>4056 National Polar-orbiting Operational Env. Sat. Syst.</b>
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**(U) C. Other Program Funding Summary (\$ in Millions)**

(U) Related EELV MPAF: PE 0305953F**	0.000	0.000	0.000	0.000	0.000	138.278	138.278	497.492	774.048
(U) Total NPOESS Air Force	232.082	264.681	307.668	246.805	255.093	528.659	295.789	Continuing	TBD
(U) Other operations and sustainment funding***	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

\* National Oceanic and Atmospheric Administration Procurement, Acquisition, and Construction (NOAA PAC) appropriation. The Air Force (DoD) and NOAA (DoC) fund NPOESS 50/50. Total cost includes prior-year amount of \$425.617K. 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 payload development, enhancing data utility to users, and protecting maximum flexibility to ensure the best overall system design. The program pursues a significant investment in the development and on-orbit testing of selected payload sensors while deferring individual sensor selections among competing international, NASA, military, and industry alternatives to assess and determine the optimum technical performance potential of each candidate sensor. NPOESS is currently pursuing two missions to reduce sensor development and data user segment risk. The WindSat/Coriolis mission will prove technologies to be used for the NPOESS Conical-Scanning Microwave Imager/Sounder (CMIS) sensor. The NPOESS Preparatory Project will fly and test-out four of NPOESS's most complex sensors: the Visible/Infrared Imager Radiometer Suite (VIIRS), the Cross Track Infrared Sounder (CrIS), the Advanced Technology Microwave Sounder (ATMS), and the Ozone Mapper/Profiler Suite (OMPS). Overall system prime contractor selection was deferred until 2002 to minimize system level preliminary costs, allow sensor complement maturation, and delay the commitment to full system acquisition until approximately six years before the first satellite need date. The first two satellites will be incrementally funded with RDT&E funding. The rest will be fully funded with Missile Procurement funding.

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Exhibit R-3, RDT&E Project Cost Analysis										DATE February 2004		
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</u> <u>Prior to FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
(U) <u>Product Development</u>												
Syst. Arch. Studies	C/CPFF	Various	12.820								12.820	
TRW (PDRR)	C/FFP	Primary, Los Angeles, CA	27.955								27.955	
Lockheed Martin (PDRR)	C/FFP	Primary, Sunnyvale, CA	39.434								39.434	
Lockheed Martin	C/CPAF	Primary, Sunnyvale, CA	4.489								4.489	
Raytheon (VIIRS & CrIS)	C/CPFF	Sensor, Santa Barbara, CA	28.716								28.716	
Ball Aerospace (CMIS & OMPS)	C/CPFF	Sensor, Boulder, CO	29.746								29.746	
Ball Aerospace (OMPS)	C/CPAF	Sensor, Boulder, CO	35.730								35.730	
ITT Aerospace (VIIRS & CrIS)	C/CPFF	Sensor, Fort Wayne, IN	30.475								30.475	
Boeing (formerly Hughes) Space and Communications (CMIS)	C/CPFF	Sensor, El Segundo, CA	27.195								27.195	
Orbital Sciences (OMPS)	C/CPFF	Sensor, Baltimore, MD	2.578								2.578	
SAAB Ericsson (GPSOS)	C/CPFF	Sensor, Goteborg, Sweeden	2.786								2.786	
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	6.486	231.459	Aug-02	263.709	Aug-02			Continuing	TBD	
Other Contracts	MISC	Various	21.975								21.975	
Government Led Studies	Gov. Orgs.	Various	26.302								26.302	
Subtotal Product Development			411.869	231.459		263.709		0.000		Continuing	TBD	0.000
Remarks: FY05 funding consolidated in PE 0305178F												

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Exhibit R-3, RDT&E Project Cost Analysis							DATE <b>February 2004</b>			
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>			
<u>(U) Support</u>										
Integrated Program Office (IPO) Support	Various		Program Office, Silver Spring, MD	15.098	0.623	0.972		Continuing	TBD	
Subtotal Support				15.098	0.623	0.972	0.000	Continuing	TBD	0.000
Remarks: FY05 funding consolidated in PE 0305178F										
<u>(U) Test &amp; Evaluation</u>										
Included in IPO Support										
Subtotal Test & Evaluation				0.000	0.000	0.000	0.000	0.000	0.000	0.000
Remarks:										
<u>(U) Management</u>										
Included in IPO Support										
Subtotal Management				0.000	0.000	0.000	0.000	0.000	0.000	0.000
Remarks:										
<u>(U) Total Cost</u>				426.967	232.082	264.681	0.000	Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

BUDGET ACTIVITY

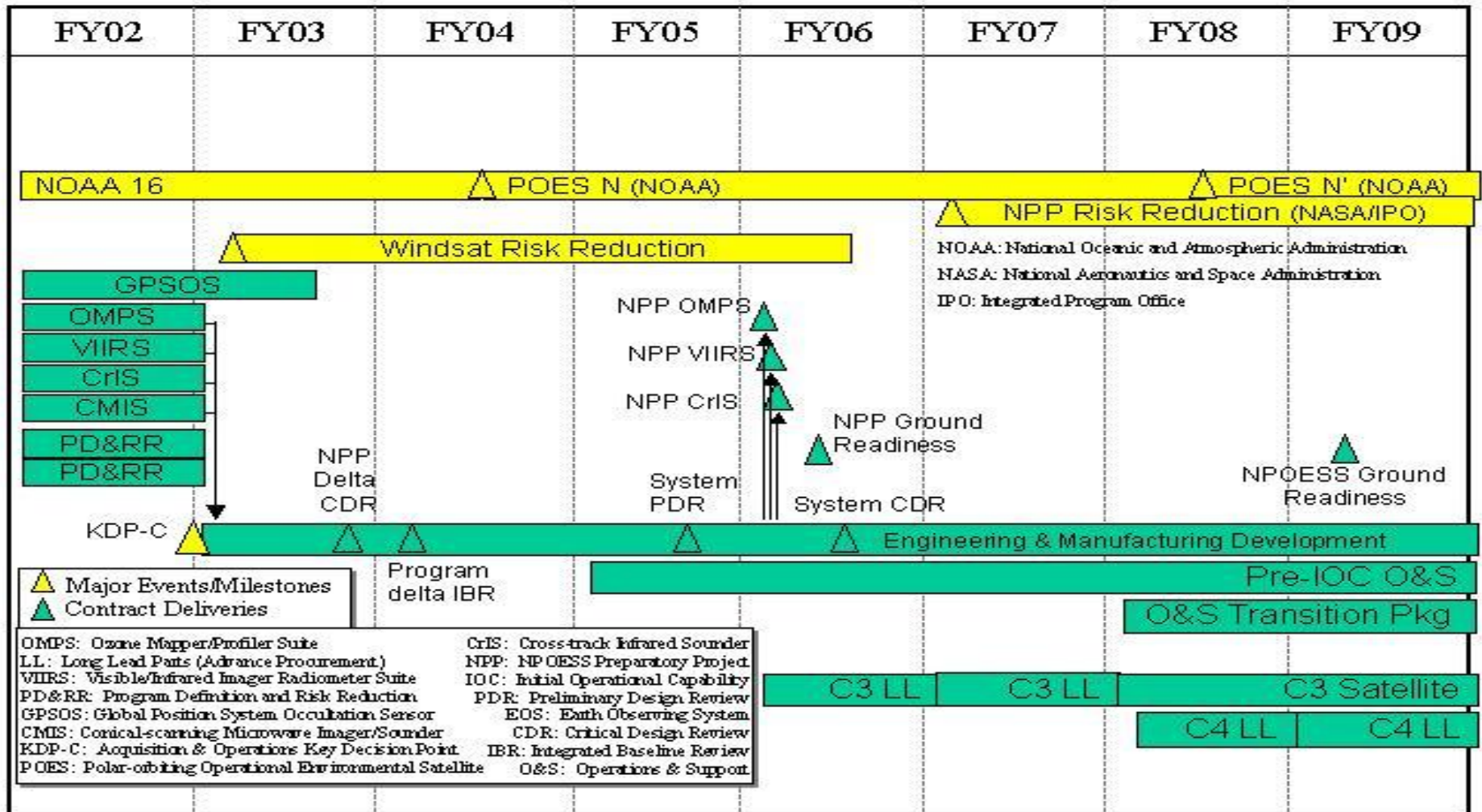
04 Advanced Component Development and Prototypes (ACD&P)

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 2004</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>	<b>PROJECT NUMBER AND TITLE</b> <b>4056 National Polar-orbiting Operational Env. Sat. Syst.</b>
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<b>(U) <u>Schedule Profile</u></b>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Sensors Critical Design Reviews	2-3Q		
(U) System Delta Preliminary Design Review			3Q
(U) Initial Baseline Review	2Q	1Q	
(U) NPOESS Replan		1Q	
(U) Executive Committee Review	3Q	2-4Q	1-3Q
(U) NPP Critical Design Review	4Q		

**UNCLASSIFIED**

PE NUMBER: 0603438F  
 PE TITLE: Space Control Technology

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2004</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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	12.787	14.547	15.046	14.129	22.987	30.542	40.338	Continuing	TBD
2611 Technology Insertion Planning and Analysis	12.787	9.287	8.691	9.473	12.529	15.734	20.676	Continuing	TBD
A007 Space Range	0.000	5.260	6.355	4.656	10.458	14.808	19.662	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.

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	13.609	14.714	15.786
(U) Current PBR/President's Budget	12.787	14.547	15.046
(U) Total Adjustments	-0.822	-0.167	
(U) Congressional Program Reductions		-0.042	
Congressional Rescissions		-0.125	
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer	-0.822		
(U) <u>Significant Program Changes:</u>			

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2004

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603438F Space Control Technology

None.



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

DATE  
**February 2004**

<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>		
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
2611 Technology Insertion Planning and Analysis	12.787	9.287	8.691	9.473	12.529	15.734	20.676	Continuing	TBD
Quantity of RDT&E Articles	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 2003</u>	<u>FY 2004</u>	<u>FY 2005</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 event in space for use in the Space Control mission area.	0.300	3.074	2.500
(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. Begin 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. Include funding for architectural engineering leading to an overall Space Control architecture.	3.254	2.390	2.200
(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 systems and advanced target characteristics. Includ	4.193	2.695	3.007

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>February 2004</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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development of countermeasures for insertion into counter-communications weapons systems. Continue development 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) Continued development of the system architecture and acquisition of Space Control elements of the Space Range. Continued demonstration of test assets, special test equipment, capabilities and systems required to test, validate, and verify performance of integrated Space Control systems. Continued developing the test range assets to exercise, train, and develop tactics for Space Control systems.	3.075		
(U) Program Office and Other Technical Support	1.965	1.128	0.984
(U) Total Cost	12.787	9.287	8.691

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) None									

(U) **D. Acquisition Strategy**

All contracts funded in this program element will be awarded using competitive procedures to the maximum extent possible.

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Exhibit R-3, RDT&E Project Cost Analysis										DATE February 2004		
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				
(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</u> Prior to FY 2003 Cost	<u>FY</u> 2003 Cost	<u>FY</u> 2003 Award Date	<u>FY</u> 2004 Cost	<u>FY</u> 2004 Award Date	<u>FY</u> 2005 Cost	<u>FY</u> 2005 Award Date	<u>Cost to Complete</u>	<u>Total</u> Cost	<u>Target</u> Value of Contract
(U) <u>Product Development</u>												
SSA Development	Various	SMC- El Segundo, CA	3.920	0.300	Oct-02	3.074	Nov-03	2.500	Nov-04	Continuing	TBD	
DCS Activities	Various	Various	13.453	3.254	Oct-02	2.390	Nov-03	2.200	Nov-04	Continuing	TBD	
OCS Development	Various	NRL- Wash DC	32.300	4.193	Oct-02	2.695	Nov-03	3.007	Nov-04	Continuing	TBD	
System Architecture & Range Development	Various	Various	3.920	3.075	Oct-02	0.000					6.995	
Subtotal Product Development			53.593	10.822		8.159		7.707		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												
Program Office and Other Technical Support	Various	SMC- El Segundo, CA	2.013	1.965	Oct-02	1.128		0.984		Continuing	TBD	
None											0.000	
Subtotal Support			2.013	1.965		1.128		0.984		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
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U)												
Subtotal			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			55.606	12.787		9.287		8.691		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

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

Activity Area	FY03	FY04	FY05	FY06	FY07	FY08	FY09
<b>Technology Planning</b>	OCS/DCS/SSA Technology Roadmaps →						
<b>Space Situation Awareness</b> <i>SBSS Risk Reduction</i>			▲		▲		
		Filters		Focal Plane Array			
<i>SSA Technology Development</i>		▲		▲			
<b>Defensive Counter Space</b> <i>RAIDRS Attack Detection Dev.</i>		Skywalker Tool		Proximity Ops Sensor			
	▲						
<i>Vulnerability/Prevention Assessments</i>	DTB/ISAS	▲	▲	▲	▲	▲	▲
<i>AFRL Asymmetric Threat</i>	▲	▲	▲	▲			
	Assessment Reports/Recommendations						
<i>AFRL Modeling and Simulation</i>	▲		▲	▲			
<b>Offensive Counter Space</b> <i>C-Comm Technique Dev.</i>	Space CHOP						
	SATAC	▲	▲	▲			
<i>C-SR Enabling Technology</i>	Database	Models	Models				
		▲	Lab	▲	Field	▲	
<i>Signal Processing</i>			Lab Demo	Demo	Demo	Technique Development/Insertion →	
	▲	▲	C-SR	▲	Field	▲	C-SR
	Field Demo	Studies	Demo	Studies	Technique Development/Insertion →		
	▲	▲					
	Arch/Reqs.	Prototype	Insertion				

AFRL: Air Force Research Laboratory      C-Comm: Counter Communication      CHOP: Counterspace Hands-On Program  
 C-SR: Counter Surveillance/Reconnaissance      DCS: Defensive Counterspace      DTB/ISAS: DCS Test Bed/Interim Satellite as a Sensor  
 OCS: Offensive Counterspace      RAIDRS: Rapid Attack Identification Detection Reporting System  
 SATAC: Satellite Assessment Center      SBSS: Space Based Space Surveillance      SSA: Space Situation Awareness

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2004</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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) OCS- Continue Counter Communications technique development and demonstration		1-4Q	1-4Q
(U) OCS- Continue Counter Surveillance/Reconnaissance technology development	1-4Q	1-4Q	1-4Q
(U) OCS- Continue Signal Processing development	1-4Q	1-4Q	1-4Q
(U) SSA- SBSS Risk Reduction		1-4Q	1-4Q
(U) SSA- Sensor Development	2-4Q	1-4Q	1-4Q
(U) DCS- Vulnerability assessment reports	1-4Q	1-4Q	1-4Q
(U) DCS- Asymmetric threat assessment	1-4Q	1-4Q	1-4Q
(U) DCS- Prevention	1-4Q		2-4Q
(U) Technology Roadmaps	1-4Q	1-4Q	1-4Q

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

DATE  
**February 2004**

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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
A007 Space Range	0.000	5.260	6.355	4.656	10.458	14.808	19.662	Continuing	TBD
Quantity of RDT&E Articles	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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments/Planned Program	0.000	0.000	0.000
(U) Threat Simulators	0.000	2.176	3.499
(U) Continue development of the system architecture and acquisition of Space Control elements of the Space Range.		2.303	2.010
Continue demonstration of test assets, special test equipment, capabilities and systems required to test, validate, and verify performance of integrated Space Control systems.			
(U) Program Office and Other Technical Support		0.781	0.846
(U) Total Cost	0.000	5.260	6.355

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

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

**(U) D. Acquisition Strategy**

All contracts funded in this program element will be awarded using competitive procedures to the maximum extent possible.

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Exhibit R-3, RDT&E Project Cost Analysis										DATE February 2004		
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</u> <u>Prior to FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
(U) <u>Product Development</u>												
MAPIC	CPAF		0.000			2.303	Jan-04	2.010	Dec-04	Continuing	TBD	
TMC	CPAF	Las Cruces, NM				2.176	Jan-04	3.499	Jan-05	Continuing	TBD	
Subtotal Product Development			0.000	0.000		4.479		5.509		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												
Program Office and Other Technical Support	Various	SMC, El Segundo, CA	0.000	0.000		0.381	Jan-04	0.446	Jan-05	Continuing	TBD	
Program Office and Other Technical Support	CPAF	MAPIC, Redondo Beach, CA	0.000	0.000		0.400	Jan-04	0.400	Jan-05	Continuing	TBD	
Subtotal Support			0.000	0.000		0.781		0.846		Continuing	TBD	0.000
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
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			0.000	0.000		5.260		6.355		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

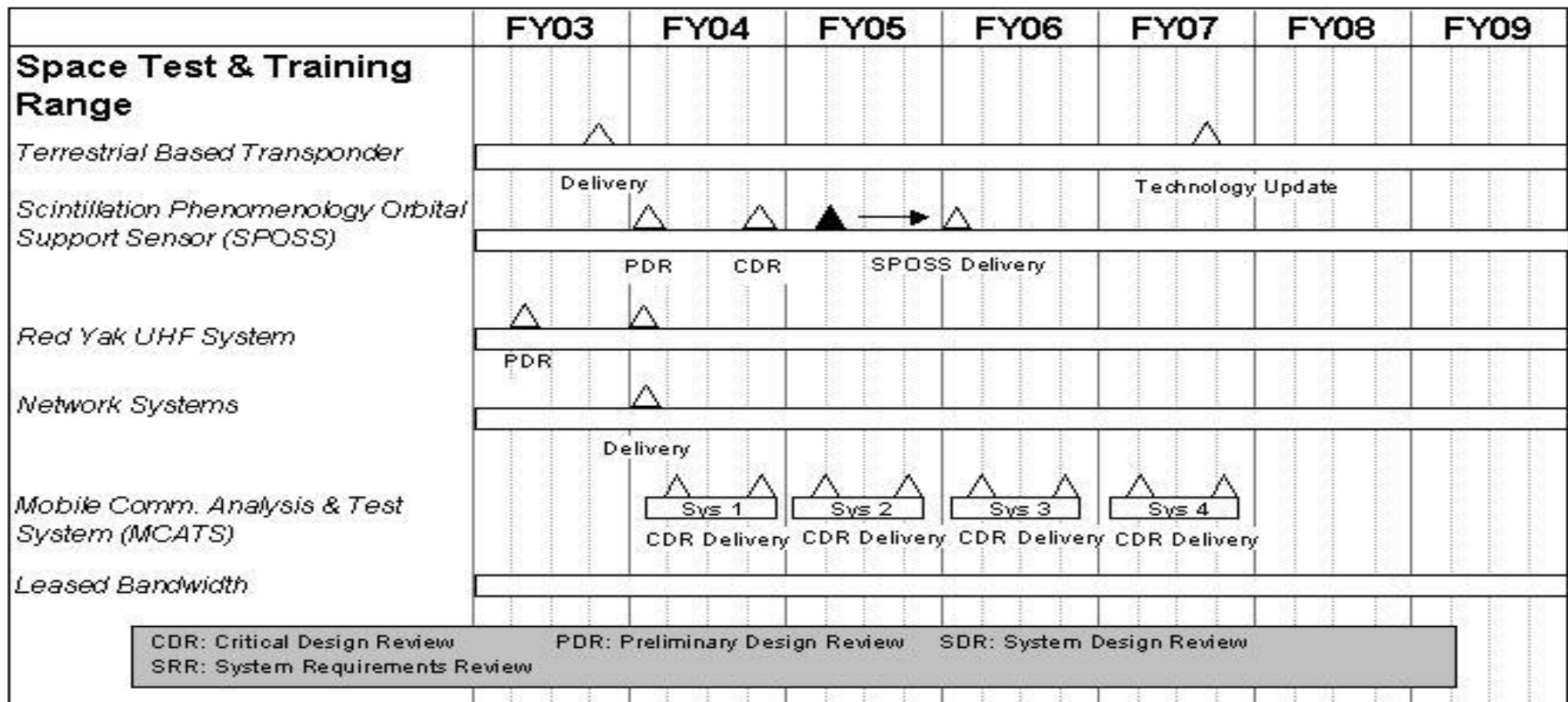
PE NUMBER AND TITLE

0603438F Space Control Technology

PROJECT NUMBER AND TITLE

A007 Space Range

# Space Test & Training Range Schedule





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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2004</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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <b>Schedule Profile</b>			
(U) Develop STTR Architecture	1-4Q	1-4Q	1-4Q
(U) Deliver Terrestrial Based Transponder	4Q		
(U) Continue with Scitillation Phenomonology Support Sensor (SPOSS) Development		2-4Q	1-4Q
(U) Red YAK UHF System	1-4Q	1Q	
(U) Adversary Network Emulator		1Q	
(U) Develop & Deliver Mobile Comm analysis and Test System		2-4Q	2-4Q

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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 2004</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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	11.580	16.434	19.582	19.785	20.160	20.483	20.799	Continuing	TBD
2597 Noncooperative Identification Subsystems	11.580	16.434	19.582	19.785	20.160	20.483	20.799	Continuing	TBD

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

U.S. Combat Air Forces have a critical requirement to positively identify (enemy, friendly, neutral) aircraft, battlefield equipment and personnel/combatants. Multiple other Joint needs statements, operational documents, lessons learned, and NATO requirements documents also state Combat Identification (CID) operational needs. High confidence & high probability of ID, all weather & day/night operational needs as well as timely and reliable CID will improve combat effectiveness, reduce fratricide and enable battlespace commanders to effectively manage and control their forces.

The Combat Identification Technology program analyzes, develops, demonstrates, and transitions to SDD programs promising target identification technologies. These technologies include both cooperative and non-cooperative techniques that improve US ability to positively identify ground and air targets in Air-to-Surface and Air-to-Air CID engagements.

Air-to-Surface technologies funded by this program include Laser Vision, an electro-optical (EO) system that significantly increases ID ranges; Radar Vision which uses air-to-ground radar imaging to identify tactical ground targets by their radar signatures; Vibration Vision, which exploits vibration signatures to increase probability and confidence of ground target ID; and the maturation of algorithms for these efforts to support Automatic Target Cueing (ATC) and Automatic Target Recognition (ATR).

Air-to-Air technologies funded by this program include High Range Resolution (HRR) radar techniques to increase ID ranges as well as confidence, and developing the Mark XIII system to implement Mode V, which will enable robust, secure Identification Friend or Foe (IFF), a significant deficiency in Operation Iraqi Freedom.

Current and future space-based systems can facilitate these processes leading ultimately to Automatic Target Recognition (ATR) fusion and net-centric warfare. ATR shall focus on development, demonstration and integration of technologies drawing all available information data elements or platforms (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 provide near-real time information, to include SCI and classified data information, to the operational and tactical level decision authorities for both ground and airborne systems. Efforts should also focus on development and approval of new technologies to all for this information to 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.

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

DATE

February 2004

BUDGET ACTIVITY

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

PE NUMBER AND TITLE

0603742F Combat Identification Technology

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	12.135	16.575	16.633
(U) Current PBR/President's Budget	11.580	16.434	19.582
(U) Total Adjustments	-0.555	-0.141	
(U) Congressional Program Reductions			
Congressional Rescissions	-0.123	-0.141	
Congressional Increases			
Reprogrammings	0.014		
SBIR/STTR Transfer	-0.446		
(U) <u>Significant Program Changes:</u>			

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>February 2004</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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
2597 Noncooperative Identification Subsystems	11.580	16.434	19.582	19.785	20.160	20.483	20.799	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

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

U.S. Combat Air Forces have a critical requirement to positively identify (enemy, friendly, neutral) aircraft, battlefield equipment and personnel/combatants. Multiple other Joint needs statements, operational documents, lessons learned, and NATO requirements documents also state Combat Identification (CID) operational needs. High confidence & high probability of ID, all weather & day/night operational needs as well as timely and reliable CID will improve combat effectiveness, reduce fratricide and enable battlespace commanders to effectively manage and control their forces.

The Combat Identification Technology program analyzes, develops, demonstrates, and transitions to SDD programs promising target identification technologies. These technologies include both cooperative and non-cooperative techniques that improve US ability to positively identify ground and air targets in Air-to-Surface and Air-to-Air CID engagements.

Air-to-Surface technologies funded by this program include Laser Vision, an electro-optical (EO) system that significantly increases ID ranges; Radar Vision which uses air-to-ground radar imaging to identify tactical ground targets by their radar signatures; Vibration Vision, which exploits vibration signatures to increase probability and confidence of ground target ID; and the maturation of algorithms for these efforts to support Automatic Target Cueing (ATC) and Automatic Target Recognition (ATR).

Air-to-Air technologies funded by this program include High Range Resolution (HRR) radar techniques to increase ID ranges as well as confidence, and developing the Mark XIIA system to implement Mode V, which will enable robust, secure Identification Friend or Foe (IFF), a significant deficiency in Operation Iraqi Freedom.

Current and future space-based systems can facilitate these processes leading ultimately to Automatic Target Recognition (ATR) fusion and net-centric warfare. ATR shall focus on development, demonstration and integration of technologies drawing all available information data elements or platforms (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 provide near-real time information, to include SCI and classified data information, to the operational and tactical level decision authorities for both ground and airborne systems. Efforts should also focus on development and approval of new technologies to all for this information to 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. Accomplishments/Planned Program (\$ in Millions)**

(U) Continue the HRR synthetic target database development in conjunction with NAIC. Implement risk reduction to	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
	2.950	6.888	7.329

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>February 2004</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>
---	--	---

increase the fidelity of the HRR database and prepare for the transition of database management/maintenance from the lab environment to a SPO.			
(U) Continue development and demonstration of promising air-to-ground and air-to-air identification techniques for reduce battlefield fratricide and enhanced mission performance. Transition program candidates include continuing development and integration of ERASER/Laser Vision, baselining associated EO/ATC/ATR capability, continuing las vibrometry investigation portion of defunct multi-Vision program , and continuing to mature/harden camera technolog for flight environments. Other potential candidates could include AGRI (Air-to-Ground Radar Imaging), of which Rac Vision is the transition program, and vibration exploitation technologies.	6.743	6.377	8.733
(U) Fund AIMS Program Office support of Mark XII systems to include current and next generation IFF equipment integration, including Mode V documentation and individual IFF system/box certification.	0.713	0.773	0.851
(U) Continue funding the CID Integrated Management Team and other engineering support necessary for management of CID efforts. Includes support for Mode V IFF flight demonstration.	0.678	0.820	0.904
(U) Conduct CID-related studies/demos and conferences. Execute Mode V IFF flight test preparations and demonstration assess system operational capacity, interoperability, and equipment integration.Studies/demos will include those direct by the Joint Staff and OSD to research implementation and evaluation of a family of CID systems, linkage between airborne and ground-based non-cooperative CID technologies/systems, and to attempt to quantify the relationship between CID and improved combat effectiveness.	0.496	1.576	1.765
(U) Total Cost	11.580	16.434	19.582

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	<u>Total Cost</u>
(U) Not Applicable	0.000	0.000	0.000					0.000	0.000

(U) **D. Acquisition Strategy**

The High Range Resolution (HRR) database development program was awarded under a competitive bid process. Other combat identification efforts in project 2597 focus on developing and demonstrating the most promising Air-to-Ground Combat ID techniques and were contracted for under a competitive Request For Proposal (RFP) process. Laser Vision was awarded utilizing Other Transaction Agreement (OTA)s, which utilize the same competitive process of Request for Proposal (RFP), proposal submittal and negotiation of costs prior to award.

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Exhibit R-3, RDT&E Project Cost Analysis										DATE <b>February 2004</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>(U) Cost Categories</u>	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>	
<u>(U) Product Development</u>													
Raytheon Co	C/CPFF	El Segundo CA	2.115	1.988	Jun-03	3.400	Jun-04	2.900	Jun-05	Continuing	TBD		
General Dynamics	C/CPFF	Dayton OH	0.800			0.100	Oct-03	0.400	Oct-04	Continuing	TBD		
Simulation Support, Inc.	C/CP	Arlington VA	0.330							0.330	0.660		
National Air Intel Center	MIPR	Dayton OH	3.329			1.000	Feb-04	1.000	Feb-05	0.000	5.329		
Northrop Grumman Corp	C/CPFF	Baltimore MD	1.856							Continuing	TBD		
ERASER-Raytheon	C/CPFF	Plano TX	0.462							Continuing	TBD		
Raytheon Co	C/TBD	El Segundo CA	0.150	3.430	May-03	2.090	May-04	3.400	May-05	Continuing	TBD		
Lockheed Martin	TBD	Orlando FL	0.150							Continuing	TBD		
Northrup Grumman	TBD	Rolling Meadows IL	0.150							Continuing	TBD		
Demaco	C/CPFF	Dayton OH	6.604	1.180	Oct-02	0.409	Oct-03			0.000	8.193		
SAIC (Demaco, Inc)	SS/CPFF	Dayton OH	2.078	0.800	Oct-02	1.750	Oct-03	3.000	Oct-04	Continuing	TBD		
Cyberdynamics	SS/CPFF	Dayton OH	0.010							Continuing	TBD		
AIMS Program Office	MIPR	Warner Robins GA	0.954	0.713	Oct-02	0.719	Oct-03	0.726	Oct-04	Continuing	TBD		
Air Force Research Laboratory (Camera & ATR development)	MIPR	Dayton OH	2.000							Continuing	TBD		
Air Force Research Laboratory (LV)	MIPR	Dayton OH	1.353	1.053						Continuing	TBD		
Telephonics	TBD	Long Island NY	0.000	0.586	Nov-02	0.305	Nov-03			Continuing	TBD		
Subtotal Product Development			22.341	9.750		9.773		11.426		Continuing	TBD	0.000	
Remarks:													
<u>(U) Support</u>													
USAF Combat ID IMT and Engineering Support	Various	Hanscom AFB MA	4.584	1.374	Oct-02	1.500	Oct-03	1.721	Oct-04	Continuing	TBD		
Air Force Research Laboratory (HRR)	MIPR	Dayton OH	2.392	0.456	Feb-03	3.124	Feb-04	3.200	Feb-05	Continuing	TBD		
Air Force Research Laboratory (ERASER)	MIPR	Dayton OH	0.000					1.315	Feb-05	0.000	1.315		
Subtotal Support			6.976	1.830		4.624		6.236		Continuing	TBD	0.000	
Remarks:													
<u>(U) Test &amp; Evaluation</u>													
3246th Test Wing, Eglin AFB, FL 544th	MIPR	Eglin AFB FL / Nellis	4.089			0.670				Continuing	TBD		

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Exhibit R-3, RDT&E Project Cost Analysis							DATE <b>February 2004</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>			
Range Group		AFB NV								
412 Test Wing	MIPR	Edwards AFB CA	0.239					Continuing	TBD	
552nd Air Control Wing	MIPR	Tinker AFB OK	0.000			0.530 Aug-04		Continuing	TBD	
Subtotal Test & Evaluation			4.328	0.000		1.200	0.000	Continuing	TBD	0.000
Remarks:										
(U) <u>Management</u>										
Subtotal Management			0.000	0.000		0.837	1.920		2.757	
Remarks:										
(U) Total Cost			33.645	11.580		16.434	19.582	Continuing	TBD	0.000



Exhibit R-4, RDT&E Schedule Profile

DATE

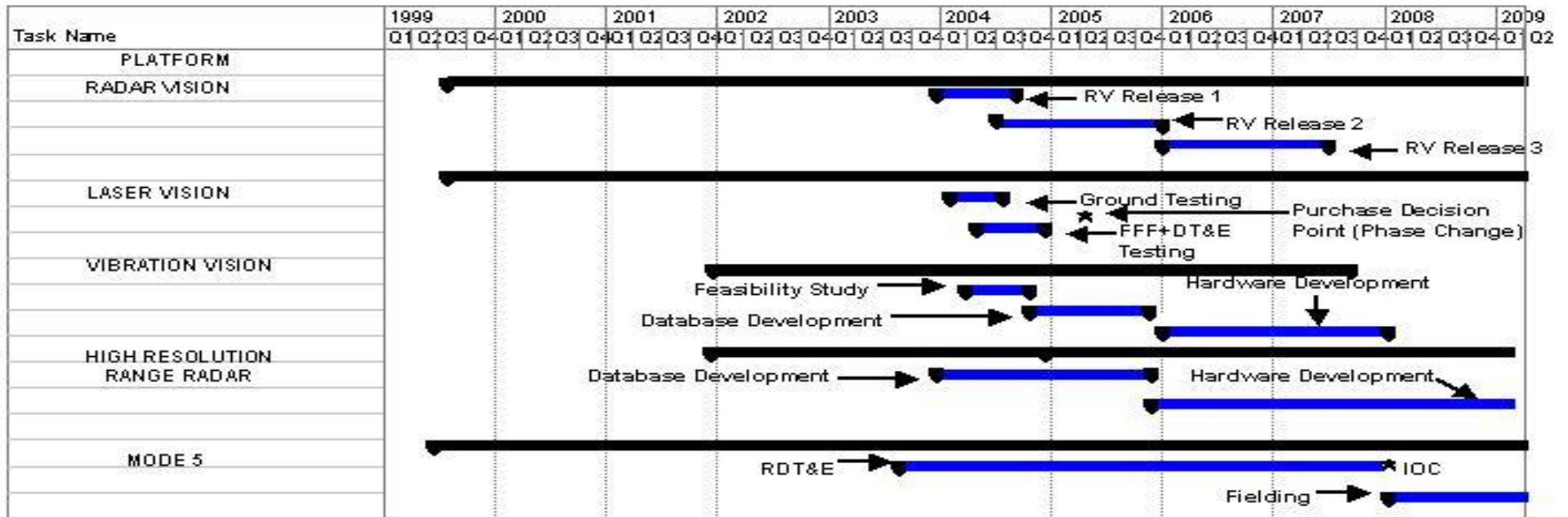
February 2004

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

# Combined Schedules and Milestones



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Exhibit R-4a, RDT&E Schedule Detail		DATE <b>February 2004</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>		
		<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <b>Schedule Profile</b>				
(U) 1. HRR Classifier Dev/Qual				4Q
(U) Technique Selection for Model Creation		1Q		
(U) Completion of 150 Feature Quality Models		3Q		
(U) Start of Lab-based Model Validation		2Q		
(U) Completion of Lab Validation		4Q		
(U) Comp of 6 High-Fidelity NAIC Models			3Q	
(U) Denied Target Study/Initial Production				4Q
(U) 2. LASER VISION (flt test of ERASER technology)				4Q
(U) Completion of Lab Demos			1Q	
(U) Phase II, Part III Contract Modification			1Q	
(U) Tower Demonstrations			2Q	
(U) Mountaintop Demo			2Q	
(U) Flight Testing			3Q	
(U) Completion of Phase II			4Q	
(U) Start of SDD			4Q	
(U) 3. RADAR VISION (Lab and Flight Demo of air-ground radar imaging technology)				4Q
(U) Complete laboratory demonstration/evaluation of three algorithms				2Q
(U) Complete flight demonstration of AGRI algorithm			3Q	
(U) Modeling tool development			4Q	
(U) Build additional target models			4Q	
(U) Analysis of surrogate data sources				2Q
(U) 4. Vibration Vision Analysis				4Q
(U) 5. 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 V Engineering Specification Comp				1Q
(U) F-35 IFF Integration Support Started				4Q
(U) F-15, F-16 IFF Integration Support Started				4Q

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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>		DATE <b>February 2004</b>
<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>
(U) F-22 IFF Integration Support Started		4Q
(U) 6. 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) 7. CID Studies and Demos		4Q
(U) AFSAA Analysis of Alternative Start		3Q
(U) AFSAA AoA Completion		1Q

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Exhibit R-2, RDT&E Budget Item Justification								DATE February 2004	
BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)				PE NUMBER AND TITLE 0603790F NATO Cooperative R&D					
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	4.070	3.855	3.930	3.952	3.972	4.096	4.158	0.000	0.000
NATO Nato Coop R&D	4.070	3.855	3.930	3.952	3.972	4.096	4.158	0.000	0.000

(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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	4.355	3.888	3.930
(U) Current PBR/President's Budget	4.070	3.855	3.930
(U) Total Adjustments	-0.285	-0.033	
(U) Congressional Program Reductions			
Congressional Rescissions	-0.045	-0.033	
Congressional Increases			
Reprogrammings	-0.092		
SBIR/STTR Transfer	-0.148		
(U) <u>Significant Program Changes:</u>			
Change Summary Explanation: N/A			

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

DATE  
**February 2004**

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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
NATO Nato Coop R&D	4.070	3.855	3.930	3.952	3.972	4.096	4.158	0.000	0.000
Quantity of RDT&E Articles	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)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) ATLANTIC PAW (AFRL/ France, Germany, UK) - Ongoing cooperative project to develop a common waveform syn 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.	0.358		
(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.	0.250		
(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 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.	0.250		

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Exhibit R-2a, RDT&E Project Justification		DATE <b>February 2004</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>	
<p>The Australian VAE program will establish a training capability for the Air Defence System using networked simulate 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.		0.400	
(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.		0.733	
(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 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.		0.500	
(U) Materials and Technologies for Reverse Saturable Absorption (AFRL/ Australia) - Planned cooperative project to develop and characterize platinum poly-ynes 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.		0.000	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 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.		0.000	0.100 0.050
(U) Optical Sensor Protection Development and Evaluation (AFRL/ UK) - Planned cooperative project to develop and assess		0.000	0.850 0.000
Project NATO	R-1 Shopping List - Item No. 46-4 of 46-13		Exhibit R-2a (PE 0603790F)

**UNCLASSIFIED**

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>		<b>DATE</b> <b>February 2004</b>	
<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>0603790F NATO Cooperative R&amp;D</b>	<b>NATO Nato Coop R&amp;D</b>	
<p>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.</p>			
(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.		0.000	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.		1.000	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.			0.150 0.350
(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 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.			0.155 0.300
(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		0.329	0.271



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Exhibit R-2a, RDT&E Project Justification		DATE <b>February 2004</b>	
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>	
<p>resolution laser projector, image generator, and collimating display screen materials.</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.</p>		0.050	0.025
<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.</p>		0.140	0.140
<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 informatic on electronic systems in a statistically significant format with high confidence values in order to investigate the impact 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.</p>		0.075	
(U)			
(U)			
(U)			
<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.</p>		0.250	0.350 0.464
<p>(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&amp;D Project Nomination seeks ICR&amp;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.</p>			0.300
<p>(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 definiti</p>			0.075
Project NATO	R-1 Shopping List - Item No. 46-6 of 46-13		Exhibit R-2a (PE 0603790F)

Exhibit R-2a, RDT&E Project Justification							DATE February 2004		
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			
<p>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.</p>									
(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		
(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 (GT) testing. The project will produce test protocol, instrumentation and procedures, adequate to assess regulatory agency requirements for GTE particulate matter emissions.						0.385	0.800	
(U)	Management and administrative support and travel						0.200	0.100	
(U)	Tropospheric Refraction and Propagation Modeling For Airborne Surveillance Systems (AFRL/Australia, UK) - Planned cooperative project to combine a low cost aircraft measurement platform for simultaneous measurements of refraction Airborne Warning and Control System (AWACS) radar signal strength reduction with parabolic equation methods of microwave propagation modeling for evaluation and prediction of refraction conditions. In FY02, testing and validation were conducted to determine the adverse performance of microwave and infrared systems that perform surveillance, communication, signal intelligence, and direct energy functions in electronic battlespace.						0.150	0.075	
(U)	Total Cost						4.070	3.855	3.930
(U)	<b>C. Other Program Funding Summary (\$ in Millions)</b>								
	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U)	Not Applicable.								
(U)	<b>D. Acquisition Strategy</b>								
<p>A principal goal of the NATO Cooperative R&amp;D program is to effectively utilize the aggregate resources invested by the US and our allies in conventional defense R&amp;D. This program element provides the critical funding incentive needed to pursue ICRD&amp;A agreements and helps to (a) leverage USAF and allied resources through cost</p>									
Project NATO	R-1 Shopping List - Item No. 46-7 of 46-13						Exhibit R-2a (PE 0603790F)		

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>		DATE <b>February 2004</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>	<b>PROJECT NUMBER AND TITLE</b> <b>NATO Nato Coop R&amp;D</b>
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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 2004		
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)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2003 Cost	FY 2003 Cost	FY 2003 Award	FY 2004 Cost	FY 2004 Award	FY 2005 Cost	FY 2005 Award	Cost to Complete	Total Cost	Target Value of Contract
(U) <u>Product Development</u>												
Sytronics Dayton, OH	CPFF		0.600							Continuing	TBD	
Boston College Boston, MA	CFSR		0.155							Continuing	TBD	
RADEX Bedford, MA	CPFF		0.920							Continuing	TBD	
Pacific Sierra Research Santa Monica, CA	CPFF		0.060							Continuing	TBD	
CPI Fairfax, VA	CPFF		0.180							Continuing	TBD	
U of Massachusetts Lowell, MA	CR		0.170							Continuing	TBD	
KEO Consultants Brookline, MA	CPFF		0.220							Continuing	TBD	
NW Research Associates Bellevue, WA	CPFF		0.110							Continuing	TBD	
Visdyne Inc.	CPFF		0.400							Continuing	TBD	
U of Texas Austin, TX	CPFF		0.025							Continuing	TBD	
Applied Research Lab, U of Texas Austin, TX	CPFF		0.105							Continuing	TBD	
Lockheed Martin Orlando, FL	CPFF		0.913							Continuing	TBD	
Raytheon TI Systems	CPFF		0.683							Continuing	TBD	
Boeing Seattle, WA	CPFF		0.260							Continuing	TBD	
UES, Inc Dayton, OH	CPFF		0.100							Continuing	TBD	
Pratt & Whitney West Palm Beach, FL	CPFF		1.000							Continuing	TBD	
AFRL WPAFB, OH	TBD		0.000	3.820		3.270		3.030		Continuing	TBD	
Boeing Long Beach, CA	CPFF		0.265							Continuing	TBD	
Boeing Seattle, WA	CPFF		0.200							Continuing	TBD	
Lockheed Marietta, GA	CPFF		0.325							Continuing	TBD	
Northrop Hawthorne, CA	CPFF		0.050							Continuing	TBD	
Selectech Dayton, OH	CPFF		0.050							Continuing	TBD	
AFRL Eglin AFB, FL	TBD		0.000							Continuing	TBD	
AFRL Hanscom AFB, MA	TBD		0.000							Continuing	TBD	
AFRL Mesa, AZ	TBD		0.000							Continuing	TBD	
AFRL Rome, NY	TBD		1.250							Continuing	TBD	
None											0.000	
Subtotal Product Development			8.041	3.820		3.270		3.030		Continuing	TBD	0.000

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Exhibit R-3, RDT&E Project Cost Analysis						DATE <b>February 2004</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>		
Remarks:								
(U) <u>Support</u>								
AFRL Hanscom AFB, MA				0.135			Continuing	TBD
AFRL WPAFB, OH				0.005			Continuing	TBD
45th Space Wing Patrick AFB, FL	AF 185			0.005			Continuing	TBD
AFRL Eglin AFB, FL				0.050			Continuing	TBD
Pender Technology, TN	CR			0.090			Continuing	TBD
Veridian Dayton, OH				0.145			Continuing	TBD
None								0.000
Subtotal Support				0.430	0.000	0.000	0.000	Continuing TBD 0.000
Remarks:								
(U) <u>Test &amp; Evaluation</u>								
Air Force Development Test Center, FL	PO			0.054			Continuing	TBD
Sverdrup Technology, Inc TN	CPAF			1.443			Continuing	TBD
Naval Air Warfare CenterPoint Mugu, CA	MIPR			0.040			Continuing	TBD
Fora Laser System	PO			0.100			Continuing	TBD
Arnold Engineering Development Center, TN	TBD			0.000	0.250	0.385	0.800	Continuing TBD
Fora laser system	PO			0.147			0.000	0.147
Subtotal Test & Evaluation				1.784	0.250	0.385	0.800	Continuing TBD 0.000
Remarks:								
(U) <u>Management</u>								
						0.200	0.100	0.300
Subtotal Management				0.000	0.000	0.200	0.100	0.000 0.300 0.000
Remarks:								
(U) Total Cost								
				10.255	4.070	3.855	3.930	Continuing TBD 0.000

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

DATE

February 2004

BUDGET ACTIVITY

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

PE NUMBER AND TITLE

0603790F NATO Cooperative R&amp;D

PROJECT NUMBER AND TITLE

NATO Nato Coop R&amp;D

Name of ICR&D Project & In't Agreement Schedule	Start Date	END IA	PE
Atlantic Paw - Adv Transm Lang & alloc....	FY 00	FY 03	63790
Cooperative R&D Efforts in Imaging Spectrometer Development	FY 99	FY 03	63790
Distributed Mission Training - Virtual Air Environment	FY 99	FY 03	63790
Engine Component Life Enhancement	FY 02	FY 06	63790
Integrated Tactical Aircraft Control (ITAC)	FY 03	FY 05	63790
Scintillation Impacts on Communications....	FY 00	FY 03	63790
Strike Warrior (follow on to Vista Warrior)	FY 02	FY 06	63790
Trophospheric Refraction	FY 03	FY 05	63790
Flight Test Miniature Munitions, Phase 2	FY 03	FY 05	63790
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 (Program 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

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Exhibit R-4a, RDT&E Schedule Detail		DATE February 2004		
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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <b>Schedule Profile</b>				
(U) Strike Warrior Project				
(U) Flights test and trials		4Q		
(U) Cooperative R&D Efforts in Imaging Spectrometer Development Project				
(U) - Field testing		4Q		
(U) Integrated Tactical Aircraft Control (ITAC) Program				
(U) - Agent maturation requirements and develop of delivery schedule		4Q		
(U) - Joint demonstration preparation		4Q		
(U) - Joint demonstration			1Q	
(U) ATLANTIC PAW				
(U) - SoRDS testbed			3Q	
(U) - Interoperability testing of WDL waveforms			4Q	
(U) Engine Component Life Extension Project				
(U) - Advanced life prediction methodologies for ERLE			3Q	
(U) - Advanced nondestructive inspection/evaluation technology			4Q	
(U) Distributed Mission Training & Virtual Air Environment Tech				
(U) - Visual research and display specification				2Q
(U) - Long-haul networking and force construction				3Q
(U) Flight Test Demo Mini Munitions Release form Internal Weaps				
(U) - Project agreement signed			2Q	
(U) - Test planning and preparation			2Q	
(U) - Test conduct and analyses			4Q	
(U) - Test report			4Q	
(U) Material and Technologies for Reverse Saturable Absorption				
(U) - Project agreement signed			2Q	
(U) - Development, testing, and analyses			4Q	
(U) Novel G Protection for Fighter Pilots				
(U) - Improvements development			4Q	
(U) Optical Sensor Protection Development and Evaluation				
(U) - Project agreement signed			3Q	
(U) - Development, testing, and analyses			4Q	
(U) Spatial Disorientation Countermeasures				
(U) - Comparative assessment			4Q	
(U) - Development of improvements			4Q	

**UNCLASSIFIED**

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>		DATE <b>February 2004</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) Assessment of C3 Team Performance in Sustained Operations		
(U) Projec agreement signed		2Q
(U) - Technology development		1Q
(U) - Experimental studies and data analysis		4Q
(U) C-2 Warrior		
(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		
(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
(U) - Digital pilot profiles and injury potential		4Q
(U) Enhanced C3 Team Training in Sustained Operations		
(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		
(U) - Project agreement signed		2Q
(U) - Technology development		4Q
(U) - Test and analysis		4Q



**UNCLASSIFIED**

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

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2004</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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.614	0.540	0.552	0.571	0.575	0.592	0.602	0.000	0.000
5035 Intl Space Coop R&D	0.614	0.540	0.552	0.571	0.575	0.592	0.602	0.000	0.000

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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	0.636	0.545	0.553
(U) Current PBR/President's Budget	0.614	0.540	0.552
(U) Total Adjustments	-0.022	-0.005	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.005	
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer	-0.022		

**(U) Significant Program Changes:**

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

DATE  
**February 2004**

<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>			<b>PROJECT NUMBER AND TITLE</b> <b>5035 Intl Space Coop R&amp;D</b>			
Cost (\$ in Millions)		FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
5035	Intl Space Coop R&D	0.614	0.540	0.552	0.571	0.575	0.592	0.602	0.000	0.000
	Quantity of RDT&E Articles	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 2003</u>	<u>FY 2004</u>	<u>FY 2005</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. FY04, data collection, data analysis, and algorithm validation will begin.	0.614	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.		0.013	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.			
(U) Hypersonic Airbreathing Propulsion Test (ESC, Germany) - Planned cooperative project will involve complementary		0.233	0.097

Exhibit R-2a, RDT&E Project Justification							DATE February 2004			
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>				
<p>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 a leader in hypersonics, and gaining insight from allies is beneficial and will promote commonality.</p>										
(U)	Measurement of High-Latitude Ionospheric Structures and System Effects from Northeast Greenland (AFRL/Denmark)						0.275	0.150		
<p>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 forecasting tools.</p>										
(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 advanced 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 with the participants in order to assess optimal capabilities in varying threat situations.							0.100		
(U)							0.000			
(U)	Total Cost					0.614	0.540	0.552		
(U)	<b><u>C. Other Program Funding Summary (\$ in Millions)</u></b>									
		<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U)	N/A									
(U)	<b><u>D. Acquisition Strategy</u></b>									
<p>A principal goal of the International Space Cooperative R&amp;D program is to effectively utilize the aggregate resources invested by the US and our allies in space-related R&amp;D. This program element provides the critical funding incentive needed to pursue space-related ICRD&amp;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&amp;L). An international agreement defining project objectives, responsibilities and costs is required prior to release of funds. To obtain these funds and ensure service</p>										
Project 5035			R-1 Shopping List - Item No. 47-3 of 47-7				Exhibit R-2a (PE 0603791F)			

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

DATE

February 2004

BUDGET ACTIVITY

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

PE NUMBER AND TITLE

**0603791F International Space  
Cooperative R&D**

PROJECT NUMBER AND TITLE

**5035 Intl Space Coop R&D**

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 2004		
BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)				PE NUMBER AND TITLE 0603791F International Space Cooperative R&D				PROJECT NUMBER AND TITLE 5035 Intl Space Coop R&D				
(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</u> <u>Prior to FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
(U) <u>Product Development</u>												
AFRL Hanscom AFB, MA	TBD		0.000							Continuing	TBD	
AFRL, WPAFB				0.614		0.307		0.355			1.276	
AEDC/DO						0.233		0.097			0.330	
SMC, LAAFB, CA								0.100			0.100	
Subtotal Product Development			0.000	0.614		0.540		0.552		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												
AFRL, WPAFB	TBD		0.000							Continuing	TBD	
None											0.000	
Subtotal Support			0.000	0.000		0.000		0.000		Continuing	TBD	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
TBD	TBD		0.000							Continuing	TBD	
None											0.000	
Subtotal Test & Evaluation			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
Remarks:												
(U) Total Cost			0.000	0.614		0.540		0.552		Continuing	TBD	0.000

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

DATE

February 2004

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 & Int 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

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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2004</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>	<b>PROJECT NUMBER AND TITLE</b> <b>5035 Intl Space Coop R&amp;D</b>
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<b>(U) <u>Schedule Profile</u></b>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Hyperspectral Data Exploitation Algorithm Development and Assessment			
(U) - Project Agreement signed	2Q		
(U) - Data collection	4Q		
(U) - Data analysis and algorithm validation	4Q		
(U) - Interim report	4Q		
(U) Impacts of the Space Environment on Comm, Nav, and Surv Sys	3Q		
(U) - Project Agreement signed	4Q		
(U) - Data collection			
(U) Space Vehicle Orbit Prediction	3Q		
(U) - Project Agreement signed	4Q		
(U) - Algorithm development			
(U) Hypersonic Airbreathing Propulsion Test	4Q	4Q	
(U) - Project agreement signed		4Q	
(U) - Development of computer software			
(U) - Data collection begins			
(U) Measurement of High-Latitude Ionospheric Structures and System Effects			
(U) - Project agreement signed	4Q		
(U) - Data collection begins		4Q	

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PE NUMBER: 0603845F

PE TITLE: Transformational SATCOM (TSAT)

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2004</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>0603845F Transformational SATCOM (TSAT)</b>
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Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	111.485	335.430	774.836	1,192.437	1,346.687	1,830.137	1,038.550	Continuing	TBD
4944 ADVANCED WIDEBAND SYSTEM	111.485	335.430	774.836	1,192.437	1,346.687	1,830.137	1,038.550	Continuing	TBD

Note: In FY2003, this PE was renamed Transformational Satellite Communications (TSAT) (formerly Advanced Wideband System).

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

The Transformational SATCOM (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 part of the overarching Transformational Communications MILSATCOM (TCM) program that consists of TSAT satellites, Advanced Polar System (APS) satellites, TCM satellite operation centers (TSOC), TCM Mission Operations Systems (TMOS) , and ground gateways. TCM will extend the Global Information Grid (GIG) to users without fiber connections providing improved connectivity and data transfer capability resulting in a revolutionary change in satellite communications for the warfighter. Additionally, TCM will enable high data rate connections to Space and Airborne Intelligence, Surveillance, and Reconnaissance (SISR, AISR) platforms.

The TSAT portion of the TCA will incorporate radio frequency (RF) and laser communication 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: laser communications, packet switching, bulk and packet encryption/decryption, communication-on-the-move antennas, dynamic bandwidth and resource allocation techniques, and protected bandwidth efficient modulation. Additionally, the Air Force is seeking Congressional approval for an FY04 subproject new start. The Department plans to fund the development of an enhanced (wide field of view) multi-access laser communications technology in FY04-07 called Optical Phased Array (OPA). This technology effort requires funding now to be available for fielding on TSAT satellite 3. TSAT acquisition includes the associated TSOCs, TMOS, and required gateways. The TCA calls for launch of the first satellite with these transformational capabilities in FY12.

In order to ensure TCM interoperability with the GIG Integrated Architecture, this program will participate in GIG end-to-end test bed and systems engineering activities. Elements of the net-centric GIG that TCM will be interoperable with include, but are not limited to, Information Assurance (IA), Network Operations (NetOps), and Information Dissemination Management (IDM). In addition, TSAT will be interoperable with other TCA space platforms.

Funds are in Budget Activity 4, Advanced Component Development and Prototypes, because they support the TCA technology definition, development, demonstration and validation.

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

DATE

February 2004

BUDGET ACTIVITY

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

PE NUMBER AND TITLE

0603845F Transformational SATCOM (TSAT)

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	117.953	439.277	877.504
(U) Current PBR/President's Budget	111.485	335.430	774.836
(U) Total Adjustments	-6.468	-103.847	
(U) Congressional Program Reductions		-103.847	
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer	-6.468		

(U) **Significant Program Changes:**

A Congressional mark of \$100M in FY04 resulted in a restructure of TSAT and the TCM strategy. The TCM acquisition strategy was approved in Jun 03. The TSAT first launch was moved from FY10 to FY11 in order to reduce technology and schedule risk.

FY05: The first TSAT launch is now scheduled for FY12 after a program re-phasing. Additionally, the Department plans to develop an enhanced (wide field of view) multi access laser communications technology (+\$20M) for inclusion on TSAT #3 in order to reduce technology risk.

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

DATE  
**February 2004**

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>	
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total	
4944 ADVANCED WIDEBAND SYSTEM	111.485	335.430	774.836	1,192.437	1,346.687	1,830.137	1,038.550	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

Note: In FY2003, this PE was renamed Transformational Satellite Communications (TSAT) (formerly Advanced Wideband System).

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

The Transformational SATCOM (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 part of the overarching Transformational Communications MILSATCOM (TCM) program that consists of TSAT satellites, Advanced Polar System (APS) satellites, TCM satellite operation centers (TSOC), TCM Mission Operations Systems (TMOS), and ground gateways. TCM will extend the Global Information Grid (GIG) to users without fiber connections providing improved connectivity and data transfer capability resulting in a revolutionary change in satellite communications for the warfighter. Additionally, TCM will enable high data rate connections to Space and Airborne Intelligence, Surveillance, and Reconnaissance (SISR, AISR) platforms.

The TSAT portion of the TCA will incorporate radio frequency (RF) and laser communication 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: laser communications, packet switching, bulk and packet encryption/decryption, communication-on-the-move antennas, dynamic bandwidth and resource allocation techniques, and protected bandwidth efficient modulation. Additionally, the Air Force is seeking Congressional approval for an FY04 subproject new start. The Department plans to fund the development of an enhanced (wide field of view) multi-access laser communications technology in FY04-07 called Optical Phased Array (OPA). This technology effort requires funding now to be available for fielding on TSAT satellite 3. TSAT acquisition includes the associated TSOCs, TMOS, and required gateways. The TCA calls for launch of the first satellite with these transformational capabilities in FY12.

In order to ensure TCM interoperability with the GIG Integrated Architecture, this program will participate in GIG end-to-end test bed and systems engineering activities. Elements of the net-centric GIG that TCM will be interoperable with include, but are not limited to, Information Assurance (IA), Network Operations (NetOps), and Information Dissemination Management (IDM). In addition, TSAT will be interoperable with other TCA space platforms.

Funds are in Budget Activity 4, Advanced Component Development and Prototypes, because they support the TCA technology definition, development, demonstration and validation.

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Continue System Definition -technology development for key advanced technologies to include laser communications (including enhanced (wide field of view) multi access laser comm in FY05), antenna design, encryption technologies, dynamic bandwidth and resource allocation, bandwidth efficient modulation, network operations, and networking	81.169	170.584	190.872

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>February 2004</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>0603845F Transformational SATCOM (TSAT)</b>	<b>PROJECT NUMBER AND TITLE</b> <b>4944 ADVANCED WIDEBAND SYSTEM</b>
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protocols.			
(U) Completed architecture study and program (s) definition efforts		16.600	
(U) Technical Support		9.316	23.704 34.923
(U) Program Support		4.400	7.341 10.369
(U) Continued System Definition - initiated engineering design activities including risk reduction and system definition for the first transformational comm satellite system.			133.801
(U) Continue engineering design activities including risk reduction, and system definition and begin design for the first transformational communication satellite system.			432.472
(U) Continue to refine and prepare to acquire the TCM Mission Operations System ground segment and network management/operations management software.			66.600
(U) Continue systems engineering and integration support			39.600
(U) Total Cost		111.485	335.430 774.836

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to Complete</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>		
(U) RDT&E, AF									
(U) PE 0603854, Project 644870, CCS-C, R-51	13.801	36.271	20.297	8.269	6.999	5.701	6.357	Continuing	TBD
(U) PE 0603854, Project 644811, WGS			53.202	7.681	2.291				226.614
(U) PE0604435F, Advanced Polar MILSATCOM, R-74		13.584			32.937	180.936	260.415	Continuing	TBD
(U) Other APPN									
(U) MPAF, PE 0303600F, WGS, P-29	186.694	21.848	40.307	61.983	270.676	175.338	47.747	117.943	1,307.990
(U) MPAF, PE 0303602F, TSAT					187.627	899.442	920.963	Continuing	TBD
(U) OPAF, PE 0303600F, CCS-C	5.320	8.049	2.124	0.288					15.781
(U) OPAF, PE 0303600F, WGS	15.142	11.776							26.918

**(U) D. Acquisition Strategy**

The Jun 03 approved Acquisition Strategy presented TSAT and APS as the two DoD Transformational Communications space systems being acquired as TCM. The TCM space segment contract for system definition and risk reduction (Phase B) will be awarded to two contractors in FY04. In FY05 the results of a full and open competition to select the final TMOS segment development contractor will be announced. In 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 2004		
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			
(U) Cost Categories	Contract Method & Type	Performing Activity & Location	Total	FY	FY	FY	FY	FY	FY	Cost to Complete	Total Cost	Target Value of Contract
(Tailor to WBS, or System/Item Requirements) (\$ in Millions)			Prior to FY 2003	2003 Cost	2003 Award Date	2004 Cost	2004 Award Date	2005 Cost	2005 Award Date			
(U) <u>Product Development</u>												
Architecture Studies	CPAF	Various		14.900	Oct-02						14.900	
Lockheed Martin: Technology Maturation/Risk Reduction & Program System Definition	CPFF	Sunnyvale, CA				47.326	Jan-04	216.236		Continuing	TBD	
Boeing: Technology Maturation/Risk Reduction & Program System Definition	CPFF	El Segundo, CA				47.325	Jan-04	216.236		Continuing	TBD	
Booz Allen Hamilton: System Engineering & Integration	Time & Materials w/ IF	El Segundo, CA		0.850	Oct-03	21.850	Oct-03	39.600	Nov-04	Continuing	TBD	
TMOS PRDAs	FFP	Various		0.850		17.300	Oct-03	2.900			21.050	
TMOS Contract								63.700	Dec-04	Continuing	TBD	
Risk Reduction: Technology Maturation	Various	Various		81.169		115.283		190.872		Continuing	TBD	
Risk Reduction: Technology Maturation (Space Segment) Lockheed Martin	CPFF	Sunnyvale, CA				27.650					27.650	
Risk Reduction: Technology Maturation (Space Segment) Boeing	CPFF	El Segundo, CA				27.651					27.651	
Subtotal Product Development			0.000	97.769		304.385		729.544		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												
Technical Support	Various		0.000	9.316		23.704		34.923		Continuing	TBD	
Program Support	Various		0.000	4.400		7.341		10.369		Continuing	TBD	
Subtotal Support			0.000	13.716		31.045		45.292		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
Remarks:												
(U) <u>Management</u>												
None											0.000	

**UNCLASSIFIED**

Exhibit R-3, RDT&E Project Cost Analysis					DATE <b>February 2004</b>		
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>			
Subtotal Management	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Remarks:							
(U) Total Cost	0.000	111.485	335.430	774.836	Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

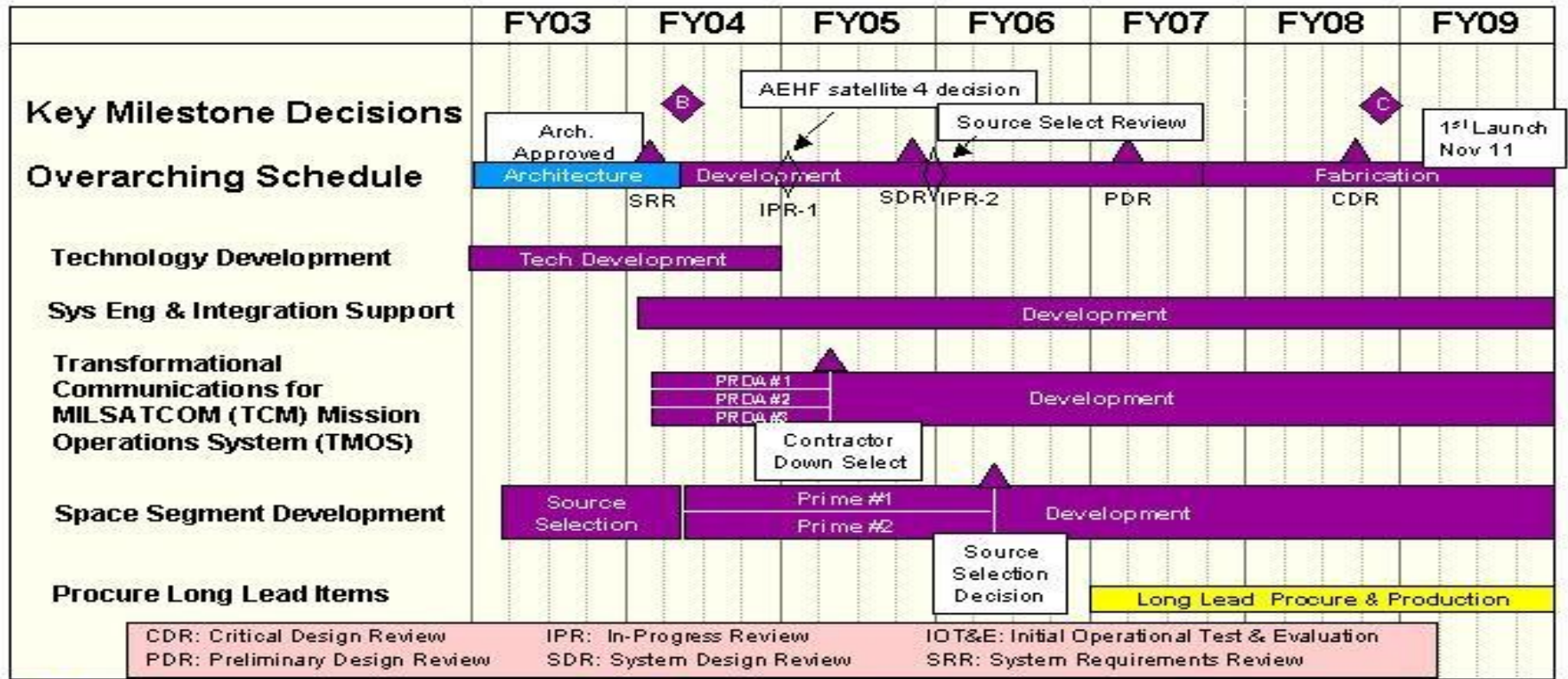
DATE

February 2004

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    IOT&E: Initial Operational Test & Evaluation  
 PDR: Preliminary Design Review    SDR: System Design Review    SRR: System Requirements Review

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

**UNCLASSIFIED**

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2004</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>0603845F Transformational SATCOM (TSAT)</b>	<b>PROJECT NUMBER AND TITLE</b> <b>4944 ADVANCED WIDEBAND SYSTEM</b>
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	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <b><u>Schedule Profile</u></b>			
(U) Architecture Approval	4Q		
(U) Key Decision Point B		2Q	
(U) Space Segment Risk Reduction & System Def Contract Award		2Q	
(U) Interim Progress Review			1Q
(U) System Design Review			4Q



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PE NUMBER: 0603850F

PE TITLE: Integrated Broadcast Service (DEM/VAL)

Exhibit R-2, RDT&E Budget Item Justification								DATE <b>February 2004</b>	
BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				PE NUMBER AND TITLE <b>0603850F Integrated Broadcast Service (DEM/VAL)</b>					
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	38.390	16.229	23.927	20.155	20.814	21.276	21.606	Continuing	TBD
4778 Integrated Broadcast Service	38.390	16.229	23.927	20.155	20.814	21.276	21.606	Continuing	TBD

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

The Integrated Broadcast Service (IBS) provides war fighters with critical and highly perishable intelligence in a single, correlated picture via a near-real-time, integrated dissemination architecture. IBS consolidates existing intelligence broadcast systems into a common-format and theater-tailored architecture. The IBS design incorporates new functionality in broadcast and information management and a new message format. It fields Information Management Elements (IME) to geographic Combatant Commanders; built to requirements as set forth in the Joint Operational Requirements Document. Functional characteristics include:

- Accept data from dissimilar, geographically-dispersed, multi-INT sources.
- Transmit to end users equipped with Joint Tactical Terminal (JTT) or terminals which incorporate the Common IBS Modules (CIBS-M).
- Disseminate intelligence focused on user generated and combatant commander validated priorities.
- Disseminate intelligence over communications paths available to the end user.

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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	19.870	16.466	23.990
(U) Current PBR/President's Budget	38.390	16.229	23.927
(U) Total Adjustments	18.520	-0.237	
(U) Congressional Program Reductions	-0.072	-0.097	
Congressional Rescissions	-0.412	-0.140	
Congressional Increases	19.200		
Reprogrammings	-0.196		
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			
(N/A)			

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

DATE

February 2004

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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total	
4778 Integrated Broadcast Service	38.390	16.229	23.927	20.155	20.814	21.276	21.606	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

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

The Integrated Broadcast Service (IBS) provides war fighters with critical and highly perishable intelligence in a single, correlated picture via a near-real-time, integrated dissemination architecture. IBS consolidates existing intelligence broadcast systems into a common-format and theater-tailored architecture. The IBS design incorporates new functionality in broadcast and information management and a new message format. It fields Information Management Elements (IME) to geographic Combatant Commanders; built to requirements as set forth in the Joint Operational Requirements Document. Functional characteristics include:

- Accept data from dissimilar, geographically-dispersed, multi-INT sources.
- Transmit to end users equipped with Joint Tactical Terminal (JTT) or terminals which incorporate the Common IBS Modules (CIBS-M).
- Disseminate intelligence focused on user generated and combatant commander validated priorities.
- Disseminate intelligence over communications paths available to the end user.

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments/Planned Program	0.000	0.000	
(U) Maintain a Program Management Office, including program supervision, finance and acquisition strategy execution.	0.800	0.800	1.200
(U) Continue systems engineering, including development of architectures, System of Systems management through the JBCCB and Risk Reduction Studies using SBA tools.	1.960	1.654	1.670
(U) Continue the design and build of Information Management Elements (Phase II/Engineering, Manufacturing, and Development)	14.884	11.800	19.387
(U) Continue Common Message Format (CMF) development	0.946	0.875	0.920
(U) Waveform Development		0.500	
(U) Continue Test & Evaluation	0.600	0.600	0.750
(U) Continue spiral development efforts on IBS Informational Element (IME) through 'Smart Pull' Capability and increased/improved dissemination processes.	19.200		
(U) Total Cost	38.390	16.229	23.927

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

DATE

February 2004

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) D. Acquisition Strategy**

IBS used a Program Definition/Risk Reduction (PDRR) phase (Phase I), followed by a spiral development Engineering, Manufacturing, Development (EMD) phase (Phase II). Award of the Phase II contract was based on full and open competition. The Phase II effort will use spiral development.

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Exhibit R-3, RDT&E Project Cost Analysis										DATE February 2004		
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)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total</u> Prior to FY 2003 Cost	<u>FY</u> 2003 Cost	<u>FY</u> 2003 Award Date	<u>FY</u> 2004 Cost	<u>FY</u> 2004 Award Date	<u>FY</u> 2005 Cost	<u>FY</u> 2005 Award Date	<u>Cost to Complete</u>	<u>Total</u> Cost	<u>Target</u> Value of Contract
(U) <u>Product Development</u>												
Lockheed Martin (Phase I)	C/FFP	Gaithersburg, MD	2.000	0.000						0.000	2.000	
BTG, Inc. (Phase I)	C/FFP	Fairfax, VA	2.000	0.000						0.000	2.000	
TRW, Inc. (Phase I)	C/FFP	Fairfax, VA	2.000	0.000						0.000	2.000	
BTG, Inc./Titan (Phase II)	C/CPAF	Fairfax, VA	10.200	33.508	Mar-03	10.784	Dec-03	18.187	Dec-04	Continuing	TBD	
Raytheon E-Systems/L3Comm-CMF	C/FFP	Greenville, TX	3.910	0.368	Mar-03					0.000	4.278	
SAIC (CMF)	C/FFP	Columbia, MD	0.400	0.720	Jan-03	0.875	Feb-04	0.920	Jan-05	0.000	2.915	
Waveform Development	MIPR	San Diego, CA (SPAWAR Systems)	0.000	0.000		0.500	Dec-03			Continuing	TBD	
Subtotal Product Development			20.510	34.596		12.159		19.107		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												0.000
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
JITC/46th OSS	MIPR	Ft Huachuca, AZ & Eglin AFB, FL	0.380	0.600	Nov-02	0.600	Dec-03	0.750	Dec-04	Continuing	TBD	
Subtotal Test & Evaluation			0.380	0.600		0.600		0.750		Continuing	TBD	0.000
Remarks:												
(U) <u>Management</u>												
SPO	Various	Local Area (Bedford, MA)		0.798	Sep-03	0.822	Sep-04	1.200	Sep-05		2.820	
MITRE/ITSP	SS/CPFF (FFRDC)	Bedford, MA	7.486	2.396	Nov-02	2.648	Dec-03	2.870	Feb-05	Continuing	TBD	
Subtotal Management			7.486	3.194		3.470		4.070		Continuing	TBD	0.000
Remarks:												
(U) Total Cost			28.376	38.390		16.229		23.927		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

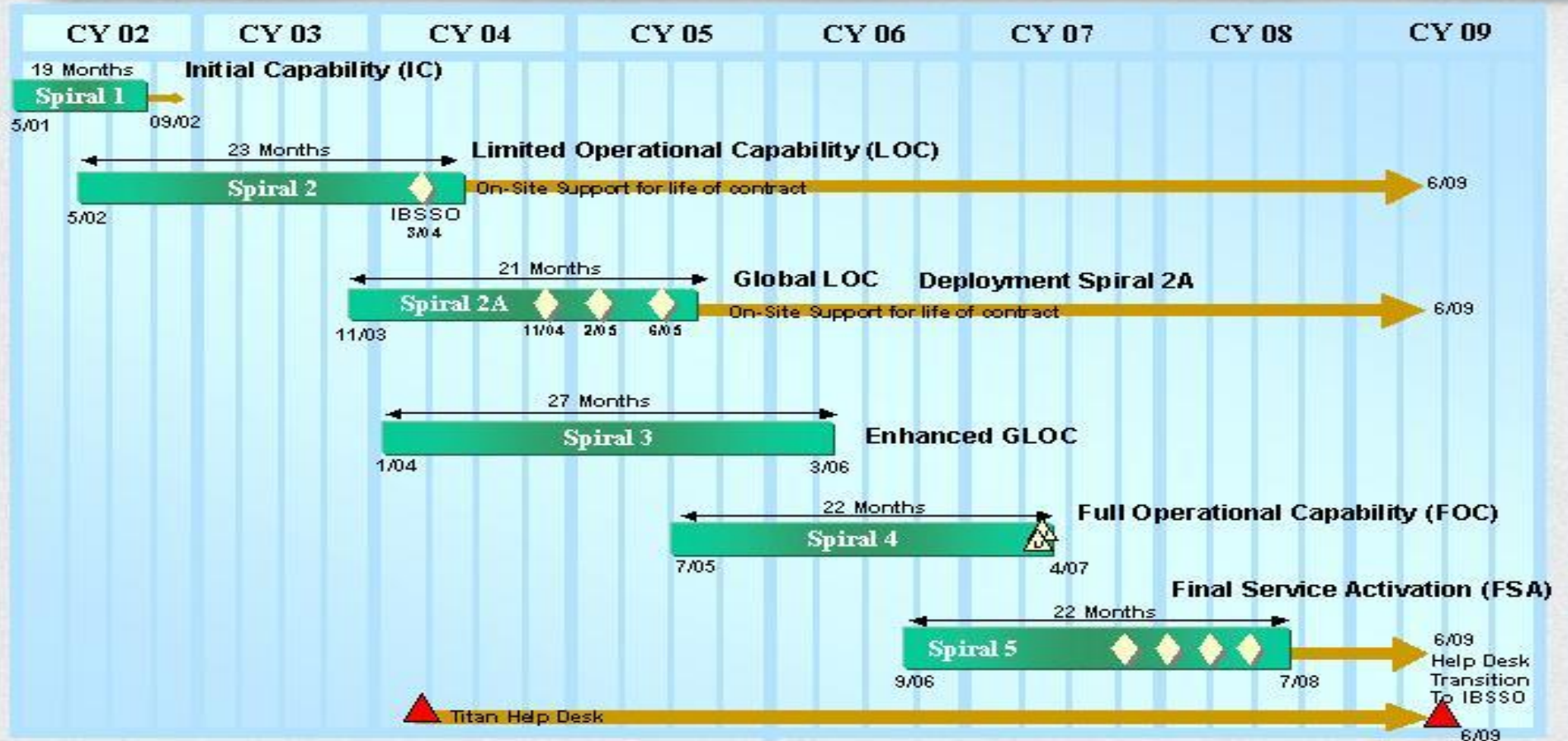
DATE

February 2004

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



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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2004</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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Spiral II Final Design Review	3Q		
(U) Spiral II Integration Test		1Q	
(U) Spiral II LOC (Limited Operational Capability)		1Q	
(U) Spiral III PDR		1Q	
(U) Spiral III Final Design Review		2Q	
(U) Spiral IV System Requirements Review			3Q
(U) Spiral IV Preliminary Design Review			4Q

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

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2004</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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	56.741	60.117	72.503	79.186	94.734	79.346	81.446	Continuing	TBD
1020 ICBM Guidance Applications	22.852	17.369	16.979	16.913	24.979	18.664	18.979	Continuing	TBD
1021 ICBM Propulsion Applications	4.205	17.875	30.419	41.928	41.978	39.759	40.449	Continuing	TBD
1022 ICBM Reentry Vehicle Applications	23.444	16.756	16.979	17.475	24.869	18.704	19.045	Continuing	TBD
1023 Rocket System Launch Program	0.029	1.031	0.033	0.033	0.034	0.035	0.035	Continuing	TBD
1024 ICBM Command & Control (C2) Applications	1.327	0.429	0.443	0.457	0.464	0.471	0.478	Continuing	TBD
4209 Long Range Planning (LRP)	4.884	6.657	7.650	2.380	2.410	1.713	2.460	Continuing	TBD

(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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	62.087	67.632	91.992
(U) Current PBR/President's Budget	56.741	60.117	72.503
(U) Total Adjustments	-5.346	-7.515	
(U) Congressional Program Reductions		-8.515	
Congressional Rescissions			
Congressional Increases		1.000	
Reprogrammings	-2.600		
SBIR/STTR Transfer	-2.746		

(U) **Significant Program Changes:**  
 FY05: Includes total -\$19.489M adjustments distributed as follows: ICBM Guidance Applications (-\$3.444M); ICBM Propulsion Applications (-\$10.980M); ICBM Reentry Vehicle Applications (-\$3.444M); ICBM Command & Control Applications (-\$.001M); Long Range Planning (-\$1.620M).

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

DATE  
**February 2004**

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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total	
1020 ICBM Guidance Applications	22.852	17.369	16.979	16.913	24.979	18.664	18.979	Continuing	TBD	
Quantity of RDT&E Articles	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 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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Continue development and prototype of concepts for future common strategic guidance system technology	6.645	5.365	4.691
(U) Continue assessment, evaluation and test of radiation hard electronics for strategic guidance applications	3.208	0.771	0.797
(U) Continue development and test of alternate instrument technologies (e.g., accelerometers, gyros, micro electromechanical systems)	8.068	5.473	3.990
(U) Continue assessment, development and implementation of flight test experiment options to demonstrate future strategic guidance system concepts	4.931	5.760	7.501
(U) Total Cost	22.852	17.369	16.979

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) None.									

**(U) D. Acquisition Strategy**

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 2004		
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				
(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 2003 Cost</u>	<u>FY 2003 Cost</u>	<u>FY 2003 Award Date</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
ICBM Prime Integration Contract	C/CPAF	Northrop Grumman, Clearfield UT	52.273	22.792	Dec-02	17.209	Dec-03	15.919	Dec-04	Continuing	TBD	TBD
Others TBD	TBD	TBD	0.000	0.000	N/A	0.100	Jan-04	1.000	Jan-05	Continuing	TBD	TBD
Subtotal Product Development			52.273	22.792		17.309		16.919		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u>												
SPO/Other Program Support	Various	ICBM Program Office, Hill AFB	3.515	0.060	N/A	0.060	N/A	0.060	N/A	Continuing	TBD	TBD
Subtotal Support			3.515	0.060		0.060		0.060		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
Remarks:												
(U) <u>Management</u>												
Program Management											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			55.788	22.852		17.369		16.979		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

BUDGET ACTIVITY

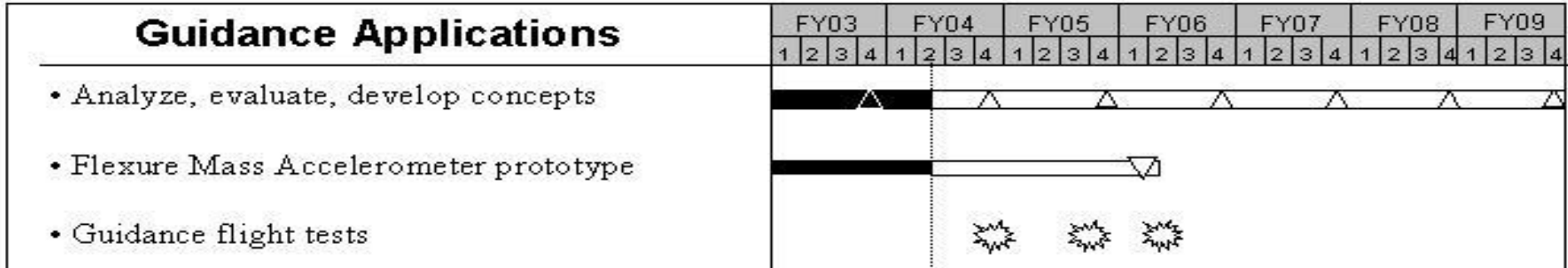
04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603851F ICBM - DEM/VAL

PROJECT NUMBER AND TITLE

1020 ICBM Guidance Applications



☀ 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 2004</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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <b>Schedule Profile</b>			
(U) Development/Demonstration of Future Common System Concepts (Ongoing)	1-4Q	1-4Q	1-4Q
(U) -- Progress Reports	4Q	4Q	4Q
(U) Alternate Instrument Technology Development (Ongoing)	1-4Q	1-4Q	1-4Q
(U) -- Progress Report	4Q	4Q	4Q
(U) Radiation Hardened Parts Analysis (Ongoing)	1-4Q	1-4Q	1-4Q
(U) -- Progress Report	4Q	4Q	4Q
(U) Flight Test Options Analysis	1-4Q	1-4Q	1-4Q
(U) -- Progress Report	4Q	4Q	4Q
(U) -- Flight Test		4Q	3Q

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

DATE  
**February 2004**

<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>			
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total	
1021 ICBM Propulsion Applications	4.205	17.875	30.419	41.928	41.978	39.759	40.449	Continuing	TBD	
Quantity of RDT&E Articles	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 technology 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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Conductd assessments of technology developments in support of ICBM propulsion systems	0.154		
(U) Designed and evaluated solid propulsion technologies for application to ICBM subsystems through analysis and test leading to static-fire demonstrations	2.579		
(U) Defined ordnance demo requirements and continued subsystem design and material/component testing	0.388		
(U) Conducted post-boost propulsion design and evaluation of advanced technologies to support ICBM applications	0.503		
(U) Conducted assessments and demonstration of advanced service life prediction technology in ICBM propulsion subsystems	0.581		
(U) Continue evaluation and test of solid propulsion technologies for ICBM application through process development and stage manufacture leading to static fire testing		14.448	23.850
(U) Continue assessment and demonstration of ordnance and post-boost components technology developments		2.915	5.952
(U) Continue evaluation of test protocols in support of hazard classification methods for ICBM solid rocket motors		0.512	0.617
(U) Total Cost	4.205	17.875	30.419

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

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

UNCLASSIFIED

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

DATE

**February 2004**

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) <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>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to</u>	<u>Total</u>	<u>Target</u>
			<u>Prior to FY</u>	<u>2003</u>	<u>2003</u>	<u>2004</u>	<u>2004</u>	<u>2005</u>	<u>2005</u>	<u>Complete</u>	<u>Cost</u>	<u>Value of</u>
			<u>2003</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Contract</u>
			<u>Cost</u>	<u>Date</u>	<u>Date</u>	<u>Date</u>	<u>Date</u>	<u>Date</u>	<u>Date</u>			
(U) <u>Product Development</u>												
ICBM Prime Integration Contract	C/CPAF	Northrop Grumman, Clearfield UT	2.204	4.175	Dec-02	17.775	Dec-03	28.819	Dec-04	Continuing	TBD	TBD
Component Development	PO or MIPR	AFRL, Edwards AFB	0.000	0.000	N/A	0.000	N/A	0.500	Jan-05	Continuing	TBD	TBD
Others TBD	TBD	TBD	0.000	0.000	N/A	0.000	N/A	1.000	Jan-05	Continuing	TBD	TBD
Subtotal Product Development			2.204	4.175		17.775		30.319		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u>												
SPO/Other Program Support	Various	ICBM Program Office, Hill AFB	0.056	0.030	N/A	0.100	N/A	0.100	N/A	Continuing	TBD	TBD
Subtotal Support			0.056	0.030		0.100		0.100		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
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000			0.000	0.000
Remarks:												
(U) Total Cost			2.260	4.205		17.875		30.419		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

BUDGET ACTIVITY

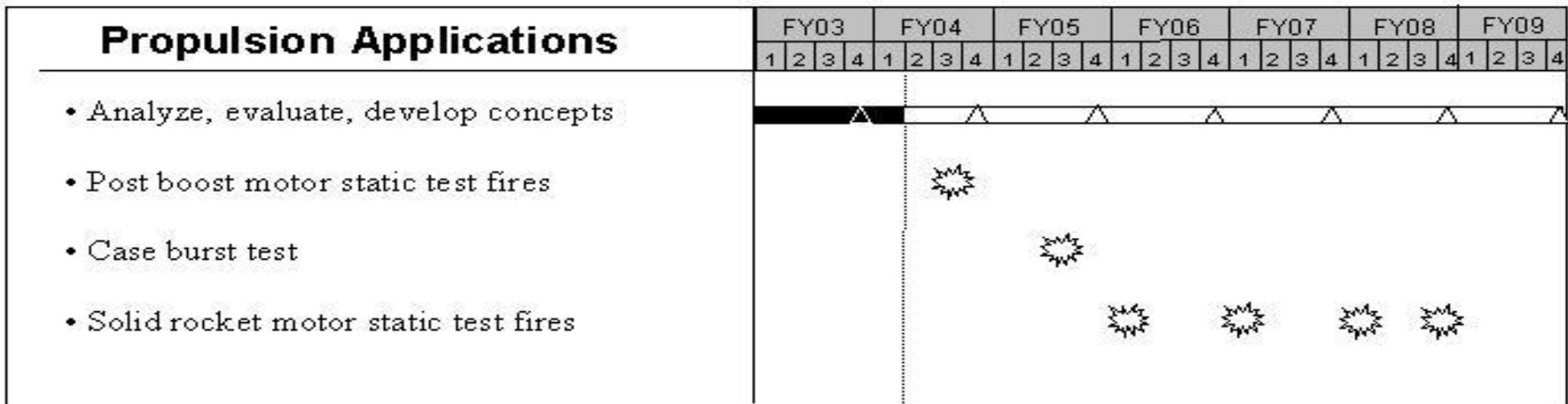
04 Advanced Component Development and Prototypes (ACD&P)

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

UNCLASSIFIED

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2004</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>
---	--	---

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <b><u>Schedule Profile</u></b>			
(U) Studies/Assessments of technology developments	1-4Q		
(U) --Begin/Complete Annual Studies	2-4Q		
(U) Solid stage design and evaluation of solid propulsion technology	1-4Q		
(U) --Begin/Complete Annual Studies	2-4Q		
(U) Ordnance demo design and evaluation of technologies	1-4Q		
(U) --Periodic Status Report/Reviews	2-4Q		
(U) Post-boost propulsion design and evaluation of technologies	1-4Q		
(U) --Periodic Status Report/Reviews	2-4Q		
(U) Studies/assessments of advanced service life prediction technologies	1-4Q		
(U) --Begin/Complete Annual Studies	2-4Q		
(U) Evaluate and test solid propulsion technologies for ICBM application		1-4Q	1-4Q
(U) -- Periodic Status Reports/Review		2-4Q	2-4Q
(U) Assessment/demonstration of ordnance and post-boost components tech		1-4Q	1-4Q
(U) --Periodic Status Report/Reviews		2-4Q	2-4Q
(U) Evaluate test protocols in support of hazard classification methods		1-4Q	1-4Q
(U) --Periodic Status Report/Reviews		2-4Q	2-4Q

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

DATE  
**February 2004**

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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total	
1022 ICBM Reentry Vehicle Applications	23.444	16.756	16.979	17.475	24.869	18.704	19.045	Continuing	TBD	
Quantity of RDT&E Articles	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 conducted 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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Continue evaluation of RV material subsystems, aging, and replacements by performing ground and flight tests	5.126	4.874	4.089
(U) Continue identification and ground testing of potential replacement options for critical RV components	1.181	1.422	1.067
(U) Continue evaluation of improved accuracy measurements and methodologies	0.712	0.831	0.821
(U) Continue evaluation of alternate flight test experiment options	4.486	2.726	3.246
(U) Continue evaluation of advanced common RV designs, applications, and technologies	4.938	3.426	3.417
(U) Continue development and assessment of RV Test & Evaluation methodologies and subsystems	4.415	2.384	3.370
(U) Continue design, development, and prototype flight testing of selected fuze assessment/measurement	2.586	1.093	0.969
(U) Total Cost	23.444	16.756	16.979

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) None									

**(U) D. Acquisition Strategy**

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 2004**

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>(U) Cost Categories</u>	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to</u>	<u>Total</u>	<u>Target</u>
(Tailor to WBS, or System/Item Requirements) (\$ in Millions)			<u>Prior to FY</u>	<u>2003</u>	<u>2003</u>	<u>2004</u>	<u>2004</u>	<u>2005</u>	<u>2005</u>	<u>Complete</u>	<u>Cost</u>	<u>Value of</u>
			<u>2003</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>			<u>Contract</u>
			<u>Cost</u>		<u>Date</u>		<u>Date</u>		<u>Date</u>			
<u>(U) Product Development</u>												
ICBM Prime Integration Contract	C/CPAF	Northrop Grumman, Clearfield, UT	57.513	21.884	Dec-02	16.096	Dec-03	14.919	Dec-04	Continuing	TBD	TBD
Others TBD	Various	TBD	0.000	0.000	N/A	0.000	N/A	1.000	Jan-05	Continuing	TBD	TBD
Subtotal Product Development			57.513	21.884		16.096		15.919		Continuing	TBD	TBD
Remarks:												
<u>(U) Support</u>												
SPO/Other Program Support	Various	ICBM Program Office Hill AFB	1.506	0.060	N/A	0.060	N/A	0.060	N/A	Continuing	TBD	TBD
Subtotal Support			1.506	0.060		0.060		0.060		Continuing	TBD	TBD
Remarks:												
<u>(U) Test &amp; Evaluation</u>												
Materials	MIPR	AFRL Wright Lab, Wright-Patterson AFB	2.040	0.500	Jan-03	0.200	Jan-04	0.500	Jan-05	Continuing	TBD	TBD
Ground Testing	PO	Arnold Engineering & Development Center	2.652	0.750	Jan-03	0.300	Jan-04	0.250	Jan-05	Continuing	TBD	TBD
Flight Testing	PO	Vandenberg AFB	0.396	0.250	Jan-03	0.100	Jan-04	0.250	Jan-05	Continuing	TBD	TBD
Subtotal Test & Evaluation			5.088	1.500		0.600		1.000		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>(U) Total Cost</u>			64.107	23.444		16.756		16.979		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

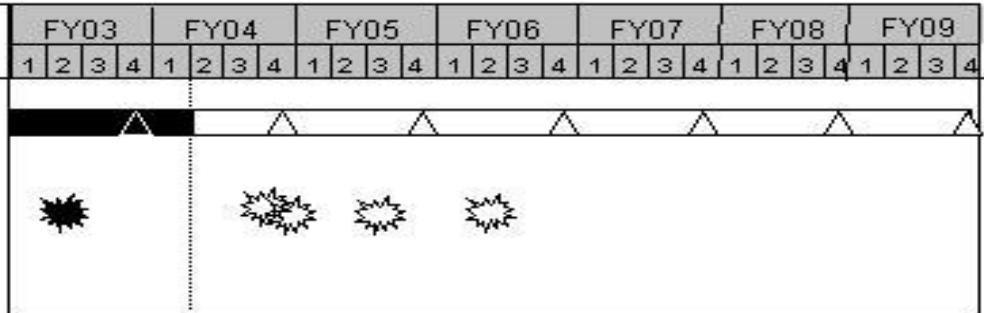
0603851F ICBM - DEM/VAL

PROJECT NUMBER AND TITLE

1022 ICBM Reentry Vehicle Applications

**Reentry Vehicle Applications**

- Analyze, evaluate, develop concepts
- Flight tests



☀ Major test event

▲ Report/Review/Analysis

▽ Prototype hardware delivery

UNCLASSIFIED

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2004</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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Materials Replacement & Aging Evaluations	1-4Q	1-4Q	1-4Q
(U) --Periodic Status Reports/Reviews	2-4Q	2-4Q	2-4Q
(U) Fuze Assessment/Measurement Tool Development	1-4Q	1-4Q	1-4Q
(U) --Periodic Status Reports/Reviews	2-4Q	2-4Q	2-4Q
(U) Critical Components Evaluations	1-4Q	1-4Q	1-4Q
(U) --Periodic Status Reports/Reviews	2-4Q	2-4Q	2-4Q
(U) RV Test & Evaluation Methodologies Development	1-4Q	1-4Q	1-4Q
(U) --Periodic Status Reports/Reviews	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
(U) Advanced Common RV Designs, Applications & Technologies Evaluations	1-4Q	1-4Q	1-4Q
(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	2Q	4Q	3Q

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

DATE  
**February 2004**

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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
1023	Rocket System Launch Program	0.029	1.031	0.033	0.033	0.034	0.035	0.035	Continuing	TBD
	Quantity of RDT&E Articles	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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Continue on-going study/analysis for the adoption of low cost front-end systems for use on deactivated missile assets	0.029	0.031	0.033
(U) Conduct California Space Infrastructure Program		1.000	
(U) Total Cost	0.029	1.031	0.033

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Other APPN									
(U) 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 2004		
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				
(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</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to</u>	<u>Total</u>	<u>Target</u>
			<u>Prior to FY</u>	<u>2003</u>	<u>2003</u>	<u>2004</u>	<u>2004</u>	<u>2005</u>	<u>2005</u>	<u>Complete</u>	<u>Cost</u>	<u>Value of</u>
			<u>2003</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Contract</u>
			<u>Cost</u>		<u>Date</u>		<u>Date</u>		<u>Date</u>			
(U) <u>Product Development</u>												
California Space Infrastructure Program	TBD	California Spaceport Authority	0.000	0.000	N/A	1.000	Apr-04	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	7.338	7.338
Subtotal Product Development			7.338	0.000		1.000		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	8.403	8.403
Engineering Support	Various	SMC Det 12 Kirtland AFB	1.488	0.029	Jan-03	0.031	Jan-04	0.033	Jan-05	0.000	1.581	TBD
Subtotal Support			9.891	0.029		0.031		0.033		0.000	9.984	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
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			17.229	0.029		1.031		0.033		0.000	18.322	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

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	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
<ul style="list-style-type: none"> <li>Analyze, evaluate concepts</li> <li>California Space Infrastructure</li> </ul>				▲				▲				▲				▲				▲				▲				▲
								◻▲																				



Major test event



Report/Review/  
Analysis



Prototype hardware  
delivery

**UNCLASSIFIED**

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2004</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>1023 Rocket System Launch Program</b>
--	---	--

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <b><u>Schedule Profile</u></b>			
(U) Start/Complete Annual Studies/Analysis	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 2004**

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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
1024 ICBM Command & Control (C2) Applications	1.327	0.429	0.443	0.457	0.464	0.471	0.478	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

**(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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Continued to develop and refine alternatives and concepts that incorporate information assurance, joint interoperability and other applicable DOD initiatives. Included options identification and analyses for an improved, survivable C2 system	0.775		
(U) Continued demonstrations, testing and evaluation of alternative network architectures, applications, and technologies. Ensured compatibility with transformational communications studies and integrate activities.	0.552		
(U) Continue 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; continue developing plans for preserving unique strategic C2 skills and capabilities.		0.429	0.443
(U) Total Cost	1.327	0.429	0.443

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) None									



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

DATE

February 2004

BUDGET ACTIVITY

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

PE NUMBER AND TITLE

0603851F ICBM - DEM/VAL

PROJECT NUMBER AND TITLE

1024 ICBM Command & Control (C2)  
Applications(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.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis										DATE February 2004		
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				
(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</u> <u>Prior to FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
(U) <u>Product Development</u> ICBM Prime Integration Contract	C/CPAF	Northrop Grumman, Clearfield UT	2.362	1.312	Dec-02	0.419	Dec-03	0.433	Dec-04	Continuing	TBD	TBD
Subtotal Product Development			2.362	1.312		0.419		0.433		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u> SPO/other program support	Various	ICBM Program Office Hill AFB	0.027	0.015	N/A	0.010	N/A	0.010	N/A	Continuing	TBD	TBD
Subtotal Support			0.027	0.015		0.010		0.010		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
Remarks:												
(U) <u>Management</u>  Subtotal Management			0.000	0.000		0.000		0.000			0.000	0.000
Remarks:												
(U) Total Cost			2.389	1.327		0.429		0.443		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

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**

- Analyze, evaluate, develop concepts

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

 Major test event

 Report/Review/Analysis

 Prototype hardware delivery

UNCLASSIFIED

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2004</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>1024 ICBM Command &amp; Control (C2) Applications</b>
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	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <b><u>Schedule Profile</u></b>			
(U) Future Concepts Study for Command & Control (Ongoing)	1-4Q	1-4Q	2-4Q
(U) --Periodic Progress Reports/Reviews	2-4Q	2-4Q	2-4Q
(U) Demonstrations, test, and evaluations of alternate networks	1-4Q		
(U) --Periodic Progress Reports/Reviews	2-4Q		

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

DATE  
**February 2004**

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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total	
4209 Long Range Planning (LRP)	4.884	6.657	7.650	2.380	2.410	1.713	2.460	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

**(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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Continue support of Long Range Planning tasks, development of the Systems Options Report, and update of the Logistics Program Management Plan and the ICBM Master Plan	0.315	0.504	0.510
(U) Complete feasibility and life extension studies	2.020	1.248	
(U) Completed technology insertion studies in support of changing ICBM environments	0.529		
(U) Completed development of Threats and Scenarios database with Modeling and Simulation (M&S) capability	2.020		
(U) Continue Analysis of Alternatives (AoA) and pre-systems acquisition planning for follow on Land-Based Strategic Deterrent (LBSD)		4.905	7.140
(U) Total Cost	4.884	6.657	7.650

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) None									

**(U) D. Acquisition Strategy**

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

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis										DATE <b>February 2004</b>		
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>		
<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>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
<u>(U) Product Development</u>												
ICBM Prime Integration Contract	C/CPAF	Northrop Grumman, Clearfield UT	4.818	2.719	Dec-02	1.047	Dec-03	0.510	Dec-04	Continuing	TBD	TBD
Threat/Scenario/Database Studies	Various	Various	0.000	2.020	Jan-03	0.000	N/A	0.000	N/A	0.000	2.020	2.020
Land Based Strategic Deterrent AoA and pre-systems acquisition planning	MIPR/PO	Various	1.628	0.000	N/A	0.560	Nov-03	0.000	N/A	0.000	2.188	0.560
Subtotal Product Development	Various	Various	0.000	0.000	N/A	4.905	Jan-04	6.995	Jan-05	0.000	11.900	11.529
Remarks:			6.446	4.739		6.512		7.505		Continuing	TBD	TBD
<u>(U) Support</u>												
SPO/Other program support	Various	ICBM Program Office, Hill AFB UT	2.492	0.145	N/A	0.145	N/A	0.145	N/A	Continuing	TBD	
Subtotal Support			2.492	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
Remarks:												
<u>(U) Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Total Cost</u>			8.938	4.884		6.657		7.650		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

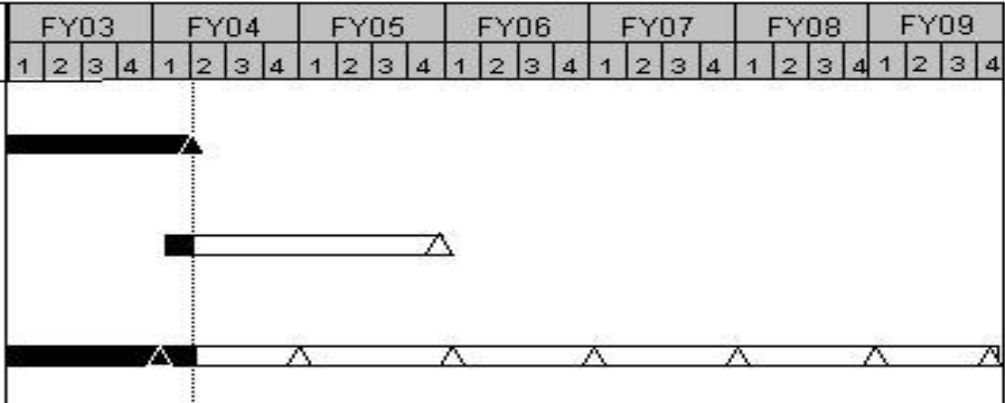
PE NUMBER AND TITLE

0603851F ICBM - DEM/VAL

PROJECT NUMBER AND TITLE

4209 Long Range Planning (LRP)

**Long Range Planning**



☀ Major test event

△ Report/Review/Analysis

▽ Prototype hardware delivery

**UNCLASSIFIED**

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2004</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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <b><u>Schedule Profile</u></b>			
(U) Contract Award for Annual Studies/Analyses	2Q	2Q	
(U) --Program Reviews/ Reports Received	2-4Q	2-4Q	
(U) -Threats & Scenarios DB w/Modeling & Simulation capability development	1-4Q		
(U) LBSD Analysis of Alternatives & pre-acquisition planning		1-4Q	1-4Q
(U) -- AoA Report			4Q



**UNCLASSIFIED**

PE NUMBER: 0603854F

PE TITLE: Wideband MILSATCOM (Space)

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	<b>DATE</b> <b>February 2004</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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	13.801	36.271	73.499	15.950	9.290	5.701	6.357	Continuing	TBD
4811 Wideband Gapfiller	0.000	0.000	53.202	7.681	2.291	0.000	0.000	0.000	226.614
4870 Command & Control System Consolidated (CCSC)	13.801	36.271	20.297	8.269	6.999	5.701	6.357	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. Due to manufacturing problems with the phased array components used on WGS, the first WGS launch is currently scheduled for Dec 05, and satellites 2 and 3 are scheduled for NLT Jan 07. OSD directed the addition of two more WGS's as part of the transformational communications architecture. Funding was added in FY2005 and beyond for non-recurring engineering on satellites 4 and 5 to support increased bandwidth requirements for the Airborne Intelligence, Surveillance and Reconnaissance mission. Launches for satellites 4-5 are scheduled for FY09-10.

The MILSATCOM Command and Control System-Consolidated (CCS-C) system is being acquired to provide integrated launch and on-orbit command and control (C2) functionality for MILSATCOM satellites as the current capability provided by the Air Force Satellite Control Network (PE0305110F) 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 Systems (DSCS), WGS, Advanced Extremely High Frequency (AEHF), Transformational Satellite Communications (TSAT), and Advanced Polar System (APS), at reduced operating and maintenance costs.

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

WGS: Leveraging commercial technology and practices by modifying commercial satellites to better support unique military requirements

CCS-C: Development phase

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2004</b>
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BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	PE NUMBER AND TITLE <b>0603854F Wideband MILSATCOM (Space)</b>
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<b>(U) <u>B. Program Change Summary (\$ in Millions)</u></b>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	13.801	36.686	73.691
(U) Current PBR/President's Budget	13.801	36.271	73.499
(U) Total Adjustments	0.000	-0.415	
(U) Congressional Program Reductions		-0.415	
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			
None			

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

DATE  
**February 2004**

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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
4811 Wideband Gapfiller	0.000	0.000	53.202	7.681	2.291	0.000	0.000	0.000	226.614
Quantity of RDT&E Articles	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 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, and satellites 2 and 3 are scheduled for NLT 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.

Funding was added in FY2005 and beyond for non-recurring engineering on satellites 4 and 5 to support increased bandwidth requirements for the Airborne Intelligence, Surveillance and Reconnaissance mission. Launches for satellites 4-5 are scheduled for FY09-10.

Funding 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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments/Planned Program			
(U) Support Unmanned Aerial Vehicle (UAV) Bypass (Airborne Intelligence, Surveillance and Reconnaissance support) non-recurring engineering for satellites 4 and 5			47.497
(U) Perform payload/production studies related to parts obsolescence and non-recurring engineering for satellites 4 and 5			5.011
(U) Begin Program Office Support			0.694
(U) Total Cost	0.000	0.000	53.202

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to Complete</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>		
(U) MPAF, PE 0303600F, WGS, P-29	186.694	21.848	40.307	61.983	270.676	175.338	47.747	117.473	1,307.990
(U) OPAF, PE 0303600F, WGS PIPs	15.142	11.776	0.000	0.000	0.000			0.000	26.918
(U) OPAF, PE 0303600F, CCS-C	5.320	8.049	2.124	0.288	0.000			0.000	15.781

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

DATE

February 2004

BUDGET ACTIVITY

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

PE NUMBER AND TITLE

0603854F Wideband MILSATCOM  
(Space)

PROJECT NUMBER AND TITLE

4811 Wideband Gapfiller

**(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 01. All five satellites will be purchased with Procurement funds, and the Non-Recurring Engineering (NRE) is funded with RDT&E.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis										DATE <b>February 2004</b>		
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>			
<u>(U) Cost Categories</u>	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to</u>	<u>Total</u>	<u>Target</u>
(Tailor to WBS, or System/Item Requirements) (\$ in Millions)			<u>Prior to FY</u>	<u>2003</u>	<u>2003</u>	<u>2004</u>	<u>2004</u>	<u>2005</u>	<u>2005</u>	<u>Complete</u>	<u>Cost</u>	<u>Value of</u>
			<u>Cost</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>			<u>Contract</u>
					<u>Date</u>		<u>Date</u>		<u>Date</u>			
<u>(U) Product Development</u>												
WGS Satellite EMD	FFP		143.008								143.008	
UAV Bypass NRE	FFP							47.497		7.972	55.469	
Payload/Production Studies	Various							5.011			5.011	
Subtotal Product Development			143.008	0.000		0.000		52.508		7.972	203.488	0.000
Remarks:												
<u>(U) Support</u>												
JTEO	PR		6.618							0.000	6.618	
Pre-EMD	Form 277		5.579							0.000	5.579	
International Studies	SS/CFFF/AF									0.000	0.000	
Program Support	Various		8.235					0.694		2.000	10.929	
Subtotal Support			20.432	0.000		0.000		0.694		2.000	23.126	0.000
Remarks:												
<u>(U) Test &amp; Evaluation</u>												
AFOTEC, DT&E	TBD										0.000	
TBD											0.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Total Cost</u>			163.440	0.000		0.000		53.202		9.972	226.614	0.000

Exhibit R-4, RDT&E Schedule Profile

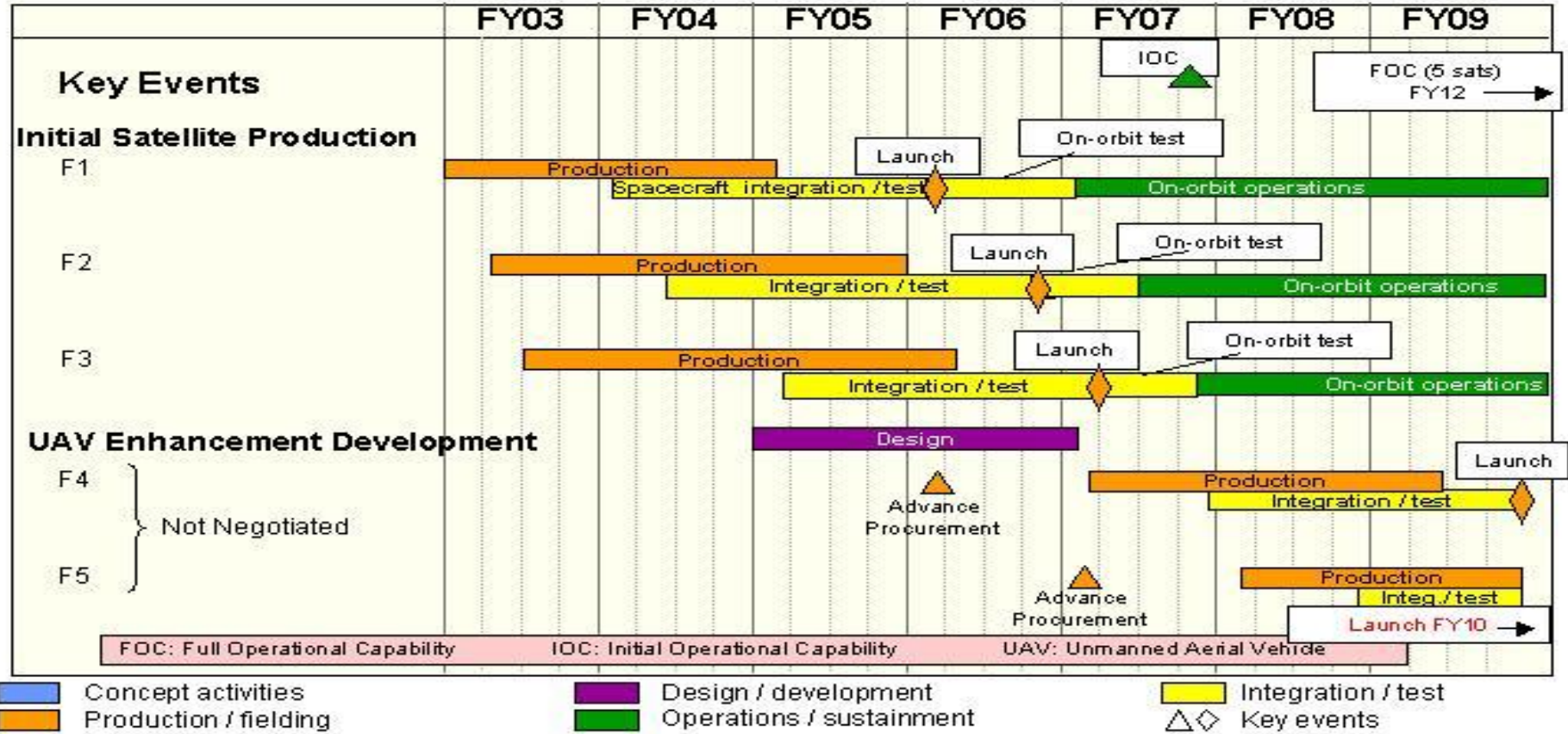
DATE

February 2004

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



Current buy is five satellites – contract has options for up to six

**UNCLASSIFIED**

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2004</b>
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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>
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(U) <u>Schedule Profile</u> (U) Initiate Unmanned Aerial Vehicle (UAV) Bypass (AISR support) for satellites 4 and 5	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	1Q
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**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2004**

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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total	
4870 Command & Control System Consolidated (CCSC)	13.801	36.271	20.297	8.269	6.999	5.701	6.357	Continuing	TBD	
Quantity of RDT&E Articles	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 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), Advanced Extremely High Frequency (AEHF), Transformational SATCOM (TSAT), and Advanced Polar System (APS), 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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments/Planned Program			
(U) Continued development of command and control functionality for DSCS, MILSTAR, WGS, and AEHF satellites.	10.994		
(U) Continued development of command and control functionality for WGS, MILSTAR, and AEHF satellites. Completed command and control functionality for DSCS.		31.396	
(U) Continue development of command and control functionality for WGS and AEHF satellites. Complete command and control functionality MILSTAR.			17.224
(U) Continue Program Office and other related support activities	2.807	4.875	3.073
(U) Total Cost	13.801	36.271	20.297

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to Complete</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>		
(U) Other APPN									
(U) OPAF, PE 030600F, CCS-C	5.320	8.049	2.124	0.288	0.000			0.000	15.781
(U) BA-11 Line-74									

**(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 2004		
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) 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</u> <u>Prior to FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
(U) <u>Product Development</u>												
Demonstration Contractors	FFP		6.835							0.000	6.835	
Development Contractor	CPAF		12.876	10.994	Oct-02	31.396	Oct-03	17.224	Oct-04	Continuing	TBD	
Subtotal Product Development			19.711	10.994		31.396		17.224		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												
CCSC Program Support Cost			6.379	2.807		4.875		3.073		Continuing	TBD	
Subtotal Support			6.379	2.807		4.875		3.073		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
Remarks:												
(U) <u>Management</u>												
None											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			26.090	13.801		36.271		20.297		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

BUDGET ACTIVITY

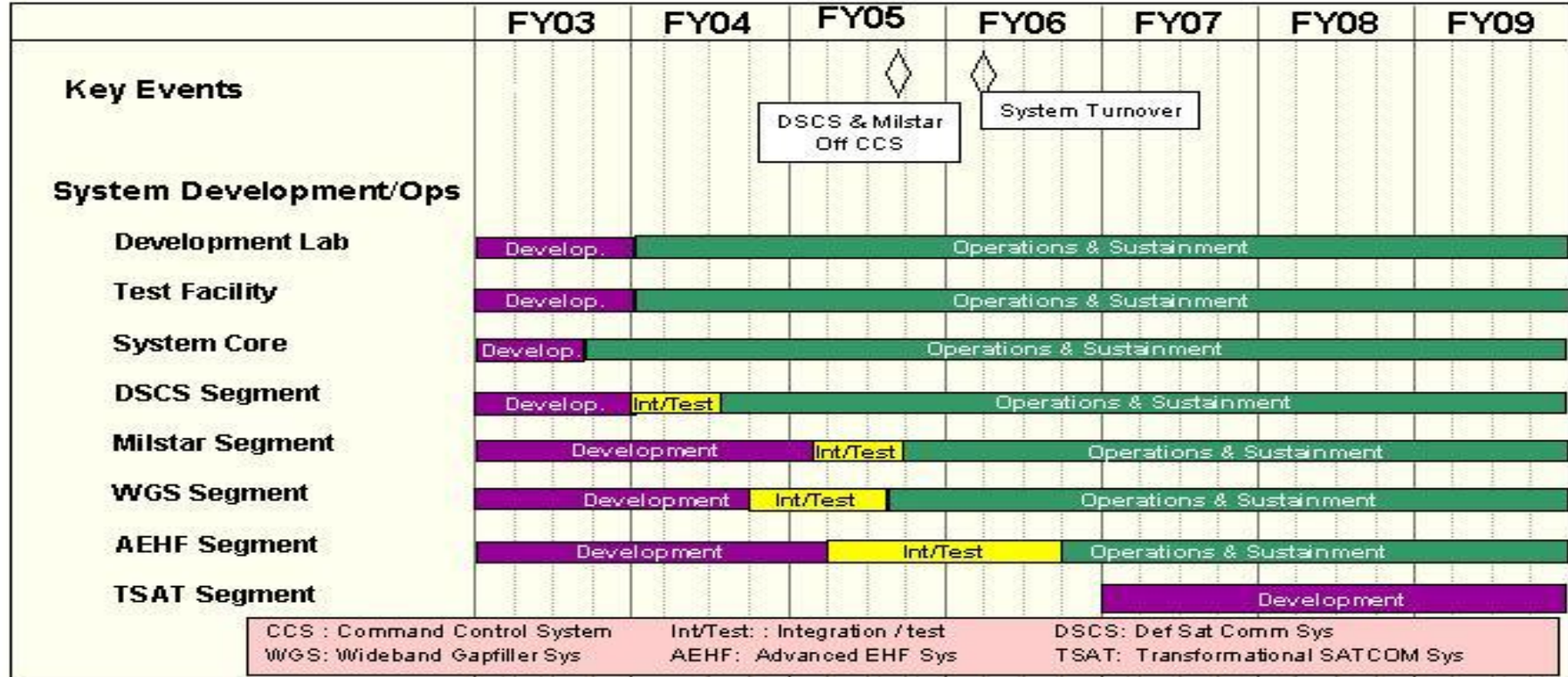
04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603854F Wideband MILSATCOM (Space)

PROJECT NUMBER AND TITLE

4870 Command & Control System Consolidated (CCSC)



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

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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2004</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>4870 Command &amp; Control System Consolidated (CCSC)</b>
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<b>(U) <u>Schedule Profile</u></b>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Complete development of system core software	3Q		
(U) Completion of Defense Satellite Communications System (DSCS) command and control functionality		3Q	
(U) Begin Wideband Gapfiller System (WGS) Integration & Test		4Q	
(U) Begin Advanced EHF Development Integration & Test			2Q
(U) Complete MILSTAR command and control functionality			3Q
(U) Transition MILSATCOM legacy systems (DSCS and MILSTAR) to CCS-C			3Q

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PE NUMBER: 0603856F

PE TITLE: Air Force/National Program Cooperation (AFNPC)

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2004</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>0603856F Air Force/National Program Cooperation (AFNPC)</b>
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Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	2.341	0.000	0.000	0.000	0.000	0.000	0.000	0.000	9.405
4782 Air Force/National Program Cooperation (AFNPC)	2.341	0.000	0.000	0.000	0.000	0.000	0.000	0.000	9.405

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

This Program Element supports collaborative Air Force-intelligence community space efforts. At present, it funds two items that both began in FY 1999:

1) The AF/NRO Integration Planning Group (ANIPG) engenders greater AF-NRO synergies in R&D, operations, and programs by developing options for increasing integration across the entire range of AF and NRO space activities. ANIPG-developed recommendations on policies, plans, programs, requirements, architectures, acquisition, and resources are submitted to HQ USAF and NRO staffs and leadership for mutual agreement and implementation. Past, present, and future initiative areas include precision targeting, communications, combat identification, combat search & rescue, mission planning/rehearsal, joint acquisition, and reduction in operations personnel tempos for airborne intelligence, surveillance, and reconnaissance assets. ANIPG efforts are key facilitators for enhancing AF and NRO capabilities, increasing the cost-effectiveness of their space activities, and preventing duplication of efforts through low-cost, high-benefit initiatives. Funding level is determined by AF-NRO Memorandum of Agreement.

2) The Space-Based Infrared System Technical Intelligence (SBIRS TI) project develops capabilities to exploit SBIRS High sensor data for the technical intelligence mission. These enhancements provide data extraction, processing, exploitation, and dynamic sensor cross-cueing capabilities needed to meet fundamental SBIRS requirements for strategic and theater missile defense, technical intelligence, and battlespace characterization. The project assists in satisfying SBIRS Operational Requirements Document threshold requirements for real-time technical intelligence by (a) developing backup centers for remotely-controlled TI pre-processing at remote ground stations and (b) integrating SBIRS data with other intelligence source data for synergistic effects. Project designs/develops Collaborative Technical Intelligence Center/Back-up Technical Intelligence Center (CTIC/BTIC) which will be electronically connected into the SBIRS system. Additionally, the project develops Digital Integrated Communications Electronic System (DICES) terminals that will be used to establish connectivity among the MCS, IMCS-B, Host Ground Station, and the Technical Intelligence Centers (TIC, CTIC, and BTIC) and will be used to support launch and on-orbit testing of the Highly Elliptical Orbit (HEO) Payload.

3) Obtained TI is used in real-time and non-real-time to maximize operational weapons system effectiveness by optimizing detection, classification/typing, and negation capabilities for warning and active defense systems. Beyond Operational Requirements Document threshold requirements, SBIRS TI efforts are meant to establish real-time and non-real-time collaborative efforts in order to maximize SBIRS tasking efforts.

The intelligence community provides additional funds for these joint projects as reported in Congressional Budget Justification Books.

(U) This PE is in Budget Activity 4, Advanced Component Development and Prototypes (ACDP), because these projects involve testing and demonstrating new cooperative efforts.

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

DATE

February 2004

BUDGET ACTIVITY

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

PE NUMBER AND TITLE

0603856F Air Force/National Program Cooperation (AFNPC)

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	2.491	0.000	
(U) Current PBR/President's Budget	2.341	0.000	
(U) Total Adjustments	-0.150	0.000	
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer	-0.150		

(U) **Significant Program Changes:**

FY04: SBIRS Technical Intelligence (TI) project transferred to SBIRS EMD PE 0604441F. ANIPG project funds reprogrammed to other AF priorities due to consolidation of National Security Space activities under USecAF.

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

DATE

February 2004

BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				PE NUMBER AND TITLE <b>0603856F Air Force/National Program Cooperation (AFNPC)</b>			PROJECT NUMBER AND TITLE <b>4782 Air Force/National Program Cooperation (AFNPC)</b>		
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
4782 Air Force/National Program Cooperation (AFNPC)	2.341	0.000	0.000	0.000	0.000	0.000	0.000	0.000	9.405
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

In FY2004, Project 644782, Air Force/National Program Cooperation (AFNPC), efforts were realigned. Efforts for Space-Based Infrared System (SBIRS) Technical Intelligence (TI) transferred to SBIRS EMD PE 0604441F. Funding for Air Force/National Reconnaissance Office Integration Planning Group (ANIPG) were reprogrammed to other AF priorities due to consolidation of National Security Space activities under the Under Secretary of the Air Force (USecAF).

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

This Program Element supports collaborative Air Force-intelligence community space efforts. At present, it funds two items that both began in FY 1999:

1) The AF/NRO Integration Planning Group (ANIPG) engenders greater AF-NRO synergies in R&D, operations, and programs by developing options for increasing integration across the entire range of AF and NRO space activities. ANIPG-developed recommendations on policies, plans, programs, requirements, architectures, acquisition, and resources are submitted to HQ USAF and NRO staffs and leadership for mutual agreement and implementation. Past, present, and future initiative areas include precision targeting, communications, combat identification, combat search & rescue, mission planning/rehearsal, joint acquisition, and reduction in operations personnel tempos for airborne intelligence, surveillance, and reconnaissance assets. ANIPG efforts are key facilitators for enhancing AF and NRO capabilities, increasing the cost-effectiveness of their space activities, and preventing duplication of efforts through low-cost, high-benefit initiatives. Funding level is determined by AF-NRO Memorandum of Agreement.

2) The Space-Based Infrared System Technical Intelligence (SBIRS TI) project develops capabilities to exploit SBIRS High sensor data for the technical intelligence mission. These enhancements provide data extraction, processing, exploitation, and dynamic sensor cross-cueing capabilities needed to meet fundamental SBIRS requirements for strategic and theater missile defense, technical intelligence, and battlespace characterization. The project assists in satisfying SBIRS Operational Requirements Document threshold requirements for real-time technical intelligence by (a) developing backup centers for remotely-controlled TI pre-processing at remote ground stations and (b) integrating SBIRS data with other intelligence source data for synergistic effects. Project designs/develops Collaborative Technical Intelligence Center/Back-up Technical Intelligence Center (CTIC/BTIC) which will be electronically connected into the SBIRS system. Additionally, the project develops Digital Integrated Communications Electronic System (DICES) terminals that will be used to establish connectivity among the MCS, IMCS-B, Host Ground Station, and the Technical Intelligence Centers (TIC, CTIC, and BTIC) and will be used to support launch and on-orbit testing of the Highly Elliptical Orbit (HEO) Payload.

3) Obtained TI is used in real-time and non-real-time to maximize operational weapons system effectiveness by optimizing detection, classification/typing, and negation capabilities for warning and active defense systems. Beyond Operational Requirements Document threshold requirements, SBIRS TI efforts are meant to establish real-time and non-real-time collaborative efforts in order to maximize SBIRS tasking efforts.

The intelligence community provides additional funds for these joint projects as reported in Congressional Budget Justification Books.

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>February 2004</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>0603856F Air Force/National Program Cooperation (AFNPC)</b>	<b>PROJECT NUMBER AND TITLE</b> <b>4782 Air Force/National Program Cooperation (AFNPC)</b>
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(U) This PE is in Budget Activity 4, Advanced Component Development and Prototypes (ACDP), because these projects involve testing and demonstrating new cooperative efforts.

<b>(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Continues technical support to the AF/NRO Integration Planning Group (ANIPG)	0.837		
(U) Funds the Collaborative Technical Intelligence Center and the Back-up Technical Intelligence Center (CTIC and BTIC) Also funds is the Remote TI Console at the Host Ground Station, as well as the connectivity to the Global Connectivity Service and the NSA Secure Telephone System/Digital Integrated Communications Electronic System (NSTS/DICES)	1.504		
(U) Total Cost	2.341	0.000	0.000

<b>(U) <u>C. Other Program Funding Summary (\$ in Millions)</u></b>									
	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	

(U) Intelligence Community\*  
\*Not available

(U) **D. Acquisition Strategy**  
ANIPG activities are level of effort and use SETA support contracts and FFRDC. SBIRS TI activities are executed as part of the SBIRS High program on its cost plus award fee contract with Lockheed Martin.



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Exhibit R-3, RDT&E Project Cost Analysis										DATE February 2004		
BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)				PE NUMBER AND TITLE 0603856F Air Force/National Program Cooperation (AFNPC)				PROJECT NUMBER AND TITLE 4782 Air Force/National Program Cooperation (AFNPC)				
(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</u> Prior to FY 2003 Cost	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
				2003	2003	2004	2004	2005	2005			
				Cost	Award	Cost	Award	Cost	Award			
					Date		Date		Date			
(U) <u>Product Development</u>												
(U) SMC	MIPR		4.076	0.837						0.000	4.913	
None											0.000	
Subtotal Product Development			4.076	0.837		0.000		0.000		0.000	4.913	0.000
Remarks:												
(U) <u>Support</u>												
(U) ANIPG	MIPR		2.988	1.504						0.000	4.492	
None											0.000	
Subtotal Support			2.988	1.504		0.000		0.000		0.000	4.492	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
Not Applicable											0.000	
None											0.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			7.064	2.341		0.000		0.000		0.000	9.405	0.000

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

DATE

**February 2004**

BUDGET ACTIVITY

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

PE NUMBER AND TITLE

**0603856F Air Force/National Program  
Cooperation (AFNPC)**

PROJECT NUMBER AND TITLE

**4782 Air Force/National Program  
Cooperation (AFNPC)**

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UNCLASSIFIED

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2004</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>0603856F Air Force/National Program Cooperation (AFNPC)</b>	<b>PROJECT NUMBER AND TITLE</b> <b>4782 Air Force/National Program Cooperation (AFNPC)</b>
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<b>(U) <u>Schedule Profile</u></b>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Program support and studies in support of AF and NRO Collaborative	1-4Q		
(U) Global Connectivity Service Complete	1-4Q		
(U) NSTS/DICES (see note) Complete	1-4Q		
(U) Remote Technical Intelligence Console IOC	1-4Q		
(U) CTIC Design & Development (see note) Engineering Complete	1-3Q		

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2004</b>
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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>
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Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	45.402	172.625	327.732	466.189	502.738	1,177.645	1,549.951	Continuing	TBD
A004 SBR Concept and Technology Development	45.402	172.625	327.732	466.189	502.738	1,177.645	1,549.951	Continuing	TBD

In FY 2003, the Cost of War Transfer Account placed \$43.0M in S&T PE 0602500F for SBR support.

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

The 2001, Joint Requirements Oversight Council (JROC) validated, Multi-Theater Target Tracking Capability (MT3C) Mission Need Statement (MNS) established the requirement for continuous multi-theater surveillance, identification, tracking, and targeting of surface-moving targets. In November 2001, USD(AT&L) directed a focused requirements and risk reduction effort to provide a space element of a future air/space Intelligence, Surveillance, and Reconnaissance (ISR) system to satisfy the MT3C MNS.

The Space Based Radar (SBR) program is focused to mature technology and develop a Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) system capable of providing Moving Target Indication (MTI), Synthetic Aperture Radar (SAR) imaging, and High-Resolution Terrain Information (HRTI, formerly Digital Terrain and Elevation Data - DTED) capabilities over a large portion of the Earth on a near-continuous basis. The system will maximize utility to the tactical war fighters as well as national agencies through responsive tasking and timely data dissemination. The SBR system will allow military forces a 'deep-look' into denied areas of interest, on a non-intrusive basis without risk to personnel or resources. This can be done across the spectrum of conflict and simultaneously in multiple theaters which is not a currently existing capability.

Technology maturation, risk reduction, and concept development are essential elements of the SBR program definition. Investments in key risk areas are focused to mature technologies leading to component design and demonstration. Concept development activities have and will continue to focus on reducing risk, integrating technologies, and evaluating system level concepts within the broad range of the C4ISR architecture. Modeling and simulation will maximize the operational capabilities of the SBR system. The 2005 program continues, but is not limited to Technology Risk Reduction activities. The program will leverage National Reconnaissance Office (NRO), National Geospatial-Intelligence Agency (NGA, formerly National Imagery and Mapping Agency - NIMA), Defense Advanced Research Projects Agency (DARPA), and Air Force Research Laboratory (AFRL) activities to ensure both DoD and Intelligence Community requirements are captured in the baseline SBR effort.

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.

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

DATE

February 2004

BUDGET ACTIVITY

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

PE NUMBER AND TITLE

0603858F Space-Based Radar Dem/Val

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	47.149	274.104	358.669
(U) Current PBR/President's Budget	45.402	172.625	327.732
(U) Total Adjustments	-1.747	-101.479	
(U) Congressional Program Reductions		-101.479	
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer	-1.747		

(U) **Significant Program Changes:**

The FY 2004 Appropriations Bill reduced the President's Budget from \$274.104M to \$174.104M over concerns about schedule and technology maturity. As a result of the FY04 Appropriations Act, the Air Force adjusted the effort in FY05 by \$30M.

The USecAF approved the SBR Acquisition Decision Memorandum (ADM) on 19 August 2003 documenting Phase "A" Key Decision Point approval and allowing the SBR program to enter the study phase. The ADM recognized that on-going as well as planned risk reduction and concept definition efforts have been and will continue to enhance the technical maturity of the SBR program. In this context, the ADM adjusted the acquisition strategy to extract maximum benefit of the planned Phase A efforts.

In response to the mandate of the FY 2004 Authorization Act, the following two changes were made to the SBR program: 1) The acquisition strategy was modified to assure competition was maintained throughout Phase A, the acquisition strategy was again modified, albeit without additional funding to accommodate such competition, thereby stretching planned completion of the SBR study phase, and 2) The SBR study phase Request for Proposal (RFP) was updated to reflect coordination of SBR capabilities and concepts of operations to meet both military and Intelligence Community needs.

The cumulative impact of these budgetary and programmatic changes extended Phase A activities into FY 2006. The Phase A competing contractor activities includes concept studies, system architecture development, technology maturity assessments, requirements development, concept trade studies, test and evaluation strategy development and industrial capability assessment for key technologies and components, leading to the exploration of various alternatives to best fulfill the SBR mission requirements. The contractors will focus on affordability and propose achievable milestones leading to an operational system. The Air Force plans to compete the SBR Phase A activities and have the SBR KDP-B decision in the second quarter of FY 2006.

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

DATE  
**February 2004**

<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>		
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
A004 SBR Concept and Technology Development	45.402	172.625	327.732	466.189	502.738	1,177.645	1,549.951	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

In FY 2003, the Cost of War Transfer Account placed \$43.0M in S&T PE 0602500F for SBR support.

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

The 2001, Joint Requirements Oversight Council (JROC) validated, Multi-Theater Target Tracking Capability (MT3C) Mission Need Statement (MNS) established the requirement for continuous multi-theater surveillance, identification, tracking, and targeting of surface-moving targets. In November 2001, USD(AT&L) directed a focused requirements and risk reduction effort to provide a space element of a future air/space Intelligence, Surveillance, and Reconnaissance (ISR) system to satisfy the MT3C MNS.

The Space Based Radar (SBR) program is focused to mature technology and develop a Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) system capable of providing Moving Target Indication (MTI), Synthetic Aperture Radar (SAR) imaging, and High-Resolution Terrain Information (HRTI, formerly Digital Terrain and Elevation Data - DTED) capabilities over a large portion of the Earth on a near-continuous basis. The system will maximize utility to the tactical war fighters as well as national agencies through responsive tasking and timely data dissemination. The SBR system will allow military forces a 'deep-look' into denied areas of interest, on a non-intrusive basis without risk to personnel or resources. This can be done across the spectrum of conflict and simultaneously in multiple theaters which is not a currently existing capability.

Technology maturation, risk reduction, and concept development are essential elements of the SBR program definition. Investments in key risk areas are focused to mature technologies leading to component design and demonstration. Concept development activities have and will continue to focus on reducing risk, integrating technologies, and evaluating system level concepts within the broad range of the C4ISR architecture. Modeling and simulation will maximize the operational capabilities of the SBR system. The 2005 program continues, but is not limited to Technology Risk Reduction activities. The program will leverage National Reconnaissance Office (NRO), National Geospatial-Intelligence Agency (NGA, formerly National Imagery and Mapping Agency - NIMA), Defense Advanced Research Projects Agency (DARPA), and Air Force Research Laboratory (AFRL) activities to ensure both DoD and Intelligence Community requirements are captured in the baseline SBR effort.

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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Continued Technology Risk Reduction activities for Electronically Scanned Array (ESA) effort; continued on-board processing efforts; continued Battle Management Command, Control, Communications (BMC3) effort; and provided demonstration support.	9.980		

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>February 2004</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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(U) Continued requirements development for SBR system and operational requirements definition.	10.939		
(U) Began Concept Definition for candidate operational system	17.779		
(U) Continued program support: concept evaluation, schedule management, independent cost analysis, technical evaluation and source selection.	6.704		
(U) Continue Technology Risk Reduction activities on acceleration of Electronically Scanned Array (ESA) and on-board processing efforts that included end-to-end payload testbeds and development of alternative signal processing algorithms, expanded BMC3 effort that included interface identification and definition, and provided Advanced Conce Technology Demonstration (ACTD) support		73.973	
(U) Concept Definition continued with the award of two Phase A Concept Development contracts.		82.425	
(U) Continue SBR Phase A Concept Development efforts to include but not limited to up front, in-depth, system engineering, focused concept-specific risk reduction activities and alternative system reviews for two prime contractor with two payloads each.			304.382
(U) Program Support activities include but are not limited to acquisition planning, schedule management, requirements development, source selection, and financial management.		16.227	23.350
(U) Total Cost	45.402	172.625	327.732

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
RDT&E - AF, PE 0602500F,									
(U) Multi-Disciplinary Space and Technology	41.211							0.000	41.211
(U) Other APPN									
(U) None									

(U) **D. Acquisition Strategy**

The Air Force will lead the SBR Joint Program Office (JPO) with the National Reconnaissance Office (NRO) and National Geospatial-Intelligence Agency (NGA, formerly National Imagery and Mapping Agency - NIMA) as the principal partners with other Service DoD, and Intelligence Community participation. The SBR JPO has received approval to conduct a source selection to award two contracts for concept development Phase A efforts. Contract Awards are planned for Spring 2004.



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Exhibit R-3, RDT&E Project Cost Analysis										DATE February 2004		
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) 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</u> <u>Prior to FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
(U) <u>Product Development</u>												
Technology Risk Reduction Efforts	Various Contracts	Various		9.980		73.973				0.000	83.953	
Requirements Development	FFRDC/SETA and GSA Contracts	Various		10.939						0.000	10.939	
Concept Definition Phase A Concept	Competitive Various	Various Various		17.779		82.425				0.000	100.204	
Development/Technology Risk Reduction Activities	Contracts							304.382		Continuing	TBD	
Subtotal Product Development Remarks:			0.000	38.698		156.398		304.382		Continuing	TBD	0.000
(U) <u>Support</u>												
SMC, ESC, AFSPC, NRO & NGA	Various Contracts	Various		6.704		16.227		23.350		Continuing	TBD	
Subtotal Support Remarks:			0.000	6.704		16.227		23.350		Continuing	TBD	0.000
(U) <u>Test &amp; Evaluation</u>												
N/A												0.000
Subtotal Test & Evaluation Remarks:			0.000	0.000		0.000		0.000		0.000	0.000	0.000
(U) <u>Management</u>												
N/A												0.000
Subtotal Management Remarks:			0.000	0.000		0.000		0.000		0.000	0.000	0.000
(U) Total Cost			0.000	45.402		172.625		327.732		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

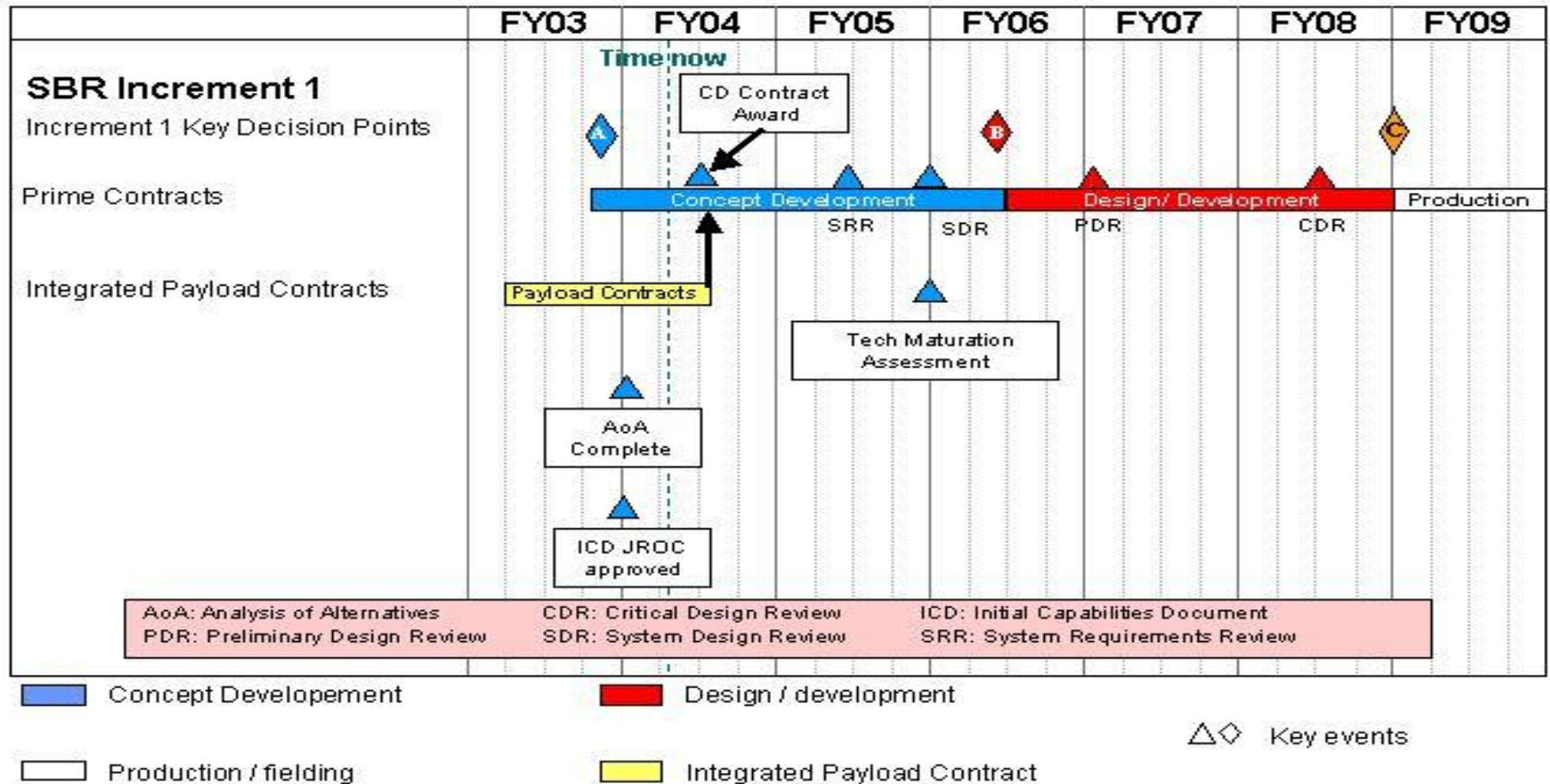
DATE

February 2004

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



AoA: Analysis of Alternatives      CDR: Critical Design Review      ICD: Initial Capabilities Document  
 PDR: Preliminary Design Review      SDR: System Design Review      SRR: System Requirements Review

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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2004</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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<b>(U) <u>Schedule Profile</u></b>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Began Concept Definition	1Q		
(U) Initial CONOPs complete	2Q		
(U) Key Decision Point A (KDP-A)	4Q		
(U) ICD JROC Approved; Initial CONOPS JROC Coordinated	4Q		
(U) AoA Completion		1Q	
(U) GMTI AoA Final Report Published		2Q	
(U) RFP Release		2Q	
(U) Award Phase A Concept Development Contracts		3Q	
(U) System Requirements Review (SRR)			2Q
(U) Technical Maturity Assessment (TMA)			4Q
(U) System Design Review (SDR)			4Q

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PE NUMBER: 0603859F  
 PE TITLE: Pollution Prevention

Exhibit R-2, RDT&E Budget Item Justification								DATE February 2004	
BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)				PE NUMBER AND TITLE 0603859F Pollution Prevention					
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	3.527	4.777	2.692	2.720	2.769	2.716	2.760	Continuing	TBD
4852 Pollution Prevention	3.527	4.777	2.692	2.720	2.769	2.716	2.760	Continuing	TBD

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

Funds will be used to target R&D activities that demonstrate and validate 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 Dem/Val 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, Demonstration/Validation, because this account is primarily for Research, Demonstration, Testing and Evaluation demonstration and validation 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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	2.743	2.318	2.692
(U) Current PBR/President's Budget	3.527	4.777	2.692
(U) Total Adjustments	0.784	2.459	
(U) Congressional Program Reductions	-0.039	0.000	
Congressional Rescissions	0.000	-0.041	
Congressional Increases	1.000	2.500	
Reprogrammings	-0.066	0.000	
SBIR/STTR Transfer	-0.111	0.000	

(U) **Significant Program Changes:**

Program increased by Congressional inserts of \$1M in FY03 and \$2.5M in FY04 for specific projects.

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

DATE

**February 2004**

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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total	
4852 Pollution Prevention	3.527	4.777	2.692	2.720	2.769	2.716	2.760	Continuing	TBD	
Quantity of RDT&E Articles	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 validate 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 Dem/Val 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, Demonstration/Validation, because this account is primarily for Research, Demonstration, Testing and Evaluation demonstration and validation 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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Resource Conservation and Recovery Act (RCRA) Subtitle C - Hazardous Waste Compliance Burden Reduction	0.798	0.841	0.985
(U) Demonstrate Painting & Coating P2 for Defense Facilities (Congressional Insert)	0.000	0.991	0.000
(U) Clean Air Act Compliance Burden Reduction	1.176	0.911	1.067
(U) O2 Diesel Air Quality Improvement (Congressional Insert)	0.951	1.487	0.000
(U) Clean Water Act Compliance Burden Reduction	0.199	0.166	0.194
(U) Hazardous Material Use Reduction	0.299	0.294	0.344
(U) Other	0.104	0.087	0.102
(U) Total Cost	3.527	4.777	2.692

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E									
(U) Other APPN									
Not Applicable									

**(U) D. Acquisition Strategy**

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

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Exhibit R-3, RDT&E Project Cost Analysis										DATE <b>February 2004</b>		
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>		
<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>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
<u>(U) Product Development</u>												
Air Force Research Lab	Various	Various	0.680	0.996		1.350		0.760		Continuing	TBD	
Subtotal Product Development			0.680	0.996		1.350		0.760		Continuing	TBD	0.000
Remarks:												
<u>(U) Support</u>												
Air Force Research Lab	Various	Various	0.581	0.884		1.250		0.639		Continuing	TBD	
Subtotal Support			0.581	0.884		1.250		0.639		Continuing	TBD	0.000
Remarks:												
<u>(U) Test &amp; Evaluation</u>												
Air Force Research Lab	Various	Various	1.022	1.497		2.027		1.143		Continuing	TBD	
Subtotal Test & Evaluation			1.022	1.497		2.027		1.143		Continuing	TBD	0.000
Remarks:												
<u>(U) Management</u>												
Air Force Research Lab	Various	Various	0.125	0.150		0.150		0.150		Continuing	TBD	
Subtotal Management			0.125	0.150		0.150		0.150		Continuing	TBD	0.000
Remarks:												
<u>(U) Total Cost</u>			2.408	3.527		4.777		2.692		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

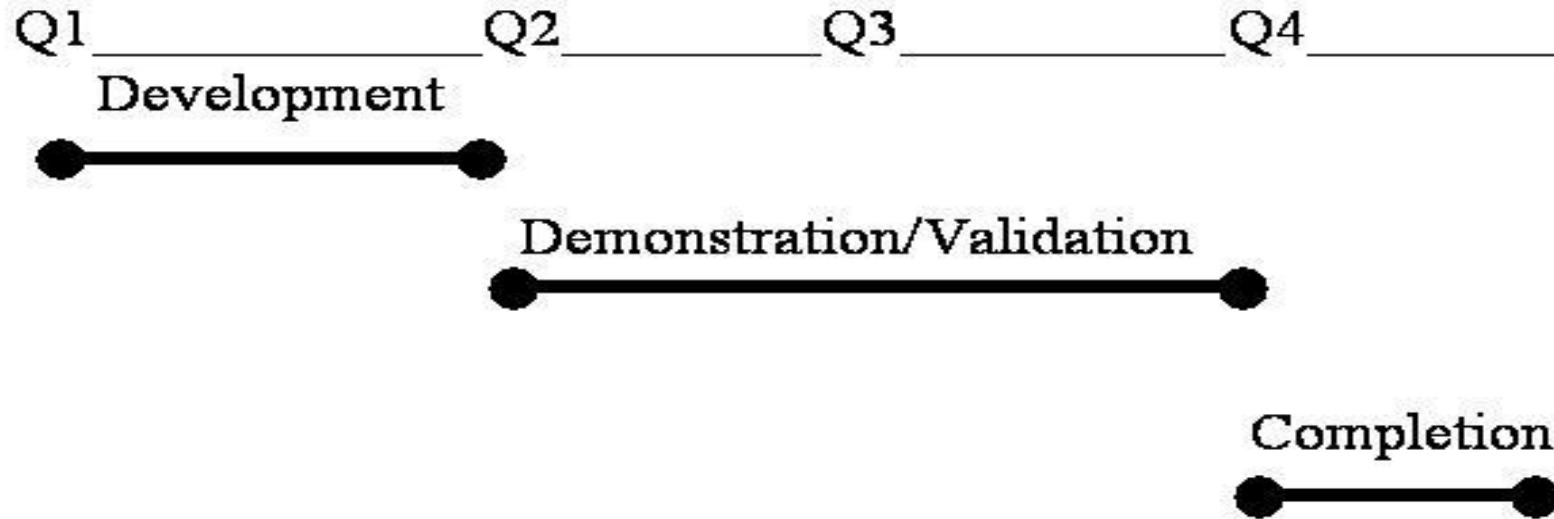
PE NUMBER AND TITLE

0603859F Pollution Prevention

PROJECT NUMBER AND TITLE

4852 Pollution Prevention

# Pollution Prevention Demonstration Schedules





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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2004</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>	<b>PROJECT NUMBER AND TITLE</b> <b>4852 Pollution Prevention</b>
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	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <b>Schedule Profile</b>			
(U) Prototype Development	1Q	1Q	1Q
(U) Demonstration/Validation	2-3Q	2-3Q	2-3Q
(U) Contract Completion	4Q	4Q	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 2004</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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	10.470	13.621	18.385	25.781	21.260	21.650	21.980	Continuing	TBD
4652 Precision Landing Systems	10.470	13.621	18.385	25.781	21.260	21.650	21.980	Continuing	TBD

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

Joint Precision Approach and Landing System (JPALS) is a joint effort among the Air Force (AF), Navy, and Army. The AF is designated as the lead Service. 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 ensure DoD maintains civil interoperability with current and projected Federal Aviation Administration (FAA) and North Atlantic Treaty Organization (NATO) member country landing systems. 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 ensure interoperability for the Civil Reserve Air Fleet at DoD airfields, especially in the expeditionary environment. The 1997 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 Global Air Traffic Management (GATM) 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 14,000 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 2004

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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	11.267	13.847	18.798
(U) Current PBR/President's Budget	10.470	13.621	18.385
(U) Total Adjustments	-0.797	-0.226	
(U) Congressional Program Reductions	-0.050	-0.108	
Congressional Rescissions	-0.119	-0.118	
Congressional Increases			
Reprogrammings	-0.210		
SBIR/STTR Transfer	-0.418		
(U) <u>Significant Program Changes:</u>			

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

DATE  
**February 2004**

<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>			
Cost (\$ in Millions)		FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
4652	Precision Landing Systems	10.470	13.621	18.385	25.781	21.260	21.650	21.980	Continuing	TBD
	Quantity of RDT&E Articles	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 Air Force (AF), Navy, and Army. The AF is designated as the lead Service. 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 ensure DoD maintains civil interoperability with current and projected Federal Aviation Administration (FAA) and North Atlantic Treaty Organization (NATO) member country landing systems. 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 ensure interoperability for the Civil Reserve Air Fleet at DoD airfields, especially in the expeditionary environment. The 1997 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 Global Air Traffic Management (GATM) 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 14,000 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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Continue aircraft risk (anti-jam) and integration analyses	2.965		
(U) Continue development of LDGPS test bed	2.768		
(U) Continue studies and analyses to refine local LDGPS architecture	2.000		
(U) Begin modeling & simulation	2.737		
(U) Complete aircraft risk (anti-jam) and integration analyses		3.458	
(U) Complete development of LDGPS test bed		3.496	
(U) Complete studies and analyses to refine local LDGPS architecture		4.314	
(U) Complete modeling & simulation		2.353	

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>February 2004</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) Start development of JPALS Ground & Air System/Segments			15.200
(U) Complete Milestone B Preparation			0.200
(U) Start Demo System Preparation			0.670
(U) Start Aircraft Integration Studies			1.515
(U) Start Test Program Development			0.800
(U) Total Cost	10.470	13.621	18.385

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

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

(U) **D. Acquisition Strategy**

Perform Demonstration and Validation through award of multiple contracts (Firm Fixed Price (FFP), Indefinite Delivery/Indefinite Quantity (IDIQ), Cost Plus Fixed Fee (CPFF), Time and Material (T&M), Cost Plus Award Fee (CPAF).

## UNCLASSIFIED

## Exhibit R-3, RDT&amp;E Project Cost Analysis

DATE

February 2004

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				<b>0603860F Joint Precision Approach and Landing Systems - Dem/Val</b>				<b>4652 Precision Landing Systems</b>				
<u>(U) Cost Categories</u>	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to</u>	<u>Total</u>	<u>Target</u>
(Tailor to WBS, or System/Item Requirements) (\$ in Millions)			<u>Prior to FY</u>	<u>2003</u>	<u>2003</u>	<u>2004</u>	<u>2004</u>	<u>2005</u>	<u>2005</u>	<u>Complete</u>	<u>Cost</u>	<u>Value of</u>
			<u>Cost</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>			<u>Contract</u>
					<u>Date</u>		<u>Date</u>		<u>Date</u>			
<u>(U) Product Development</u>												
Architecture Requirements Definition LDGPS (ARD)	C/CPAF	Raytheon Systems (LDGPS), Tewksbury, MA	13.847							0.000	13.847	
SRGPS ARD	C/CPFF	Raytheon Systems (SRGPS), Salt Lake City, UT	3.340							0.000	3.340	
SRGPS ARD	C/CPFF	Sierra Nevada Corp, Salt Lake City, UT	0.976								0.976	
NAVY Eng Support	C/FFP	ARINC Inc., California, MD	1.757							0.000	1.757	
ESC ITSP 1	C/IDIQ	Horizons Technology Inc, Billerica, MA	5.876							0.000	5.876	
NAVY Datalink Research	C/FFP	Rockwell Collins Inc., Cedar Rapids. IA	1.800							0.000	1.800	
NAVY PM and Eng Support	Reimbursable	Navy PMA21381, NAS Pax River, MD	16.336	0.085	Oct-02	0.078	Jan-04	0.100	Oct-04	Continuing	TBD	
ESC FFRDC Engineering Support	C/CPAF	MITRE Corporation, Bedford, MA	3.049	1.072	Oct-02	0.931	Oct-03	1.192	Oct-04	Continuing	TBD	
NAVY Eng Studies	C/FFP	PRC Corporation, Lexington Park, MD	0.451							0.000	0.451	
NAVY Eng Studies	C/FPFF	Pacer Infotech Inc., Lexington Park, MD	0.512							0.000	0.512	
Specialized Cost Services	C/IDIQ	MCR, Lexington, MA	0.579	0.131	Apr-03	0.323	May-04	0.250	May-05	Continuing	TBD	
Falcon Star (F16 Intregation) Study	C/FFP	Lockheed Martin Services, Ft Worth, TX	0.370	0.081	Mar-03					0.000	0.451	
Various	Various	Various	5.121	0.504	Oct-02	0.969	Oct-03	0.987	Oct-04		7.581	
SDD Ground and Air Segment Contract	TBD	TBD						9.972	Feb-05	11.173	21.145	
LDGPS Technology Development	C/T&M	ARINC Eng Services,	4.681	6.500	Dec-02	4.603	Dec-03	1.252	Dec-04	0.000	17.036	

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 2004</b>			
BUDGET ACTIVITY			PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE			
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>			<b>0603860F Joint Precision Approach and Landing Systems - Dem/Val</b>				<b>4652 Precision Landing Systems</b>			
Air Force EGI Studies	SS/T&M	LLC, California, MD Honeywell, Clearwater, FL	1.000			1.357 Jun-04		0.000	2.357	
Subtotal Product Development			59.695	8.373		8.261	13.753	Continuing	TBD	0.000
Remarks:										
(U) <u>Test &amp; Evaluation</u>										
Responsible Test Organization	Reimbursable	Navy - NAWCAD, NATC Pax River, MD	1.041					0.000	1.041	
Flight Test Support	Reimbursable	46TG/XPRF, Holloman, NM	0.506	0.100 May-03		1.463 Mar-04	0.800 Mar-05	0.000	2.869	
Subtotal Test & Evaluation			1.547	0.100		1.463	0.800	0.000	3.910	0.000
Remarks:										
(U) <u>Management and Operations</u>										
ESC FFRDC	C/T&M	MITRE Corp, Bedford, MA	0.886	0.200 Oct-02		0.200 Oct-03	0.285 Oct-04	Continuing	TBD	
Program Management Support	C/T&M	ESC/ITSP II (Various), Bedford, MA	9.354	1.072 May-03		2.403 May-04	2.260 May-05	Continuing	TBD	
GA SPO Operations	Various	Various		0.725 May-03		1.294 May-04	1.287 May-05	Continuing	TBD	
Subtotal Management and Operations			10.240	1.997		3.897	3.832	Continuing	TBD	0.000
Remarks:										
(U) Total Cost			71.482	10.470		13.621	18.385	Continuing	TBD	0.000





<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2004</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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<b>(U) <u>Schedule Profile</u></b>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Complete development of LDGPS test bed		3Q	
(U) Complete aircraft risk (anti-jam) and integration analyzes		4Q	
(U) Begin studies and analyses to refine local LDGPS architecture	4Q		
(U) Complete studies and analyses to refine local LDGPS Architecture		4Q	
(U) Begin modeling and simulation	3Q		
(U) Complete modeling and simulation effort		4Q	
(U) Begin M/S B prep work		2Q	
(U) JPALS ground station development			3Q

**UNCLASSIFIED**

PE NUMBER: 0604015F  
 PE TITLE: NEXT GENERATION BOMBER  
 02/13/2004 13:40 - FY 2005 PB (HQ USAF) Draft

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2004</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>0604015F NEXT GENERATION BOMBER</b>
---	--

Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	44.618	0.000	0.000	0.000	190.000	590.000	Continuing	TBD
3308 Next Generation Bomber	0.000	44.618	0.000	0.000	0.000	190.000	590.000	Continuing	TBD

Funds for the Next Generation Bomber were moved form PE 0603211 to PE 0604015 after the database locked. This change (\$190M in FY08 and \$590M in FY09) has been approved by SAF/FM and OSD PA&E.

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

The Next Generation Bomber (NGB) program will accelerate the Air Force efforts to develop a next generation long-range strike bomber. The program will explore, develop, and mature existing technologies applicable to a next generation bomber for demonstration and possible incorporation into the existing bomber fleet.

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget		0.000	0.000
(U) Current PBR/President's Budget	0.000	44.618	
(U) Total Adjustments	0.000	44.618	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.382	
Congressional Increases		45.000	
Reprogrammings			
SBIR/STTR Transfer			

(U) **Significant Program Changes:**

Congress appropriated funds in the FY-2004 budget to begin efforts associated with the next generation bomber, including exploration and maturation of technologies.

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>February 2004</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>0604015F NEXT GENERATION BOMBER</b>	<b>PROJECT NUMBER AND TITLE</b> <b>3308 Next Generation Bomber</b>
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Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
3308 Next Generation Bomber	0.000	44.618	0.000	0.000	0.000	190.000	590.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

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

The Next Generation Bomber (NGB) program will accelerate the Air Force efforts to develop a next generation long-range strike bomber. The program will explore, develop, and mature existing technologies applicable to a next generation bomber for demonstration and possible incorporation into the existing bomber fleet.

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Develop, mature and study integration of next generation style technologies with existing bomber fleet	0.000	44.618	0.000
(U)			
(U)			
(U) Total Cost	0.000	44.618	0.000

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

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

**(U) D. Acquisition Strategy**

TBD

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

DATE

**February 2004**

BUDGET ACTIVITY		PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE				
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>		<b>0604015F NEXT GENERATION BOMBER</b>						<b>3308 Next Generation Bomber</b>				
<u>(U) Cost Categories</u>	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to</u>	<u>Total</u>	<u>Target</u>
(Tailor to WBS, or System/Item Requirements) (\$ in Millions)			<u>Prior to FY</u>	<u>2003</u>	<u>2003</u>	<u>2004</u>	<u>2004</u>	<u>2005</u>	<u>2005</u>	<u>Complete</u>	<u>Cost</u>	<u>Value of</u>
			<u>2003</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>			<u>Contract</u>
			<u>Cost</u>		<u>Date</u>		<u>Date</u>		<u>Date</u>			
<u>(U) Product Development</u>												
Subtotal Product Development			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
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>(U) Total Cost</u>			0.000	0.000		0.000		0.000		0.000	0.000	0.000

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

DATE

**February 2004**

BUDGET ACTIVITY

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

PE NUMBER AND TITLE

**0604015F NEXT GENERATION  
BOMBER**

PROJECT NUMBER AND TITLE

**3308 Next Generation Bomber**

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Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2004

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 2003

FY 2004

FY 2005

(U) TBD

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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 2004</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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	6.953	9.551	6.383	0.000	0.000	0.000	0.000	0.000	22.887
4641 Hard and Deeply Buried Target Defeat System (HDBTDS)	6.953	9.551	6.383	0.000	0.000	0.000	0.000	0.000	22.887

(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-113, used on the GBU-28 laser-guided bomb, is being greatly enhanced through the design modification of the BLU-113 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.

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	7.338	12.633	0.000
(U) Current PBR/President's Budget	6.953	9.551	6.383
(U) Total Adjustments	-0.385	-3.082	
(U) Congressional Program Reductions		-3.000	
Congressional Rescissions		-0.082	
Congressional Increases			
Reprogrammings	-0.170		
SBIR/STTR Transfer	-0.215		

(U) **Significant Program Changes:**

FY04 funding decreased by \$3M. A cost reduction initiative to redesign telemetry was eliminated from the program. Existing telemetry will be used for captive flight testing and no telemetry will be used during flight testing.

FY05 funding increased by \$6.383.

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

DATE  
**February 2004**

<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>			
Cost (\$ in Millions)		FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
4641	Hard and Deeply Buried Target Defeat System (HDBTDS)	6.953	9.551	6.383	0.000	0.000	0.000	0.000	0.000	22.887
Quantity of RDT&E Articles		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-113, used on the GBU-28 laser-guided bomb, is being greatly enhanced through the design modification of the BLU-113 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.

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Begin HDBTDS. Design warhead, integrate explosive and upgrade case material	4.347	0.674	0.659
(U) Weapon system and aircraft integration	1.247	3.608	1.509
(U) Plan and prepare for testing redesigned warhead	0.630	3.754	3.429
(U) Air Force Research Laboratory provide technical engineering design support and analysis.	0.475	0.000	0.000
(U) Perform field agency activities, including project office and computer support to manage the Hardened Target Munition program	0.131	0.662	0.441
(U) System Engineering and Technical Analysis (SETA) support including independent analysis and evaluation of prototy] warhead designs	0.123	0.853	0.345
(U) Total Cost	6.953	9.551	6.383

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

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

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

DATE

**February 2004**

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)**

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 <b>February 2004</b>			
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>			
<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>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>	
<u>(U) Product Development</u>													
General Dynamics Ordnance and Tactical Systems	CPFF/PI	Niceville, FL	0.000	4.347	Jun-03	0.655	Nov-04	0.718	Mar-05	0.000	5.720	5.720	
Raytheon Company	T&M	Tucson, AZ	0.000	0.332	Jul-03					0.000	0.332	0.332	
Raytheon Company	CPIF	Tucson, AZ	0.000	0.915	Jan-04	3.066		0.972			4.953	4.953	
Subtotal Product Development			0.000	5.594		3.721		1.690		0.000	11.005	11.005	
Remarks:													
<u>(U) Support</u>													
Government Furnished Equipment (GFE)	MIPR	Various	0.000	0.475	Sep-03	0.517		0.478		0.000	1.470		
Air Armament Center System Program Office (AAC/YHH)	Various	Eglin AFB, FL	0.000	0.114		0.436		0.425		0.000	0.975		
Support Contracts	AFMC Form 277	Eglin AFB, FL	0.000	0.143	Jan-03	1.231	Oct-03	0.538	Oct-04	0.000	1.912		
Subtotal Support			0.000	0.732		2.184		1.441		0.000	4.357	0.000	
Remarks:													
<u>(U) Test &amp; Evaluation</u>													
Eglin Flight Test Support	AFMC Form 277	Eglin AFB, FL	0.000	0.017		1.299	Jun-04	0.004	Dec-04	0.000	1.320		
Defense Threat Reduction Agency (DTRA)	MIPR	White Sands Missile Range, NM	0.000	0.200	Oct-04	0.247	Jul-04	1.038	Dec-04	0.000	1.485		
Edwards Flight Test Support	MIPR	Edwards AFB, CA				0.598		1.519			2.117		
Applied Research Associates - Test Design Support	MIPR	Albuquerque, NM		0.360							0.360		
Naval Weapons Center - Arena and IM Testing	MIPR	China Lake, CA				0.311		0.691			1.002		
B-2 System Program Office (SPO) Test Support	MIPR	Wright Patterson AFB, OH		0.050		1.191					1.241		
Subtotal Test & Evaluation			0.000	0.627		3.646		3.252		0.000	7.525	0.000	
Remarks:													

**UNCLASSIFIED**

<b>Exhibit R-3, RDT&amp;E Project Cost Analysis</b>	DATE <b>February 2004</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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(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	6.953	9.551	6.383	0.000	22.887	11.005	

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

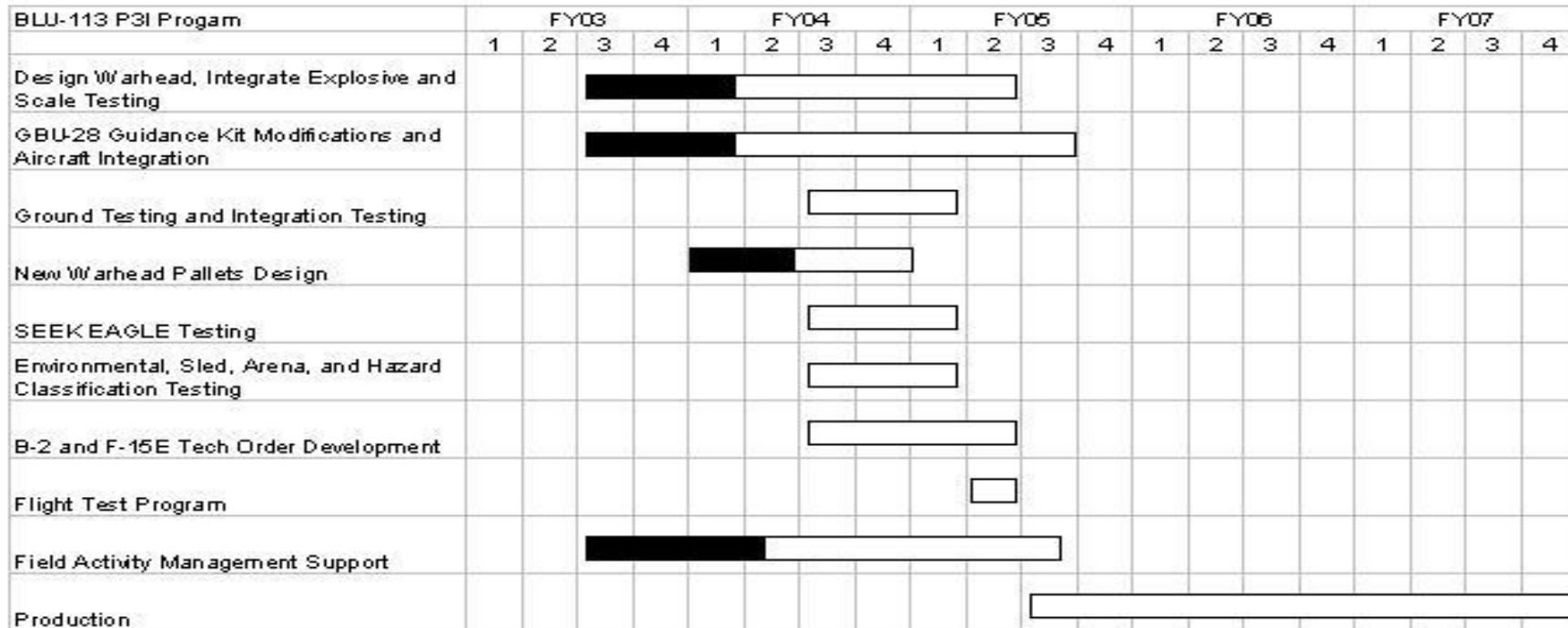
PE NUMBER AND TITLE

0604327F Hardened Target Munitions

PROJECT NUMBER AND TITLE

4641 Hard and Deeply Buried Target Defeat System (HDBTDS)

# GBU-28 BLU-113 P3I Program



AS OF JAN 04

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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>		DATE <b>February 2004</b>
<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>

<b>(U) <u>Schedule Profile</u></b>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Design Warhead, Integrate Explosive and Scale Testing	3Q		
(U) GBU-28 Guidance Kit Modifications and Aircraft Integration	3Q		
(U) Ground Testing and Integration Testing		3Q	
(U) New Warhead Pallets Design		1Q	
(U) SEEK EAGLE Testing		3Q	
(U) Environmental, Sled, Arena, and Hazard Classification Testing		3Q	
(U) B-2 and F-15E Tech Order Development		3Q	
(U) Flight Test Program			2Q
(U) Field Activity Management Support Production 3Q FY2005 through 4Q FY2007	3Q		

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**UNCLASSIFIED**

PE NUMBER: 0604435F  
 PE TITLE: Advanced Polar MILSATCOM

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2004</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>0604435F Advanced Polar MILSATCOM</b>
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Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	13.584	0.000	0.000	32.937	180.936	260.415	Continuing	TBD
A010 Advanced Polar System	0.000	13.584	0.000	0.000	32.937	180.936	260.415	Continuing	TBD

PE 0604435F has been renamed Advanced Polar MILSATCOM. Although this program was submitted as a FY04 new start effort, the program was restructured as part of the Transformational Communications Architecture. As a result, funds are not required until FY07. DoD reprogramming action (which includes \$3.1M FY04 Advanced Polar MILSATCOM RDT&E funds) for Force Protection is awaiting Congressional approval. The Air Force will request Congressional approval to reprogram remaining Advanced Polar MILSATCOM FY04 funds to PE 0603845F, TSAT, BPAC 644944 for the purpose of funding an enhanced (wide field view) multi-access laser communications technology.

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

The Advanced Polar System (APS) will provide next generation protected Extremely High Frequency Satellite Communications (EHF SATCOM) capability in the north polar region. APS will also support tactical users who require anti-jam and low probability of detection EHF SATCOM. Nuclear hardening requirements make APS a stand alone satellite rather than just a follow-on to the Interim Polar capability. The Transformational Communications Architecture (TCA) effort in FY03 described a program of three satellites (two funded with RDT&E and one fully funded with missile procurement) in highly inclined orbits (HIO) with laser crosslinks with the Transformational SATCOM (TSAT) satellite constellation. Together, APS and TSAT programs make up the Transformational Communications for MILSATCOM (TCM) program. The APS satellites will have many of the TSAT features permitting synergy with TSAT technology. However, the Air Force is currently revisiting Concept of Operations (CONOPS) and Combatant Commanders are reviewing Operations Plans (OPLANs) requirements for polar communications in support of trade and feasibility studies. The program funded herein supports a FY13 launch.

This program is in Budget Activity 04 - Advanced Component Development and Prototypes (ACD&P) because it supports concept definition of a communications system.

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	0.000	13.740	82.345
(U) Current PBR/President's Budget	0.000	13.584	0.000
(U) Total Adjustments	0.000	-0.156	
(U) Congressional Program Reductions		-0.156	
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			

**(U) Significant Program Changes:**

The Transformational Communications Architecture (TCA) and the acquisition strategy of Jun 03 realigned the first APS launch from FY09 to FY12. Other Air Force

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2004

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0604435F Advanced Polar MILSATCOM

priorities further moved first launch to FY13. The program start moved from FY04 to FY07.

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

DATE  
**February 2004**

BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>							PE NUMBER AND TITLE <b>0604435F Advanced Polar MILSATCOM</b>		PROJECT NUMBER AND TITLE <b>A010 Advanced Polar System</b>	
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total	
A010 Advanced Polar System	0.000	13.584	0.000	0.000	32.937	180.936	260.415	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

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

The Advanced Polar System (APS) will provide next generation protected Extremely High Frequency Satellite Communications (EHF SATCOM) capability in the north polar region. APS will also support tactical users who require anti-jam and low probability of detection EHF SATCOM. Nuclear hardening requirements make APS a stand alone satellite rather than just a follow-on to the Interim Polar capability. The Transformational Communications Architecture (TCA) effort in FY03 described a program of three satellites (two funded with RDT&E and one fully funded with missile procurement) in highly inclined orbits (HIO) with laser crosslinks with the Transformational SATCOM (TSAT) satellite constellation. Together, APS and TSAT programs make up the Transformational Communications for MILSATCOM (TCM) program. The APS satellites will have many of the TSAT features permitting synergy with TSAT technology. However, the Air Force is currently revisiting Concept of Operations (CONOPS) and Combatant Commanders are reviewing Operations Plans (OPLANS) requirements for polar communications in support of trade and feasibility studies. The program funded herein supports a FY13 launch.

This program is in Budget Activity 04 - Advanced Component Development and Prototypes (ACD&P) because it supports concept definition of a communications system.

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments/Planned Program			
(U) Concept definition and Analysis of Alternatives		0.000	
(U) Program Office and other related support activities		0.000	
(U) Total Cost	0.000	0.000	0.000

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E									
(U) PE 0603845F, TSAT	111.485	335.430	774.836	1192.437	1346.687	1830.137	1038.550	Continuing	TBD
(U) Other APPN									
(U) MPAF, PE 0303602, TSAT					187.627	899.442	920.963	Continuing	TBD

**(U) D. Acquisition Strategy**

As a result of the Transformational Communications Architecture the APS program has changed from a two satellite constellation with ground gateways to three orbital satellites with laser crosslinks with the TSAT constellation. The Jun 03 approved Acquisition Strategy presented APS, TSAT and associated ground infrastructure as the two DoD Transformational Communications space systems being acquired as TCM. The TCM space segment contract for system definition and risk reduction (Phase B) will be awarded to two contractors in FY04 for the TSAT satellite. In FY06, after a full and open competition, the final TSAT space segment development contractor will

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

DATE

**February 2004**

BUDGET ACTIVITY

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

PE NUMBER AND TITLE

**0604435F Advanced Polar  
MILSATCOM**

PROJECT NUMBER AND TITLE

**A010 Advanced Polar System**

be selected. Modification to that future contract adding the APS satellite will be considered at that time.

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Exhibit R-3, RDT&E Project Cost Analysis										DATE <b>February 2004</b>		
BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>					PE NUMBER AND TITLE <b>0604435F Advanced Polar MILSATCOM</b>					PROJECT NUMBER AND TITLE <b>A010 Advanced Polar System</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</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
<u>(U) Product Development</u>												
Risk Reduction & System Def Ktr A	CPFF	TBD				0.000					0.000	
Risk Reduction & System Def Ktr B	CPFF	TBD				0.000					0.000	
Subtotal Product Development			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Support</u>												
FFRDC	Various	Various				0.000				Continuing	TBD	
Subtotal Support			0.000	0.000		0.000		0.000		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
Remarks:												
<u>(U) Management</u>												
None											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Total Cost</u>			0.000	0.000		0.000		0.000		Continuing	TBD	0.000

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

DATE

**February 2004**

BUDGET ACTIVITY

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

PE NUMBER AND TITLE

**0604435F Advanced Polar  
MILSATCOM**

PROJECT NUMBER AND TITLE

**A010 Advanced Polar System**

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Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2004

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0604435F Advanced Polar  
MILSATCOM

PROJECT NUMBER AND TITLE

A010 Advanced Polar System

(U) Schedule Profile

FY 2003

FY 2004

FY 2005

(U) No activity

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PE NUMBER: 0604855F  
 PE TITLE: Operationally Responsive Launch

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2004</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>
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Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	25.844	35.362	23.354	35.484	40.998	74.035	Continuing	TBD
A013 Small Launch Vehicle	0.000	25.844	35.362	23.354	35.484	40.998	74.035	Continuing	TBD

In FY2004, Project 64A013, Military Space Plane was changed to Small Launch Vehicle (SLV) to more accurately describe the demonstration activities in this project.

**(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 Force Application and Launch from CONUS (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. Concept development, risk reduction and technology maturation are the key elements in the ORS program; and demonstrations, modeling and simulations are the critical tools.

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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	0.000	24.440	35.455
(U) Current PBR/President's Budget	0.000	25.844	35.362
(U) Total Adjustments	0.000	1.404	
(U) Congressional Program Reductions		-0.296	
Congressional Rescissions			
Congressional Increases		1.700	
Reprogrammings			
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			
FY04: \$1.7M Congressional add for SLC-3W modifications			

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

DATE  
**February 2004**

<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>		
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
A013 Small Launch Vehicle	0.000	25.844	35.362	23.354	35.484	40.998	74.035	Continuing	TBD
Quantity of RDT&E Articles	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 Force Application and Launch from CONUS (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. Concept development, risk reduction and technology maturation are the key elements in the ORS program; and demonstrations, modeling and simulations are the critical tools.

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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Initiate SLV system definition, systems engineering and flight test planning for Phase I		3.490	
(U) SLV system design and development, systems engineering and flight test planning for Phase II		8.000	21.000
(U) Support early demonstration flights and launch/test facilities evaluation and improvement		9.250	11.500
(U) Modify 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		3.404	2.862
(U) Total Cost	0.000	25.844	35.362

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E, PE 0604856F, CAV		17.025	21.610	27.247	32.564	31.500	39.598	Continuing	TBD
(U) Defensewide RDT&E, DARPA,	7.500	17.500	25.000					Continuing	TBD

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

DATE

February 2004

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

PE 0603285E, FALCON

**(U)** NASA funding provided to support multiple contractors 0.350**(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 will be held for Phase II contracts with multiple awards anticipated using an Other Transactions contract vehicle. Phase II awards are anticipated in 3QFY04.

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Exhibit R-3, RDT&E Project Cost Analysis										DATE February 2004		
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		
(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</u> <u>Prior to FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
(U) <u>Product Development</u>												
Nine Phase I contractors	FFP	various				3.490	Nov-03			0.000	3.490	TBD
TBD Phase II contractors	open competition					8.000	Jun-04	21.000		Continuing	TBD	TBD
Subtotal Product Development			0.000	0.000		11.490		21.000		Continuing	TBD	TBD
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
Demo Flight Support	MIPR	SMC Det 12/RP/Kirtland AFB NM				9.250		11.500		Continuing	TBD	TBD
SLC-3W Modification	TBD	TBD/Vandenberg AFB CA				1.700					1.700	1.700
Subtotal Test & Evaluation			0.000	0.000		10.950		11.500		Continuing	TBD	TBD
Remarks:												
(U) <u>Development Support and Management</u>												
Perform analysis and assess alternative CAV concepts/requirements & program support	various	various				3.404		2.862		Continuing	TBD	TBD
Subtotal Development Support and Management			0.000	0.000		3.404		2.862		Continuing	TBD	TBD
Remarks:												
(U) Total Cost			0.000	0.000		25.844		35.362		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

BUDGET ACTIVITY

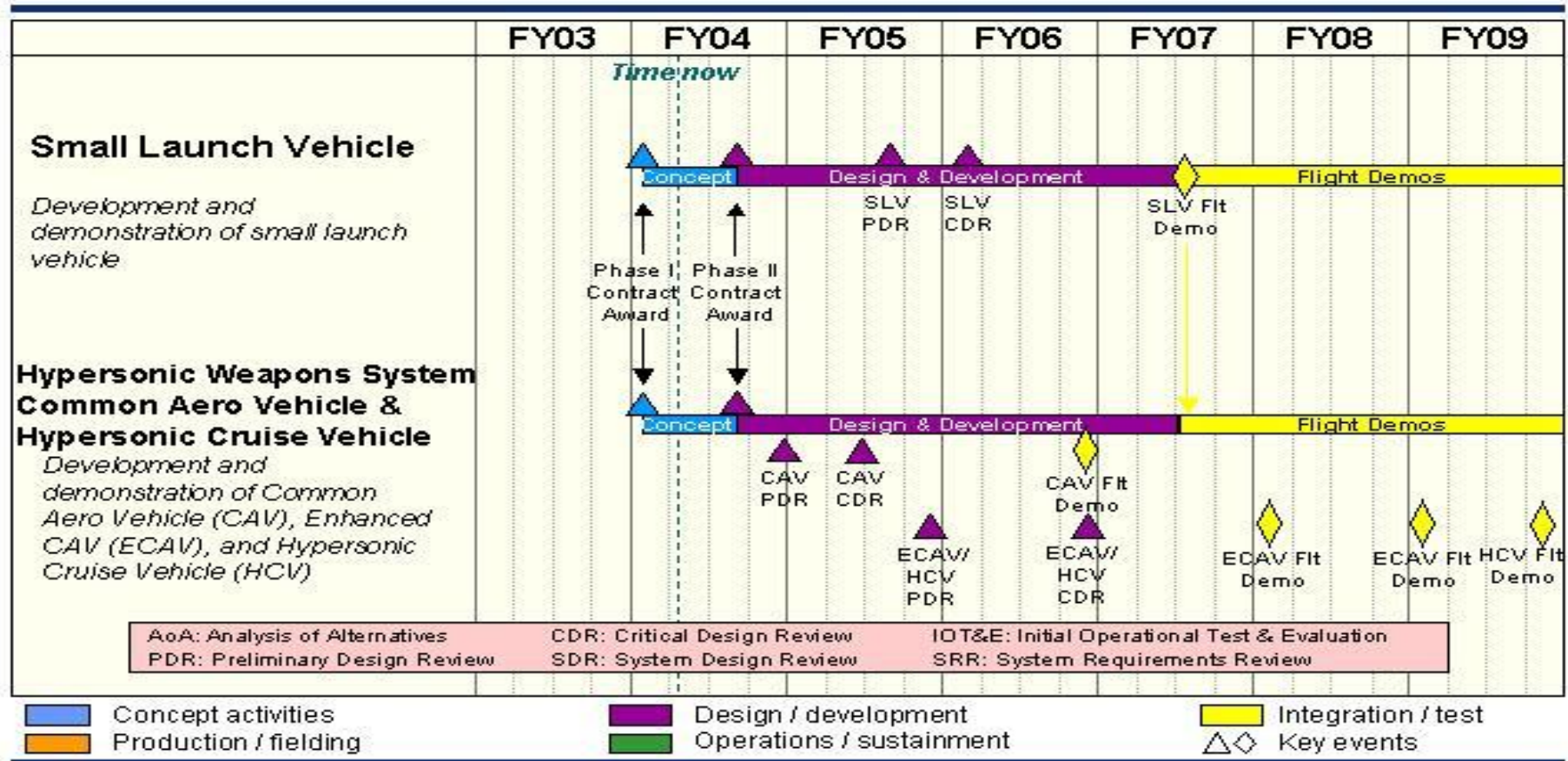
04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0604855F Operationally Responsive Launch

PROJECT NUMBER AND TITLE

A013 Small Launch Vehicle



**UNCLASSIFIED**

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>		DATE <b>February 2004</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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<b>(U) <u>Schedule Profile</u></b>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) System Definition (Phase I)		1-4Q	
(U) Design and Development (Phase II) Contract Award		3Q	
(U) Phase II Preliminary Design Review			2Q

**UNCLASSIFIED**

PE NUMBER: 0604856F  
 PE TITLE: Common Aero Vehicle

Exhibit R-2, RDT&E Budget Item Justification								DATE February 2004	
BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)				PE NUMBER AND TITLE 0604856F Common Aero Vehicle					
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	17.025	21.610	27.247	32.564	31.500	39.598	Continuing	TBD
A012 Common Aerospace Vehicle	0.000	17.025	21.610	27.247	32.564	31.500	39.598	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 effort to meet this requirement. This joint program has been named Force Application and Launch from CONUS (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.

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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget		12.220	21.667
(U) Current PBR/President's Budget	0.000	17.025	21.610
(U) Total Adjustments	0.000	4.805	
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases		5.000	
Reprogrammings		-0.195	
SBIR/STTR Transfer			

(U) **Significant Program Changes:**

FY04 Congressional adds: \$4.5M to extend additional CAV contractors; \$0.5M for hypersonic test corridor

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

DATE

**February 2004**

<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>			<b>PROJECT NUMBER AND TITLE</b> <b>A012 Common Aerospace Vehicle</b>		
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
A012 Common Aerospace Vehicle	0.000	17.025	21.610	27.247	32.564	31.500	39.598	Continuing	TBD
Quantity of RDT&E Articles	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 effort to meet this requirement. This joint program has been named Force Application and Launch from CONUS (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.

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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Initiate CAV system definition, systems engineering and flight test planning for Phase I		4.293	
(U) CAV system design and development, systems engineering and flight test planning/support for Phase II		3.000	10.910
(U) Support early CAV/penetrator demonstration flights		3.000	7.700
(U) Perform analysis and assess alternative CAV concepts/requirements and program management support		4.232	3.000
(U) Prepare hypersonics test corridor		0.500	
(U) Develop critical CAV technology		2.000	
(U) Total Cost	0.000	17.025	21.610

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E, PE 0604855F, ORL		25.844	35.362	23.354	35.484	40.998	74.035	Continuing	TBD
(U) Other APPN									
(U) Defensewide RDT&E, DARPA, PE 0603285E, FALCON	7.500	21.500	25.000					Continuing	TBD

**(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 will be held for Phase II with multiple awards anticipated using an Other Transactions contract vehicle. Anticipate Phase II awards in 3QFY04.



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Exhibit R-3, RDT&E Project Cost Analysis										DATE <b>February 2004</b>		
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>		
(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>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
			<u>Prior to FY 2003 Cost</u>	<u>2003 Cost</u>	<u>2003 Award Date</u>	<u>2004 Cost</u>	<u>2004 Award Date</u>	<u>2005 Cost</u>	<u>2005 Award Date</u>			
(U) <u>Product Development</u>												
Four Phase I contracts	OTA	various					4.293	Nov-03			4.293	4.293
TBD Phase II contracts	TBD	TBD					3.000	Jun-04	10.910	Continuing	TBD	TBD
Subtotal Product Development			0.000	0.000			7.293		10.910	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	7.700	Continuing	TBD	TBD
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	0.000			3.500		7.700	Continuing	TBD	TBD
Remarks:												
(U) <u>Development Support and Management</u>												
Perform analysis and assess alternative CAV concepts/requirements & program support	various	various					4.232		3.000	Continuing	TBD	TBD
Develop critical CAV technology	MIPR	AFRL, Kirtland AFB, NM					2.000				2.000	2.000
Subtotal Development Support and Management			0.000	0.000			6.232		3.000	Continuing	TBD	TBD
Remarks:												
(U) Total Cost			0.000	0.000			17.025		21.610	Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

BUDGET ACTIVITY

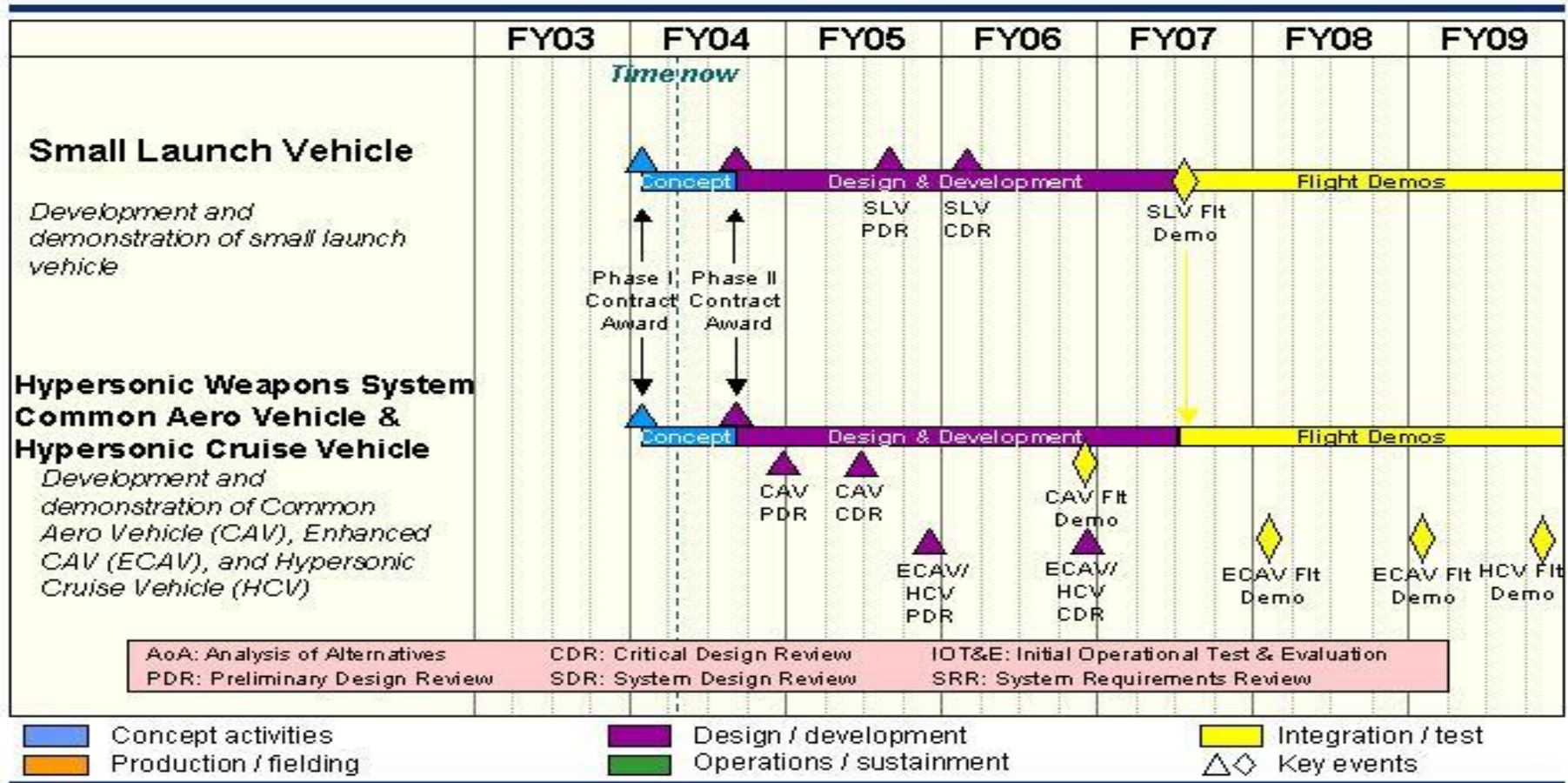
04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0604856F Common Aero Vehicle

PROJECT NUMBER AND TITLE

A012 Common Aerospace Vehicle



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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2004</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>	<b>PROJECT NUMBER AND TITLE</b> <b>A012 Common Aerospace Vehicle</b>
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	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <b><u>Schedule Profile</u></b>			
(U) System Definition (Phase I)		1-4Q	
(U) Design and Development (Phase II) Contract Award		3Q	
(U) Phase II Preliminary Design Review		4Q	
(U) Phase II Critical Design Review			3Q

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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 2004</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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	2.372	2.911	2.865	2.860	0.000	0.396	Continuing	TBD
5118 Joint Unmanned Combat Air Systems. (J-UCAS)	0.000	2.372	2.911	2.865	2.860	0.000	0.396	Continuing	TBD

Note: FY04 program guidance established the Joint Unmanned Combat Air Systems (J-UCAS) Program Office and funding for both Air Force and Navy programs. Efforts previously conducted under the DARPA/Air Force Unmanned Combat Air Vehicle (UCAV) program and the DARPA/Navy Naval UCAV (UCAV-N) program have been combined into the J-UCAS program. FY05 program guidance directed FY05 and outyear funding for DARPA and both Services be transferred into a Defense-wide Program Element.

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

The Joint Unmanned Combat Air Systems (J-UCAS) program is a joint DARPA, Air Force, and Navy effort to develop and demonstrate unmanned combat capabilities for high-threat Suppression of Enemy of Air Defense (SEAD); Intelligence, Surveillance, and Reconnaissance (ISR); Electronic Attack (EA); and related strike missions within the emerging global command and control architecture.

The J-UCAS program combines 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, will reduce the risk of the system being developed for the operational assessment. The J-UCAS concept incorporates the Boeing X-45C/CN and Northrop Grumman X-47B air vehicles, together with a common architecture and subsystems (e.g. sensors, communications, and command & control software). These common system elements will maximize system flexibility and operational versatility, while reducing overall costs and maintaining schedule toward an Early Operational Assessment planned for the FY07-09 timeframe.

The J-UCAS Office integrates DARPA, Air Force, and Navy personnel, operating in close coordination with Service users and other components. The program is focused on achieving an Early Operational Assessment that supports both Services and enables an operational system development decision by the end of the decade.

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

DATE

February 2004

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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	0.000	4.892	4.924
(U) Current PBR/President's Budget	0.000	2.372	2.911
(U) Total Adjustments	0.000	-2.520	
(U) Congressional Program Reductions		-2.500	
Congressional Rescissions		-0.020	
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			

(U) **Significant Program Changes:**

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 have been combined into the Joint Unmanned Combat Air Systems (J-UCAS) program.

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

DATE  
**February 2004**

<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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
5118 Joint Unmanned Combat Air Systems. (J-UCAS)	0.000	2.372	2.911	2.865	2.860	0.000	0.396	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

Note: FY04 program guidance established the Joint Unmanned Combat Air Systems (J-UCAS) Program Office and funding for both Air Force and Navy programs. Efforts previously conducted under the DARPA/Air Force Unmanned Combat Air Vehicle (UCAV) program and the DARPA/Navy Naval UCAV (UCAV-N) program have been combined into the J-UCAS program. FY05 program guidance directed FY05 and outyear funding for DARPA and both Services be transferred into a Defense-wide Program Element.

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

The Joint Unmanned Combat Air Systems (J-UCAS) program is a joint DARPA, Air Force, and Navy effort to develop and demonstrate unmanned combat capabilities for high-threat Suppression of Enemy of Air Defense (SEAD); Intelligence, Surveillance, and Reconnaissance (ISR); Electronic Attack (EA); and related strike missions within the emerging global command and control architecture.

The J-UCAS program combines 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, will reduce the risk of the system being developed for the operational assessment. The J-UCAS concept incorporates the Boeing X-45C/CN and Northrop Grumman X-47B air vehicles, together with a common architecture and subsystems (e.g. sensors, communications, and command & control software). These common system elements will maximize system flexibility and operational versatility, while reducing overall costs and maintaining schedule toward an Early Operational Assessment planned for the FY07-09 timeframe.

The J-UCAS Office integrates DARPA, Air Force, and Navy personnel, operating in close coordination with Service users and other components. The program is focused on achieving an Early Operational Assessment that supports both Services and enables an operational system development decision by the end of the decade.

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) No Activity	0.000		
(U) Accomplishments/Planned Program		0.000	0.000
(U) Other Government Cost		2.372	2.911
-Mission support of the Joint Program Office, travel, computer costs, misc contracts, etc.			
(U) Total Cost	0.000	2.372	2.911

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<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	<b>DATE</b> <b>February 2004</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>	<b>PROJECT NUMBER AND TITLE</b> <b>5118 Joint Unmanned Combat Air Systems. (J-UCAS)</b>
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**(U) C. Other Program Funding Summary (\$ in Millions)**

(U) Navy RDT&E (PE0603111N)	0.000	2.350	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	3.377	1.537		TBD
(U) Defense-wide RDT&E (PE0603400D8Z)	0.000	0.000	285.000	77.900	0.000	0.000	0.000		TBD
(U) Defense-wide RDT&E (PE0604400D8Z)	0.000	0.000	423.447	668.356	380.800	1044.000	985.000	Continuing	TBD

Note: FY04 Navy funding in PE's 0604730N and 0604731N has been transferred into PE 0603114N.

**(U) D. Acquisition Strategy**

(U) The Joint Unmanned Combat Air Systems (J-UCAS) program is a joint DARPA, Air Force, and Navy effort to develop and demonstrate unmanned combat capabilities for high-threat Suppression of Enemy of Air Defense (SEAD); Intelligence, Surveillance, and Reconnaissance (ISR); Electronic Attack (EA); and related strike missions within the emerging global command and control architecture.



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Exhibit R-3, RDT&E Project Cost Analysis										DATE <b>February 2004</b>		
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>				
<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> Prior to FY 2003 Cost	<u>FY</u> 2003 Cost	<u>FY</u> 2003 Award Date	<u>FY</u> 2004 Cost	<u>FY</u> 2004 Award Date	<u>FY</u> 2005 Cost	<u>FY</u> 2005 Award Date	<u>Cost to Complete</u>	<u>Total</u> Cost	<u>Target</u> Value of Contract
<u>(U) Product Development</u>											0.000	
Subtotal Product Development			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Support</u>												
Various						2.372		2.911		Continuing	TBD	
Subtotal Support			0.000	0.000		2.372		2.911		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>(U) Total Cost</u>			0.000	0.000		2.372		2.911		Continuing	TBD	0.000

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

DATE

**February 2004**

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)**

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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>		DATE <b>February 2004</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>	<b>PROJECT NUMBER AND TITLE</b> <b>5118 Joint Unmanned Combat Air Systems. (J-UCAS)</b>
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<b>(U) <u>Schedule Profile</u></b>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Stand up Joint Program Office		1Q	

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PE NUMBER: 0207434F  
 PE TITLE: Link 16 Support and Sustainment

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2004</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>
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Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	50.535	70.481	141.012	218.743	228.009	161.909	153.606	Continuing	TBD
5049 JINTACCS	5.880	10.359	9.275	10.262	19.390	8.650	7.353	Continuing	TBD
5050 TDL System Integration	29.990	60.122	131.737	208.481	208.619	153.259	146.223	Continuing	TBD
5051 Family of Interoperable Operational Pictures (FIOP)	14.665	0.000	0.000	0.000	0.000	0.000	0.030	Continuing	TBD

On 17 April 2001, the Chief of Staff of the Air Force (CSAF) approved the management of Tactical Data Links (TDL) as a Major System Acquisition Program. In order to effectively manage the program, the Tactical Data Links System Program Office (SPO) was stood up at Electronic Systems Center (ESC), Hanscom AFB, MA on 29 May 2001. Funding for Tactical Data Links was contained in PE 0604754F, Tactical Data Link Integration; PE 0604779F, Tactical Data Link Interoperability; and PE 0207434, Link 16 Support and Sustainment. This funding was consolidated into this program element, PE 0207434F, for the purpose of supporting the Tactical Data Link Infrastructure.

In FY05, PE 0207434F, Link 16 Support and Sustainment, Project #655051 efforts were transferred to PE 0207443F, 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 FIOP Task 1 Details, see PE 0207438F, Theater Battle Management C4I, Project #654790. For FY04 FIOP Task 2 program details, see PE 0604754F, Tactical Data Link Integration, Project #654992 and PE 0603850F, Integrated Broadcast Service, Project #635151. For FY05 FIOP Task 1 and 2 details, see PE 0207443F, FIOP, Project #675137.

In FY04, funding was provided to PE 0207434F, Link 16 Support and Sustainment, project #655050, TDL System Integration to support Single Integrated Air Picture Block 1 efforts.

**(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 the Air Force, Army, Navy, and Marine Corps theater Command and Control (C2) elements, weapons platforms, and sensors. TDLs include but are not limited to: Link 16, Link 11, Situational Awareness Data Link (SADL), and Variable Message Format (VMF).

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 configuration management, platform/system interoperability assessments and interoperability certification testing.

Utilization of Link 16 in a joint environment requires the integration of terminals (e.g., Joint Tactical Information Distribution System (JTIDS) or Multifunctional Information Distribution System (MIDS)) into these host platforms, and interoperability of Link 16 networks across all deployed joint and allied platforms. The TDL

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

DATE

**February 2004**

BUDGET ACTIVITY

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

PE NUMBER AND TITLE

**0207434F Link 16 Support and Sustainment**

System Program Office (SPO) performs several cross-platform activities to help ensure proper integration of Link 16 capabilities and interoperability of Link 16 networks. In addition, the SPO has management responsibility for the Air Force's Air Defense Systems Integrator (ADSI) systems. The Single Integrated Air Picture (SIAP) efforts will lead to the joint development of improvements to TDLs to better support the warfighter by ensuring the air picture is composed of common, continual, unambiguous tracks of all airborne objects.

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" in JROC Memorandum 156-02. Ultimately, the FIOP effort will lead to the underpinnings of Network Centric Operational Warfare. In FY05, PE 0207434F, Link 16 Support and Sustainment, Project #655051 efforts were transferred to PE 0207443F, Family of Interoperable Operational Pictures, Project 575137 in order to consolidate FIOP funding.

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	44.146	58.783	141.335
(U) Current PBR/President's Budget	50.535	70.481	141.012
(U) Total Adjustments	6.389	11.698	
(U) Congressional Program Reductions	-0.637	-0.602	
Congressional Rescissions			
Congressional Increases	7.000	12.300	
Reprogrammings	0.026		
SBIR/STTR Transfer			

**(U) Significant Program Changes:**

In FY03, there was a Congressional increase of \$7.0 M to fund Link 16 integration in the Alaskan Aerospace Surveillance and Range Operations Modernization (AASROM) Program. In FY04, there was a Congressional increase of \$12.3M: \$8.0 M to fund Enhanced TDL Data Displays, part of the Link 16 integration in the AASROM Program (now referred to as LAK 16) and \$4.3M to fund the Link 16 Pocket J Program.

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

DATE  
**February 2004**

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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total	
5049 JINTACCS	5.880	10.359	9.275	10.262	19.390	8.650	7.353	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

**(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 Element (MCE); Air Operations Center (AOC); Joint Surveillance Target Attack Radar System (JSTARS); F-15 A/B/C/D/E; F-16 B30/40/50; 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 Center (RAOC/SAOC), Command & Control Information Processing System (C2IPS); Space Based Infrared System (SBIRS); Air Support Operations Center (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), Region/Sector Air Operations Center (R/SAOC) 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., ATO and ACO).

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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments/Planned Program	0.000	0.000	
(U) Interoperability Certification Testing. Specific platforms will be determined based on Link 16 message implementation software upgrade, and system modification	0.650	0.633	0.645
(U) US Message Text Formats Management and Updates	1.463	1.583	1.603
- Support Joint, Allied/Coalition meetings and working groups			
- Support technology maturation for joint standards and DoD policy			
(U) Tactical Data Link Management and Architecture Development.	3.767	6.982	7.027
- Support multi TADIL and VMF meetings and working groups			

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>February 2004</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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- Consultations regarding implementation and interoperability with the F-16, B-52, B-1, B-2, F-117, and other weapon systems
- Consultations regarding software 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.		1.161	
(U) Total Cost	5.880	10.359	9.275

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E									
(U) 0207445F (Fighter TDL)	28.955	42.318	50.976	67.805	27.437	55.473	41.179		
(U) 0207446F (Bomber TDL)	0.000	12.849	120.256	166.082	88.827	0.000	0.000		
(U) 0207448F (C2ISR TDL)	0.000	26.503	25.441	7.234	0.743	0.000	0.000		
(U) 0401839F (Airlift TDL)	0.000	0.000	0.000	0.000	31.466	0.000	0.000		
(U) 0604754F (TDL Integration)	0.000	14.550	0.000	0.000	0.000	0.000	0.000		
(U) Other APPN									
(U) Aircraft Procurement, AF (3010)									
(U) 0207434F (Link 16 Sup & Sus)	36.013	0.040	6.555	2.980	2.683	0.000	9.486		
(U) 0207445F (Fighter TDL)	0.000	29.300	97.417	122.079	94.050	44.218	32.598		
(U) 0207446F (Bomber TDL)	0.000	0.000	44.929	21.827	33.149	30.586	28.219		
(U) 0207448F (C2ISR TDL)	0.000	0.000	0.000	0.000	0.000	0.000	0.000		
(U) 0401839F (Airlift TDL)	0.000	0.000	28.087	42.270	52.767	29.583	24.765		
(U) O&M, AF (3400)									
(U) 0207434F (Link 16 Sup & Sus)	13.357	12.873	12.613	13.916	14.056	14.606	15.131		
(U) 0401839F (Airlift 3400)	0.000	0.000	2.230	2.972	5.964	12.067	16.853		
(U) Other Procurement, AF (3080)									
(U) 0207434F (Link 16 Sup & Sus)	0.000	0.000	25.805	28.433	25.668	7.423	6.435		

**(U) D. Acquisition Strategy**

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 2004**

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>(U) Cost Categories</u>	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to</u>	<u>Total</u>	<u>Target</u>
(Tailor to WBS, or System/Item Requirements) (\$ in Millions)			<u>Prior to FY</u>	<u>2003</u>	<u>2003</u>	<u>2004</u>	<u>2004</u>	<u>2005</u>	<u>2005</u>	<u>Complete</u>	<u>Cost</u>	<u>Value of</u>
			<u>2003</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>			<u>Contract</u>
			<u>Cost</u>		<u>Date</u>		<u>Date</u>		<u>Date</u>			
<u>(U) Product Development</u>												
MITRE	SS/FFP	MITRE, Bedford MA		3.165	Oct-02	6.381	Oct-03	6.442	Dec-04	Continuing	TBD	
USMTF Standards Support	C/CPFF	B3H, Hampton VA		1.925	Oct-02	1.940	Oct-03	0.625	Dec-04	Continuing	TBD	
TDL Integration and Requirements	C/CPFF	Odyssey, Hampton VA				1.200	Oct-03	1.368	Dec-04	Continuing	TBD	
Subtotal Product Development			0.000	5.090		9.521		8.435		Continuing	TBD	0.000
Remarks:												
<u>(U) Test &amp; Evaluation</u>												
AF Participating Test Unit (PTU)	MIPR	ACC/SC, Langley AFB VA		0.450	Jan-03	0.483	Jan-04	0.480	Jan-05	Continuing	TBD	
Subtotal Test & Evaluation			0.000	0.450		0.483		0.480		Continuing	TBD	0.000
Remarks:												
<u>(U) Management</u>												
Program Office and Contractor Support	C/FFP	Various		0.340	Dec-02	0.355	Dec-03	0.360	Dec-04		1.055	
Subtotal Management			0.000	0.340		0.355		0.360		0.000	1.055	0.000
Remarks:												
<u>(U) Total Cost</u>			0.000	5.880		10.359		9.275		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE  
0207434F Link 16 Support and Sustainment

PROJECT NUMBER AND TITLE  
5049 JINTACCS

SCHEDULE PROFILE	FY03				FY04				FY05				FY06				FY07				FY08				FY09							
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q				
<b>FIGHTER PLATFORMS</b>																																
<b>E-3 AWACS</b>																																
Interop Consultations				▲																												
Block 30/35 AFSIT		▲				▲				▲																						
Block 30/35 JIT			▲				▲				▲																					
<b>E-8 JSTARS</b>																																
Interop Consultations																																
AFSIT			▲				▲					▲																				
JIT				▲				▲				▲																				
<b>F-15</b>																																
Interop Consultations				▲																												
F-15C/D AFSIT				▲				▲				▲																				
F-15C/D JIT									▲																							
F-15E AFSIT											▲																					
F-15E JIT												▲																				
<b>B-1B</b>																																
Interop Consultations			▲																													
Block 30/35 AFSIT									▲																							
Block 30/35 JIT											▲																					

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Exhibit R-4a, RDT&E Schedule Detail		DATE <b>February 2004</b>		
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>		
<b>(U) <u>Schedule Profile</u></b>		<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) E-8 - Complete ASU Spiral 1 Implementation/Interoperability		3Q		
(U) AOC - Complete baseline Implementation/Interoperability			4Q	
(U) F-15C - Interoperability consultation for Software upgrades.		4Q		
(U) F-16 - Interoperability consultation for Software upgrades.			3Q	
(U) E-3 - Interoperability consultation for Software upgrades.		4Q		
(U) E-8 - Interoperability consultation for Software upgrades.		2Q		
(U) CRC/CRE - Interoperability consultation for Software upgrades.		4Q		
(U) AOC - Interoperability consultation for Software upgrades.		4Q		
(U) F-15E - Interoperability consultation for Software upgrades.		3Q		
(U) ABL - Interoperability consultation for Software upgrades.		2Q		
(U) B-1 - Interoperability consultation for Software upgrades.		3Q		
(U) B-2 - Interoperability consultation for Software upgrades.		3Q		
(U) B-52 - Interoperability consultation for Software upgrades.		3Q		
(U) F/A-22 - Interoperability consultation for Software upgrades.		3Q		
(U) F-117 - Interoperability consultation for Software upgrades.		3Q		
(U) Joint Strike Fighter (JSF) - Interoperability consultation for Software		1Q		
(U) R/SAOC - Interoperability consultation for Software upgrades.		2Q		
(U) TACP/ASOC - Interoperability consultation for Software upgrades.		4Q		
(U) Iceland Air Defense System Interoperability Tests			1-2Q	
(U) Joint Range Extension Interoperability Tests			1-2Q	
(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	2-3Q	1-2Q
(U) E-8 JSTARS Interoperability Tests		3-4Q	3-4Q	3-4Q
(U) F-15C/D Interoperability Tests		4Q	4Q	1Q
(U) F-15E Interoperability Tests				2-3Q

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

DATE

February 2004

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>			
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total	
5050 TDL System Integration	29.990	60.122	131.737	208.481	208.619	153.259	146.223	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

On 17 April 2001, the Chief of Staff of the Air Force (CSAF) approved the management of Tactical Data Links (TDL) as a Major System Acquisition Program. In order to effectively manage the program, the Tactical Data Links System Program Office (SPO) was stood up at Electronic Systems Center (ESC), Hanscom AFB, MA on 29 May 2001. Funding for the Tactical Data Link Infrastructure was contained in PE 0604754F, Tactical Data Link Integration; PE 0604779F, Tactical Data Link Interoperability; and PE 0207434, Link 16 Support and Sustainment. This funding was consolidated in PE 0207434F in FY03 for the purpose of supporting the Tactical Data Link Infrastructure.

In FY03 there was a Congressional increase of \$7.0 M to fund the Link 16 integration in the Alaskan Aerospace Surveillance and Range Operations Modernization (AASROM) Program

In FY04, there was a Congressional increase of \$12.3M: \$8.0 M to fund Enhanced TDL Data Displays, part of the Link 16 integration in the AASROM Program (now referred to as Link 16 Alaska (LAK-16)) and \$4.3M to fund the Link 16 "Pocket J" Program. Also in FY04, funding was provided to PE0207434F, Link 16 Support and Sustainment, project #655050, TDL System Integration to support SIAP Block 1 efforts.

(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 are expanding from C2 aircraft (E-3, E-8, etc.) into the fighter, bomber, sensor, 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 these host platforms and interoperability of TDL networks across all deployed joint and allied platforms. Cross-platform activities performed by the TDL System Program Office (SPO) include, but are not limited to; integration efforts encompassing hardware, software, operational Link 16 enhancements, 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 improvements; and test and sustainment activities. In addition, the SPO is supporting the integration of the Joint Interface Control Officer (JICO) - Support System (JSS) and TDL Gateways including, but not limited to, the Joint Air Defense System Integrator (ADSI), the family of Joint Range Extension (JRE) functionality (which includes the JRE Transparent Multi-Platform Gateway (TMPG) Equipment Package (JTEP)), and Beyond Line of Sight (BLOS) capabilities (such as the Roll-on BLOS Enhancement (ROBE)). The Single Integrated Air Picture (SIAP) efforts will lead to the joint development of near real-time and real-time data from multiple sensors and TDLs. This will enhance the air picture provided to the warfighter by ensuring common, continual, and unambiguous, tracks of all airborne objects.

This program is in budget activity 5 (Engineering, Manufacturing and Development) because it supports development, integration solutions, fielding, operational support

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<b>Exhibit R-2a, RDT&amp;E Project Justification</b>		DATE <b>February 2004</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>

activities, and support of special projects.

<b>(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments/Planned Program	0.000	0.000	0.000
(U) LINK 16 INTEGRATION: Efforts associated with hardware and software integration of Link 16 terminals into Air Force platforms. -- (U) On-going engineering integration support to platforms; technical improvements; field support; technical assistance to related tactical data link demonstration programs.	6.626	5.740	18.325
(U) LINK 16 EMD SUPPORT: Efforts associated with fielding terminals. -- (U) 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.	1.771	3.385	14.395
(U) SINGLE INTEGRATED AIR PICTURE LINKAGE: -- (U) AF system engineering and infrastructure cost to support SIAP recommendations.	14.695	30.790	32.886
(U) ALASKA AEROSPACE SURVEILLANCE AND RANGE OPERATIONS MODERNIZATION (AASROM) PROGRAM	6.898	7.833	
(U) TACTICAL DATA LINK CONNECTIVITY: Efforts associated with Link 16 network management and network capability improvements. -- (U) Includes Link 16 and other TDL Gateways and Interfaces, ADSI Management, JICO Support Tools, BLOS Support Systems (such as ROBE), Objective gateway development, and Common Link Integration Processor (CLIP).		5.999	45.152
(U) SYSTEM TESTING & SUPPORT: Cross-platform test and evaluation and system level testing.		0.475	14.854
(U) TACTICAL DATA LINK ACQUISITION MANAGEMENT		5.900	6.125
(U) Total Cost	29.990	60.122	131.737

<b>(U) <u>C. Other Program Funding Summary (\$ in Millions)</u></b>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E									
(U) 0207445F (Fighter TDL)	28.955	42.318	50.976	67.805	27.437	55.473	41.179		
(U) 0207446F (Bomber TDL)	0.000	12.849	120.256	166.082	88.827	0.000	0.000		
(U) 0207448F (C2ISR TDL)	0.000	26.503	25.441	7.234	0.743	0.000	0.000		
(U) 0401839F (Airlift TDL)	0.000	0.000	0.000	0.000	31.466	0.000	0.000		
(U) 0604754F (TDL Integration)	0.000	14.550	0.000	0.000	0.000	0.000	0.000		
(U) Other APPN									
(U) Aircraft Procurement, AF (3010)									TBD

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

DATE

February 2004

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)	36.013	0.040	6.555	2.980	2.683	0.000	9.486
(U) 0207445F (Fighter TDL)	0.000	29.300	97.417	122.079	94.050	44.218	32.598
(U) 0207446F (Bomber TDL)	0.000	0.000	44.929	21.827	33.149	30.586	28.219
(U) 0401839F (Airlift TDL)	0.000	0.000	28.087	42.270	52.767	29.583	24.765
(U) O&M, AF (3400)							
(U) 0207434F (Link 16 Sup & Sus)	13.357	12.873	12.613	13.916	14.056	14.606	15.131
(U) 0401839F (Airlift 3400)	0.000	0.000	2.230	2.972	5.964	12.067	16.853
(U) Other Procurement, AF (3080)							
(U) 0207434F (Link 16 Sup & Sus)	0.000	0.000	25.805	28.433	25.668	7.423	6.435

**(U) D. Acquisition Strategy**

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

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Exhibit R-3, RDT&E Project Cost Analysis										DATE February 2004		
BUDGET ACTIVITY 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) 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</u> <u>Prior to FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
(U) <u>Product Development</u>												
Terminal Engineering Support	MIPR	SPAWAR, San Diego CA		0.687	Jul-03	1.290	Feb-04	2.010	Feb-05	Continuing	TBD	
JSS, CLIP, Objective Gateway, and Fielding/Integration Contractor Support	Various	TBD		2.427	Oct-02	6.939	May-04	76.813	Apr-05	Continuing	TBD	
MITRE	SS/FFP	MITRE, Bedford MA		7.530	Oct-02	7.860	Dec-03	8.188	Dec-04	Continuing	TBD	
Single Integrated Air Picture	Various	Various		11.695	Jan-03	30.590	Jan-04	32.886	Jan-05	Continuing	TBD	
Alaskan Aerospace Surveillance and Range Operations Modernization (AASROM) Program	SS/CPFF	Pro-Logic, Inc., Manassas VA		6.898	Oct-03	7.833	Mar-04				14.731	
Link 16 Pocket J Program*	SS/TBD	Pro-Logic, Inc., TBD				4.300	Mar-04				4.300	
Subtotal Product Development			0.000	29.237		58.812		119.897		Continuing	TBD	0.000
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		0.321	Oct-03	0.625	Oct-04	10.865	Dec-05	Continuing	TBD	
Subtotal Test & Evaluation			0.000	0.321		0.625		10.865		Continuing	TBD	0.000
Remarks:												
(U) <u>Management</u>												
Program Office and Contractor Support	C/FFP	Various		0.432	Dec-02	0.685	Dec-03	0.975	Dec-04		2.092	
Subtotal Management			0.000	0.432		0.685		0.975			0.000	2.092
Remarks:												
(U) Total Cost			0.000	29.990		60.122		131.737		Continuing	TBD	0.000

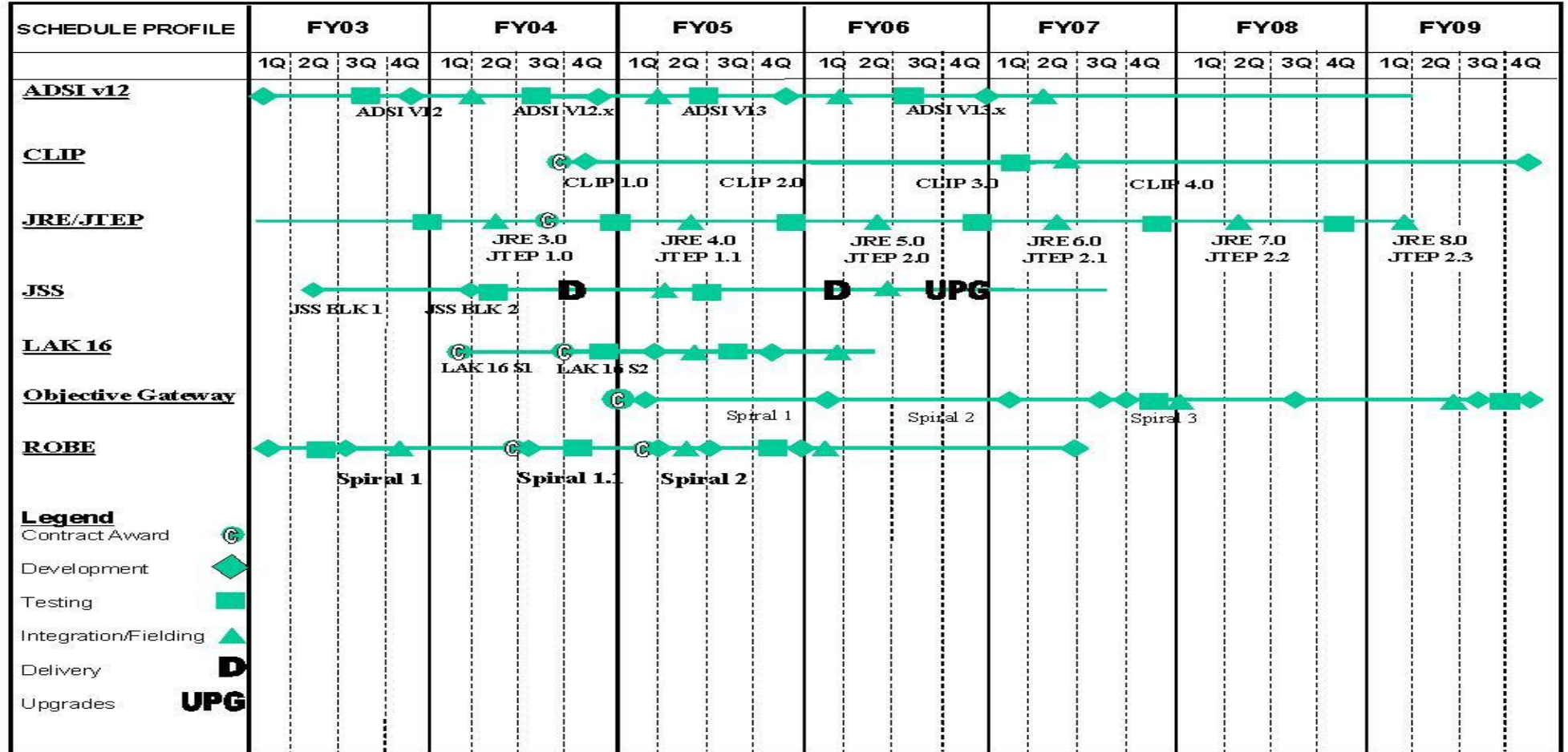
Exhibit R-4, RDT&E Schedule Profile

DATE  
February 2004

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





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Exhibit R-4a, RDT&E Schedule Detail		DATE
		<b>February 2004</b>
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>FY 2003</u>	<u>FY 2004</u>
		<u>FY 2005</u>
(U) <b>Schedule Profile</b>		
(U) ADSI v12 Development	1-4Q	
(U) ADSI v 12 Test	3-4Q	1Q
(U) ADSI v12 Integration/Fielding		1-4Q
(U) ADSI v12.x Development	4Q	1-4Q
(U) ADSI v 12.x Test		3-4Q
(U) ADSI v12.x Integration/Fielding		1-4Q
(U) ADSI v13 Development		4Q
(U) ADSI v 13 Test		1-4Q
(U) ADSI v13.x Development		2-4Q
(U) ROBE Spiral v1 Development	1-2Q	
(U) ROBE Spiral v1 Test	2-3Q	
(U) ROBE Spiral v1 Integration/Fielding	4Q	1-2Q
(U) ROBE Spiral v1 Support	4Q	1-4Q
(U) ROBE Spiral v1.1 Development		1-4Q
(U) ROBE Spiral v1.1 Test		1Q
(U) ROBE Spiral v1.1 Integration/Fielding		3-4Q
(U) ROBE Spiral v1.1 Support		1-4Q
(U) ROBE Spiral v2 Development		3-4Q
(U) ROBE Spiral v2 Test		3-4Q
(U) CLIP Contract Award		3Q
(U) CLIP Development Spiral 1		3-4Q
(U) CLIP Test & Certification Spiral 1		1-4Q
(U) CLIP Integration/Fielding Spiral 1		2-4Q
(U) CLIP Development Spiral 2		3-4Q
(U) LAK-16 Contract Award Spiral 1		2-4Q
(U) LAK-16 Development Spiral 1		1Q
(U) LAK-16 Test Spiral 1		1-4Q
(U) LAK-16 Contract Award Spiral 2		4Q
(U) LAK-16 Development Spiral 2		1-3Q
(U) LAK-16 Test Spiral 2		3Q
(U) JSS BLK 1 Development	2-4Q	3-4Q
(U) JSS BLK 1 Test & Eval		1-4Q
		2-3Q
		1-4Q

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Exhibit R-4a, RDT&E Schedule Detail		DATE <b>February 2004</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>5050 TDL System Integration</b>
(U) JSS BLK 1 Delivered		4Q 1-4Q
(U) JSS BLK 1 Integration/Fielding		2-4Q
(U) JSS BLK 2 Development		1-4Q 1-4Q
(U) JSS BLK 2 Test & Eval		2-4Q
(U) JRE/JTEP Contract Award		4Q
(U) JRE/JTEP Development	1-4Q	1-4Q 1-4Q
(U) JRE/JTEP Test v3.0/JTEP 1.0		1-2Q
(U) JRE/JTEP v3.0/JTEP 1.0 Integration/Fielding		2-3Q
(U) JRE/JTEP Test v4.0/JTEP 1.1		1-2Q
(U) JRE/JTEP v4.0/JTEP 1.1 Integration/Fielding		2-3Q
(U) Objective Gateway Contract Award		1Q
(U) Objective Gateway Development Spiral 1		2-4Q

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

DATE  
**February 2004**

<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>5051 Family of Interoperable Operational Pictures (FIOP)</b>		
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
5051 Family of Interoperable Operational Pictures (FIOP)	14.665	0.000	0.000	0.000	0.000	0.000	0.030	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

In FY05, PE 0207434F, Link 16 Support and Sustainment, Project #655051 efforts were transferred to PE 0207443F, 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 FIOP Task 1 Details, see PE 0207438F, Theater Battle Management C4I, Project #654790. For FY04 FIOP Task 2 program details, see PE 0604754F, Tactical Data Link Integration, Project #654992 and PE 0603850F, Integrated Broadcast Service, Project #635151. For FY05 FIOP Task 1 and 2 details, see PE 0207443F, FIOP, Project #675137.

**(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" 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.

<b>(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<b><u>FY 2003</u></b>	<b><u>FY 2004</u></b>	<b><u>FY 2005</u></b>
(U) Accomplishments/Planned Program			
(U) No Activity		0.000	0.000
(U) PERFORM REQUIREMENTS & ENGINEERING MANAGEMENT:	2.850		
--(U) Provide requirement management (AF Exec Agent \$750, \$300 each USA, USN, USMC; AF \$600, and DISA Mgt \$600).			
(U) IMPLEMENT EXECUTION MANAGEMENT CAPABILITY:	5.739		
--(U) Provide integration support, execution management, and visualization capabilities.			
(U) DEVELOP TACTICAL COE WORKSTATION:	3.038		
--(U) Migrate USMC/USA C2PC to COP infrastructure. Provide integration support, engineering, hardware/software and travel.			
(U) COE SUPPORT FOR JOINT VARIABLE MSG FORMAT:	3.038		
--(U) Implement COE processing of JVMF messages among USMC/USN/USA with scalable COP infrastructure in			

Exhibit R-2a, RDT&E Project Justification

DATE

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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>	PROJECT NUMBER AND TITLE <b>5051 Family of Interoperable Operational Pictures (FIOP)</b>
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limited bandwidth environments. Provide integration support, engineering, hardware/software, and travel

(U) No Activity		0.000
(U) Total Cost	14.665	0.000 0.000

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

	<u>FY 2003</u> <u>Actual</u>	<u>FY 2004</u> <u>Estimate</u>	<u>FY 2005</u> <u>Estimate</u>	<u>FY 2006</u> <u>Estimate</u>	<u>FY 2007</u> <u>Estimate</u>	<u>FY 2008</u> <u>Estimate</u>	<u>FY 2009</u> <u>Estimate</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) AF RDT&E									
(U) 0207438F (TBMC4I)	33.304	32.505	37.210	37.990	34.079	34.579	35.287		
(U) 0207443F (FIOP)	0.000	0.000	44.947	45.201	41.438	51.720	40.531		
(U) 0603850F (Integrated Broadcast System)	0.000	8.415	2.294	0.000	0.000	0.000	0.000		

(U) **D. Acquisition Strategy**

JROC-directed activity to implement spiral develop, integration 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 be migrated to Service SOR systems for sustainment.

**UNCLASSIFIED**

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

DATE

**February 2004**

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>5051 Family of Interoperable Operational Pictures (FIOP)</b>				
<u>(U) Cost Categories</u>	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to</u>	<u>Total</u>	<u>Target</u>
(Tailor to WBS, or System/Item Requirements) (\$ in Millions)			<u>Prior to FY</u>	<u>2003</u>	<u>2003</u>	<u>2004</u>	<u>2004</u>	<u>2005</u>	<u>2005</u>	<u>Complete</u>	<u>Cost</u>	<u>Value of</u>
			<u>Cost</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>			<u>Contract</u>
					<u>Date</u>		<u>Date</u>		<u>Date</u>			
<u>(U) Product Development</u>												
Execution Management Contractor	C/CPFF	Lockheed Martin, Colorado Springs, CO		3.239	Apr-03					Continuing	TBD	
Tactical Coe WS Contractors*	MIPR	Various		3.038	Jan-03					Continuing	TBD	
JVMF Contractors**	MIPR	Various		3.038	Jan-03					Continuing	TBD	
Subtotal Product Development			0.000	9.315		0.000		0.000		Continuing	TBD	0.000
Remarks: *Funding MIPR'd to Marine Corps Systems Command. **Funding MIPR'd to Army Communication Electronics Command												
<u>(U) Support</u>												
Requirements and Engineering Support*	MIPR	Various		2.850	Jan-03						2.850	
Contractor Support	MIPR	Various		2.500	Jan-03					Continuing	TBD	
Subtotal Support			0.000	5.350		0.000		0.000		Continuing	TBD	0.000
Remarks: *Funding is provided to other Services for engineering and management support at their HQs												
<u>(U) Total Cost</u>			0.000	14.665		0.000		0.000		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

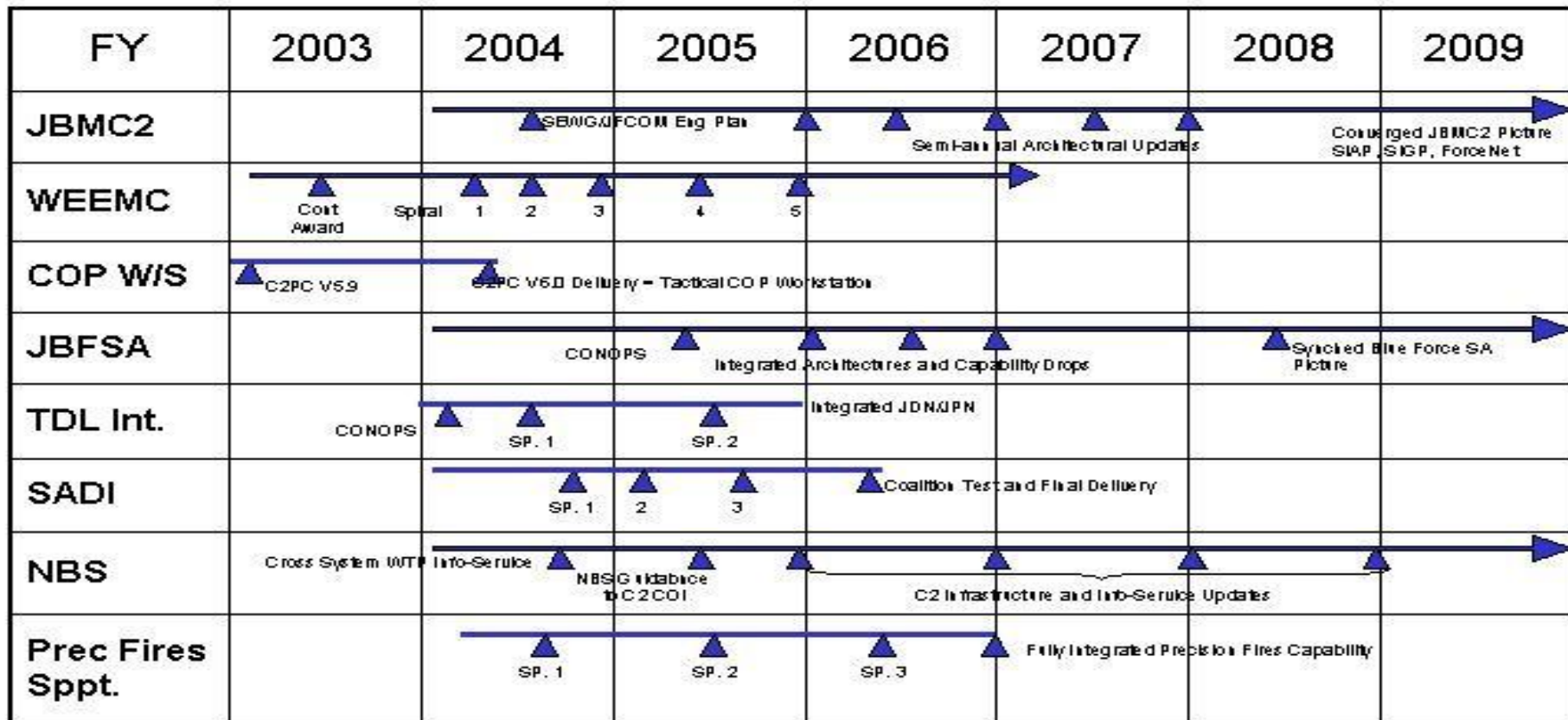
February 2004

BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE  
0207434F Link 16 Support and Sustainment

PROJECT NUMBER AND TITLE  
5051 Family of Interoperable Operational Pictures (FIOP)

# FIOP Milestone Schedule



UNCLASSIFIED

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2004</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>5051 Family of Interoperable Operational Pictures (FIOP)</b>
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	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <b><u>Schedule Profile</u></b>			
(U) Execution Management Capability	1-4Q		
(U) Tactical COE Workstation Development	1-4Q	1-2Q	
(U) Tactical COE Initial Workstation Delivery	2Q		
(U) Tactical COE V6.0 Workstation Delivery		2Q	
(U) Web-Based Execution Management Spiral 1		1Q	
(U) Web-Based Execution Management Spiral 2		3Q	

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2004</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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	0.000	44.947	45.201	41.438	51.720	40.531	0.000	0.000
5137 Family of Interoperable Operational Pictures (FIOP)	0.000	0.000	44.947	45.201	41.438	51.720	40.531	0.000	0.000

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 PE 0603850F, Integrated Broadcast System, Project #635151 were transferred into this Program Element in order to consolidate FIOP program funding.

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**

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" in JROC Memorandum 156-02. 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) - 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.

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.

Tactical Data Link Integration - There is a lack of integration between 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

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

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February 2004

BUDGET ACTIVITY

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

PE NUMBER AND TITLE

**0207443F FAMILY OF INTEROP OPERATIONAL PIC (FIOP)**

and Control and finally the Link processors to a converged implementation.

Precision Fires Support - Ground Fires systems require accurate target coordinates. This task will provide web-based Global Positioning Systems enhanced target coordinates to those systems. This is a critical element of the DoD's efforts to reduce fratricide while increasing combat effectiveness.

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.

Web Enabled Execution Management - This task began in FY02 and 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.

Red Force Situational Awareness Picture - Similar to JBFS, 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.

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.

Meteorology Oceanography (METOC) - There is currently no single repository for global weather services, which includes indigenous/local weather information. Commanders require weather information pertinent to the local geographical area not available on national systems. The weather information would have to be provided in a common format to the combatant commanders in a near real-time automated data push. This task will address this deficiency.

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.

The Family of Interoperable Operational Pictures is in Budget Activity 5 (System Development and Demonstration) because it support development, integration solutions, fielding, operational support activities, and support of special projects.

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2004</b>
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BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0207443F FAMILY OF INTEROP OPERATIONAL PIC (FIOP)</b>
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(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	0.000	0.000	0.000
(U) Current PBR/President's Budget	0.000	0.000	44.947
(U) Total Adjustments	0.000	0.000	

- (U) Congressional Program Reductions
- Congressional Rescissions
- Congressional Increases
- Reprogrammings
- SBIR/STTR Transfer

(U) **Significant Program Changes:**

The FY05 increase results from the consolidation of FIOP funds from PE0604754F (Tactical Data Link Integration), #654992, PE0207438F (Theater Battle Management C4I), #654790, and PE0603850F (Integrated Broadcast System), #635151.

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

DATE

February 2004

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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
5137 Family of Interoperable Operational Pictures (FIOP)	0.000	0.000	44.947	45.201	41.438	51.720	40.531	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

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

The 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" in JROC Memorandum 156-02. Ultimately, the FIOP effort will lead to the underpinnings of Network Centric Operational Warfare. The FIOP program focus includes the following areas:

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<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>February 2004</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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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.

Web Enabled Execution Management - This task began in FY02 and 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.

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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.

The Family of Interoperable Operational Pictures is in Budget Activity 5 (System Development and Demonstration) because it support 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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) No Activity	0.000	0.000	
(U) Web Enabled Execution Management Spirals 4 & 5			13.936
(U) Situational Awareness Data Interoperability			5.638
(U) Network Based Services			5.516
(U) Precision Fires Support Spiral 3 and Phase III			6.864
(U) Joint Blue Force Situational Awareness			12.135
(U) Tactical Data Link Integration			0.858
(U) Total Cost	0.000	0.000	44.947

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

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

**UNCLASSIFIED**

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

DATE

**February 2004**

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>				
<u>(U) Cost Categories</u>	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to</u>	<u>Total</u>	<u>Target</u>
(Tailor to WBS, or System/Item Requirements) (\$ in Millions)			<u>Prior to FY</u>	<u>2003</u>	<u>2003</u>	<u>2004</u>	<u>2004</u>	<u>2005</u>	<u>2005</u>	<u>Complete</u>	<u>Cost</u>	<u>Value of</u>
			<u>2003</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>			<u>Contract</u>
			<u>Cost</u>		<u>Date</u>		<u>Date</u>		<u>Date</u>			
<u>(U) Web Enabled Execution Management</u>	Various	Various						13.936	Dec-04	Continuing	TBD	
Subtotal Web Enabled Execution Management			0.000	0.000		0.000		13.936		Continuing	TBD	0.000
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	SPAWAR PM-157, San Diego, CA	0.000	0.000		0.000		0.858	Dec-04	Continuing	TBD	
Subtotal Tactical Data Link Integration			0.000	0.000		0.000		0.858		Continuing	TBD	0.000
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</u>												
<u>(U) Interoperability</u>	MIPR	CECOM PEO/C3T						5.638	Feb-05	Continuing	TBD	
Subtotal Situational Awareness Data Interoperability			0.000	0.000		0.000		5.638		Continuing	TBD	0.000
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	HQ ESC/NI-2, Hanscom AFB, MA						5.516	Jan-05	Continuing	TBD	
Subtotal Network Based Services			0.000	0.000		0.000		5.516		Continuing	TBD	0.000
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	HQ Dept of Army/G8, Washington DC						12.135	Mar-05	Continuing	TBD	
Subtotal Joint Blue Force Situational Awareness			0.000	0.000		0.000		12.135		Continuing	TBD	0.000
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	USMC Systems						6.864	Jan-05	Continuing	TBD	

**UNCLASSIFIED**

<b>Exhibit R-3, RDT&amp;E Project Cost Analysis</b>	DATE <b>February 2004</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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Command, Quantico, VA		
Subtotal Precision Fires Support	0.000 0.000 0.000	6.864    Continuing    TBD    0.000
Remarks: This effort has been planned, programmed and budgeted in prior years in PE0604754F. This is not a new start.		
(U) Total Cost	0.000 0.000 0.000	44.947    Continuing    TBD    0.000



Exhibit R-4, RDT&E Schedule Profile

DATE

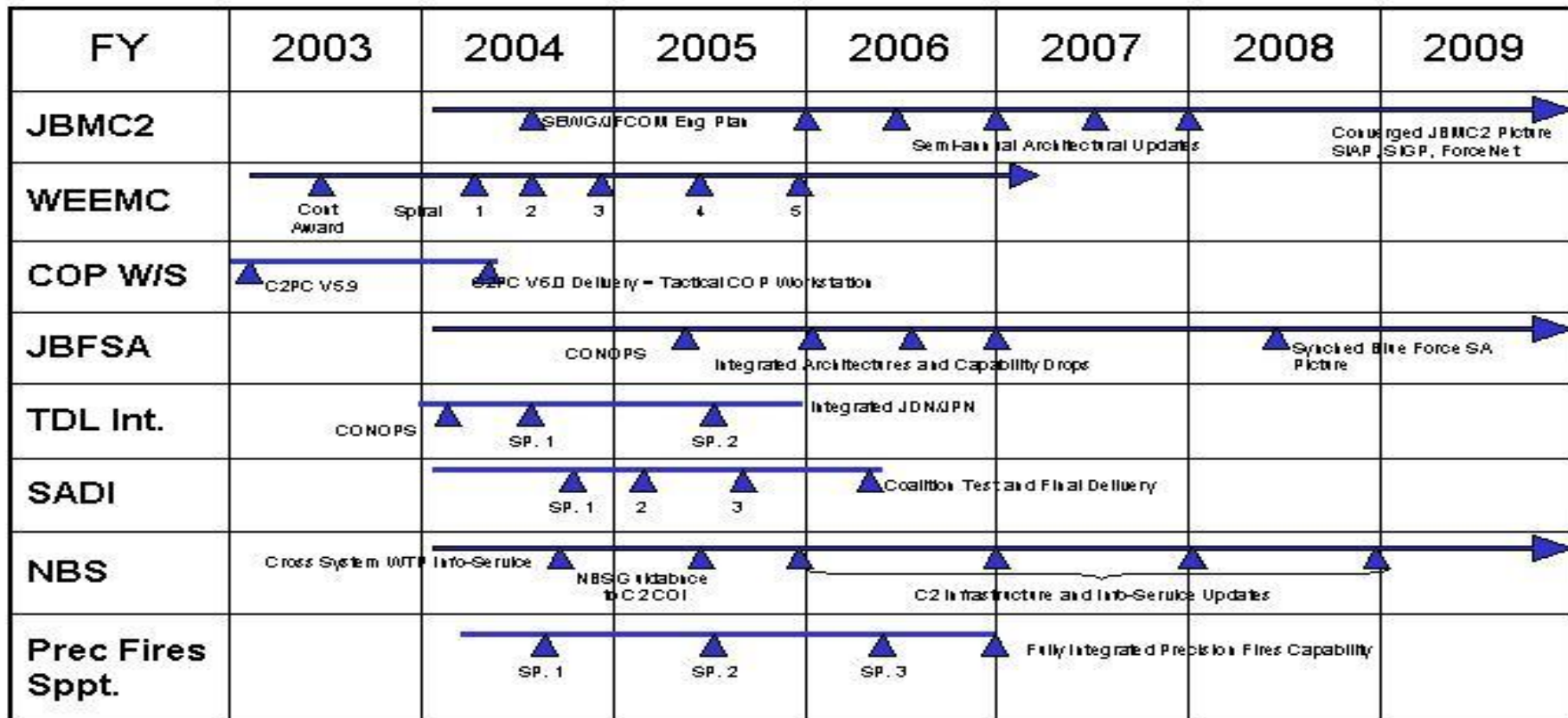
February 2004

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)

# FIOP Milestone Schedule



UNCLASSIFIED

Exhibit R-4a, RDT&E Schedule Detail		DATE <b>February 2004</b>		
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>		
<b>(U) <u>Schedule Profile</u></b>		<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) WEEMC Contract Award		3Q		
(U) WEEMC Spiral 1 Delivery			1Q	
(U) WEEMC Spiral 2 Delivery			3Q	
(U) WEEMC Spiral 3 Delivery			4Q	
(U) WEEMC Spiral 4 Delivery				3Q
(U) WEEMC Spiral 5 Delivery				4Q
(U) Tactical COP Workstation Initial Delivery		2Q		
(U) Tactical COP Workstation Final Delivery			3Q	
(U) JBMC2 - FIOP Sys. Engineering Working Group (SEWG) and JFCOM Intial Engineering Pla 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				4Q
(U) NBS - Cross System Weapon Target Pairing Information Service			4Q	
(U) NBS - C2 Community of Interest Guidance published				3Q
(U) Pre. Fires Suppt. - Spiral 1			3Q	
(U) Pre. Fires Suppt. - Spiral 2				3Q

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	<b>DATE</b> <b>February 2004</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 MC2A</b>
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Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	0.000	538.860	530.458	438.500	421.000	232.500	Continuing	TBD
5131 MC2A Airframe	0.000	0.000	333.012	336.338	303.048	312.495	138.480	Continuing	TBD
5132 MC2A Sensors	0.000	0.000	205.848	194.120	135.452	108.505	94.020	Continuing	TBD

1. In FY 2005 this is a new PE. This new Multi-sensor Command and Control Aircraft (MC2A) PE 0207450F and associated Project Numbers 5131-MC2A Airframe and 5132-MC2A Sensors were transferred from PE 0207449F, C2 Constellation, Project Numbers 5064-Airframe and 5065-Sensors, to support hosting the Multi-Platform Radar Technology Insertion Program (MP-RTIP) sensor on a 767-400ER testbed. In February 2003, the MC2A testbed was assigned the Mission Design Series (MDS) designation of E-10A. The E-10A is a key enabler of the joint theater air and cruise missile defense architecture, joint decisive operations and precision engagement and the AEF Task Force concept of operations (CONOPS). Under the current funding profile, delivery of the required cruise missile defense capability is planned for CY 2013.

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

MC2A develops a networked Battle Management, Command and Control (BMC2) capability over the battlefield in evolutionary increments. The E-10 is a key node of the C2 Constellation (see PE 0207449F) bringing operational command and control to the joint warfighter through the use of advanced sensors, sensor fusion, network-centric warfare and high-speed, wide band communications systems. The E-10 aircraft series will employ both on-board and off-board sensors, communications, data links, and battle management integration software to execute the full range of military operations. The E-10 will interface with multi-Service ground/air/space-based sensors, intelligence and communications assets to shorten the decision cycle for combat operations. The E-10 will enable the detection, designation, and prosecution of time critical targets by providing battlespace situational awareness. The result is weapons-quality target cueing for joint and coalition shooters to engage time sensitive cruise missiles and other fleeting high-priority targets.

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

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2004

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0207450F MC2A

reporting as BA-7 in the C2 Constellation program (see PE 0207449F).

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	0.000	0.000	0.000
(U) Current PBR/President's Budget	0.000	0.000	538.860
(U) Total Adjustments	0.000	0.000	
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			

(U) **Significant Program Changes:**

FY 2005 begins reporting for the MC2A program element 0207450F. This is continuing activity from FY 2003 and 2004 as previously reported in PE 0207449F in Project 5064 (Airframe) and Project 5065 (Sensor).

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

DATE

February 2004

BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT NUMBER AND TITLE			
05 System Development and Demonstration (SDD)				0207450F MC2A			5131 MC2A Airframe			
Cost (\$ in Millions)		FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
5131	MC2A Airframe	0.000	0.000	333.012	336.338	303.048	312.495	138.480	Continuing	TBD
Quantity of RDT&E Articles		0	0	0	0	0	0	0		

1. In FY 2005 this is a new PE. This new Multi-sensor Command and Control Aircraft (MC2A) PE 0207450F and associated Project Numbers 5131-MC2A Airframe and 5132-MC2A Sensors were transferred from PE 0207449F, C2 Constellation, Project Numbers 5064-Airframe and 5065-Sensors, to support hosting the Multi-Platform Radar Technology Insertion Program (MP-RTIP) sensor on a 767-400ER testbed. In February 2003, the MC2A testbed was assigned the Mission Design Series (MDS) designation of E-10A. The E-10A is a key enabler of the joint theater air and cruise missile defense architecture, joint decisive operations and precision engagement and the AEF Task Force concept of operations (CONOPS). Under the current funding profile, delivery of the required cruise missile defense capability is planned for CY 2013.

2. FYDP RDT&E Article Deliveries:

FY 2006: 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 a wide-body aircraft to host multiple sensor configurations. The E-10 is a key node of the C2 Constellation (see PE 0207449F) bringing operational command and control to the joint warfighter through the use of advanced sensors, sensor fusion, network-centric warfare and high-speed, wide band communications systems. The E-10 aircraft series will employ both on-board and off-board sensors, communications, data links, and battle management integration software to execute the full range of military operations. The E-10 will interface with multi-Service ground/air/space-based sensors, intelligence and communications assets to shorten the decision cycle for combat operations. The E-10 will enable the detection, designation, and prosecution of time critical targets by providing battlespace situational awareness. The result is weapons-quality target cueing for joint and coalition shooters to engage time sensitive cruise missiles and other fleeting high-priority targets.

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

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

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

DATE

**February 2004**

<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>0207450F MC2A</b>	<b>5131 MC2A Airframe</b>

Integration activities, and (5) pursue future studies/spiral development to support continuous improvement and implementation of Command & Control, Intelligence, Surveillance, and Reconnaissance (C2ISR) capabilities.

This program is categorized as Budget Activity (BA) 5 to reflect a program in System Development and Demonstration (SDD). This BA marks a change from previous reporting as BA-7 in the C2 Constellation program (see PE 0207449F).

<b>(U) B. Accomplishments/Planned Program (\$ in Millions)</b>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous activity reported in PE 0207449F, Project 5064	0.000	0.000	
(U) Continue incremental funding of a 767-400ER testbed			30.000
(U) Continue systems engineering and design activities associated with the modification of the commercial testbed			31.354
(U) Continue BMC2 efforts			31.700
(U) Continue Weapon System Integration (WSI) efforts			182.000
(U) Sensor Lab/Test Hardware			55.000
(U) Conduct Future Studies/Spiral Development--includes concept exploration, program definition/risk reduction, and spir 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
(U) Continue SPO Ops Effort			1.111
(U) Begin Test & Evaluation Efforts (examples include Joint Test Force (JTF), Air Force Operational Test and Evaluation Center (AFOTEC), Operator-In-The-Loop (OITL))			1.347
(U) Total Cost	0.000	0.000	333.012

<b>(U) C. Other Program Funding Summary (\$ in Millions)</b>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to Complete</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>		
(U) AF RDT&E									
(U) PE 0207449F Project 5065 (Sensors)	208.369	154.006	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
(U) PE 0207449F Project 5064 (Airframe)	129.395	206.045	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
(U) PE 0207450F Project 5132 (MC2A Sensors)	0.000	0.000	205.848	194.120	135.452	108.505	94.020	Continuing	TBD
(U) APAF									
(U) PE 0207450F (MC2A Production)	0.000	0.000	0.000	0.000	0.000	567.504	706.243	Continuing	TBD

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

DATE

February 2004

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0207450F MC2A

PROJECT NUMBER AND TITLE

5131 MC2A Airframe

(U) **D. Acquisition Strategy**

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

The Multi-Platform Radar Technology Insertion Program (MP-RTIP) Acquisition Decision Memorandum (ADM), dated 4 Dec 2003, delayed the E-10A MS B date from July 2004 to July 2005. This allows for the completion of several trade studies regarding GMTI and elevated sensors for the integrated theater air and missile defense architecture to support cruise missile defense.

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Exhibit R-3, RDT&E Project Cost Analysis										DATE February 2004		
BUDGET ACTIVITY 05 System Development and Demonstration (SDD)					PE NUMBER AND TITLE 0207450F MC2A				PROJECT NUMBER AND TITLE 5131 MC2A Airframe			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2003 Cost	FY 2003 Cost	FY 2003 Award	FY 2004 Cost	FY 2004 Award	FY 2005 Cost	FY 2005 Award	Cost to Complete	Total Cost	Target Value of Contract
(U) <u>Product Development</u>												
Weapon System Integration (WSI)	SS/CPAF	Northrop Grumman Systems Corporation; Melbourne, FL						182.000	May-03	Continuing	TBD	
767-400ER Testbed	SS/FFP	The Boeing Company; Seattle, WA						30.000	Oct-04	Continuing	TBD	
BMC2 --TBD	C/TBD	TBD						31.700	Oct-04	Continuing	TBD	
Sensor Lab/Test Hardware	SS/CPAF	Northrop Grumman Systems Corporation (MP-RTIP); El Segundo, CA						55.000	Mar-05	Continuing	TBD	
Systems Engineering	Various	Various						21.883	Oct-04	Continuing	TBD	
Future Studies/Spiral Development	Various	Various						0.500	Mar-05	Continuing	TBD	
Subtotal Product Development			0.000	0.000		0.000		321.083		Continuing	TBD	0.000
Remarks: Where Various Contract Method & Types take place, earliest date funds will obligated is noted.												
(U) <u>Test &amp; Evaluation</u>												
AFOTEC	MIPR	Various						0.159	Jan-05	Continuing	TBD	
Joint Test Force (JTF)	SS/T&M	Titan Systems Corporation; Melbourne, FL						0.724	Jan-05	Continuing	TBD	
Operator-In-The-Loop (OITL)	SS/T&M	Hanscom AFB, MA						0.464	Feb-05	Continuing	TBD	
Subtotal Test & Evaluation			0.000	0.000		0.000		1.347		Continuing	TBD	0.000
Remarks:												
(U) <u>Management</u>												
Program Office Support	Various	Various						1.111	Oct-04	Continuing	TBD	
FFRDC	SS/CPFF	MITRE Corporation; Hanscom AFB, MA						9.471	Oct-04	Continuing	TBD	
Subtotal Management			0.000	0.000		0.000		10.582		Continuing	TBD	0.000
Remarks: Where Various Contract Method & Types take place, earliest date funds will obligated is noted.												
(U) Total Cost			0.000	0.000		0.000		333.012		Continuing	TBD	0.000



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

DATE

**February 2004**

BUDGET ACTIVITY

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

PE NUMBER AND TITLE

**0207450F MC2A**

PROJECT NUMBER AND TITLE

**5131 MC2A Airframe**

Remark: FY2003 and FY2004 reflected in Program Element 0207449F C2 Constellation, Project 5064 (Airframe)

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

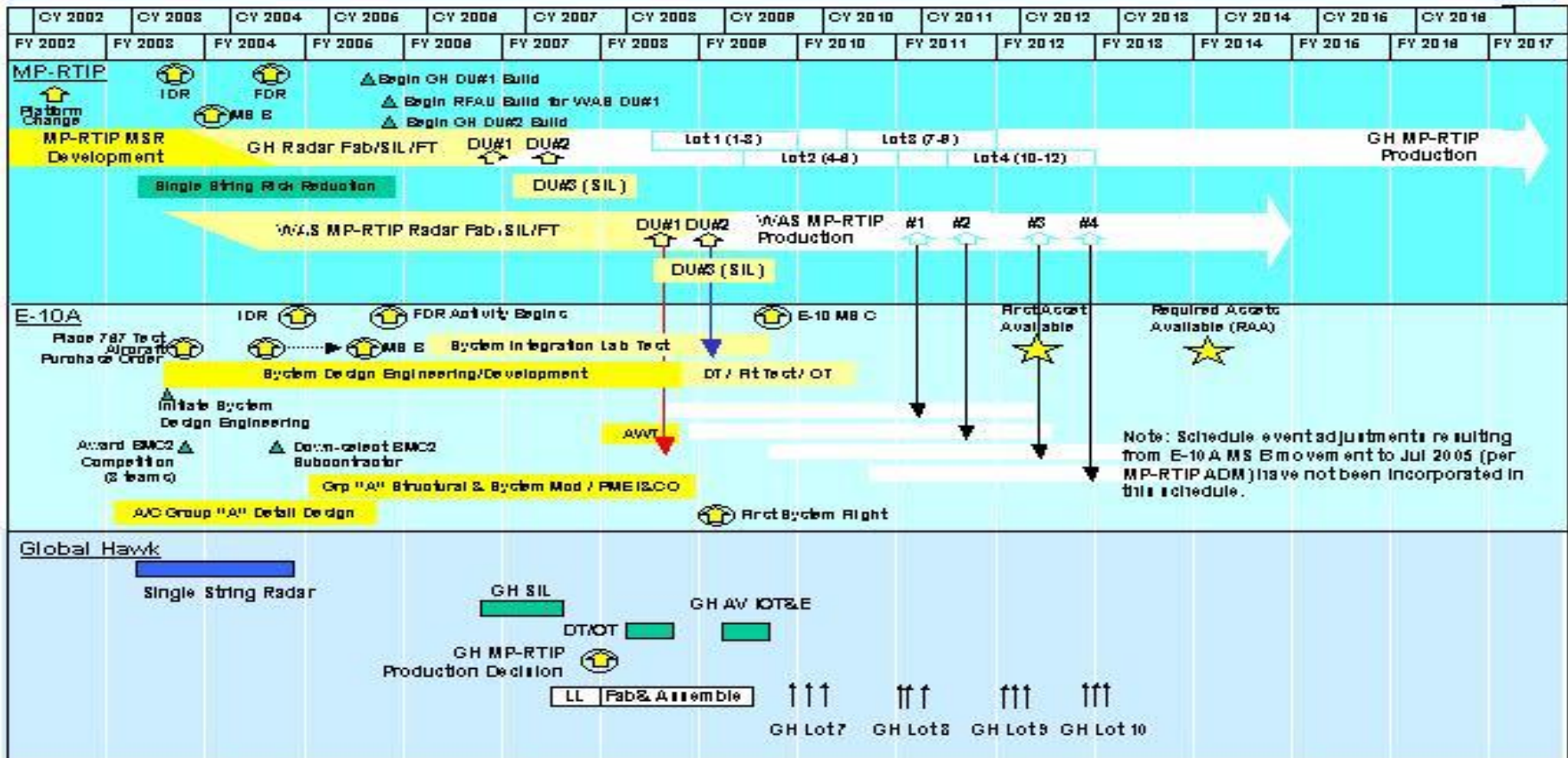
PE NUMBER AND TITLE  
0207450F MC2A

PROJECT NUMBER AND TITLE  
5131 MC2A Airframe



# E-10A/MP-RTIP Summary Program Schedule

U.S. AIR FORCE



2-Feb-04

*Integrity - Service - Excellence*

1

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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2004</b>
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BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0207450F MC2A</b>	PROJECT NUMBER AND TITLE <b>5131 MC2A Airframe</b>
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	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <b><u>Schedule Profile</u></b>			
(U) ** Initiated System Design Engineering	3Q		
(U) ** Placed incrementally funded purchase order for a 767-400ER	4Q		
(U) ** Awarded BMC2 Competition (3 Teams)	4Q		
(U) ** System Requirements Review		2Q	
(U) ** Downselect BMC2 Subcontractor		3Q	
(U) ** Initial Design Review (IDR)		4Q	
(U) Begin System Final Design Review (FDR) Activity			4Q
** FY2003 and FY2004 events reflected in Program Element 0207449F C2 Constellation, Project 5064 (Airframe)			

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

DATE  
**February 2004**

<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>				<b>PE NUMBER AND TITLE</b> <b>0207450F MC2A</b>			<b>PROJECT NUMBER AND TITLE</b> <b>5132 MC2A Sensors</b>		
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
5132 MC2A Sensors	0.000	0.000	205.848	194.120	135.452	108.505	94.020	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

1. In FY 2005 this is a new PE. This new Multi-sensor Command and Control Aircraft (MC2A) PE 0207450F and associated Project Numbers 5131-MC2A Airframe and 5132-MC2A Sensors were transferred from PE 0207449F, C2 Constellation, Project Numbers 5064-Airframe and 5065-Sensors, to support hosting the Multi-Platform Radar Technology Insertion Program (MP-RTIP) sensor on a 767-400ER testbed. In February 2003, the MC2A testbed was assigned the Mission Design Series (MDS) designation of E-10A. The E-10A is a key enabler of the joint theater air and cruise missile defense architecture, joint decisive operations and precision engagement and the AEF Task Force concept of operations (CONOPS). Under the current funding profile, delivery of the required cruise missile defense capability is planned for CY 2013.

2. FYDP RDT&E Article Deliveries:

FY 2007: 1 Global Hawk MP-RTIP radar for integration

FY 2008: 1 Wide Area Surveillance (WAS) Development Unit radar for System Integration Lab (SIL), concurrent mode development, testbed/flight test

FY 2009: 2 WAS Development Unit radars for System Integration Lab (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), a modular, scalable, two-dimensional active electronically scanned array (2D-AESA) radar, is the sensor capability of the E-10A Increment 1 weapons system to provide cruise missile defense and improved ground moving target indicator (GMTI)/synthetic aperture radar (SAR) imaging. MP-RTIP will deliver a "large sensor" variant for the E-10A aircraft, and a "small sensor" variant for the Global Hawk.

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

This program is categorized as Budget Activity (BA) 5 to reflect a program in System Development and Demonstration (SDD). This BA marks a change from previous reporting as BA-7 in the FY 2001 and FY 2002 R-2 Exhibits for Joint STARS (PE 0207581F), and in the FY 2003 and FY 2004 R-2 Exhibits for C2 Constellation (PE 0207449F) which reflected a sensor technology insertion program.

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous activity reported in PE 0207449F, Project 5065	0.000	0.000	
(U) Continue MP-RTIP radar design and development for integration on the E-10A and Global Hawk target platforms			203.463
(U) Continue Test Efforts (examples include Operator-In-The-Loop [OITL]; Joint Test Force Support; AFOTEC Support; and Independent Verification & Validation [IV&V])			1.062

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

DATE  
**February 2004**

<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0207450F MC2A</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5132 MC2A Sensors</b>
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(U) Continue Future Studies/Spiral Development--includes concept exploration, program definition/risk reduction, sensor technology development and spiral development efforts supporting continuous improvements and implementation of Command & Control, Intelligence, Surveillance, and Reconnaissance (C2ISR) capabilities enabling the joint air and missile defense architecture, joint decisive operations and the AEF Task Force CONOPS.				0.500
(U) Continue SPO Operations				0.823
(U) Total Cost		0.000	0.000	205.848

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E									
(U) PE 0207449F Project 5065 (Sensors)	208.369	154.006	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
(U) PE 0207449F Project 5064 (Airframe)	129.395	206.045	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
(U) PE 0207450F Project 5131 (MC2A Airframe)	0.000	0.000	333.012	336.338	303.048	312.495	138.480	Continuing	TBD
(U) PE 0305205F Project 4799 (Global Hawk MP-RTIP Sensor)	11.000	32.000	34.000	18.000	8.000	0.000	0.000	Continuing	TBD
(U) APAF									
(U) PE 0207450F (MC2A Production)	0.000	0.000	0.000	0.000	0.000	567.504	706.243	Continuing	TBD

**(U) D. Acquisition Strategy**

The MP-RTIP Acquisition Decision Memorandum (ADM), dated 4 Dec 2003, approved Global Hawk MP-RTIP entry into SDD and continued platform integration efforts for other platforms. MP-RTIP SDD activities will begin in FY 2004.

The MP-RTIP program currently plans to provide sensors for five aircraft (1 test bed and 4 production aircraft) and 12 Global Hawk air vehicles. LRIP quantities for Global Hawk (6 radars) were established at the MP-RTIP Milestone B in FY 2003. LRIP quantities for a widebody aircraft will be addressed at the E-10A MS B in FY 2005.

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Exhibit R-3, RDT&E Project Cost Analysis										DATE <b>February 2004</b>		
BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>					PE NUMBER AND TITLE <b>0207450F MC2A</b>					PROJECT NUMBER AND TITLE <b>5132 MC2A 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</u> <u>Prior to FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
<u>(U) Product Development</u>												
MP-RTIP	SS/CPAF	Northrop-Grumman; El Segundo, CA						200.478	Oct-04	Continuing	TBD	
Future Studies/Spiral Development	Various	TBD						0.500	Nov-04		0.500	
Subtotal Product Development			0.000	0.000		0.000		200.978		Continuing	TBD	0.000
Remarks: Where Various Contract Method & Types take place, earliest date funds will obligated is noted.												
<u>(U) Test &amp; Evaluation</u>												
JTF Support	SS/T&M	Titan Systems Corporation; Melbourne, FL						0.573	Dec-04	Continuing	TBD	
AFOTEC Support	MIPR	Various						0.489	Oct-04	Continuing	TBD	
Subtotal Test & Evaluation			0.000	0.000		0.000		1.062		Continuing	TBD	0.000
Remarks:												
<u>(U) Management</u>												
Program Office Support	Various	Various						0.823	Oct-04	Continuing	TBD	
FFDRC	SS/CPFF	MITRE Corporation; Hanscom AFB, MA						2.985	Oct-04		2.985	
Subtotal Management			0.000	0.000		0.000		3.808		Continuing	TBD	0.000
Remarks: Where Various Contract Method & Types take place, earliest date funds will obligated is noted.												
<u>(U) Total Cost</u>			0.000	0.000		0.000		205.848		Continuing	TBD	0.000
Remark: FY 2002 and prior reflected in Program Element 0207581F, Joint STARS FY 2003 and FY 2004 reflected in Program Element 0207449F C2C, Project 5065 (Sensors)												

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

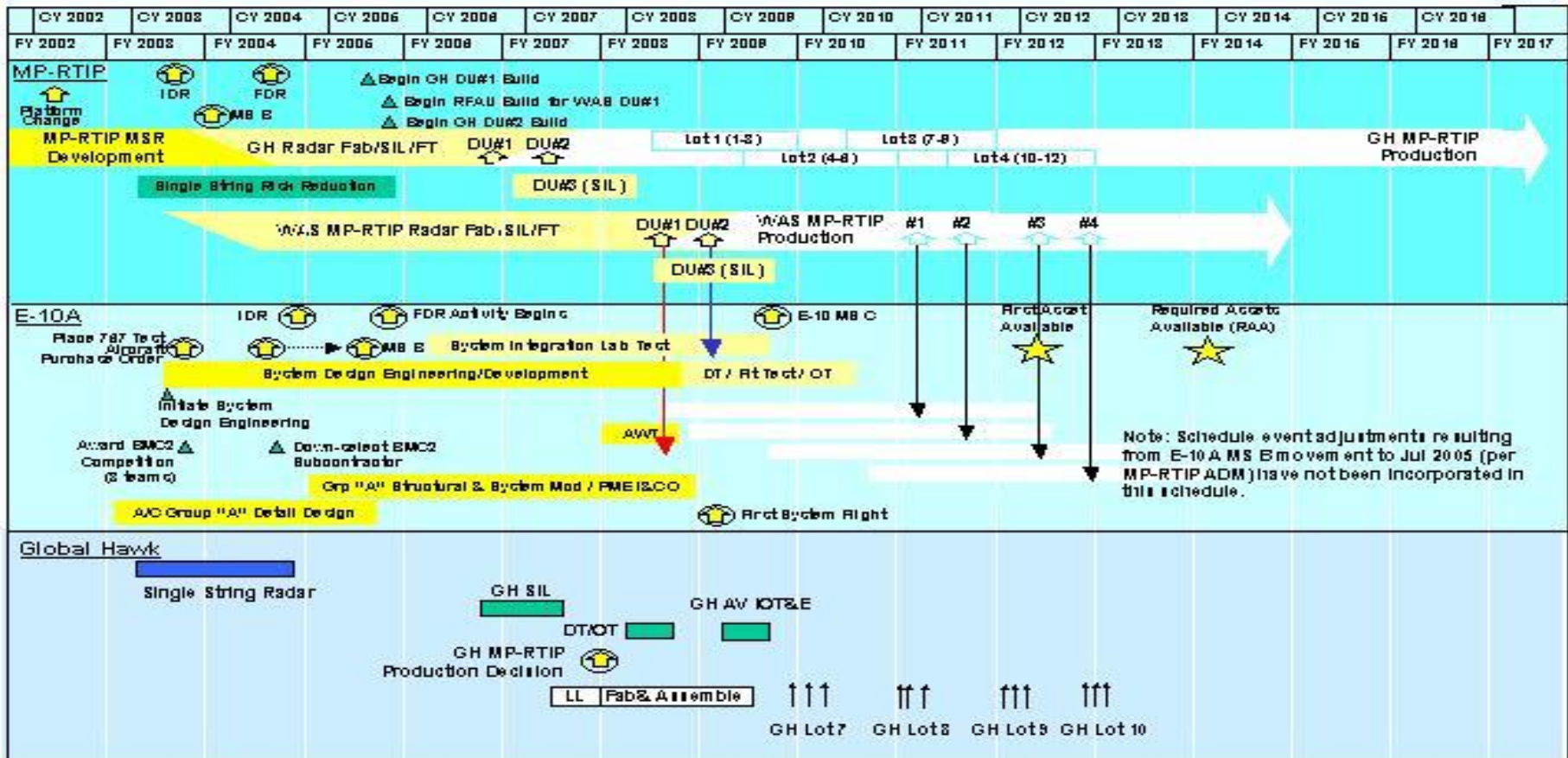
PE NUMBER AND TITLE  
0207450F MC2A

PROJECT NUMBER AND TITLE  
5132 MC2A Sensors



# E-10A/MP-RTIP Summary Program Schedule

U.S. AIR FORCE



Note: Schedule event adjustments resulting from E-10A MBE movement to Jul 2005 (per MP-RTIP ADM) have not been incorporated in this schedule.

2-Feb-04

*Integrity - Service - Excellence*

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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2004</b>
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BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0207450F MC2A</b>	PROJECT NUMBER AND TITLE <b>5132 MC2A Sensors</b>
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	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <b><u>Schedule Profile</u></b>			
(U) ** INITIAL DESIGN REVIEW (IDR)	3Q		
(U) ** MILESTONE B		1Q	
(U) ** FINAL DESIGN REVIEW		3Q	
(U) BEGIN GLOBAL HAWK DEVELOPMENT UNIT #1 BUILD			3Q
(U) BEGIN RF APERTURE UNIT (RFAU) BUILD FOR WIDE AREA SURVEILLANCE (WAS) DEVELOPMENT UNIT #1			4Q
(U) BEGIN GLOBAL HAWK DEVELOPMENT UNIT #2 BUILD			4Q
** FY2003 and FY2004 reflected in Program Element 0207449F C2 Constellation, Project 5065 (Sensor)			



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PE NUMBER: 0207701F  
 PE TITLE: Full Combat Mission Training

Exhibit R-2, RDT&E Budget Item Justification								DATE February 2004	
BUDGET ACTIVITY 05 System Development and Demonstration (SDD)				PE NUMBER AND TITLE 0207701F Full Combat Mission Training					
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	3.585	6.887	5.894	7.240	6.804	7.269	6.857	0.000	0.000
5012 Full Combat Mission Training	3.585	6.887	5.894	7.240	6.804	7.269	6.857	0.000	0.000

(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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	3.650	6.946	
(U) Current PBR/President's Budget	3.585	6.887	5.894
(U) Total Adjustments	-0.065	-0.059	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.059	
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer	-0.065		
(U) <u>Significant Program Changes:</u>			

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

DATE  
**February 2004**

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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total	
5012 Full Combat Mission Training	3.585	6.887	5.894	7.240	6.804	7.269	6.857	0.000	0.000	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Continue development, demonstration and insertion of multi-level security capability	0.450	1.170	1.050
(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 and Mission Essential Competencies	1.699	3.877	0.268
(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			0.817
(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			0.817
(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			0.816
(U) Continue Program office support	1.436	1.840	2.126
(U) Total Cost	3.585	6.887	5.894

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

	<u>FY 2003</u> <u>Actual</u>	<u>FY 2004</u> <u>Estimate</u>	<u>FY 2005</u> <u>Estimate</u>	<u>FY 2006</u> <u>Estimate</u>	<u>FY 2007</u> <u>Estimate</u>	<u>FY 2008</u> <u>Estimate</u>	<u>FY 2009</u> <u>Estimate</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) PE 0207701, Full Combat Mission Training, O & M, AF	81.044	102.053	133.485	141.209	138.379	140.803	144.145	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 considerations and the magnitude of the training system changes required to provide DMO capability. The pioneer systems in DMO include 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

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

DATE

**February 2004**

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**

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 2004		
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) 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</u> Prior to FY 2003 Cost	<u>FY</u> 2003 Cost	<u>FY</u> 2003 Award Date	<u>FY</u> 2004 Cost	<u>FY</u> 2004 Award Date	<u>FY</u> 2005 Cost	<u>FY</u> 2005 Award Date	<u>Cost to Complete</u>	<u>Total</u> Cost	<u>Target</u> Value of Contract
(U) <u>Product Development</u>												
- Training Systems Product Group		- Training Systems Product Group, AFMC,										
- Air Force Research Lab Human Effectiveness Directorate		Wright Patterson AFB, OH - AFRL/HEA, Mesa, AZ	12.186	1.745		5.047		1.318		Continuing	TBD	
Subtotal Product Development			12.186	1.745		5.047		1.318		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	0.000	0.000		0.000		2.450		Continuing	TBD	
Subtotal Support			0.000	0.000		0.000		2.450		Continuing	TBD	0.000
Remarks:	Study areas included in Product development in FY 04 broken out separately in FY05											
(U) <u>Test &amp; Evaluation</u>												
Subtotal Test & Evaluation			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	4.910	1.840		1.840		2.126		Continuing	TBD	
Subtotal Management			4.910	1.840		1.840		2.126		Continuing	TBD	0.000
Remarks:	Prior to FY 02 these fund were reported under PE 0604227F											
(U)												
Subtotal			0.000	0.000		0.000		0.000			0.000	0.000
Remarks:												
(U) Total Cost			17.096	3.585		6.887		5.894		Continuing	TBD	0.000

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

DATE

**February 2004**

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**

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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2004</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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) F-16 Four Ship Operations begin: Shaw AFB	2Q		
(U) F-15C 4- ship Operations begin: Elemendorf	4Q		
(U) AWACS Operations begin: Elemendorf	4Q		
(U) AWACS Operations begin: Tinker #2		1Q	
(U) F-16 2-ship operations begin (adds one device): Mt. Home #2:		3Q	
(U) F-16 4-ship operations begin: Spangdahlem		3Q	
(U) AWACS Operations begin: Tinker #3			2Q
(U) F-15C Operations begin: Kadena			3Q
(U) F-16 4-ship operations begin: Misawa			3Q
(U) AWACS Operations begin: Kadena			3Q

**UNCLASSIFIED**

PE NUMBER: 0305176F  
 PE TITLE: Combat Survivor Evader Locator

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2004</b>
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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>
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Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	13.214	14.517	0.000	0.000	0.000	0.000	0.000	0.000	113.746
4522 CSAR EMD	13.214	14.517	0.000	0.000	0.000	0.000	0.000	0.000	113.746

(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. 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 updated 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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	14.062	14.684	0.000
(U) Current PBR/President's Budget	13.214	14.517	
(U) Total Adjustments	-0.848	-0.167	
(U) Congressional Program Reductions		-0.167	
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer	-0.848		

(U) **Significant Program Changes:**

Development of Block 2 is not complete. However, no funding has been requested in the FY05 PB.

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

DATE  
**February 2004**

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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
4522	CSAR EMD	13.214	14.517	0.000	0.000	0.000	0.000	0.000	0.000	113.746
	Quantity of RDT&E Articles	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. 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 updated 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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) CSEL Engineering and Manufacturing Development	11.522	12.345	
(U) Government Test and Operational Assessment	0.906	1.142	
(U) Other Government Support	0.786	1.030	
(U) Total Cost	13.214	14.517	0.000

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
PE 35176F, Other Procurement,									
(U) Air Force - WSC 837170	5.941	7.383	13.936	24.563	26.881	26.641	26.807	79.520	211.672

(Budget Activity 3)

Note: Army and Navy procurement 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 <b>February 2004</b>		
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>				
<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>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u>	<u>Cost to</u> <u>Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
<u>(U) Product Development</u>												
Boeing	CPAF	Anaheim, CA	64.273	11.522	Apr-03	12.345	Jan-04			0.000	88.140	
SMC (COBRA)	Multiple	Multiple	4.000							0.000	4.000	
Subtotal Product Development			68.273	11.522		12.345		0.000		0.000	92.140	0.000
Remarks:												
<u>(U) Support</u>												
SPAWAR	MIPR	San Diego, CA	3.008	0.051	Jan-03	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	4.983	0.705	Nov-02	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	0.771	0.030	Sep-03					0.000	0.801	
Subtotal Support			13.342	0.786		1.030		0.000		0.000	15.158	0.000
Remarks:												
<u>(U) Test &amp; Evaluation</u>												
AFOTEC	MIPR	Kirtland AFB, NM	0.290	0.067	May-03					0.000	0.357	
746TS	MIPR	Kitrland AFB, NM	1.308							0.000	1.308	
Joint Spectrum Center	CPAF	IIT Research Institute Chicago, IL	0.412	0.102	Dec-02					0.000	0.514	
ESC (TBMCS SPO)	CPAF	Lockheed Martin Colorado Springs, CO	0.500			0.500	Mar-04			0.000	1.000	
EPG	MIPR	Ft. Huachuca, AZ	0.880	0.500	Nov-02	0.500	Nov-03			0.000	1.880	
JITC	MIPR	Multiple	0.703	0.237	Nov-02	0.142	Nov-03			0.000	1.082	
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, NM	0.030							0.000	0.030	

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Exhibit R-3, RDT&E Project Cost Analysis							DATE <b>February 2004</b>		
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			0.000			0.000	0.000	
GCCS-M	MIPR	SPAWAR		0.200			0.000	0.200	
		San Diego, CA							
PRMS	MIPR			0.000			0.000	0.000	
Subtotal Test & Evaluation				4.400	0.906	1.142	0.000	0.000	6.448 0.000
Remarks:									
(U) <u>Management</u>									0.000
Subtotal Management				0.000	0.000	0.000	0.000	0.000	0.000 0.000
Remarks:									
(U) Total Cost				86.015	13.214	14.517	0.000	0.000	113.746 0.000

Exhibit R-4, RDT&E Schedule Profile

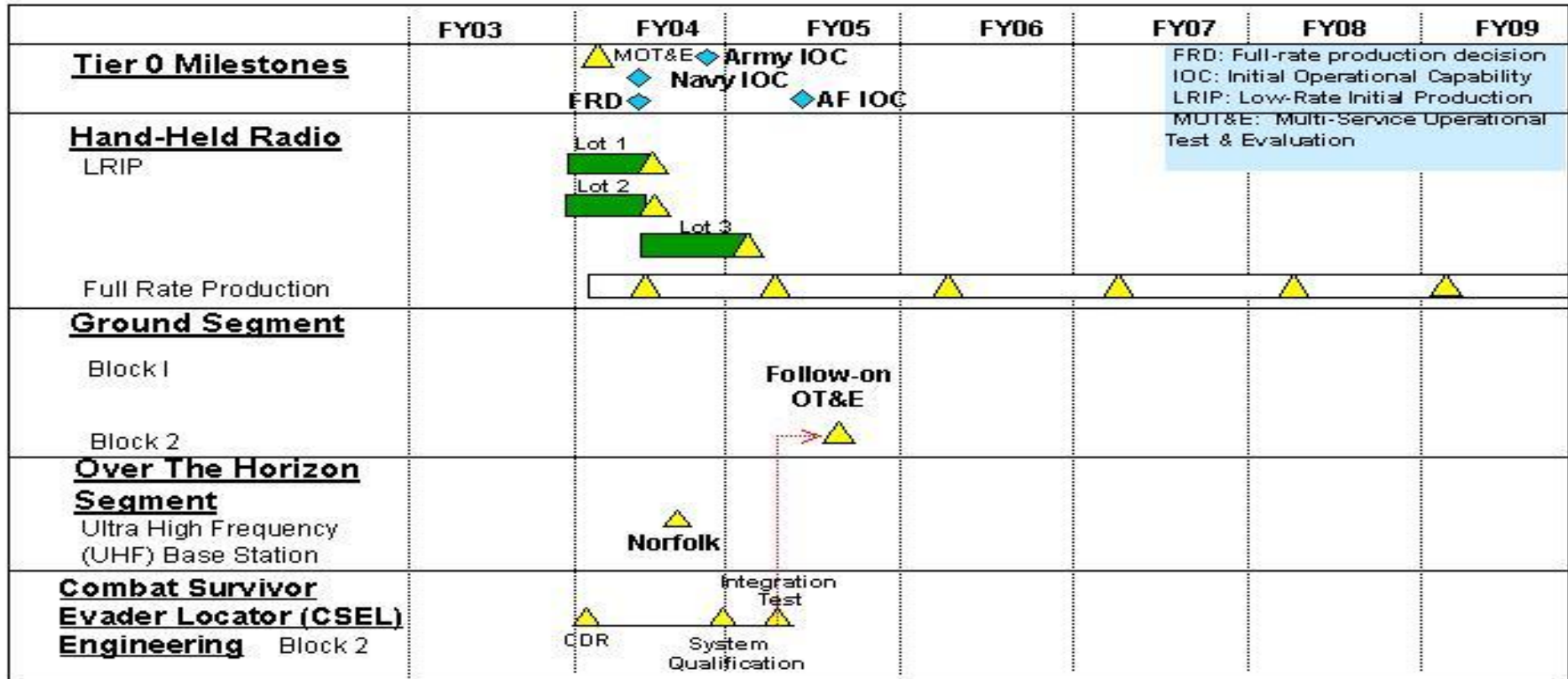
DATE

February 2004

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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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2004</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>	<b>PROJECT NUMBER AND TITLE</b> <b>4522 CSAR EMD</b>
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<b>(U) <u>Schedule Profile</u></b>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Multi-Service Operational Test & Evaluation (Block 1 system)	3-4Q	1Q	
(U) LRIP Lot 2 First Unit Delivery	2Q		
(U) LRIP Lot 3 Award	3Q		
(U) Full Rate Production Decision		2Q	
(U) LRIP Lot 3 First Unit Delivery		4Q	
(U) Full Rate Production Award		3Q	
(U) Government Developmental Testing (Block 2 system)		4Q	1Q
(U) Follow-on Operational Test & Evaluation (Block 2 system)			2-3Q

**UNCLASSIFIED**

PE NUMBER: 0401318F  
PE TITLE: CV-22

Exhibit R-2, RDT&E Budget Item Justification								DATE February 2004	
BUDGET ACTIVITY 05 System Development and Demonstration (SDD)				PE NUMBER AND TITLE 0401318F CV-22					
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	7.736	65.144	16.439	56.648	15.583	7.132	7.538	0.000	TBD
4103 CV-22	7.736	65.144	16.439	56.648	15.583	7.132	7.538	0.000	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 denied or sensitive territory, not currently provided by existing aircraft.

The CV-22 configuration, baselined on the V-22 aircraft (MV-22 configuration), adds terrain following radar, additional fuel tanks, additional radios, flare/chaff dispensers, a RF warning receiver and jammer, and infrared countermeasures (CV-22 Block 10 configuration). CV-22 production buys will begin in FY04.

This RDT&E funding is required to continue the development, test, and test support of two Production Representative Test Vehicles (PRTV). It also funds the design, integration, testing and certification of CV-22-required Global Air Navigation System/Global Air Traffic Management (GANS/GATM) components for compliance with the GANS/GATM Capstone Requirements Document. In addition, the funding is required to integrate the Navy and Air Force maintenance information systems used on the V-22.

This program is in Budget Activity 5, Engineering and Manufacturing Development. The CV-22 Program is developing the first operational tilt-rotor aircraft for use by the Special Operations Forces.

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	11.201	65.703	16.482
(U) Current PBR/President's Budget	7.736	65.144	16.439
(U) Total Adjustments	-3.465	-0.559	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.559	
Congressional Increases	0.000		
Reprogrammings	-3.141		
SBIR/STTR Transfer	-0.324		

**(U) Significant Program Changes:**

In FY03, \$3.141 was reprogrammed to higher USAF priorities.

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

DATE

**February 2004**

<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>				<b>PE NUMBER AND TITLE</b> <b>0401318F CV-22</b>			<b>PROJECT NUMBER AND TITLE</b> <b>4103 CV-22</b>		
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
4103 CV-22	7.736	65.144	16.439	56.648	15.583	7.132	7.538	0.000	TBD
Quantity of RDT&E Articles	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 denied or sensitive territory, not currently provided by existing aircraft.

The CV-22 configuration, baselined on the V-22 aircraft (MV-22 configuration), adds terrain following radar, additional fuel tanks, additional radios, flare/chaff dispensers, a RF warning receiver and jammer, and infrared countermeasures (CV-22 Block 10 configuration). CV-22 production buys will begin in FY04.

This RDT&E funding is required to continue the development, test, and test support of two Production Representative Test Vehicles (PRTV). It also funds the design, integration, testing and certification of CV-22-required Global Air Navigation System/Global Air Traffic Management (GANS/GATM) components for compliance with the GANS/GATM Capstone Requirements Document. In addition, the funding is required to integrate the Navy and Air Force maintenance information systems used on the V-22.

This program is in Budget Activity 5, Engineering and Manufacturing Development. The CV-22 Program is developing the first operational tilt-rotor aircraft for use by the Special Operations Forces.

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishment/Planned Program			
(U) Navy/Air Force maintenance information system integration	3.000	2.600	1.469
(U) Continuation of the engineering and design efforts to integrate a Traffic Collision Avoidance System (TCAS) into the CV-22	4.736		
(U) Continuation of TCAS development and GANS/GATM integration and test		21.544	7.200
(U) Complete development of two Production Representative Test Vehicles		41.000	
(U) Support for test and evaluation of Production Representative Test Vehicles.			7.770
(U) Total Cost	7.736	65.144	16.439

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

DATE

**February 2004**

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)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E									
(U) Other APPN									
(U) 3010 BP10/11/16/AP, PE 0401318F	98.125	235.013	360.317	255.794	290.616	521.563	528.583	2,362.672	4,652.683

**(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. Subsequent to the FY03 program, the sole source consortium was utilized to conduct developmental block upgrade and remedial work.

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Exhibit R-3, RDT&E Project Cost Analysis										DATE <b>February 2004</b>		
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>				
<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>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
<u>(U) Product Development</u>												
Build two production representative test vehicles - Bell Boeing	C,CPPIF		140.292			41.000	Feb-04				181.292	
TCAS development and integration - Bell Boeing	C,CPAF		3.200	4.736	Feb-03	21.544	Dec-03	7.200	Jan-05	Continuing	TBD	
GANS/GATM development -Bell Boeing	C,CPAF		0.700								0.700	
Navy/Air Force maintenance information system integration	TBD			3.000	Mar-03	2.600	Mar-04	1.469	Mar-05		7.069	
Block 20 development and integration	TBD									Continuing	TBD	
Subtotal Product Development			144.192	7.736		65.144		8.669		Continuing	TBD	0.000
Remarks:												
<u>(U) Support</u>												
Testing, technical, and logistics support - Bell Boeing	C,CPFF							6.570		Continuing	TBD	
Testing, technical, and logistic support - Rolls Royce	PO							1.200		Continuing	TBD	
Subtotal Support			0.000	0.000		0.000		7.770		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
Remarks:												
<u>(U) Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000			0.000	0.000
Remarks:												
<u>(U) Total Cost</u>			144.192	7.736		65.144		16.439		Continuing	TBD	0.000



Exhibit R-4, RDT&E Schedule Profile

DATE

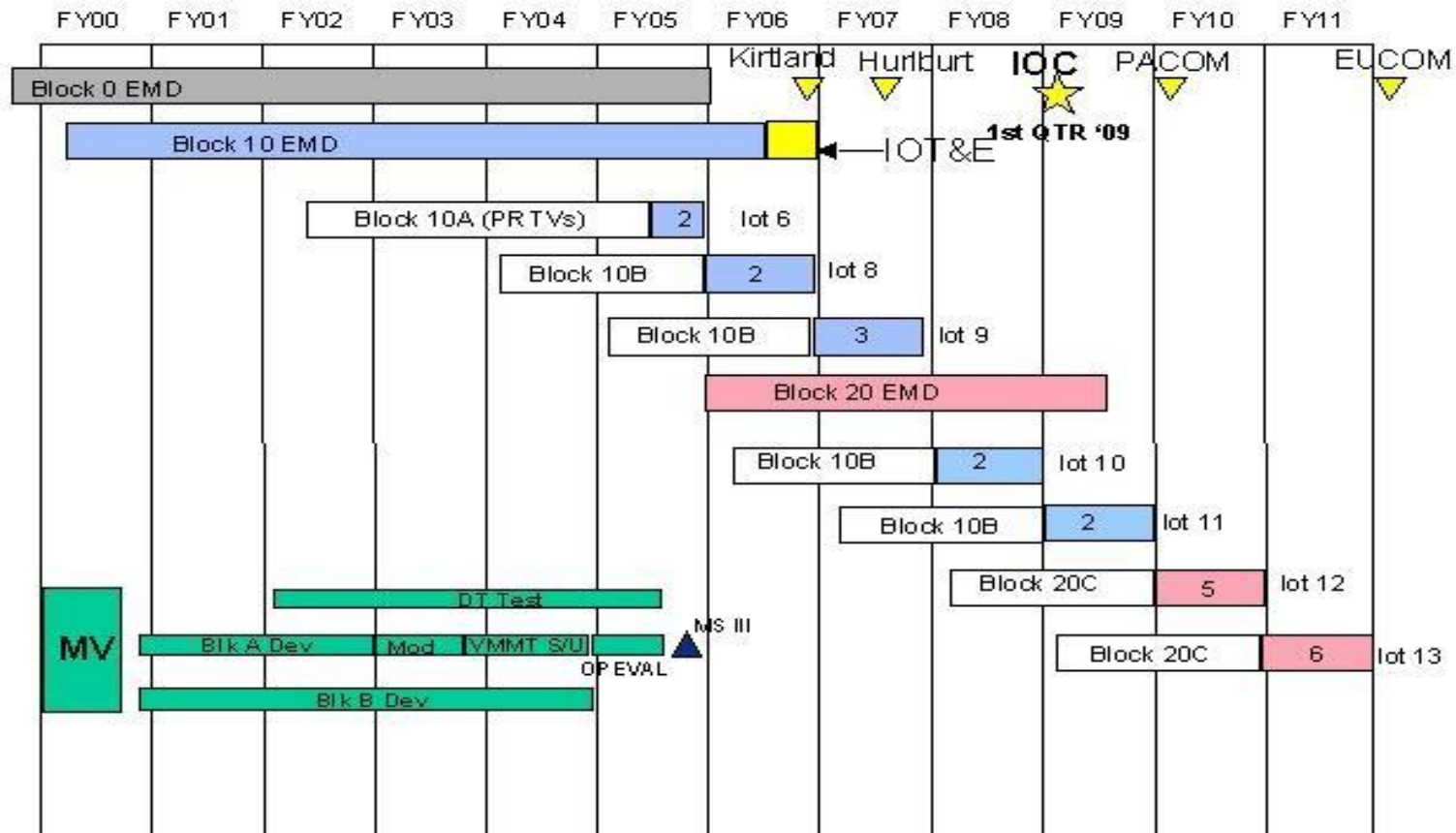
February 2004

BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE  
0401318F CV-22

PROJECT NUMBER AND TITLE  
4103 CV-22

# CV-22 Osprey Schedule



**UNCLASSIFIED**

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2004</b>
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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>
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	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <b><u>Schedule Profile</u></b>			
(U) Production Representative Test Vehicle contract		2Q	
(U) Award GANS/GATM NRE and System Integration contract	1Q		
(U) Award TCAS contract (UCA)	2Q		
(U) Definitize TCAS contract (Way Ahead)		1Q	
(U) TCAS Subcontract Award		2Q	
(U) TCAS Critical Design Review			2Q
(U) First PRTV delivery			3Q

**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 2004</b>
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<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>
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Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	20.910	37.823	33.447	9.685	2.441	2.229	5.506	0.000	146.076
4887 Global Broadcast Service (GBS)	20.910	37.823	33.447	9.685	2.441	2.229	5.506	0.000	146.076

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

Global Broadcast Service provides DoD with efficient, high data rate broadcast of information provided by many distributed information sources to dispersed warfighters who will 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. 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 Broadcast Management 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 has been rebaselined to incorporate a commercial-off-the-shelf (COTS)-based Internet Protocol (IP) architecture that will facilitate satisfaction of IOC 2 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 boards.

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

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	22.253	38.147	33.490
(U) Current PBR/President's Budget	20.910	37.823	33.447
(U) Total Adjustments	-1.343	-0.324	
(U) Congressional Program Reductions		-0.324	
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer	-1.343		
(U) <u>Significant Program Changes:</u>			
None			

Exhibit R-2a, RDT&E Project Justification

DATE  
February 2004

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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total	
4887 Global Broadcast Service (GBS)	20.910	37.823	33.447	9.685	2.441	2.229	5.506	0.000	146.076	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

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

Global Broadcast Service provides DoD with efficient, high data rate broadcast of information provided by many distributed information sources to dispersed warfighters who will 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. 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 Broadcast Management 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 has been rebaselined to incorporate a commercial-off-the-shelf (COTS)-based Internet Protocol (IP) architecture that will facilitate satisfaction of IOC 2 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 boards. 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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Continue System Development and Test	13.653	23.750	18.104
(U) Continue Phase 2 Government System Integration	3.371	10.457	11.096
(U) Continue System Test & Evaluation Support	0.980	1.342	1.116
(U) Continue Program Office and other related support activities	2.906	2.274	3.131
(U) Total Cost	20.910	37.823	33.447

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

	<u>FY 2003</u> <u>Actual</u>	<u>FY 2004</u> <u>Estimate</u>	<u>FY 2005</u> <u>Estimate</u>	<u>FY 2006</u> <u>Estimate</u>	<u>FY 2007</u> <u>Estimate</u>	<u>FY 2008</u> <u>Estimate</u>	<u>FY 2009</u> <u>Estimate</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) Other APPN									
(U) OPAF, PE 0303600F, WGS PIPs	15.142	11.776	0.000	0.000	0.000	0.000	0.000	0.000	26.918
(U) OPAF, PE 0303601F, Receive Suites/TIPs	14.801	15.898	11.662	14.682	0.423	2.600	1.570	Continuing	TBD

(U) **D. Acquisition Strategy**

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

DATE

February 2004

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)

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 <b>February 2004</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>(U) Cost Categories</u>	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to</u>	<u>Total</u>	<u>Target</u>
(Tailor to WBS, or System/Item Requirements) (\$ in Millions)			<u>Prior to FY</u>	<u>2003</u>	<u>2003</u>	<u>2004</u>	<u>2004</u>	<u>2005</u>	<u>2005</u>	<u>Complete</u>	<u>Cost</u>	<u>Value of</u>
			<u>2003</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>			<u>Contract</u>
			<u>Cost</u>		<u>Date</u>		<u>Date</u>		<u>Date</u>			
<u>(U) Product Development</u>												
Raytheon System Corp	CPAF		25.807	13.653		23.750		18.104		14.674	95.988	
Phase 2 Government System Integration	Various		2.668	3.371		10.457		11.096		2.098	29.690	
Subtotal Product Development			28.475	17.024		34.207		29.200		16.772	125.678	0.000
Remarks:												
<u>(U) Support</u>												
Program Support - Various			2.480	2.906		2.274		3.131		1.999	12.790	
Fielding - Various			1.200								1.200	
Sustainment (Vendor TBD)			0.000								0.000	
Subtotal Support			3.680	2.906		2.274		3.131		1.999	13.990	0.000
Remarks:												
<u>(U) Test &amp; Evaluation</u>												
Various System Test & Evaluation Suppor			1.880	0.980		1.342		1.116		1.090	6.408	
Subtotal Test & Evaluation			1.880	0.980		1.342		1.116		1.090	6.408	0.000
Remarks:												
<u>(U) Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Total Cost</u>												
			34.035	20.910		37.823		33.447		19.861	146.076	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

BUDGET ACTIVITY

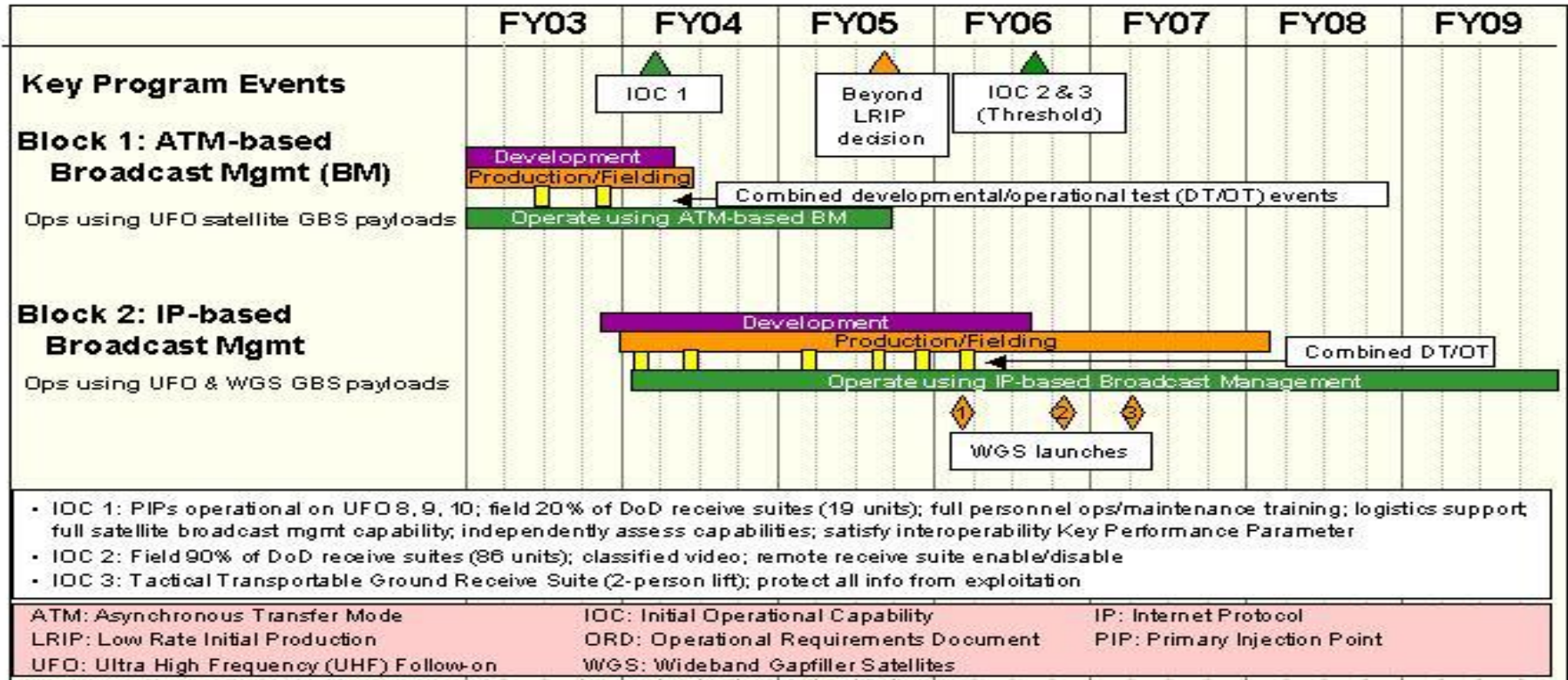
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0603840F Global Broadcast Service (GBS)

PROJECT NUMBER AND TITLE

4887 Global Broadcast Service (GBS)



- IOC 1: PIPs operational on UFO 8, 9, 10; field 20% of DoD receive suites (19 units); full personnel ops/maintenance training; logistics support; full satellite broadcast mgmt capability; independently assess capabilities; satisfy interoperability Key Performance Parameter
- IOC 2: Field 90% of DoD receive suites (86 units); classified video; remote receive suite enable/disable
- IOC 3: Tactical Transportable Ground Receive Suite (2-person lift); protect all info from exploitation

ATM: Asynchronous Transfer Mode  
 LRIP: Low Rate Initial Production  
 UFO: Ultra High Frequency (UHF) Follow-on  
 IOC: Initial Operational Capability  
 ORD: Operational Requirements Document  
 WGS: Wideband Gapfiller Satellites  
 IP: Internet Protocol  
 PIP: Primary Injection Point

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

**UNCLASSIFIED**

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>		DATE <b>February 2004</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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<b>(U) <u>Schedule Profile</u></b>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous effort performed under PE0603854F			
(U) Initial Operational Capability (IOC) 1		1Q	
(U) Beyond Low Rate Initial Production (LRIP) decision			3Q



**UNCLASSIFIED**

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 2004</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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	1.753	0.836	2.867	2.896	2.939	3.005	2.994	Continuing	TBD
4789 Joint Helmet Mounted Cueing System (JHMCS)	1.753	0.836	2.867	2.896	2.939	3.005	2.994	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. A program restructure was approved in Dec 99 to extend the EMD contract and allow for a second Low Rate Initial Production (LRIP) in FY01 with the Milestone (MS) C [full-rate production (FRP)] decision moved from Sep 00 to Aug 02. A third LRIP was added in FY02 to accelerate the fielding of helmets to meet warfighter requirements. Multi-Service Operational Test and Evaluation (MOT&E) was completed in Sep 02. The system was rated Operationally Effective, Operationally Not Suitable. Delay in completing MOT&E was due to combat configuration changes.

MS C (FRP) was again rescheduled until 2QtrFY04 to facilitate Verification of Correction of Deficiencies (VCD) identified in Operational Test (OT). DT/OT indicated tremendous potential to enhance air-to-ground capability and multi-aircraft data fusion through future software upgrades. Test resolution exploration began in Apr 02 to identify potential upgrades. LRIP 4 was approved Jul 03 in order to continue to provide the warfighter with capability, as well as, avoid a costly production break. A cost reduction analysis team was formed in 1stQtrFY04 and will continue through the remainder of the year to identify potential cost savings. Continued activities include Electronic Unit Software update, preparation for MS C, resolution of deficiencies identified during OT, a night display and tracking/cueing implementation and integration, improvements to R&M, system upgrade studies/analysis, potential issue resolution upon completion of testing/studies, and an improved magnetic mapping process to reduce the life cycle costs of deployed aircraft.

This program is in budget activity 5 - System Design and Development (SDD) because it is completing the development phase.

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

DATE

February 2004

## BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

## PE NUMBER AND TITLE

0604012F Joint Helmet Mounted Cueing System (JHMCS)

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	1.839	0.843	2.875
(U) Current PBR/President's Budget	1.753	0.836	2.867
(U) Total Adjustments	-0.086	-0.007	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.007	
Congressional Increases			
Reprogrammings	-0.030		
SBIR/STTR Transfer	-0.056		

(U) **Significant Program Changes:**

## General:

The MOT&E report stated system Operationally Effective, Operationally Not Suitable. Production readiness in support of the first production contract award will occur after MS C (FRP) approval. The MS C (FRP) decision was moved to 2ndQtrFY04 to facilitate correction of VCDs identified in OT and to explore production cost reduction initiatives. LRIP 4 was approved Jul 03 in order to continue to provide the warfighter with capabilities, as well as, avoid a costly production break.

## Schedule:

AFPEO/FB approved the program to enter LRIP 2 in May 01 and to start OT&E in Jun 01; LRIP 2 contract award Aug 01; LRIP 3 contract award Nov 02; LRIP 4 contract award Jul 03; MS C (FRP) decision in 2ndQtrFY04; First production contract award in 3rdQtrFY04.

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

DATE  
**February 2004**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>				PE NUMBER AND TITLE <b>0604012F Joint Helmet Mounted Cueing System (JHMCS)</b>			PROJECT NUMBER AND TITLE <b>4789 Joint Helmet Mounted Cueing System (JHMCS)</b>		
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
4789 Joint Helmet Mounted Cueing System (JHMCS)	1.753	0.836	2.867	2.896	2.939	3.005	2.994	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

**(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. A program restructure was approved in Dec 99 to extend the EMD contract and allow for a second Low Rate Initial Production (LRIP) in FY01 with the Milestone (MS) C [full-rate production (FRP)] decision moved from Sep 00 to Aug 02. A third LRIP was added in FY02 to accelerate the fielding of helmets to meet warfighter requirements. Multi-Service Operational Test and Evaluation (MOT&E) was completed in Sep 02. The system was rated Operationally Effective, Operationally Not Suitable. Delay in completing MOT&E was due to combat configuration changes.

MS C (FRP) was again rescheduled until 2QtrFY04 to facilitate Verification of Correction of Deficiencies (VCD) identified in Operational Test (OT). DT/OT indicated tremendous potential to enhance air-to-ground capability and multi-aircraft data fusion through future software upgrades. Test resolution exploration began in Apr 02 to identify potential upgrades. LRIP 4 was approved Jul 03 in order to continue to provide the warfighter with capability, as well as, avoid a costly production break. A cost reduction analysis team was formed in 1stQtrFY04 and will continue through the remainder of the year to identify potential cost savings. Continued activities include Electronic Unit Software update, preparation for MS C, resolution of deficiencies identified during OT, a night display and tracking/cueing implementation and integration, improvements to R&M, system upgrade studies/analysis, potential issue resolution upon completion of testing/studies, and an improved magnetic mapping process to reduce the life cycle costs of deployed aircraft.

This program is in budget activity 5 - System Design and Development (SDD) because it is completing the development phase.

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments/Planned Program	0.000	0.000	0.000
(U) Continue deficiencies resolution, reliability improvements, P3I activities, and night vision integration	1.419	0.750	1.850
(U) Continue Program Management Support, and Analysis/Studies	0.334	0.086	1.017
(U) Total Cost	1.753	0.836	2.867

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

DATE

February 2004

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) C. Other Program Funding Summary (\$ in Millions)(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 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 2004**

BUDGET ACTIVITY			PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
<b>05 System Development and Demonstration (SDD)</b>			<b>0604012F Joint Helmet Mounted Cueing System (JHMCS)</b>					<b>4789 Joint Helmet Mounted Cueing System (JHMCS)</b>				
<u>(U) Cost Categories</u>	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to</u>	<u>Total</u>	<u>Target</u>
(Tailor to WBS, or System/Item Requirements) (\$ in Millions)			<u>Prior to FY</u>	<u>2003</u>	<u>2003</u>	<u>2004</u>	<u>2004</u>	<u>2005</u>	<u>2005</u>	<u>Complete</u>	<u>Cost</u>	<u>Value of</u>
			<u>2003</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>			<u>Contract</u>
			<u>Cost</u>		<u>Date</u>		<u>Date</u>		<u>Date</u>			
<u>(U) Product Development</u>												
Boeing Company	CPAF		15.622	1.419	Nov-97	0.750		1.850		Continuing	TBD	
Subtotal Product Development			15.622	1.419		0.750		1.850		Continuing	TBD	0.000
Remarks:												
<u>(U) Support</u>												
Various	Various		0.501	0.334		0.086		1.017		Continuing	TBD	
Subtotal Support			0.501	0.334		0.086		1.017		Continuing	TBD	0.000
Remarks:												
<u>(U) Test &amp; Evaluation</u>												
Various	Various		0.588								0.000	0.588
Subtotal Test & Evaluation			0.588	0.000		0.000		0.000			0.000	0.588
Remarks:												
<u>(U) Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000			0.000	0.000
Remarks:												
<u>(U) Total Cost</u>			16.711	1.753		0.836		2.867		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

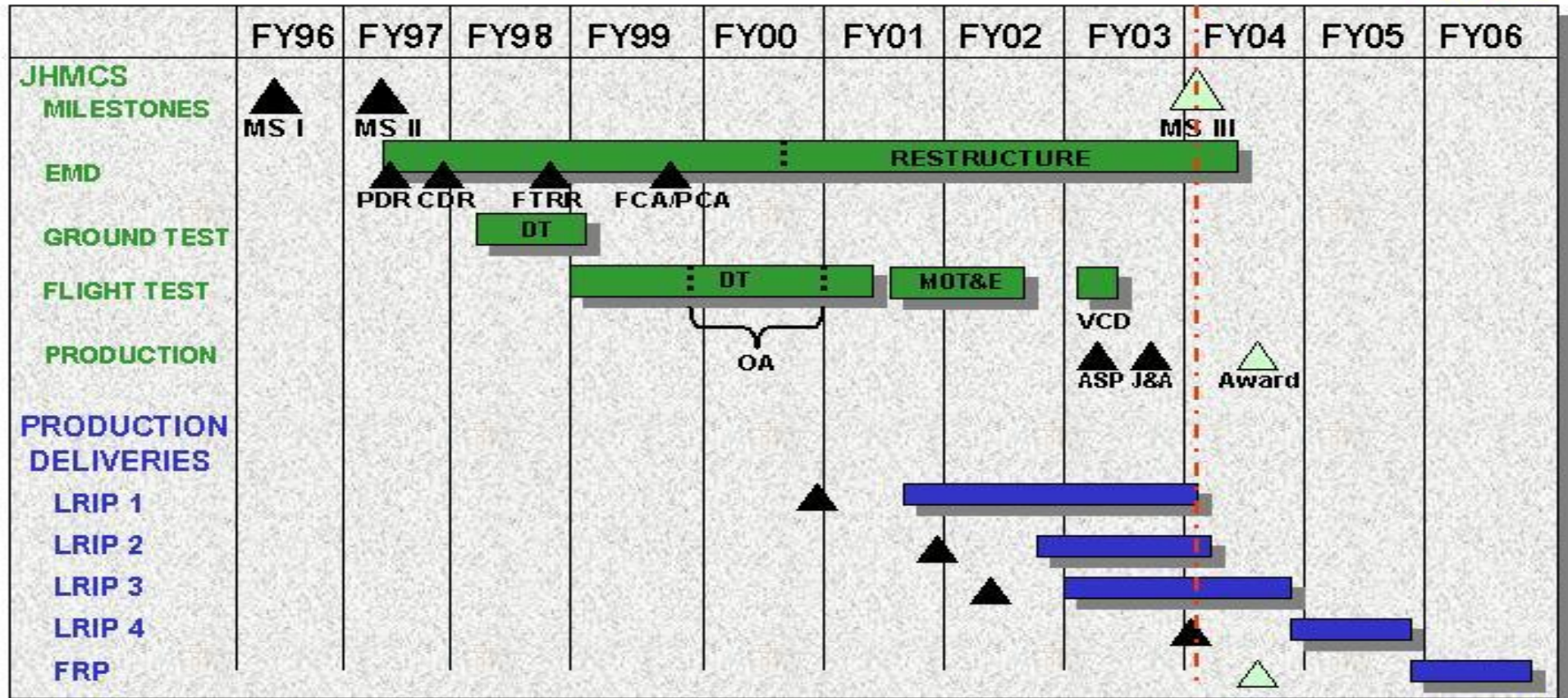
BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

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

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



# JHMCS BASELINE SCHEDULE



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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2004</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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	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
<b>(U) <u>Schedule Profile</u></b>			
(U) Full Rate Production (FRP) decision (MS C)		2Q	
(U) LRIP 4 Contract Award		2Q	
(U) Start R&M Fixes/Software Updates		2Q	
(U) Completion of Cost Reduction Analysis		2Q	
(U) FRP-1 Contract Award		3Q	
(U) Technology Insertion		3Q	
(U) Start system Upgrade Studies			1Q

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	<b>DATE</b> <b>February 2004</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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	13.091	13.244	13.301	14.150	14.807	19.949	20.355	0.000	0.000
4236 Engineering Analysis	2.099	2.056	3.129	3.656	3.983	6.717	6.841	0.000	0.000
4807 Nuclear Weapons & CP Technologies	5.312	5.635	5.719	5.899	6.071	6.168	6.264	0.000	0.000
5708 Nuclear Weapons Support	5.680	5.553	4.453	4.595	4.753	7.064	7.250	0.000	0.000

1. In FY 2004, Project 654807, Agent Defeat Weapons, was renamed Nuclear Weapons & CP [Counterproliferation] Technologies to better depict current efforts. This action did not change program content.
2. Effective in FY 2005, the Air Force Nuclear Weapons and Counterproliferation Agency (AFNWCA) funding has been consolidated in Projects 654236, Engineering Analysis, and 654807, Nuclear Weapons & CP Technologies. The Air Armament Center's Nuclear Weapons Directorate (AAC/NW) funding has been consolidated in Project 655708, Nuclear Weapons Support. This was done to improve budgeting and funds management/execution for the respective organizations. There is no change to the overall program budget, planned activities, or programmed level of effort.

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

The Air Force Nuclear Weapons and 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 accomplish independent analyses for all Air Force nuclear weapon, nuclear weapon systems (to include weapons development/sustainment, interoperability, safety/security/reliability, stockpile management/retirement); nuclear certification and nuclear certification management; counterforce/counterproliferation technology assessments and development; and counter chemical, biological, radiological, and nuclear (C-CBRN) support to the warfighter.

Specific mission tasking includes:

- Analyze and document nuclear weapons issues related to risk assessment, data collection, model development, and weapon effectiveness in support of the Joint Department of Defense (DoD)-National Nuclear Security Administration (NNSA) Surety Plan, Department of Energy (DOE) Stockpile Stewardship plan, DoD/DOE Long Range Planning Assessment, and the DoD/DOE Annual Weapon Assessment
- Support DoD and Joint DoD/DOE weapons acquisition activities for the sustainment and/or development of nuclear weapons, delivery systems, support systems, weapon storage facilities, and technical orders to include nuclear certification as required
- Identify, evaluate, and assess current and projected counterproliferation systems operating in Air Force specific and/or joint environments
- Support current operations regarding Chemical, Biological, Radiological, and Nuclear (CBRN) counterforce strikes
- Participate in the acquisition process as appropriate for those projects identified or planned for development.

Specific AF weapons and weapon systems for which these agencies provide nuclear/counterproliferation expertise and have responsibilities include:

- The B61, B83, W62/Mk12, W78/Mk12A, W87/Mk21, W80, and retired nuclear weapons in AF custody
- Nuclear weapon delivery systems to include the Minuteman III and Peacekeeper Intercontinental Ballistic Missiles (ICBMs); the Air-Launched Cruise Missile (ALCM),

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

DATE

February 2004

BUDGET ACTIVITY

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

PE NUMBER AND TITLE

**0604222F Nuclear Weapons Support**

and the Advanced Cruise Missile (ACM); and the B-52, B-2, F-15, F-16, PA 200, and Joint Strike Fighter (JSF)

--- Logistical movement aircraft to include the C-130, C-141, and C-17

--- Associated programmatic efforts for logistics/maintenance handling support, test equipment, trainers, and facilities

--- Advanced Concept Technology Demonstrations (ACTD)

Customers include:

--- Department of Defense agencies (e.g., Office of Secretary of Defense (OSD), Defense Threat Reduction Agency (DTRA), Joint Staff, and Combatant Commanders of nuclear-committed unified/specified commands such as U.S. Strategic Command (STRATCOM), European Command (EUCOM), Central Command (CENTCOM), and U.S. Forces Korea (USFK))

--- Air Force organizations/agencies (e.g., Air Staff, Major Commands (MAJCOMs), Air Force Safety Center (AFSC), Central Tactical Air Forces (CENTAF), Pacific Air Forces (PACAF), and U.S. Air Forces Europe (USAFE))

--- Department of Energy organizations/agencies to include NNSA, the national laboratories (e.g., Sandia National Laboratories (SNL), Los Alamos National Laboratory (LANL), and Lawrence Livermore National Laboratory (LLNL)), and manufacturing complexes (e.g., Pantex and Kansas City Plant)

--- North Atlantic Treaty Organization (NATO), NATO member military services (e.g., Belgium, German, and Italian Air Forces), and Supreme Headquarters Allied Powers Europe (SHAPE)

--- Central Intelligence Agency, Defense Intelligence Agency, National Reconnaissance Organization, and their military counterparts

Efforts in this program are essential to maintaining current and future safety, security, and reliability levels for weapons in the AF nuclear stockpile as well as their delivery and support systems. This program also addresses current and future AF nuclear deterrence and counterproliferation needs.

These efforts are Budget Activity 5, System Development and Demonstration, because they include system specific programs that lead to approved life extension programs for and/or modifications to AF nuclear weapons, weapon systems and support systems to ensure their continued safety, security, reliability, certification, and operational effectiveness 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 2004

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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	13.091	13.396	13.627
(U) Current PBR/President's Budget	13.091	13.244	13.301
(U) Total Adjustments	0.000	-0.152	
(U) Congressional Program Reductions		-0.152	
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			
--- FY 2004 changes reflect congressional rescissions			
--- No significant technical or schedule changes since submission of the FY 2004 President's Budget Request.			

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

DATE  
**February 2004**

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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
4236 Engineering Analysis	2.099	2.056	3.129	3.656	3.983	6.717	6.841	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

Effective in FY 2005, the Air Armament Center's Nuclear Weapons Directorate (AAC/NW) activities funded in Project 654236, Engineering Analysis, will be transferred to Project 655708, Nuclear Weapons Support, while the Air Force Nuclear Weapons and Counterproliferation Agency (AFNWCA) activities funded in Project 655708, Nuclear Weapons Support, will be moved to this project. Funding associated with these activities will also be realigned. There will be no change to the overall Program budget, planned activities, or programmed level of effort.

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

Provide scientific/engineering, logistical, operational, and programmatic/technical management expertise and analysis capability required in the critical areas of nuclear weapons development/modification, life extension, safety/surety/reliability/operational effectiveness, operations and management, testing, certification, and counterproliferation/ counterforce operations.

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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments/Planned Program			
(U) Nuclear Weapons Systems Support Activities [NOTE: Effective in FY 2005, these activities, which are performed by AAC/NW, will be moved to Project 655708, Nuclear Weapons Support]	0.385	0.593	
--- Perform independent nuclear surety analyses; analyze weapon system software and hardware; develop nuclear certification requirements plans; perform compatibility and safety certification analysis; develop and manage master certification web-based database/list			
--- Manage testing in support of nuclear and aircraft compatibility certification; manage and maintain nuclear hardness database; conduct special safety studies, nuclear weapon storage and maintenance facilities assessments, and weapons safety assessments for alterations, modifications, and limited life component replacements; and support management o maintenance and logistic activities of the weapon specific Project Officers Groups (POG)			
--- Provide technical support to and administer the various weapon system Project Officer's Groups (POG); support technical order management; perform weapon system software and hardware analysis; provide logistics analysis; revis and verify nuclear weapons loading, delivery, warhead mate and demate, and explosive ordnance disposal (EOD) technical orders; provide technical support to Department of Defense (DoD)/Department of Energy (DOE) agencies or EOD issues			
--- Provide technical expertise for continued nuclear weapons integration of Air Force (AF) nuclear weapons on US an			

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>February 2004</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>
--	---	---

non-US aircraft systems --- Provide logistical/technical expertise in support of the modification/sustainment of AF nuclear weapons and deliver systems; participate in nuclear weapon POG activities (U) Nuclear Weapons Program Activities [NOTE: Effective in FY 2005, this task will include efforts performed by AFNWCA that were previously funded in Project 655708, Nuclear Weapons Support]	1.414	1.161	2.067
--- Provide Air Force (AF) acquisition program management direction/support for modifications/alterations of nuclear weapons ----- Direct/participate in Joint DoD/DOE concept assessments, feasibility studies and option down-selects, and/or design definition and cost studies for the development or sustainment of AF nuclear weapons ----- Manage/coordinate the activities of the nuclear weapon-specific project officers groups (POG) ----- Provide technical analysis and test expertise to support life extension options for AF nuclear weapons/warheads, resolve inactive stockpile issues, use control, long term storage, and dismantlement issues --- Provide technical expertise to support development, fielding, and updates of nuclear weapon military characteristics (MC) and stockpile-to-target sequence (STS) documents; document and support all weapons safety analyses, program actions, and agreements; and conduct special studies on stockpile related matters --- Conduct development flight testing for weapon modification programs			
(U) Counterproliferation Technologies Activities [NOTE: Effective in FY 2005, this task will include efforts performed by AFNWCA that were previously funded in Project 655708, Nuclear Weapons Support]	0.300	0.302	1.062
--- Provide technical support and engineering for joint DoD/DOE feasibility studies and option down-select for candidate weapons for countering hard and deeply buried targets as well as weapons of mass destruction --- Lead the development of new analytical methodologies that support these assessments --- Support for counterproliferation operational and assessment efforts other than agent defeat weapon (ADW) efforts; develop analytical methodologies to support these assessments			
(U) Total Cost	2.099	2.056	3.129

<b>(U) C. Other Program Funding Summary (\$ in Millions)</b>		<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	

(U) Not Applicable

(U) **D. Acquisition Strategy**  
 RDT&E projects performed by AFNWCA and AAC/NW are direct funded. Other government agency efforts are funded by MIPRs as needed. Contractor-conducted efforts are accomplished via firm fixed price (FFP) or cost plus award fee (CPAF) contracts awarded as the result of open competition.

**UNCLASSIFIED**

Exhibit R-3, RDT&E Project Cost Analysis										DATE <b>February 2004</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>4236 Engineering Analysis</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</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
<u>(U) Product Development</u>												
SETA	FFP	Multiple	3.128	1.419	Jan-03	1.416	Feb-04	1.018	Dec-04	Continuing	TBD	TBD
In-House Studies/Analysis	N/A	AFNWCA (Kirtland AFB, NM)						0.919	Oct-04	Continuing	TBD	TBD
Subtotal Product Development			3.128	1.419		1.416		1.937		Continuing	TBD	TBD
Remarks:	Contracts issued annually to Orion International (Albuquerque, NM), RhinoCorp (Albuquerque, NM), TEAS IV (Albuquerque, NM), ITT Systems (Albuquerque, NM), Applied Science Labs (Albuquerque, NM), & Sverdrup (Albuquerque, NM) to provide SETA support; all contracts are less than \$1.0M each											
<u>(U) Support</u>												
A&AS	FFP	ANSER (Arlington, VA)	0.600	0.330	Jan-03	0.340	Feb-04	0.909	Jan-05	Continuing	TBD	TBD
Subtotal Support			0.600	0.330		0.340		0.909		Continuing	TBD	TBD
Remarks:												
<u>(U) Test &amp; Evaluation</u>												
Flight Test/Range Support	MIPR	Multiple	1.260	0.350	Jan-03	0.300	Mar-04	0.283	Mar-05	Continuing	TBD	TBD
Subtotal Test & Evaluation			1.260	0.350		0.300		0.283		Continuing	TBD	TBD
Remarks:	Specific AFMC and ACC test ranges/organizations selected based on test objectives; all MIPRs are less than \$1.0M each											
<u>(U) Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000			0.000	0.000
Remarks:												
<u>(U) Total Cost</u>			4.988	2.099		2.056		3.129		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE  
**February 2004**

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

PE NUMBER AND TITLE  
**0604222F Nuclear Weapons Support**

PROJECT NUMBER AND TITLE  
**4236 Engineering Analysis**

**Project 654236 - Engineering Analysis**

Activity	Fiscal Year 2003				2004				2005				2006				2007				2008				2009			
	Quarter	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4			
<b>Nuclear Weapons Systems Sustainment *</b>																												
<b>Nuclear Weapons System Data Management Activities *</b>																												
<b>Nuclear Certification Activities *</b>																												
<b>Logistics Program Management Activities *</b>																												
<b>Nuclear Gravity Bomb Surveillance/Sustainment/Modernization Activities **</b>																												
<b>ICBM Nuclear Warhead Surveillance/Sustainment/Modernization Activities **</b>																												
<b>Cruise Missile Nuclear Warhead Surveillance/Sustainment/Modernization Activities **</b>																												
<b>Annual Nuclear Weapons Assessment **</b>																												

\* - These activities are consolidated in Project 655708, Nuclear Weapons Support, beginning in FY 2005

\*\* - Includes activities consolidated from Project 655708, Nuclear Weapons Support, beginning in FY 2005

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Exhibit R-4a, RDT&E Schedule Detail		DATE February 2004		
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>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <b>Schedule Profile</b>				
(U) Nuc Wpm Mgmt Sys/Data Management Reviews		1-4Q	1-4Q	
(U) Nuclear Certification Management Reviews		1-4Q	1-4Q	
(U) Engineering Support Progress Reviews		1-4Q	1-4Q	
(U) Logistics Program Management Progress Reviews		1-4Q	1-4Q	
(U) B61 ALT 356/358/359 Activities		1-4Q	1-4Q	1-4Q
(U) ---Phase 6.2/2A Complete		2Q		
(U) ---Phase 6.3 Start/Complete		2Q	3Q	
(U) B61 System Life Extension Program (LEP)		1-4Q	1-4Q	1-4Q
(U) ---Phase 6.1 Start/Complete		4Q	4Q	
(U) ---Phase 6.2/2A Start			4Q	
(U) B61 Ground/Flight Tests		1-4Q	1-4Q	1-4Q
(U) ---Ground Tests		3Q	3Q	3Q
(U) ---Flight Tests		3-4Q	3-4Q	3-4Q
(U) W80 Life Extension Program (LEP) Start (FY01)/Complete (On-going - TBD)		1-4Q	1-4Q	1-4Q
(U) W87 Life Extension Program (LEP) Complete (On-going - TBD)		1-4Q	1-4Q	1-4Q
(U) Mk12A/Mk21 Fuze Replacement Studies/Analysis			2-4Q	1-4Q
(U) Minuteman III (MMIII) Safety Enhanced Reentry Vehicle [W87/Mk21] Program Support		3-4Q	1-4Q	1-4Q
(U) ICBM Nuclear Warhead Force Structure Study			1-4Q	1-4Q



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

DATE  
**February 2004**

<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>			
Cost (\$ in Millions)		FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
4807	Nuclear Weapons & CP Technologies	5.312	5.635	5.719	5.899	6.071	6.168	6.264	0.000	0.000
	Quantity of RDT&E Articles	0	0	0	0	0	0	0		

In FY 2004, Project 654807, Agent Defeat Weapon, was renamed Nuclear Weapons & CP [Counterproliferation] Technologies to better depict current efforts. This action did not change program content.

**(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 the Agent Defeat Weapon (ADW), Robust Nuclear Earth Penetrator (RNEP) and related efforts to prepare for entry into acquisition. Plan for and transition counterforce (i.e., ADW, RNEP) 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 (ISR); battle damage assessment (BDA); 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 new weapons and weapon modifications for existing weapons to meet new and evolving counterforce and counterproliferation mission requirements. Efforts also include the development of target planning computer programs for existing and new counterforce and/or counterproliferation weapons.

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments/Planned Program			
(U) Support acquisition of Agent Defeat Weapon (ADW) Soft/Fixed Target capability with design/development of the Surface Target Ordnance Package (STOP) hardware (H/W) including the Beta version of target defeat /collateral damage effects prediction tools	2.865		
(U) Support development of ADW Hard Target Acquisition Strategy to include: --- Joint Department of Defense (DoD)/Department of Energy (DOE) acquisition activities for such efforts as the joint DoD/DOE Phase 2/2A and/or DoD Pre-Milestone B Risk Reduction for ADW Hard Target alternative(s) --- Improving the fidelity of Simulated Environment and Response Execution Nesting Tool (SERPENT) and perform verification, validation, and assessment (VV&A) for incorporation in the USAF/DoD Joint Targeting Toolbox as the ADW target-planning tool	2.447	1.021	1.037
(U) Support development of acquisition strategies/studies of conventional and advanced alternatives for counterproliferation/counterforce technologies & capabilities (e.g., agent defeat weapon (ADW), etc) against chemical biological, radiological, and nuclear (CBRN) targets, with Department of Defense (DoD) pre-milestone B and DoD/Department of Energy (DOE) Phase 0 - 2A activities		2.648	2.690

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>February 2004</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) Support development of acquisition strategies/studies of traditional nuclear alternatives for new and/or expanded capabilities to include: --- DoD/DOE acquisition efforts include joint DoD/DOE Phase 6.1 - 6.2A activities (e.g., Robust Nuclear Earth Penetrator (RNEP), Enhanced Cruise Missile (ECM), advanced payloads, etc.) --- Studies of Counterproliferation Advanced Concept Research and Development (R&D) to support advanced conventional and nuclear capabilities. (e.g., special operations, advanced energetic materials)	1.566	1.650
(U) Provide Operational Support to the Joint Chiefs of Staff, Major Commands and Combatant Commanders for evaluating counterstrike operations against CBRN facilities (e.g., intelligence analysis and support, weapon effectiveness, collateral damage, etc.)	0.400	0.342
(U) Total Cost	5.312	5.635

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

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

(U) **D. Acquisition Strategy**

DoD pre-milestone B and DoD/DOE Phase 0-2A and 6.1-6.2A activities are using firm/fixed price contracts and MIPRs to DoD and DOE government labs for advanced analyses and development of selected and studied alternatives.

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Exhibit R-3, RDT&E Project Cost Analysis										DATE February 2004		
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				
(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</u> <u>Prior to FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
(U) <u>Product Development</u>	MIPR	Air Armament Center (Eglin AFB, FL)	1.984	2.816	Jan-03	3.067	Feb-04	2.161	Feb-05	Continuing	TBD	TBD
SETA	FFP/MIPR	Multiple	7.997	1.509	Feb-03	1.571	Feb-04	2.543	Jan-05	Continuing	TBD	TBD
Subtotal Product Development			9.981	4.325		4.638		4.704		Continuing	TBD	TBD
Remarks:	SETA contracts issued annually to ITT Systems (Albuquerque, NM), Orion International (Albuquerque, NM), & various DOE National Laboratories; all contracts less than \$1M each											
(U) <u>Support</u>												
A&AS	FFP	Multiple	1.444	0.987	Apr-03	0.997	Apr-04	1.015	Jan-05	Continuing	TBD	TBD
Subtotal Support			1.444	0.987		0.997		1.015		Continuing	TBD	TBD
Remarks:	A&AS contracts issued annually to ITT Systems (Albuquerque, NM) & Orion International (Albuquerque, NM); each contract less than \$1M											
(U) <u>Test &amp; Evaluation</u>												
TBD	TBD										0.000	TBD
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000			0.000	TBD
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000			0.000	0.000
Remarks:												
(U) Total Cost			11.425	5.312		5.635		5.719		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

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

Project 654807 - Nuclear Weapons & Counterproliferation Technologies

Activity	Fiscal Year 2003				2004				2005				2006				2007				2008				2009			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Advanced Concept Assessment Studies (Phase 6.1), Feasibility Studies/Analysis (Phase 6.2), and Option Down Select Studies/Analysis (Phase 6.2A)	█				█				█				█				█				█				█			
Agent Defeat Software Development/ Validation/Release	█				█				█				█				█				█				█			
Agent Defeat Advanced Concept Analysis of Alternatives & Risk Reduction Efforts	█				█				█				█				█				█				█			
OSD Agent Defeat Weapon Advanced Concept Technology Development (ACTD) Support	█				█				█				█				█				█				█			
Development of Stockpile Surveillance Techniques Study/Analysis	█				█				█				█				█				█				█			
Operation Iraqi Freedom (OIF) Support	█				█				█				█				█				█				█			

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Exhibit R-4a, RDT&E Schedule Detail		DATE February 2004		
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>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <b>Schedule Profile</b>				
(U) Operation Iraqi Freedom (OIF) Support		1-4Q		
(U) Complete Agent Defeat Weapon (ADW) acquisition documentation		1Q		
(U) Agent Defeat Weapon (ADW) risk reduction technology demonstrations		1-4Q		
(U) Begin support of OSD Agent Defeat Weapons (ADW) Advanced Concept Technology Development (ACTD) activities			2Q	
(U) Begin Surface Target Ordnance Package (STOP) accelerated acquisition activities		2Q		
(U) Passive Attack Weapon (PAW) QRC support				4Q
(U) Start/Complete Robust Nuclear Earth Penetrator (RNEP) Phase 6.2/6.2A study		3Q		4Q
(U) Start/Complete Enhanced Cruise Missile (ECM) Phase 6.1 Study			2-4Q	
(U) Start Enhanced Cruise Missile (ECM) Phase 6.2/6.2A Study				4Q
(U) Start/Complete Anti-Biological Chemical (ABC) Weapon Phase 1 Study			3Q	1Q
(U) Start Anti-Biological Chemical (ABC) Weapon Phase 6.2/6.2A Study				2Q
(U) Release of Empirical Lethality Model (ELM) (Ver 5) and Simulated Environment and Respon Execution Nesting Tool (SERPENT) (Beta Ver) software packages			3-4Q	
(U) Start Stockpile Surveillance Techniques Study			1Q	

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

DATE  
**February 2004**

<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>5708 Nuclear Weapons Support</b>		
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
5708 Nuclear Weapons Support	5.680	5.553	4.453	4.595	4.753	7.064	7.250	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

Effective in FY 2005, the Air Force Nuclear Weapons and Counterproliferation Agency (AFNWCA) activities funded in this Project will be transferred to Project 654236, Engineering Analysis, while the Air Armament Center's Nuclear Weapons Directorate (AAC/NW) activities funded in Project 654236, Engineering Analysis, will be transferred to this Project. Funding associated with these activities will also be realigned. There will be no change to overall Program budget, planned activities, or programmed level of effort.

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

Funds the Air Force Nuclear Weapons and Counterproliferation Agency (AFNWCA) and the Air Armament's Nuclear Weapon Directorate (AAC/NW) civilians and associated operational support at Kirtland AFB, New Mexico who provide direct technical and engineering support for all Air Force (AF) nuclear weapon systems, support systems, facilities, special procedures, and counterproliferation technical efforts. These personnel:

- Conduct 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
- Manage the AF nuclear certification process; represent Air Force Material Command (AFMC) as a voting member of and technical advisors to Nuclear Weapon System Safety Group (NWSSG)
- Administer oversight activities such as the Project Officers Group (POG) function for all AF nuclear weapon and weapon systems
- Interface with the Department of Defense (DoD), Department of Energy (DOE) to include their national laboratories, the National Nuclear Security Administration (NNSA) the Air Staff, operational commands, and AF nuclear weapon system related System Program Offices (SPOs) to accomplish weapon sustainment/life extension programs
- Provide warfighters with counter chemical, biological, radiological, and nuclear (C-CBRN) support as requested

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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments/Planned Program			
(U) Nuclear Aircraft System Support.	1.724	1.424	1.296
<ul style="list-style-type: none"> <li>--- Support the US Strategic Command's (STRATCOM) nuclear safe escape effort; update/expand nuclear hardness databases; conduct nuclear aircraft weapon system surveillance test programs; and support special safety studies</li> <li>--- Perform independent technical nuclear safety analysis for certification of the C-130J aircraft and Weapon Storage a Security System (WS3) Sustainment Modifications</li> <li>--- Support development and/or sustainment of aircraft nuclear weapon test sets and support equipment; provide nuclear surety and compatibility requirements documents for all AF nuclear capable aircraft weapon systems</li> <li>--- Manage the B-52H, F-15E, B-2A, F-16, JSF, and PA-200 Project Officers Groups (POGs); perform independent</li> </ul>			

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Exhibit R-2a, RDT&E Project Justification		DATE <b>February 2004</b>	
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>5708 Nuclear Weapons Support</b>	
engineering evaluations for nuclear safety design certification of nuclear weapon system modifications and nuclear weapon compatibility certification --- Administer technical order review and validation/verification process; update/publish general nuclear weapons technical guidance through the Joint Nuclear Weapons Publication System (JNWPS) --- Furnish specific guidance to major commands (MAJCOMs) on explosive ordnance disposal and issues affected by systems hardware/software changes --- Provide administrative/technical oversight and review of the unsatisfactory report (UR) system; perform nuclear certification oversight functions; and develop/maintain web-based master certification database/list.			
(U) Nuclear Ground-Launched Missile/Intercontinental Ballistic Missile (ICBM) Support.		1.455	1.146 1.043
--- Provide nuclear surety design criteria, standards, specifications, and related requirements documents for all Air Force (AF) ground-launched missile systems; provide nuclear surety design guidance to ICBM program office/contractors for weapon system modifications and upgrade programs; perform independent nuclear surety analyses for nuclear safety design certification of weapon system modifications --- Provide technical support for the ALCS OSR and Nuclear Weapon System Safety Group (NWSSG) Special Safety Studies; complete independent technical nuclear safety analysis for certification of the C-130J aircraft and WS3 Sustainment Modifications and provide nuclear certification support to HQ AFSC/SEW and the ICBM SPO --- Provide technical support required by NWSSG action items; support Peacekeeper Weapon System nuclear surety activities (either life extension programs or deactivation activities); participate in the ICBM Nuclear Surety Working Group, unauthorized launch studies, and special security working groups --- Perform nuclear certification oversight functions; and develop/maintain web-based master certification database/list.			
(U) Nuclear Weapons/Systems Assessments. [NOTE: Activities accomplished by AFNWCA under this task will be transferred to Project 654236, Engineering Analysis, beginning in FY 2005]		0.480	1.201 1.093
--- Continue application of joint Department of Defense (DoD)/Department of Energy (DOE) nuclear surety assessment methodology to abnormal nuclear environment analyses --- Conduct safety assessment of warhead maintenance operation in AF facilities --- Participate in and provide technical support to the AFMC voting member Nuclear Weapons Depot Maintenance and Storage Operations NWSSG Special Safety Studies --- Conduct fault tree analyses of nuclear weapons and weapon systems; evaluate safety implications of modifications at AF storage and maintenance facilities; and provide other assessments as required --- Provide nuclear surety support for all support equipment, facilities and special procedures --- Develop and manage nuclear facility design criteria --- Participate as a technical member of the nuclear facility working group			
(U) Nuclear Weapons Program Support. [NOTE: Activities accomplished by AFNWCA under this task will be transferred to Project 654236, Engineering Analysis, beginning in FY 2005]		1.423	1.122 1.021
--- Accomplish nuclear weapon safety, reliability, mission analysis and compatibility studies; support AF nuclear			

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<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>February 2004</b>
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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>
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weapon stockpile activities, weapon use control analyses, and environmental studies --- Develop, plan, analyze, schedule and execute nuclear weapon life extension programs for B61, B83, W80 and Intercontinental Ballistic Missile (ICBM) warheads; and continue support to AF, DoD and other agencies in all facets of the nuclear arsenal --- Provide lead for integrating activities by all DoD/DOE agencies having responsibilities involving any AF specific nuclear weapon --- Support the development and execution of ground and flight tests required to meet surety, reliability, and/or modification verification/validation for nuclear weapons in the AF stockpile --- Perform advanced weapon and weapon system studies/analysis as required									
(U) Counterproliferation Assessments. [NOTE: This activity transferred to Project 654236, Engineering Analysis, beginning in FY 2005] --- Provide technical guidance, analysis and support for the agent defeat weapon (ADW) acquisition efforts --- Provide counterproliferation-related analyses, expertise and program guidance in the evaluation of nuclear, conventional and advanced weapon technologies to include joint DoD/DOE Acquisition Phase 6.2/6.2A efforts for the Robust Nuclear Earth Penetrator (RNEP)									
(U) Total Cost									
(U) <b><u>C. Other Program Funding Summary (\$ in Millions)</u></b>									
	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	<u>Total Cost</u>
(U) Not Applicable									
(U) <b><u>D. Acquisition Strategy</u></b> RDT&E projects performed by AFNWCA and AAC/NW are direct funded. Contractor conducted efforts are accomplished via firm fixed price and/or cost plus contracts awarded as a result of open competition.									



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Exhibit R-3, RDT&E Project Cost Analysis										DATE February 2004		
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</u> <u>Prior to FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
(U) <u>Product Development</u>												
In-house Studies/Analysis and other Government Activities	N/A	Air Armament Center/Nuclear Weapons Directorate (Kirtland AFB, NM)	13.839	3.205	Oct-02	3.102	Oct-03	4.093	Oct-04	Continuing	TBD	TBD
In-house Studies/Analysis and other Government Activities	N/A	Air Force Nuclear Weapons and Counterproliferation Agency (Kirtland AFB, NM)	8.035	2.135	Oct-02	2.101	Oct-03	0.000		0.000	12.271	12.271
Subtotal Product Development			21.874	5.340		5.203		4.093		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u>												
A&AS	FFP	GTE Government Service Corp (Albuquerque, NM)	0.745	0.340	Jan-03	0.350	Jan-04	0.360	Jan-05	Continuing	TBD	TBD
Subtotal Support			0.745	0.340		0.350		0.360		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
Remarks:												
(U) <u>Management</u>												
None											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			22.619	5.680		5.553		4.453		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604222F Nuclear Weapons Support

PROJECT NUMBER AND TITLE

5708 Nuclear Weapons Support

Project 655708 - Nuclear Weapons Support

Activity	Fiscal Year	2003				2004				2005				2006				2007				2008				2009			
	Quarter	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Nuclear Weapons Systems Sustainment *																													
Nuclear Weapons System Data Management Activities *																													
Nuclear Certification Activities *																													
Logistics Program Management Activities *																													
Tech Order Development/Management																													
Special Studies/Analysis																													
Nuclear Gravity Bomb Surveillance/Sustainment/Modernization Activities **																													
ICBM Nuclear Warhead Surveillance/Sustainment/Modernization Activities **																													
Cruise Missile Nuclear Warhead Surveillance/Sustainment/Modernization Activities **																													
Annual Nuclear Weapons Assessment **																													

\* - Includes activities consolidated from Project 654236, Engineering Analysis, beginning in FY 2005

\*\* - Some activities are consolidated in Project 654236, Engineering Analysis, beginning in FY 2005

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Exhibit R-4a, RDT&E Schedule Detail		DATE	
		February 2004	
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>5708 Nuclear Weapons Support</b>	
	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <b>Schedule Profile</b>			
(U) B61 ALT Efforts	1-4Q	1-4Q	1-4Q
(U) ---B61 ALT 357 Phase 6.3 Start/Complete	1Q	1Q	
(U) ---B61 ALT 356/358/359 Phase 6.2/2A Complete	2Q		
(U) ---B61 ALT 356/358/359 Phase 6.3 Start/Complete	2Q		3Q
(U) B61 Life Extension Program (LEP)	1-4Q	1-4Q	1-4Q
(U) ---B61 LEP Phase 6.1 Start/Complete	3Q	4Q	
(U) ---B61 LEP Phase 6.2/2A Start		2Q	
(U) W80 Life Extension Program (LEP) Start (FY01)/Complete (On-going - TBD)	1-4Q	1-4Q	1-4Q
(U) W87 Life Extension Program (LEP) Complete (On-going - TBD)	1-4Q	1-4Q	1-4Q
(U) Minuteman III (MMIII) Safety Enhanced Reentry Vehicle [W87/Mk21] Support	3-4Q	1-4Q	1-4Q
(U) Mk12A/Mk21 Fuze Replacement Study		1-4Q	1-4Q
(U) RNEP Phase 6.2 Study Start	3Q		
(U) Enhanced Cruise Missile Warhead Phase 6.1 Approval		1Q	
(U) Annual Weapon Assessment	1-4Q	1-4Q	1-4Q
(U) Nuclear Weapons System Safety Group Meetings	1-4Q	1-4Q	1-4Q
(U) Nuclear Certification Activities	1-4Q	1-4Q	1-4Q
(U) Compatibility Certification	1-4Q	1-4Q	1-4Q
(U) Independent Analysis (TNSA, SSS)	1-4Q	1-4Q	1-4Q
(U) Tech Order Development/Management	1-4Q	1-4Q	1-4Q
(U) ICBM Warhead Force Structure Study		1-4Q	1-4Q
(U) Weapons Storage & Maintenance Safety Evaluations	1-4Q	1-4Q	1-4Q
(U) AFMC MUNS Consolidation Study	2-3Q	1Q	

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2004</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>
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Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	150.427	87.933	59.462	107.061	74.751	56.518	44.737	Continuing	TBD
4596 Conventional Mission Upgrades	150.427	87.933	59.462	107.061	74.751	56.518	44.737	Continuing	TBD

**(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 on-board maintenance diagnostics system and 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. Development of enhancements to the ALE-50 decoy is also funded to address new threats. The Defensive System Upgrade Program (DSUP) has been terminated; FY03 funds will be applied to DSUP termination.

(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 2004

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604226F B-1B

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	157.173	88.703	76.918
(U) Current PBR/President's Budget	150.427	87.933	59.462
(U) Total Adjustments	-6.746	-0.770	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.770	
Congressional Increases			
Reprogrammings	-3.370		
SBIR/STTR Transfer	-3.376		

(U) **Significant Program Changes:**

FY03 funds to be used for termination of DSUP project. Congress notified of DSUP termination 30 Dec '02.

FY05 realigned to match rephasing of B-1 development. Computer upgrade; WCMD; JSOW/JASSM ending with new development efforts (On-board diagnostics system upgrade in FY05; and other efforts) beginning later in the FYDP.

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

DATE

February 2004

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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total	
4596 Conventional Mission Upgrades	150.427	87.933	59.462	107.061	74.751	56.518	44.737	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

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

This program provides 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 on-board maintenance diagnostics system and 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. Development of enhancements to the ALE-50 decoy is also funded to address new threats. The Defensive System Upgrade Program (DSUP) has been terminated; FY03 funds will be applied to DSUP termination.

(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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishment/Planned Program	0.000	0.000	0.000
(U) Continued Conventional Mission Upgrade Program (CMUP) contractual efforts	107.669	60.906	52.167
(U) Government Furnished Equipment (GFE)	0.000	0.000	0.000
(U) Government Flight Test, Live Fire Test & Evaluation and General Test Support	37.195	21.425	2.940
(U) Continuing Mission Support	4.278	4.352	4.064
(U) Modeling & Simulation / Studies & Analyses	1.285	1.250	0.291
(U) Total Cost	150.427	87.933	59.462

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

DATE

February 2004

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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Appn 10, PE 0101126F, B-1B, Aircraft Procurement BP11, Mods	101.445	102.953	8.825	31.267	53.430	82.533	27.860	777.830	1,186.143
(U) Appn 10, PE 0101126F, B-1B, Aircraft Procurement BP16, Initial Spares	7.815	5.839	1.486	3.458	6.549	13.098	1.266	61.866	101.377
(U) Appn 10, PE 0101126F, B-1B, Aircraft Procurement BP12, Common Support Equipment	18.703	26.519	4.969	4.929	4.954	5.297	5.242	0.000	70.613
(U) Appn 10, PE 0101126F, B-1B, Aircraft Procurement BP13, Post Production Charges	1.909	8.385	11.733	13.218	9.951	0.000	0.000	10.000	55.196
(U) Appn 10, PE 0207446F, Bomber TDL Core BP11	0.000	0.000	0.000	0.000	21.754	12.520	12.906	84.325	131.505
(U) Appn 36, PE 0207446F, Bomber TDL Core	0.000	12.959	68.353	77.876	31.841	0.000	0.000	0.000	191.029
Related RDT&E:									
(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) 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 2004		
BUDGET ACTIVITY 05 System Development and Demonstration (SDD)					PE NUMBER AND TITLE 0604226F B-1B					PROJECT NUMBER AND TITLE 4596 Conventional Mission Upgrades		
(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</u> <u>Prior to FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u>	<u>Cost to</u> <u>Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
(U) <u>Product Development</u>												
(U) DSUP*											0.000	
(U) TBC	SS/CPAF		31.918								31.918	
(U) TBC	SS/CPAF		209.994	49.953	Sep-04						259.947	
* 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		51.299	5.771	Dec-04	1.722	Apr-04				58.792	
(U) Training Systems											0.000	
(U) Lockheed-Martin	C/CPAF		13.284								13.284	
(U) INLX	C/CPAF		21.139	6.022	Mar-04	7.588	Jan-05	1.834	Jan-06	6.645	43.228	
(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		72.223								72.223	
(U) TBD - INS/GSS	TBD									56.466	56.466	
(U) TBD - RADAR Improvements	TBD									68.762	68.762	
(U) AIL - ALQ-161 R&M/DMS	SS/CPFF			9.608	Sep-03	22.372	Feb-04	16.773	Feb-05	40.315	89.068	
(U) ATU Modification	TBD							6.035	Feb-05	1.913	7.948	
(U) Raytheon - ALE-50 Upgrade	TBD					3.624	Aug-04				3.624	
(U) TBC - TSAS/AVTR Improvements	SS/CPFF			11.004	Apr-04	6.954	May-04				17.958	
(U) TBD - VSD Improvements	TBD									25.948	25.948	
(U) TBD - CITS/R&M/DMS	TBD							6.732	Apr-05	22.265	28.997	
(U) TBC -FIDL	SS/CPFF					1.116	May-04	20.793	Feb-05	50.584	72.493	
(U) TBC- JDAM/ GPS SDD	SS/CPAF		272.404			0.781	Feb-04			18.040	291.225	
(U) TBC-ACBM	SS/CPAF		1.900								1.900	
(U) TBC-Wing Sweep	SS/T&M		1.089								1.089	

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Exhibit R-3, RDT&E Project Cost Analysis							DATE <b>February 2004</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)	TBC- Computer	SS/CPAF	172.075	0.577	Nov-02				172.652		
(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	17.983	24.734	Aug-04	16.749	Aug-04		59.466		
(U)	Lockheed- Martin - JASSM	SS/T&M	9.499						9.499		
(U)	Raytheon -JSOW	SS/T&M	2.510						2.510		
(U)	TBD - Future CMUP Related SDD	TBD						Continuing	TBD		
	Subtotal Product Development		951.855	107.669		60.906		52.167	Continuing	TBD	0.000
	Remarks:										
(U)	<u>Support</u>										
(U)	A&AS	Various	28.790	4.278	Sep-03	4.352	Jun-04	4.064	Jun-04	21.725	63.209
(U)	Studies & Analyses / Modeling & Sim	Various	24.689	1.285	Dec-03	1.250	Dec-04	0.291	Dec-05	6.000	33.515
(U)	Program Mgmt & Admin	Various	32.124							32.124	
	Subtotal Support		85.603	5.563		5.602		4.355		27.725	128.848
	Remarks:										
(U)	<u>Test &amp; Evaluation</u>										
(U)	Modernization/DataLinks										0.000
(U)	AFFTC	P.O.								74.348	74.348
(U)	DSUP*										0.000
	* FY03 funds to be applied to DSUP termination										0.000
(U)	AFFTC	P.O.	17.761	10.993	Dec-03						28.754
(U)	Weapons										0.000
(U)	AFFTC	P.O.	87.985	26.202	Dec-03	21.425	Dec-04	2.940	Jul-05	24.058	162.610
	Subtotal Test & Evaluation		105.746	37.195		21.425		2.940		98.406	265.712
	Remarks:										
(U)	<u>Management</u>										0.000
	Subtotal Management		0.000	0.000		0.000		0.000		0.000	0.000
	Remarks:										
(U)	Total Cost		1,143.204	150.427		87.933		59.462		Continuing	TBD
											0.000

Exhibit R-4, RDT&E Schedule Profile

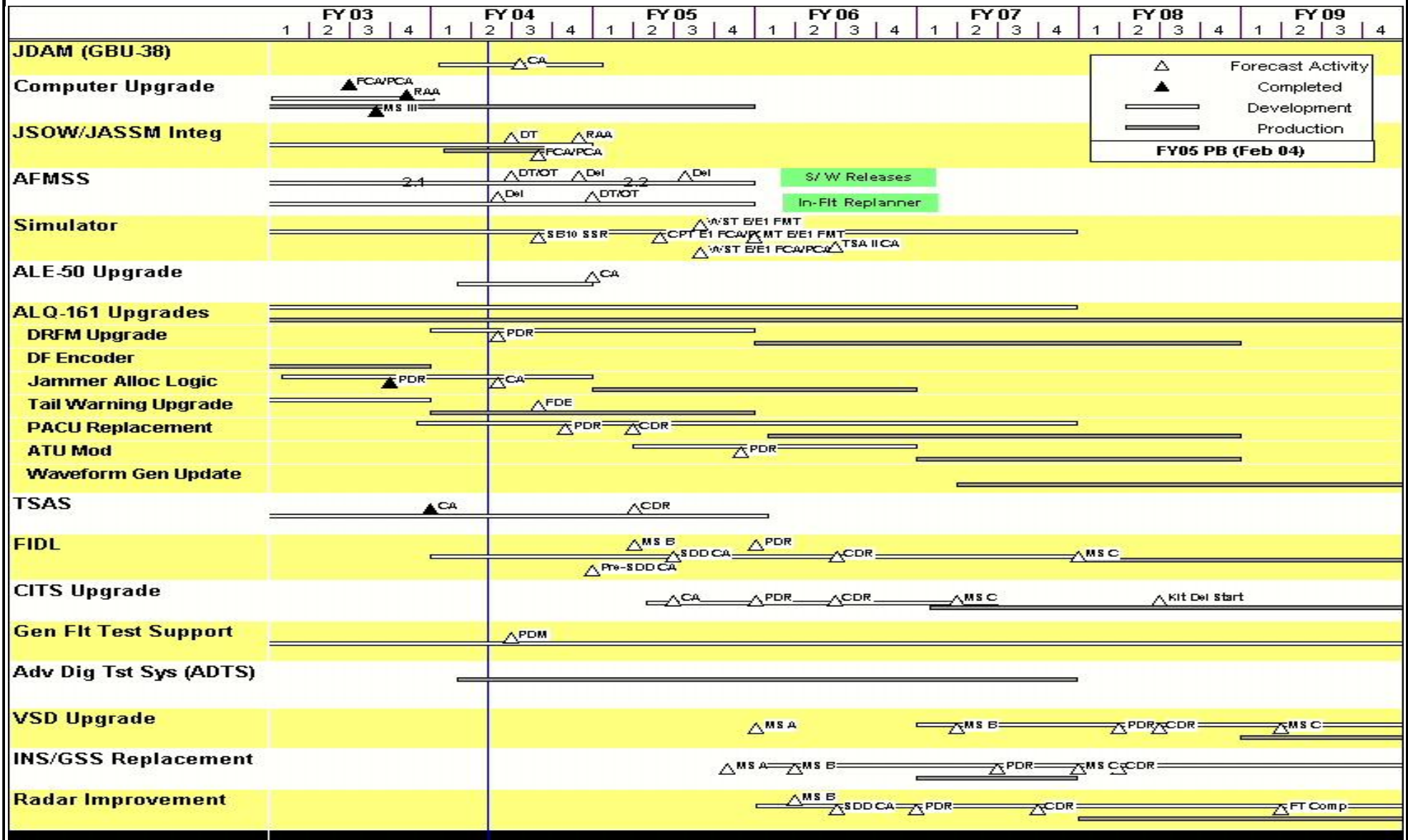
DATE

February 2004

BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE  
0604226F B-1B

PROJECT NUMBER AND TITLE  
4596 Conventional Mission Upgrades



△ Forecast Activity  
 ▲ Completed  
 — Development  
 = Production  
**FY05 PB (Feb 04)**

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Exhibit R-4a, RDT&E Schedule Detail		DATE <b>February 2004</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>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <b>Schedule Profile</b>				
(U) DEFENSIVE SYSTEM UPGRADE PROGRAM;- Program in Termination		1Q		
(U) Avionics Computers/WCMD -- Computer/WCMD System FCA/PCA		1Q		
(U) Avionics Computers/WCMD-- (T&E) Complete Computer/WCMD OT&E		1Q		
(U) Avionics Computers/WCMD-- Computer - Installation Blk E Kit on A/C 075 (Test A/C)		3Q		
(U) Avionics Computers/WCMD-- Computer - Ejector Rack (14") Testing		3Q		
(U) Avionics Computers/WCMD-- Complete Computer/WCMD Milestone III		3Q		
(U) JSOW/JASSM Integration-- FCA/PCA			3Q	
(U) JSOW/JASSM Integration -- Software Fielding Decision			3Q	
(U) JSOW/JASSM Integration (T&E)-- DT/OT Complete			2Q	
(U) JSOW/JASSM Integration (T&E)-- FDE Complete			3Q	
(U) JSOW/JASSM Integration-- RAA			4Q	
(U) JSOW/JASSM Integration-- EOC			4Q	
(U) JSOW/JASSM Integration-- Award Fee Period #13			4Q	
(U) JSOW/JASSM Integration-- Delivery Order 007 Complete			4Q	
(U) JSOW/JASSM Integration-- Contract -2075 CLIN 16 Closeout			4Q	
(U) Mission Planning System-- S/W Release 2.02 Delivery		2Q		
(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-- Award Fee Period 10				1Q
(U) Mission Planning System (T&E)-- S/W Release 2.10 DT/OT			2Q	
(U) Mission Planning System (T&E)-- IFR DT/OT			4Q	
(U) Mission Planning System (T&E)-- S/W Release 2.20 DT/OT				1Q
(U) Trainer/Simulator System-- WST Rehost FCA/PCA			3Q	
(U) Trainer/Simulator System-- SB-10 SSR			3Q	
(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			3Q	
(U) Trainer/Simulator System (T&E) -- CPT E1 Kit-Proof FMT				2Q
(U) Trainer/Simulator System (T&E) -- WST Blk E/E1 Kit-Proof FMT				3Q
(U) Trainer/Simulator System (T&E) -- Mission Trainer Blk E/E1 Kit-Proof FMT				4Q
(U) Trainer/Simulator System (Contract) -- Award Fee (FY03)			2Q	

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Exhibit R-4a, RDT&E Schedule Detail		DATE <b>February 2004</b>
BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0604226F B-1B</b>	PROJECT NUMBER AND TITLE <b>4596 Conventional Mission Upgrades</b>
(U) Trainer/Simulator System (Contract) -- Award Fee (FY04)		2Q
(U) ALE-50 Upgrade Program-- Contract Award		4Q
(U) ALQ-161A Digital Radio Frequency Memory (DRFM)-- PDR		2Q
(U) ALQ-161A Digital Radio Frequency Memory (DRFM)-- CDR		3Q
(U) ALQ-161A Digital Radio Frequency Memory (DRFM)-- Lab Testing		2Q
(U) ALQ-161A Digital Radio Frequency Memory (DRFM)-- QT&E/FDE		4Q
(U) ALQ-161A Digital Radio Frequency Memory (DRFM)-- EMD Phase II		2Q
(U) ALQ-161A Digital Radio Frequency Memory (DRFM)-- EMD Test/Support		2Q
(U) ALQ-161A Jammer Allocation Logic Sys (JALS)-- Lab Testing		4Q
(U) ALQ-161A Jammer Allocation Logic Sys (JALS)-- QT&E/FDE		1Q
(U) ALQ-161A Jammer Allocation Logic Sys (JALS)-- EMD Phase II		2Q
(U) ALQ-161A Tail Warning Function (TWF)-- QT&E/FDE		3Q
(U) ALQ-161A Preprocessor Avionics Control Unit (PACU)-- PDR/CDR		3Q
(U) ALQ-161A Preprocessor Avionics Control Unit (PACU)-- Lab Testing		4Q
(U) ALQ-161A Preprocessor Avionics Control Unit (PACU)-- HDWE/SW EMD Phase I		2Q
(U) ALQ-161A Preprocessor Avionics Control Unit (PACU)-- HDWE/SW EMD Phase II		2Q
(U) ALQ-161A Advanced Tracker Unit (ATU)-- PDR		4Q
(U) ALQ-161A Advanced Tracker Unit (ATU)-- EMD Phase I		2Q
(U) Threat Situational Awareness System (TSAS)-- PDR		3Q
(U) Threat Situational Awareness System (TSAS)-- CDR		1Q
(U) Threat Situational Awareness System (TSAS)-- Lab Testing		1Q
(U) Threat Situational Awareness System (TSAS)-- TSAS Spiral I		2Q
(U) Threat Situational Awareness System (TSAS)-- Contract Award	4Q	
(U) Threat Situational Awareness System (TSAS)-- Undef Contractual Action Definitization		3Q
(U) Fully Integrated Data Link (FIDL)-- PDR		3Q
(U) Fully Integrated Data Link (FIDL)-- FIDL Milestone B		1Q
(U) Fully Integrated Data Link (FIDL)-- FIDL Pre-SDD Complete		2Q
(U) Fully Integrated Data Link (FIDL)-- FIDL Pre-SDD Contract Award		3Q
(U) Fully Integrated Data Link (FIDL)-- FIDL SDD Contract Award		2Q
(U) Central Integrated Test System (CITS)-- PDR		4Q
(U) Central Integrated Test System (CITS)-- Proposal Receipt		1Q
(U) Central Integrated Test System (CITS)-- Milestone II Contract Award		2Q

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

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2004</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>
--	--

Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	1.772	3.239	3.359	8.548	3.629	3.701	3.773	Continuing	TBD
4102 Joint Primary Aircraft Training System (JPATS)	1.772	1.881	1.943	7.103	2.142	2.174	2.205	Continuing	TBD
4376 T-38 Avionics Upgrade Program (AUP)	0.000	1.358	1.416	1.445	1.487	1.527	1.568	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. 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 FY02 and FY04 - FY09 funding is for software block updates driven by FAA-mandated changes, National Aerospace System (NAS) requirements, and enhancements identified during test and evaluation.

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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	1.867	3.267	3.368
(U) Current PBR/President's Budget	1.772	3.239	3.359
(U) Total Adjustments	-0.095	-0.028	
(U) Congressional Program Reductions	-0.021	-0.028	
Congressional Rescissions			
Congressional Increases			
Reprogrammings	-0.020		
SBIR/STTR Transfer	-0.054		

**(U) Significant Program Changes:**

No significant changes since FY2004 President's Budget submission.

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

DATE  
**February 2004**

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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
4102 Joint Primary Aircraft Training System (JPATS)	1.772	1.881	1.943	7.103	2.142	2.174	2.205	Continuing	TBD
Quantity of RDT&E Articles	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.

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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Studies & development efforts.	1.772	1.881	1.943
(U) Total Cost	1.772	1.881	1.943

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to Complete</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>		
(U) AF RDT&E	1.772	1.881	1.943	7.103	2.142	2.174	2.205	Continuing	TBD
(U) Other APPN									
(U) Aircraft Procurement, Air Force, BA-3									
(U) JPATS	204.689	275.987	307.072	327.270	293.262	204.745	3.144	6.400	2,421.991
(U) JPATS, BA-6	39.933	6.925	7.707	0.257	7.405	30.516	0.000	0.000	92.743
(U) JPATS Mod Funding		4.201	3.850	4.709	5.747	13.402	11.739	26.320	69.968
(U) Military Construction, Air Force									
(U) PE 0804741F, JPATS	6.000	0.000	2.200	2.000	0.000	0.000	0.000	0.000	19.050
(U) RDT&E, Navy, BA-7									
(U) PE 0603208N, Training System Aircraft, H1150, JPATS	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	11.300



<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>February 2004</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) Aircraft Procurement, Navy, BA-3										
(U) JPATS	27.570	21.736	2.534	0.956	147.684	295.627	301.665	1,192.200	2,160.094	
(U) APN 5 Mod Funding		0.530	0.648	0.714	1.640	1.305	1.490	24.700	31.027	
(U) APN 6 Spares	1.914	0.000	0.000	0.000	3.956	7.921	0.000	46.651	69.975	
(U) Military Construction, Navy	2.000	0.000	11.000	13.900	0.000	6.200	0.000	0.000	46.900	

(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).

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Exhibit R-3, RDT&E Project Cost Analysis										DATE <b>February 2004</b>		
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>		
<u>(U) Cost Categories</u>	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to</u>	<u>Total</u>	<u>Target</u>
(Tailor to WBS, or System/Item Requirements) (\$ in Millions)			<u>Prior to FY</u> <u>2003</u> <u>Cost</u>	<u>2003</u> <u>Cost</u>	<u>2003</u> <u>Award</u>	<u>2004</u> <u>Cost</u>	<u>2004</u> <u>Award</u>	<u>2005</u> <u>Cost</u>	<u>2005</u> <u>Award</u>	<u>Complete</u>	<u>Cost</u>	<u>Value of</u> <u>Contract</u>
			<u>Cost</u>		<u>Date</u>		<u>Date</u>		<u>Date</u>			
<u>(U) Product Development</u>												
Raytheon Aircraft Company (RAC) */****C/FPI		RAC, Wichita KS	214.129	1.772	Jan-03	1.881	Apr-04	1.943	Oct-04	Continuing	TBD	TBD
Subtotal Product Development			214.129	1.772		1.881		1.943		Continuing	TBD	TBD
* RAC contract Total Program includes contract value, 'to ceiling,' Engineering Change Order (ECO), and Production Incentive												
Remarks: 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							Continuing	TBD	
Subtotal Support			44.210	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>(U) Total Cost</u>			258.339	1.772		1.881		1.943		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

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	'03				'04				'05				'06				'07				'08				'09			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
1	System-Level Multi-Service OT&E	■																											
2	Durability & Damage Tolerance Testing	■																											
3	RM&A Verification							■																					
4	Follow-on OT&E					■	■	■	■	■	■	■	■																

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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2004</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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<b>(U) <u>Schedule Profile</u></b>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Complete System-level Multi-Service OT&E	2Q		
(U) Durability & Damage Tolerance Testing Complete	2Q		
(U) Begin FOT&E		1Q	
(U) Begin RM & A Verification		2Q	
(U) Complete RM & A Verification		3Q	
(U) Complete FOT&E			1Q

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

DATE  
**February 2004**

<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>		
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
4376 T-38 Avionics Upgrade Program (AUP)	0.000	1.358	1.416	1.445	1.487	1.527	1.568	Continuing	TBD
Quantity of RDT&E Articles	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 two 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. Additionally, funds were included in FY00 and FY01 for Phase I testing of engine operability/suitability for the T-38 Propulsion Modernization Program (PMP) and to update T-38 flight performance models, Technical Orders, and AUP software for changes brought about by the T-38 PMP. FY02 and FY04 - FY09 funding is 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.

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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) No Activity as a result of no FY03 Funding	0.000	0.000	0.000
(U) Develop and test Block 4 T-38C AUP aircraft and ATD software for requirements driven by FAA/NAS mandates and improvements identified during Test and Evaluation and AETC operations.	0.000	1.322	0.000
(U) Develop and test Block 5 T-38C AUP aircraft and ATD software for requirements driven by FAA/NAS mandates and improvements identified during Test and Evaluation and AETC operations.	0.000	0.000	1.366
(U) Other Government Cost and Test		0.036	0.050
(U) Total Cost	0.000	1.358	1.416

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

DATE

February 2004

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) 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 FY04 new firm fixed priced contract will be negotiated to complete the AUP modification, and unpriced delivery orders for the period FY05-08 will be negotiated for the aircraft CLS contract. The T-38 PMP is comprised of four contractual efforts: a J85-5 engine modification and ejector nozzle will be sole source additions to a current contract with General Electric, b) the inlet/former/bulkhead kits will be a competitive award; c) a task order will be established on the existing Contractor Field Team (CFT) contract for kit installation; and d) the T-38 software changes required by the PMP will be added to the existing Boeing contract for the AUP. FY02 and FY04 software block updates will be changes to existing contracts, and FY05-09 block updates will be performed on the new contract.

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Exhibit R-3, RDT&E Project Cost Analysis										DATE February 2004		
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) 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</u> Prior to FY 2003 Cost	<u>FY</u> 2003 Cost	<u>FY</u> 2003 Award Date	<u>FY</u> 2004 Cost	<u>FY</u> 2004 Award Date	<u>FY</u> 2005 Cost	<u>FY</u> 2005 Award Date	<u>Cost to Complete</u>	<u>Total</u> Cost	<u>Target</u> Value of Contract
(U) <u>Product Development</u> The Boeing Corporation	C/CPAF	The Boeing Corporation St. Louis MO	64.860	0.000	Nov-02	1.322	Dec-03	1.366	Jan-05	Continuing	TBD	
ASC/YT	Various	ASC/YT WPAFB OH	9.651	0.000		0.016		0.020		Continuing	TBD	
GE	CPFF	GE, Lynn MA	0.738	0.000		0.000		0.000		0.000	0.738	
ASC/LP	Various	ASC/LP, WPAFB OH	0.039	0.000		0.000		0.000		0.000	0.039	
Subtotal Product Development			75.288	0.000		1.338		1.386		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u> OO-ALC/LCT	Various	OO-ALC/LCT Hill AFB UT	0.194	0.000		0.000		0.000		Continuing	TBD	
AETC	Various	AETC Randolph AFB TX	0.200	0.000		0.000		0.000		Continuing	TBD	
OO-ALC/YWT	Various	OO-ALC/YWT Ogden AFB UT	0.345	0.000		0.000		0.000		Continuing	TBD	
Subtotal Support			0.739	0.000		0.000		0.000		Continuing	TBD	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u> 416 FLTS	PO	416 FLTS Edwards AFB CA	3.382	0.000		0.020		0.030		Continuing	TBD	
AFOTEC	PO	AFOTEC Kirtland AFB NM	0.331	0.000		0.000		0.000		Continuing	TBD	
Subtotal Test & Evaluation			3.713	0.000		0.020		0.030		Continuing	TBD	0.000
Remarks:												
(U) <u>Management</u> Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												

**UNCLASSIFIED**

<b>Exhibit R-3, RDT&amp;E Project Cost Analysis</b>	<b>DATE</b> <b>February 2004</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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(U) Total Cost	79.740	0.000	1.358	1.416	Continuing	TBD	0.000
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Exhibit R-4, RDT&E Schedule Profile

DATE

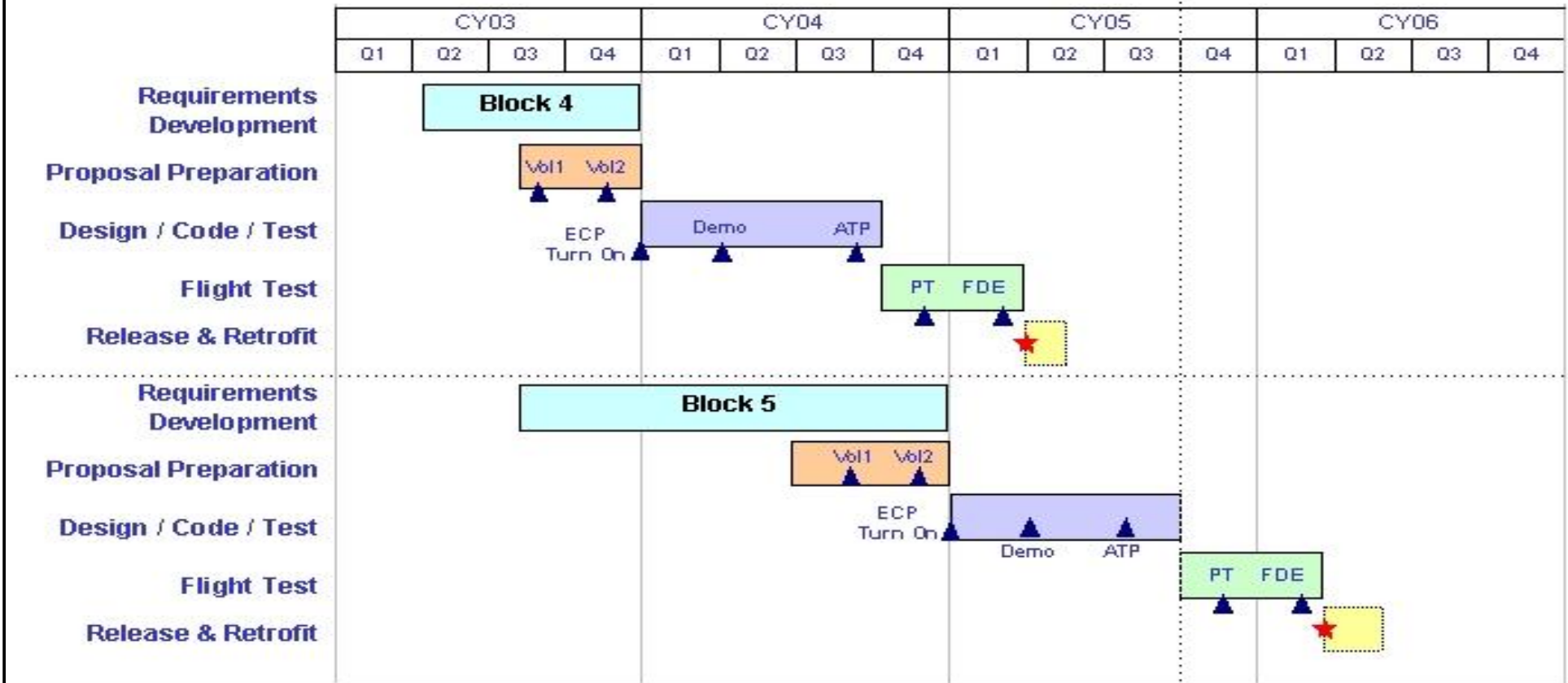
February 2004

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)

# Schedule



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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2004</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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Required Assets Available (RAA), Columbus AFB	2Q		
(U) Field Software Block 3	4Q		
(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			1Q
(U) Required Assets Available (RAA), Laughlin AFB			2Q
(U) Initiate Software Block 5 on AUP			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 2004</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>
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Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	843.999	615.467	210.000	75.794	0.000	0.000	0.000	0.000	25,666.079
4069 Advanced Tactical Fighter FSD	843.999	615.467	210.000	75.794	0.000	0.000	0.000	0.000	24,085.499
4874 PRTVII Aircraft Acquisition	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1,580.580

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

The F/A-22 is designed to penetrate enemy airspace and achieve a first look, first kill capability against multiple targets. The F/A-22 is characterized by a low observable, highly maneuverable airframe, advanced integrated avionics, and aerodynamic performance that allows supersonic cruise without the use of afterburner. The F/A-22 is currently in the Engineering and Manufacturing Development (EMD) phase of acquisition. The Defense Acquisition Board (DAB) approved Low Rate Initial Production (LRIP) Aug 01.

This 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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	839.635	620.740	210.000
(U) Current PBR/President's Budget	843.999	615.467	210.000
(U) Total Adjustments	4.364	-5.273	
(U) Congressional Program Reductions			
Congressional Rescissions		-5.273	
Congressional Increases			
Reprogrammings	4.364		
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			
None			

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

DATE

**February 2004**

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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
4069 Advanced Tactical Fighter FSD	843.999	615.467	210.000	75.794	0.000	0.000	0.000	0.000	24,085.499
Quantity of RDT&E Articles	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 is designed to penetrate enemy airspace and achieve a first look, first kill capability against multiple targets. The F/A-22 is characterized by a low observable, highly maneuverable airframe, advanced integrated avionics, and aerodynamic performance that allows supersonic cruise without the use of afterburner. The F/A-22 is currently in the Engineering and Manufacturing Development (EMD) phase of acquisition. The Defense Acquisition Board (DAB) approved Low Rate Initial Production (LRIP) Aug 01.

The EMD phase effort includes delivery of nine flight test vehicles and two ground test vehicles (static and fatigue); delivery of 25 flight qualified engines; integration and test of the EMD avionics suite including air-to-surface provision; development and test of the F/A-22 weapons system support and training system; and updating the YF-22 Avionics Flying Laboratory with EMD assets and software to become an avionics integration Flying Test Bed (FTB).

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.

The following are representative activities of efforts being accomplished in the given fiscal year.

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Air Vehicle	352.894		
- Continued full-scale airframe structural fatigue testing and analysis. (NSP)			
- Continued flight test and flight test support. (NSP)			
- Continued structural certification analysis activities. (NSP)			
(U) Avionics	286.549		
- Completed Avionics Integration Lab Block 3.1.1 Integration. (NSP)			
- Completed Block 3.1.1 FTB testing. (NSP)			
- Initiated Avionics Integration Lab Block 3.1.2 Integration. (NSP)			
- Initiated Block 3.1.2 FTB testing			
- Initiated IOT&E OFP FTB testing. (NSP)			
- Completed incorporating avionics software/hardware into the FTB. (NSP)			
- Continued DMS redesign, requalification and retesting activities. (NSP)			
(U) Engine	60.638		

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<b>Exhibit R-2a, RDT&amp;E Project Justification</b>		DATE <b>February 2004</b>
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE
<b>05 System Development and Demonstration (SDD)</b>	<b>0604239F F-22 EMD</b>	<b>4069 Advanced Tactical Fighter FSD</b>
- Completed verification of engine support system products. (NSP)		
- Continued to support and test flight test engines. (NSP)		
- Completed Verification Requirements Complete (VRC) activities. (NSP)		
- Completed production engine configuration development testing. (NSP)		
- Adjusted engine support capacity at Edwards AFB consistent with IOT&E start date and flight test extension. (NSP)		
(U) Other Government Cost		143.918
- Continued flight test and flight test support at Edwards AFB.		
- Completed aperture measurements at Rome Labs.		
- Completed engine testing at AEDC.		
- Completed live fire testing at Air Force Research Labs (AFRL).		
- Mission support of the SPO; travel, computer costs, misc contracts, etc.		
(U) Air Vehicle		234.150
- 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 IOT&E OFP FTB testing. (NSP)		
- Initiate IOT&E OFP 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		134.255
- Support flight test and flight test support at Edwards AFB.		
- Mission support of the SPO; travel, computer costs, misc contracts, etc.		
(U) Air Vehicle		59.919
- Complete full-scale airframe structural fatigue testing and analysis. (NSP)		
- Continue structural certification analysis activities. (NSP)		
- Complete EMD flight test and flight test support. (NSP)		
(U) Avionics		81.381
Lab Block 3.1.3 Integration. (NSP)	- Complete Avionics Integrati	
(NSP)	- Continue DMS redesign, requalification and retesting activities.	
- Complete IOT&E OFP flight testing. (NSP)		
(U) Engine		2.700

Exhibit R-2a, RDT&E Project Justification							DATE <b>February 2004</b>			
BUDGET ACTIVITY			PE NUMBER AND TITLE			PROJECT NUMBER AND TITLE				
<b>05 System Development and Demonstration (SDD)</b>			<b>0604239F F-22 EMD</b>			<b>4069 Advanced Tactical Fighter FSD</b>				
- Complete support and test of flight test engines (25 total). (NSP)										
(U)	Other Government Cost								66.000	
- Complete flight test and flight test support at Edwards AFB. - Mission support of the SPO; travel, computer costs, misc contracts, etc.										
(U)	Total Cost							843.999	615.467	210.000
(U)	<b><u>C. Other Program Funding Summary (\$ in Millions)</u></b>									
		<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U)	PRTV II (6)									1,580.580
(U)	F/A-22 Squadrons RDT&E (PE 0207138F)	65.422	313.101	354.528	431.396	639.376	612.377	562.197	Continuing	TBD
(U)	F/A-22 Squadrons Procurement (PE 0207138F)	22.427	39.532	96.691	10.079	76.503	134.768	167.521	Continuing	TBD
(U)	Military Construction (PE 0604239F)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	39.700
(U)	Military Construction (PE 0207219F)	42.576	0.000	0.000	0.000	0.000	0.000	0.000	0.000	96.018
(U)	Military Construction (PE 0207138F)	0.000	31.164	40.246	54.460	93.324	121.991	80.075	Continuing	TBD
(U)	Aircraft Procurement (PE 0207219F) Advanced Tactical Fighter, P-1 Line Item #003**	4480.149	4109.533	4155.976	4423.214	4220.211	4090.326	3920.002	5,987.570	42,120.610
(U)	Munitions Procurement (PE 0207219F)	6.260	6.410	9.406	10.897	10.763	12.038	12.293	27.805	102.057
(U)	F/A-22 Link 16 Transmit Procurement (PE 27445F)				27.560	29.059	31.988	32.598	Continuing	TBD
(U)	F/A-22 Link 16 Transmit RDT&E (PE 27445F)	28.926	42.318	50.940	55.817	14.026	27.509	28.919	Continuing	TBD
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)	<b><u>D. Acquisition Strategy</u></b>									
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.										
Project 4069			R-1 Shopping List - Item No. 67-4 of 67-7				Exhibit R-2a (PE 0604239F)			

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Exhibit R-3, RDT&E Project Cost Analysis										DATE February 2004		
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				
(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</u> <u>Prior to FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
(U) <u>Product Development</u>												
Lockheed (Air Veh)	C/CPAF	Lockheed Martin, Marietta, GA	15,216.809	639.443	Dec-02	456.512	Dec-03	141.300	Dec-04	55.994	16,510.058	14,722.700
Pratt & Whitney	C/CPFF	Pratt & Whitney, Hartford, CT	2,403.579	60.638	Nov-02	24.700	Jan-04	2.700	Nov-04	0.900	2,492.517	2,429.300
GFE	Various		58.700	1.909		2.578		1.300		1.296	65.783	
Subtotal Product Development			17,679.088	701.990		483.790		145.300		58.190	19,068.358	17,152.000
Remarks:												
(U) <u>Support</u>												
Support Contracts	Various		16.604	1.500		1.500		1.500		1.491	22.595	
In House Support	Various		124.096	16.000		5.500		2.000		2.000	149.596	
Subtotal Support			140.700	17.500		7.000		3.500		3.491	172.191	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
AEDC	PO	Arnold AFB, TN	155.400	2.600	Nov-02					0.000	158.000	
AFFTC	PO	Edwards AFB, CA	484.118	121.042	Nov-02	124.477	Nov-03	61.200	Nov-03	14.113	804.950	
All Other Tests	Various		100.008	0.867		0.200				0.000	101.075	
Not Applicable											0.000	
Subtotal Test & Evaluation			739.526	124.509		124.677		61.200		14.113	1,064.025	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			18,559.314	843.999		615.467		210.000		75.794	20,304.574	17,152.000
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

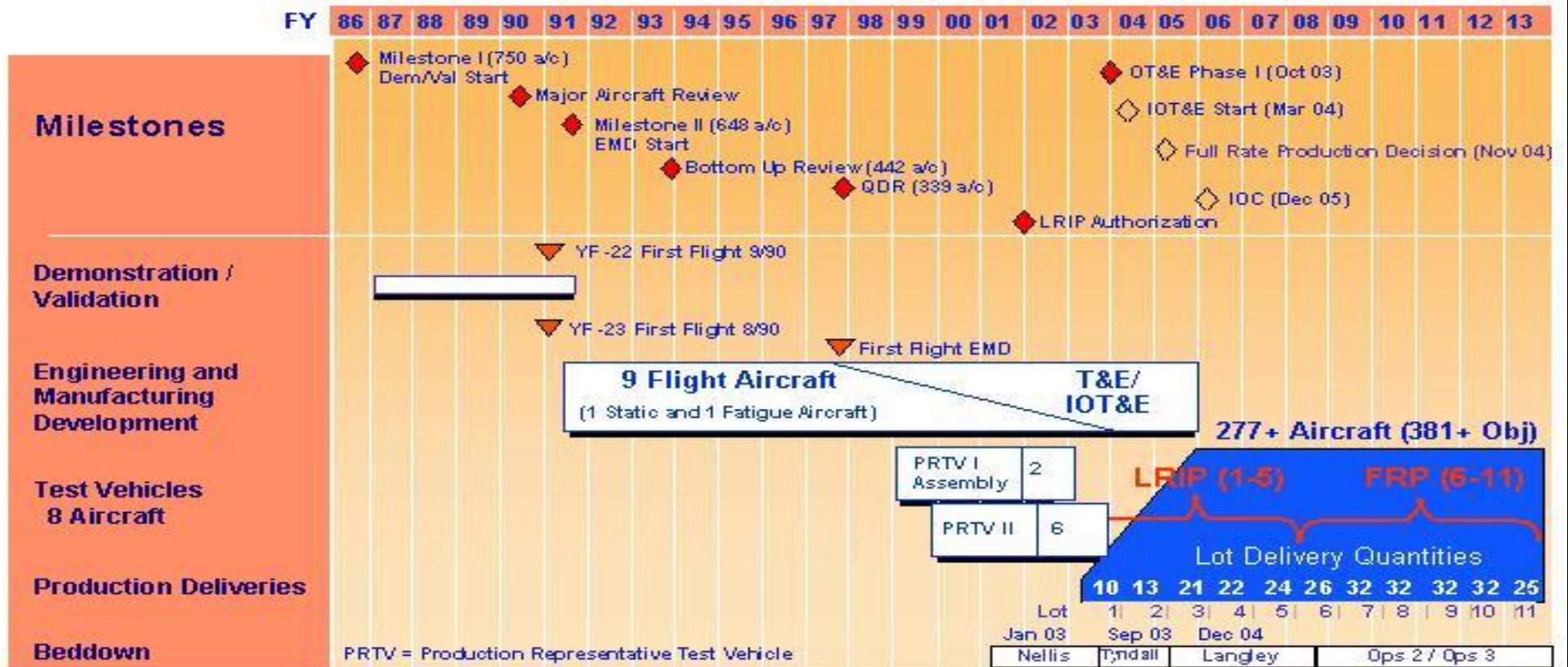
DATE

February 2004

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





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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2004</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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <b>Schedule Profile</b>			
(U) OT&E Phase I Preparation	2Q		
(U) OT&E Phase I Start		1Q	
(U) OT&E Phase I Complete		2Q	
(U) IOT&E Start		2Q	
(U) IOT&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>								<b>DATE</b> <b>February 2004</b>	
<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>					
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	232.151	165.920	245.049	290.152	131.038	117.714	144.431	Continuing	TBD
3843 B-2 Advanced Technology Bomber	232.151	165.920	245.049	290.152	131.038	117.714	144.431	Continuing	TBD

**(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 RDT&E planned 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 Program and the Aft Deck Crack Program both address and correct potential fleet grounding issues. The B-2 Radar will not be able to legally operate in the near future--the operating frequency must be changed. Aft Deck cracks must be contained now in order to preserve 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 Commander to force package the B-2 with other assets. The Extremely High Frequency (EHF) communication upgrade will first and foremost preserve the critical ability to guarantee communication through a nuclear event while also providing a dramatic increase in the data flow into and out of the B-2. 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. Engine, structure and Low Observable (LO) programs 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 the continued support of the B-2 flight test aircraft, maintains the B-2 unique flight test infrastructure, ensures the Mission Planning system configuration keeps pace with aircraft system updates, provides a strategic planning capability for the B-2, and provides for other B-2 unique government costs.

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	259.722	176.775	239.609
(U) Current PBR/President's Budget	232.151	165.920	245.049
(U) Total Adjustments	-27.571	-10.855	
(U) Congressional Program Reductions		-24.691	
Congressional Rescissions		-1.464	
Congressional Increases		15.300	
Reprogrammings	-19.040		
SBIR/STTR Transfer	-8.531		

**(U) Significant Program Changes:**

FY04: Congressional Plus-up progrms include EHF SatCom (\$12.6M) and Aft Deck Cracks (\$2.7M); \$24.691M RDT&E FY04 Congressional realignment of funds to

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2004

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604240F B-2 Advanced Technology Bomber

correct database error.

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

DATE

February 2004

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>	
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total	
3843 B-2 Advanced Technology Bomber	232.151	165.920	245.049	290.152	131.038	117.714	144.431	Continuing	TBD	
Quantity of RDT&E Articles	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 RDT&E planned 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 Program and the Aft Deck Crack Program both address and correct potential fleet grounding issues. The B-2 Radar will not be able to legally operate in the near future--the operating frequency must be changed. Aft Deck cracks must be contained now in order to preserve 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 Commander to force package the B-2 with other assets. The Extremely High Frequency (EHF) communication upgrade will first and foremost preserve the critical ability to guarantee communication through a nuclear event while also providing a dramatic increase in the data flow into and out of the B-2. 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. Engine, structure and Low Observable (LO) programs 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 the continued support of the B-2 flight test aircraft, maintains the B-2 unique flight test infrastructure, ensures the Mission Planning system configuration keeps pace with aircraft system updates, provides a strategic planning capability for the B-2, and provides for other B-2 unique government costs.

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Continue B-2 baseline support in include developmental flight test aircraft modification and base of operations; Missic Planning support; long range planning, studies, and program integration activities; and other government costs.	32.769	23.027	15.642
(U) Continue development of Link-16/CID/IFR, EGBU-28, UHF SATCOM, JDAM-82/SBRA, and EHF-Satcom program	74.159		
(U) Begin development of Radar Management Program (RMP) Congressional Plus-Up)	94.652		
(U) Begin development of Aft Deck Cracks program	8.998		
(U) Begin development of Digital Engine Control (DEC) program	4.573		
(U) Begin development of Low Observable, airframe, and avionics improvements to include, but not limited to, Congressional Plus-Up programs such as Advanced Hot Trailing Edge (AHTE), Tailpipe Coatings, Alternative Door Edge Treatment (ADET).	17.000		
(U) Continue development of Link-16/CID/IFR, EGBU-28, UHF SATCOM, EHF SATCOM (Congressional plus-up), RM and Aft Deck Cracks (Congressional plus-up) Programs.		30.392	
(U) Continue development of RMP including completing Component Advanced Development (CAD) and initiating Syser		112.501	

Project 3843

R-1 Shopping List - Item No. 68-4 of 68-8

Exhibit R-2a (PE 0604240F)

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<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>February 2004</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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Development and Demonstration (SDD).			
(U)	Continue development of EGBU-28, EHF SatCom, and LO Maintainability programs to include ADET.		48.574
(U)	continue development of RMP including design and fabrication of new and modified componets for test aircraft and si operational demonstration units.		180.833
(U)	Total Cost	232.151	165.920
			245.049

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

		<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U)	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	0.000
(U)	A/C Proc, AF, Post Prod Support/BA07	2.355	6.919	6.801	7.169	7.418	0.000	0.000	0.000	TBD
(U)	A/C Proc, AF, Modifications/BA05/B-2A	91.690	122.340	96.002	52.215	206.817	283.653	69.523	Continuing	TBD
(U)	A/C Prod, AF, ICS	33.271	31.271	30.683	21.703	11.290	8.539	9.249	Continuing	TBD
(U)	A/C Proc, AF, Cmn Spt Eq/BA07/Items<\$2M	0.426	2.023	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	8.533	3.692	6.757	6.510	2.559	4.002	1.002	0.000	TBD
(U)	Proc (Other), AF/BA 02,03, 04/B-2A	7.530	7.493	7.644	7.762	7.944	8.216	8.422	Continuing	TBD
(U)	Military Construction/BA01	34.426	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 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 <b>February 2004</b>		
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>				
<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> Prior to FY 2003 Cost	<u>FY</u> 2003 Cost	<u>FY</u> 2003 Award	<u>FY</u> 2004 Cost	<u>FY</u> 2004 Award	<u>FY</u> 2005 Cost	<u>FY</u> 2005 Award	<u>Cost to Complete</u>	<u>Total</u> Cost	<u>Target</u> Value of Contract
<u>(U) Product Development</u>												
Air Vehicle - NG	Multiple		21,288.933	183.060		122.220		212.810		Continuing	TBD	
Aircrew Training	CPIF		561.345	0.394		0.300		5.400			567.439	
Mission Planning	Multiple		332.337	12.619		11.247		2.145		Continuing	TBD	
Engines G.E.	Multiple		566.500	4.573							571.073	
AARL Boeing			125.934	2.427						0.000	128.361	
Subtotal Product Development			22,875.049	203.073		133.767		220.355		Continuing	TBD	0.000
Remarks:												
<u>(U) Support</u>												
Other Govt Costs	N/A		1,045.960	23.996		23.767		18.477		Continuing	TBD	
Subtotal Support			1,045.960	23.996		23.767		18.477		Continuing	TBD	0.000
Remarks:												
<u>(U) Test &amp; Evaluation</u>												
Govt Test	N/A		788.560	5.082		8.386		6.217		Continuing	TBD	
Subtotal Test & Evaluation			788.560	5.082		8.386		6.217		Continuing	TBD	0.000
Remarks:												
<u>(U) Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Total Cost</u>			24,709.569	232.151		165.920		245.049		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE  
February 2004

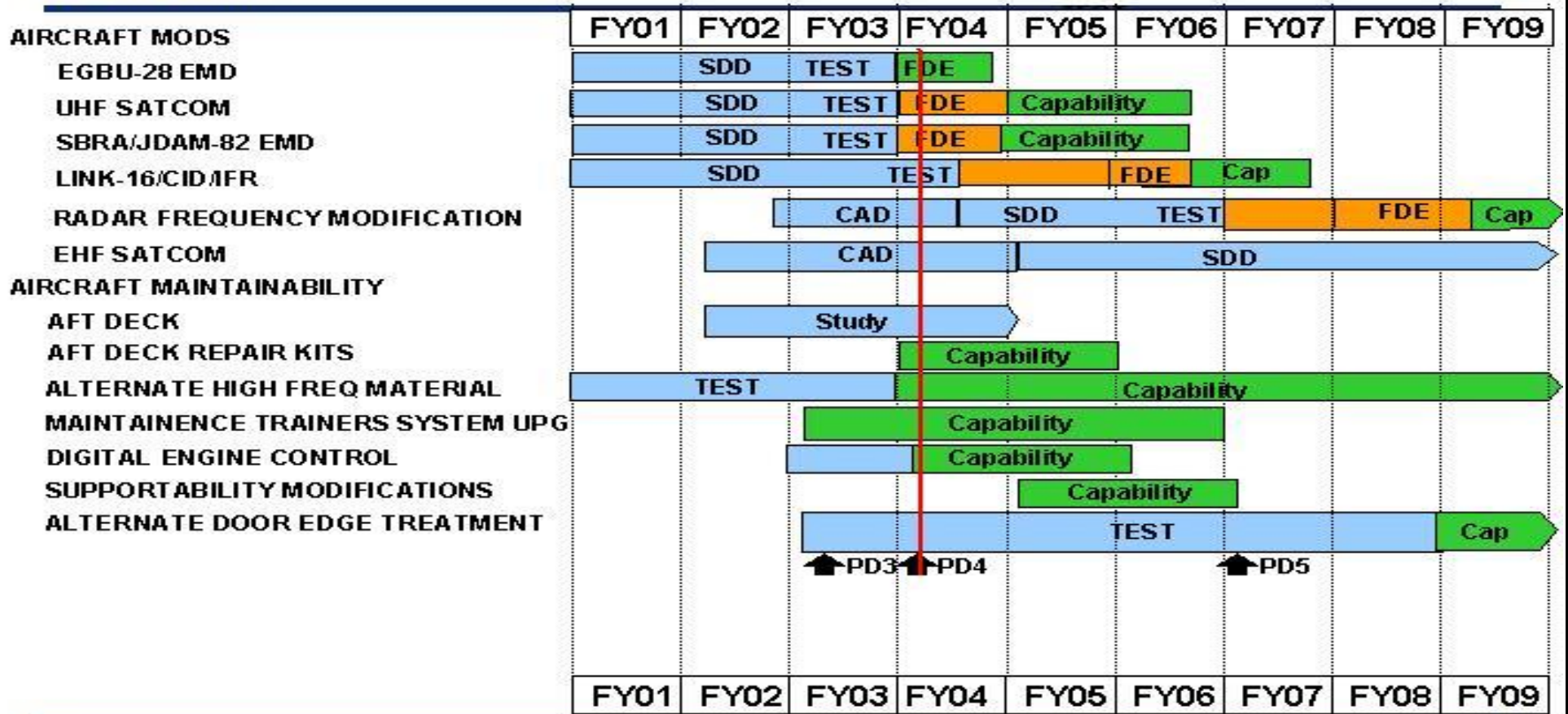
BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE  
0604240F B-2 Advanced Technology Bomber

PROJECT NUMBER AND TITLE  
3843 B-2 Advanced Technology Bomber



# B-2 Detailed Schedule



AS OF: Jan 04



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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2004</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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) EHF SatCom Contract Award		2Q	
(U) Radar Management Mod Dev CAD II Contract Award	3Q		
(U) Aft Deck Contract Award		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		3Q	
(U) Link-16/CID/IFR Flight Test Begins/Completes		3Q	1Q

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PE NUMBER: 0604270F  
 PE TITLE: EW Development

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	<b>DATE</b> <b>February 2004</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>
--	--

Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	68.781	92.804	138.393	197.116	229.278	216.962	148.440	Continuing	TBD
1011 Joint Service Electronic Combat Systems Tester	3.496	0.000	0.000	0.000	0.000	0.000	0.000	0.000	48.434
3891 Advanced IR Counter Measures (AIRCМ)	9.492	5.407	0.000	0.000	0.000	0.000	0.000	0.000	47.050
3945 TEWS Upgrade	24.905	41.052	20.905	13.928	4.022	2.031	2.044	Continuing	TBD
4832 Precision Location and Identification (PLAID)	21.588	19.600	17.953	1.496	0.000	0.000	0.000	0.000	52.966
8462 Airborne Electronic Attack	9.300	26.745	99.535	181.692	225.256	214.931	146.396	Continuing	TBD

BPAC 653891 (AIRCМ) includes three subprojects: Loitering EW Killer (LEWK) ACTD, Advanced Strategic and Tactical Infrared Expendables (ASTE), and software upgrades to the passive UV missile warner, the AAR-47. BPAC 658462 (AEA) includes two subprojects: Airborne Electronic Attack and Miniature Air Launched Decoy (MALD).

**(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.

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	67.226	74.034	42.554
(U) Current PBR/President's Budget	68.781	92.804	138.393
(U) Total Adjustments	1.555	18.770	
(U) Congressional Program Reductions		-0.830	
Congressional Rescissions			
Congressional Increases		23.800	
Reprogrammings	3.406	-4.200	
SBIR/STTR Transfer	-1.851		

**(U) Significant Program Changes:**

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

DATE

February 2004

BUDGET ACTIVITY

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

PE NUMBER AND TITLE

**0604270F EW Development**

- FY2003, Project 658462, \$4.0M reprogrammed to MALD for continued development of the Miniature Air Launched Decoy Program.
- FY2004, Project 653891, Advanced IR Countermeasures, received Congressional Plus-up of \$4.2M for Loitering Electronic Warfare Killer (LEWK) ACTD.
- FY2004, Project 654832, Precision Location and Identification (PLAID), received Congressional Plus-up of \$9.7M
- FY2004, received Congressional Plus-up of \$3.9M for Rapid Replacement of Mission Critical Logistics Electronic Components--funds temporarily allocated to Project 654832, PLAID for administrative purposes only
- FY2005, Project 658462, \$42M added for continued development of the Miniature Air Launched Decoy Program and \$57.5 added for initiation of Airborne Electronic Attack development

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

DATE

February 2004

BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT NUMBER AND TITLE		
<b>05 System Development and Demonstration (SDD)</b>				<b>0604270F EW Development</b>			<b>1011 Joint Service Electronic Combat Systems Tester</b>		
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
1011 Joint Service Electronic Combat Systems Tester	3.496	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		

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. JSECST will fill a void in current Air Force end-to-end test capability. 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 SDS provides computer resources for developing and maintaining CTS and TPS software. Initial TPS will support the F-15C. 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.) JSECST is intended to meet the organizational level support equipment requirements of electronic combat systems for service through a 20-year life cycle. Deliveries began in FY03 for initial platforms and will continue through FY05 for follow-on platforms. SDD continues for follow-on platforms at the same time as systems are delivered for initial platforms.

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments / Planned Programs	0.000	0.000	0.000
(U) Continue FOTPS Contract	2.650	0.000	0.000
(U) Continue SPO Support	0.494	0.000	0.000
(U) Continue Government Test	0.250	0.000	0.000
(U) Continue TPS Lab Support	0.102	0.000	0.000
(U) Total Cost	3.496	0.000	0.000

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

DATE

**February 2004**

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E									
(U) Other APPN									
(U) Aircraft Procurement, AF PE 27442F (Common ECM Equipment), In Service Direct Ground Support Equipment	5.400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	29.472
(U) Initial Spares	0.313	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.464
(U) Total Aircraft Procurement	5.713	0.000	0.000	0.000	0.000	0.000	0.000	0.000	29.936

**(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 February 2004		
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) 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</u> <u>Prior to FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
(U) <u>Product Development</u>												
AAI	CPAF	Hunt Valley MD	26.922								26.922	
FO TPS AAI	CPIF	Hunt Valley MD	2.933	2.650						0.850	6.433	
Subtotal Product Development			29.855	2.650		0.000		0.000		0.850	33.355	0.000
Remarks:												
(U) <u>Support</u>												
NAVAIR & Boeing TEWS Lab	MIPR	NAS Lakenhurst NJ & Boeing St Louis Mo	6.759	0.102						0.000	6.861	
Subtotal Support			6.759	0.102		0.000		0.000		0.000	6.861	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
53 EWG, 46TW	PR	Eglin AFB FL	1.509	0.250						0.300	2.059	
Subtotal Test & Evaluation			1.509	0.250		0.000		0.000		0.300	2.059	0.000
Remarks: Element includes detailed planning, support data reduction and reports from such testing												
(U) <u>Management</u>												
ASC/AANT	Various	WPAFB, OH	4.994	0.494						0.200	5.688	
Subtotal Management			4.994	0.494		0.000		0.000		0.200	5.688	0.000
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			43.117	3.496		0.000		0.000		1.350	47.963	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

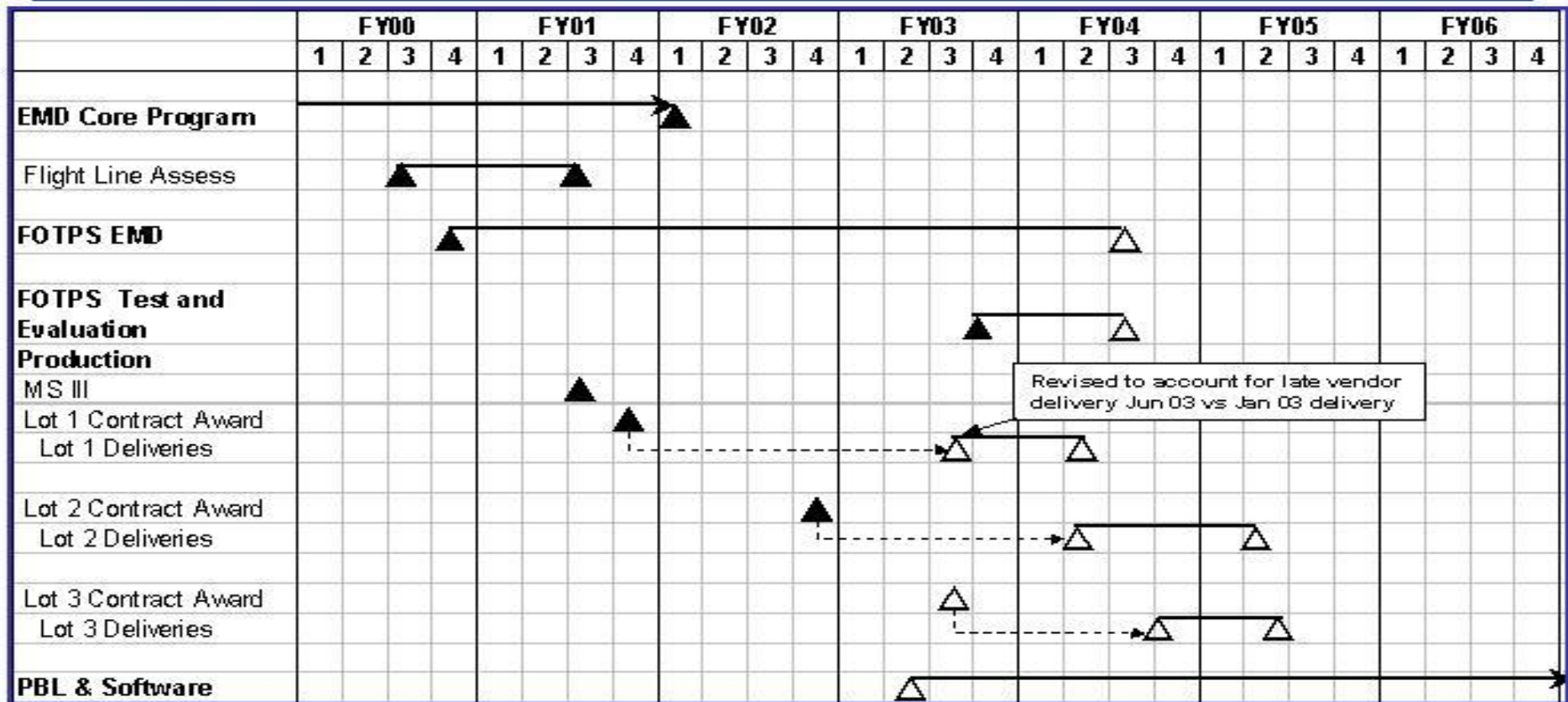
PE NUMBER AND TITLE  
0604270F EW Development

PROJECT NUMBER AND TITLE  
1011 Joint Service Electronic Combat Systems Tester



# JSECST PROGRAM SCHEDULE

U.S. AIR FORCE





**UNCLASSIFIED**

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>		DATE <b>February 2004</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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <b><u>Schedule Profile</u></b>			
(U) CTS Production Lot 3 Award	3Q		
(U) Complete FOTPS Development		3Q	

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

DATE

February 2004

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>		
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
3891 Advanced IR Counter Measures (AIRCМ)	9.492	5.407	0.000	0.000	0.000	0.000	0.000	0.000	47.050
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

\*Advanced Infrared Countermeasures (AIRCМ) includes three subprojects: Advanced Strategic and Tactical IR Expendables (ASTE), software development to AAR-47 Missile Warning System (MWS), and Loitering Electronic Warfare Killer (LEWK) Advanced Concept Technology Development (ACTD). ASTE end products will transition to OO-ALC under PE 28030F WRM Ammunition for procurement/sustainment in FY05. AAR-47 MWS will transitioned to WR-ALC for sustainment in FY04 under PE 27040F Multi-Platform Electronic Warfare.

**(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. AIRCМ currently consists of three efforts, the USAF/USN ASTE program, USAF/USN AAR-47 MWS software development and LEWK ACTD. 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 and the USN F/A-18 E/F. In addition, ASTE includes development of the Comet Pod that will dispense covert infrared countermeasures. This also explicitly includes any/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. The AAR-47 MWS software development supports two configurations of software intended to decrease the AAR-47 MWS false alarm rate and improve threat detection for all large body aircraft. AAR-47 MWS will also support engineering and testing efforts for missile warning identified by users. LEWK ACTD was to demonstrate a long-endurance UAV for jamming and payload delivery. This ACTD was approved in FY01 and the USAF has been designated the lead service.

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments / Planned Program	0.000	0.000	0.000
(U) LEWK ACTD Contract	5.195	4.200	0.000
(U) Continue ASTE Flare Development	2.153	1.207	0.000
(U) Continue COMET Pod Force Development	1.550	0.000	0.000
(U) AAR-47 Software Development	0.594	0.000	0.000
(U) Total Cost	9.492	5.407	0.000

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

DATE

February 2004

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604270F EW Development

PROJECT NUMBER AND TITLE

3891 Advanced IR Counter Measures (AIRC)

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E									
(U) Other APPN									
(U) Procurement of Ammunition, AF, PE 28030F, Flares	24.321	31.841	32.259	30.036	31.246	123.440	125.120	Continuing	TBD
(U) LEWK ACTD (OSD PE63750D)	1.000	0.000	0.000	0.000	0.000	0.000	0.000		TBD
(U) LEWK ACTD (USN PE0603502N)	1.000	0.000	0.000	0.000	0.000	0.000	0.000		TBD
(U) LEWK ACTD (US Army PE0603003)	1.000	0.000	0.000	0.000	0.000	0.000	0.000		TBD
(U) LEWK ACTD (USMC PE63640M)	0.000	0.000	0.000	0.000	0.000	0.000	0.000		TBD

(U) **D. Acquisition Strategy**

The planned acquisition strategy for ASTE is competitive cost-plus.

AAR-47 MWS activities are a time and materials contracted activity with a transition to sustainment.

Comet pod testing is fixed price.

LEWK is an ACTD under OSD.

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Exhibit R-3, RDT&E Project Cost Analysis										DATE February 2004		
BUDGET ACTIVITY 05 System Development and Demonstration (SDD)				PE NUMBER AND TITLE 0604270F EW Development				PROJECT NUMBER AND TITLE 3891 Advanced IR Counter Measures (AIRCM)				
(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</u> Prior to FY 2003 <u>Cost</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
				2003 Cost	2003 Award Date	2004 Cost	2004 Award Date	2005 Cost	2005 Award Date			
(U) <u>Product Development</u>												
ASTE - Development	CP		17.440	0.522		0.500		0.000			18.462	
AAR-47 - GTRI (V22)	T&M		0.949	0.000							0.949	
Comet Pod FDE Phase I	Fixed Price		0.700	0.000		0.000		0.000			0.700	
Subtotal Product Development			19.089	0.522		0.500		0.000		0.000	20.111	0.000
Remarks:												
(U) <u>Support</u>												
ASTE M&S	PR		1.454	0.450		0.450		0.000			2.354	
ASTE V&V - Mac B	PR		0.359	0.000		0.000		0.000			0.359	
ASTE - Misc	Various		36.304	0.423		0.068		0.000			36.795	
LEWK ACTD - MARSYSCOM	ACTD		0.000	5.195		4.200		0.000			9.395	
Subtotal Support			38.117	6.068		4.718		0.000		0.000	48.903	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
ASTE - 46TW	Various		0.897	0.747		0.178		0.000			1.822	
ASTE - Misc	Various		0.282	0.011		0.011		0.000			0.304	
46TW/AFFTC/ Support	Various		17.092								17.092	
AAR-47 Live Fire Test / Data Collection				0.594		0.000		0.000			0.594	
Comet Pod FDE Phase II			0.000	1.550		0.000		0.000			1.550	
Subtotal Test & Evaluation			18.271	2.902		0.189		0.000		0.000	21.362	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			75.477	9.492		5.407		0.000		0.000	90.376	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604270F EW Development

PROJECT NUMBER AND TITLE

3891 Advanced IR Counter Measures (AIRCМ)

# RDT&E Schedule Profile Milestones

Task Name	2003				2004				2005				2006			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
ASTE DT&E – Transport				★												
ASTE OT&E - Transport				★												
ASTE Milestone III - Transport							☆									
AAR-47 Collection/Val Data (V-22.x)		★														
AAR-47 Modeling/Simulation		★														
AAR-47 Algorithm Development				★												
LEWK ACTD Retractable Wind Dev				★												
LEWK ACTD Veh. Jammer Down Sel				★												

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2004</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>	<b>PROJECT NUMBER AND TITLE</b> <b>3891 Advanced IR Counter Measures (AIRCM)</b>
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<b>(U) <u>Schedule Profile</u></b>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) ASTE DT&E-Transport	4Q		
(U) ASTE OT&E -Transport	4Q		
(U) ASTE Milestone III - Transport		3Q	
(U) AAR-47 Collect/Validate Data (V22.x)	2Q		
(U) AAR-47 Modeling/Simulation	2Q		
(U) AAR-47 Algorithm Development	3Q		
(U) LEWK ACTD Retractable Wing development	3Q		
(U) LEWK ACTD Vehicle jammer downselect	3Q		

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

DATE  
**February 2004**

<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>				<b>PE NUMBER AND TITLE</b> <b>0604270F EW Development</b>			<b>PROJECT NUMBER AND TITLE</b> <b>3945 TEWS Upgrade</b>		
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
3945 TEWS Upgrade	24.905	41.052	20.905	13.928	4.022	2.031	2.044	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

\* This program is being restructured to accommodate the AF corporate decision to re-program funding and to re-evaluate the technology to upgrade the AN/ALQ-135 Tactical Electronic Warfare System (TEWS) on the F-15. Efforts continue to develop a FOTD in the joint Integrated Defensive Electronic Countermeasure (IDECM) Navy-led program.

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

This program develops and integrates an Air Force Fiber Optic Towed Decoy (FOTD) system. The FOTD portion of the budget provides Air Force participation/cost share 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.

The FOTD improves electronic countermeasure performance against Tier 1 threat systems, 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 integration of FOTD on F-15.

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments/Planned Program	0.000	0.000	0.000
(U) F-15 (ALQ-135, FOTD, Flight Test)	15.165	22.552	0.000
(U) FOTD Integration, Live Fire Testing, and RORI	5.222	12.767	15.036
(U) EW Studies	0.000	2.000	2.133
(U) Mission and Test Support	4.518	3.733	3.736
(U) Total Cost	24.905	41.052	20.905

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E									
(U) Other APPN	0.000	0.000	0.000	0.000	0.000	0.000	0.000		
(U) Aircraft Procurement, AF PE									
(U) 027442F, War Consumable (RF towed decoys)	0.000	0.000	0.000	0.000	0.000	0.000	0.000		
(U) Aircraft Procurement, AF PE	0.000	0.000	0.000	0.000	0.000	0.000	0.000		

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>February 2004</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>3945 TEWS Upgrade</b>
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(U) **C. Other Program Funding Summary (\$ in Millions)**

027442F, Initial Spares								
(U) Aircraft Procurement, AF PE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
027442F, Mods (B-1B)								
(U) Aircraft Procurement, AF PE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
027442F, Mods (F-15)								

(U) **D. Acquisition Strategy**

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 2004**

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) <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>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to</u>	<u>Total</u>	<u>Target</u>
			<u>Prior to FY</u>	<u>2003</u>	<u>2003</u>	<u>2004</u>	<u>2004</u>	<u>2005</u>	<u>2005</u>	<u>Complete</u>	<u>Cost</u>	<u>Value of</u>
			<u>2003</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Contract</u>
			<u>Cost</u>		<u>Date</u>		<u>Date</u>		<u>Date</u>			
(U) <u>Product Development</u>												
USAF IDECM: Development BAE	CPAF	BAE, Nashua, NH	47.226	0.080		0.000		0.000		Continuing	TBD	
Development Raytheon	CPIF	Raytheon, Goleta, CA	17.722	0.000		0.000		0.000		Continuing	TBD	
F-15 IDECM Integration- Boeing/LMT/Northrop	CPFF	McDonnell Douglas, St Louis, MO	34.128	15.165		22.552		0.000		Continuing	TBD	
USAF IDECM: Development BAE	CPFF	BAE, Nashua, NH	1.167	1.250		1.133		2.002		Continuing	TBD	
Raytheon Development	CPFF	Raytheon, Goleta, CA	0.000	2.660		3.390		2.815		Continuing	TBD	
IDECM Misc Development Contracts (IMPLC/Alt. Strategy/Flt Test Assets)	Various	Miscellaneous	3.191	0.000		2.244		2.754		Continuing	TBD	
Subtotal Product Development			103.434	19.155		29.319		7.571		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												
ASC/AA - IDECM	Various		3.102	1.746		1.368		1.185		Continuing	TBD	
Subtotal Support			3.102	1.746		1.368		1.185		Continuing	TBD	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
AFOTEC			1.600	0.000		0.000		0.000		Continuing	TBD	
Flight Test Support			0.156	0.000		0.010		0.000		Continuing	TBD	
Eglin Flight Test Support			0.845	2.094		2.045		2.215		Continuing	TBD	
Naval Research Lab (NRL)			0.000	0.678		0.310		0.336		Continuing	TBD	
Live Fire Test			0.000	1.232		6.000		7.465		Continuing	TBD	
EW Studies			0.000	0.000		2.000		2.133		Continuing	TBD	
Subtotal Test & Evaluation			2.601	4.004		10.365		12.149		Continuing	TBD	0.000
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			109.137	24.905		41.052		20.905		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

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

Task Name	FY	2003					2004				2005				Qtr 1
		Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	
FOTD Thermal Survey				★											
FOTD Aero Demo (Thermal)						★									
DACP FY04 Efforts							☆								
Live Fire FY04 Efforts								☆							
FOTD Envelope Expansion #1										☆					
Reel-In/Reel-Out (RORI) Launcher Ktr Awd											☆				
DACP FY05 Efforts												☆			
RORI PDR													☆		
Live Fire FY05 Efforts														☆	
RORI CDR															☆
FOTD Envelope Expansion #2															☆

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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	<b>DATE</b> <b>February 2004</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>	<b>PROJECT NUMBER AND TITLE</b> <b>3945 TEWS Upgrade</b>
--	--	---

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <b>Schedule Profile</b>			
(U) FOTD Thermal Survey	2-3Q		
(U) FOTD Aero Demonstration (Thermal)	4Q	2Q	
(U) Defense Acquisition Challenge Program FY04 Efforts		2-4Q	
(U) Live Fire FY04 Efforts		2-3Q	
(U) FOTD Envelope Expansion #1		4Q	1Q
(U) Reel-Out/Reel-In (RORI) Launcher Contract Award			1Q
(U) Defense Acquisition Challenge Program FY05 Efforts			1-4Q
(U) RORI PDR			2Q
(U) Live Fire FY05 Efforts			2-3Q
(U) RORI Critical Design Review			4Q
(U) FOTD Envelope Expansion #2			4Q

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

DATE  
**February 2004**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>				PE NUMBER AND TITLE <b>0604270F EW Development</b>			PROJECT NUMBER AND TITLE <b>4832 Precision Location and Identification (PLAID)</b>		
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
4832 Precision Location and Identification (PLAID)	21.588	19.600	17.953	1.496	0.000	0.000	0.000	0.000	52.966
Quantity of RDT&E Articles	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 modifications may be necessary to optimize geolocation performance and minimize electromagnetic interference. PLAID development is currently focused on the ALR-69 RWR but PLAID technology can also be applied to other RWRs. Additional related enhancements to provide the capability to pass ground emitter target data (location, type, ID) to other systems are under consideration.

(2) In FY04 Congress added \$3.9M AF RDT&E funds to the EW Development PE 64270F for " Rapid Replacement of Mission Critical Logistics Electronics Components." (This work will be performed at Warner Robins AF Logistics Center in the same directorate as PLAID (WRALC/LS). The Air Force is therefore using the PLAID program office to track these funds in FY04.) This program will rapidly develop prototypes of replacement electronic components and subassemblies to combat obsolescence and vanishing vendor issues in Electronic Warfare systems.

<b>(U) B. Accomplishments/Planned Program (\$ in Millions)</b>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Program Office Support	2.398	1.800	2.168
(U) System Engineering Support	1.350	1.200	0.743
(U) CORE SDD/Options/Award Fees	14.080	6.500	6.700
(U) SOF C-130 CORE Platform Integration - SOF C130 CORE/F16 CORE/F16 ACTD	1.890	4.700	5.413
(U) DT&E/OT&E - SOF C130 CORE/F16 CORE/F16 ACTD	1.870	1.500	2.929
(U) Rapid Replacement of Mission Critical Logistics Electronic Components		3.900	
(U) Total Cost	21.588	19.600	17.953

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

DATE

February 2004

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0604270F EW Development</b>	PROJECT NUMBER AND TITLE <b>4832 Precision Location and Identification (PLAID)</b>
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(U) **C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) DARPA Funding (ACTD/AT3)	5.800	1.300							
(U) OSD Funding (ACTD/AT3)		5.000	5.000						
(U) PE27442F Common ECM Equipment		0.000	6.243	14.146	11.990	11.560	11.721	Continuing	TBD
(U) PE41115F ALR-69 (RWR) AMC C-130 Airlift Squadrons. PLAID procurement to commence in FY04	15.635	19.465	0.000	47.314	33.717	36.704	36.392	Continuing	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
- Option 3: F-16 Geo-Location and SEI (4th KPP)
- Option 4: SOF-130 Geo-Location & SEI (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 2004**

<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604270F EW Development</b>	<b>PROJECT NUMBER AND TITLE</b> <b>4832 Precision Location and Identification (PLAID)</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>2003</u> <u>Cost</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
				<u>2003</u> <u>Cost</u>	<u>2003</u> <u>Award</u> <u>Date</u>	<u>2004</u> <u>Cost</u>	<u>2004</u> <u>Award</u> <u>Date</u>	<u>2005</u> <u>Cost</u>	<u>2005</u> <u>Award</u> <u>Date</u>			
(U) <u>Product Development</u>												
Raytheon CORE SDD + Fee	Full & Open Comp CPAF	Raytheon - Goleta CA		7.320	Dec-02	8.100		5.653		0.000	21.073	
Raytheon Option 1 SDD + Fee	Full & Open Comp CPAF	Raytheon - Goleta CA									0.000	
Raytheon Option 2 SDD + Fee	Full & Open Comp CPAF	Raytheon - Goleta CA									0.000	
Raytheon Option 3 SDD + Fee	Full & Open Comp CPAF	Raytheon - Goleta CA									0.000	
Raytheon Option 4 SDD + Fee	Full & Open Comp CPAF	Raytheon - Goleta CA		8.258		2.300					10.558	
Raytheon Option 11 AT3 + Fee	Sole Source - Raytheon	Raytheon - Goleta CA						1.200			1.200	
Survivability Enhancement	WR-ALC/LN for ALR-56C processor upgrade; ASC/AAN for Comet Pod									0.000	0.000	
Subtotal Product Development			0.000	15.578		10.400		6.853		0.000	32.831	0.000
Remarks:												
(U) <u>Support</u>												
Program Office	PR	Various Contractors		0.900		1.800		2.900			5.600	
Engineering	Various			1.350		1.200				0.000	2.550	
C-130 SPD	PR			1.890		2.800		2.800		0.000	7.490	
F-16 SPD	PR					1.900		2.500		0.000	4.400	
Subtotal Support			0.000	4.140		7.700		8.200		0.000	20.040	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												

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Exhibit R-3, RDT&E Project Cost Analysis							DATE <b>February 2004</b>		
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>				
Det 1 46 OGS	PO	0.000	0.300	0.900	0.900	0.000	2.100		
IDAL	PO		0.510		0.900	0.000	1.410		
MISC	Various		1.060	0.600	0.200		1.860		
AATC	616				0.900		0.900		
Subtotal Test & Evaluation		0.000	1.870	1.500	2.900	0.000	6.270	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	21.588	19.600	17.953	0.000	59.141	0.000	

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

BUDGET ACTIVITY

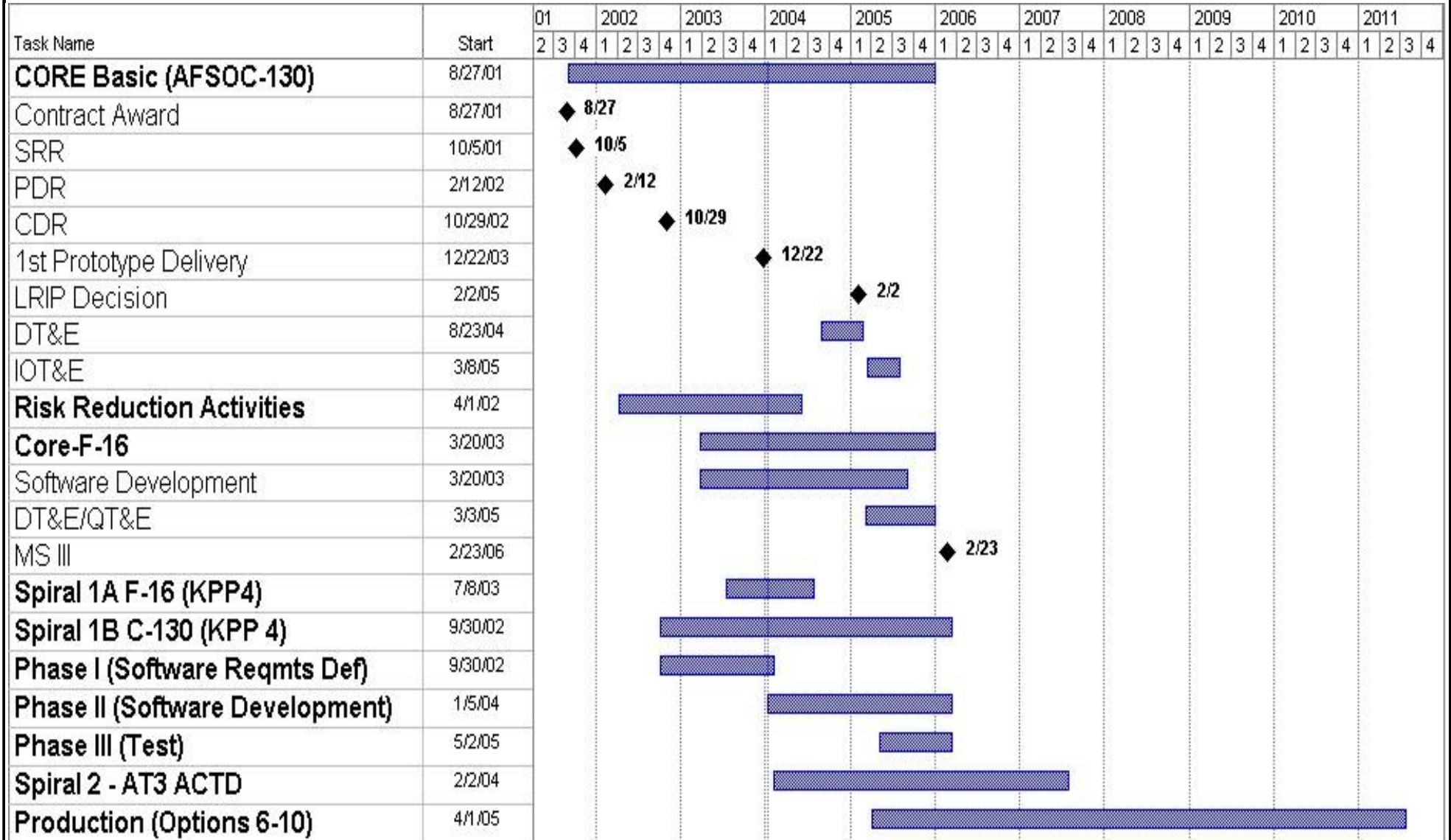
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604270F EW Development

PROJECT NUMBER AND TITLE

4832 Precision Location and Identification (PLAID)





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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>		DATE <b>February 2004</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>4832 Precision Location and Identification (PLAID)</b>
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	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <b><u>Schedule Profile</u></b>			
(U) Developmental Testing and Evaluation		3Q	2Q
(U) Integration Operational Test and Evaluation			2-3Q

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

DATE

February 2004

BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT NUMBER AND TITLE		
<b>05 System Development and Demonstration (SDD)</b>				<b>0604270F EW Development</b>			<b>8462 Airborne Electronic Attack</b>		
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
8462 Airborne Electronic Attack	9.300	26.745	99.535	181.692	225.256	214.931	146.396	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

In FY 2003, Project 658462, MALD, was changed to Airborne Electronic Attack (AEA) in order to accurately reflect the initiatives under this project.

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

This project develops critical electronic attack capabilities in support of Air Force and joint operations to include the Global Strike Concept of Operations (CONOPs). To date, the primary capability in this project is the Miniature Air Launched Decoy (MALD). 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. A spiral to a Miniature Air Launched Jammer (MALD-J) is planned for stand-in jamming support to the suppression of enemy air defense mission. MALD entered the System Development and Demonstration (SDD) phase in FY03 with the Milestone B decision and a competitive SDD contract award.

Beginning in FY05, the USAF AEA initiative expands its scope to develop the other crucial stand-off and stand-in capabilities necessary to give the Joint Forces Air Component Commander (JFACC) a flexible array of tools to cover the entire threat spectrum. The majority of this work will be on the development of a support jamming capability for the B-52.

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments / Planned Program	0.000	0.000	0.000
(U) Preparation for MALD SDD and SDD Contract Award	7.665		
(U) MALD SDD Contract		20.556	31.777
(U) MALD Program Office Support (Government)	0.578	2.377	2.108
(U) MALD B-52 Aircraft Integration	0.765	2.505	4.822
(U) MALD Mission and Test Support	0.223	1.107	1.824
(U) MALD F-16 Aircraft Integration	0.069	0.200	1.535
(U) AEA Program Office Support			2.500
(U) AEA System of systems engineering / architecture development			6.500
(U) Develop AEA receiver and jammer requirements and refine AEA System of systems CONOPs			8.500
(U) AEA receiver and jammer technology studies			4.000
(U) AEA receiver and jammer technology development			35.969
(U) Total Cost	9.300	26.745	99.535

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

DATE

February 2004

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)(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.

A full and open competition for developing the stand-off jamming capability on the B-52 aircraft platform and contract award is contemplated during FY05.

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Exhibit R-3, RDT&E Project Cost Analysis										DATE February 2004		
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)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2003 Cost	FY	FY	FY	FY	FY	FY	Cost to Complete	Total Cost	Target Value of Contract
				2003	2003	2004	2004	2005	2005			
				Cost	Award	Cost	Award	Cost	Award			
					Date		Date		Date			
(U) <u>Product Development</u>												
MALD SDD ACTD	CPFF	Northrop Grumman - Ryan Aeronautical Center	40.074								40.074	
MALD SDD	CPAF	Raytheon Missile Systems, Tucson AZ		7.665	May-03	20.556		31.777		Continuing	TBD	102.033
MALD B-52 Aircraft Integration	MIPR	B-52 SPO		0.765	Oct-02	2.505	Oct-03	4.822			16.402	24.494
MALD F-16 Aircraft Integration	MIPR	F-16 SPO		0.069	Oct-02	0.200	Oct-03	1.535			3.665	5.469
AEA Development	TBD	TBD		0.000		0.000		48.469		Continuing	TBD	TBD
Subtotal Product Development			40.074	8.499		23.261		86.603		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u>												
Contractor Support to AAC/YAM	Various	Various		0.371		1.427		1.556			4.746	8.100
AEA Systems Engineering Support	TBD	TBD						6.500		Continuing	TBD	TBD
Subtotal Support			0.000	0.371		1.427		8.056		Continuing	TBD	TBD
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
MALD Government Test Planning	Various	Various	5.173	0.223	Oct-02	1.107		1.824			11.729	20.056
AEA Test Planning										Continuing	TBD	TBD
Subtotal Test & Evaluation			5.173	0.223		1.107		1.824		Continuing	TBD	TBD
Remarks:	Element includes detailed planning, support data reduction and reports from such testing.											
(U) <u>Management</u>												
AAC/YAM (MALD)	Various	AAC, Eglin AFB FL	6.236	0.207		0.950		0.552			1.375	9.320
AEA Enterprise Team		ASC/AA, WPAFB OH						2.500		Continuing	TBD	TBD
Subtotal Management			6.236	0.207		0.950		3.052		Continuing	TBD	TBD
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			51.483	9.300		26.745		99.535		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604270F EW Development

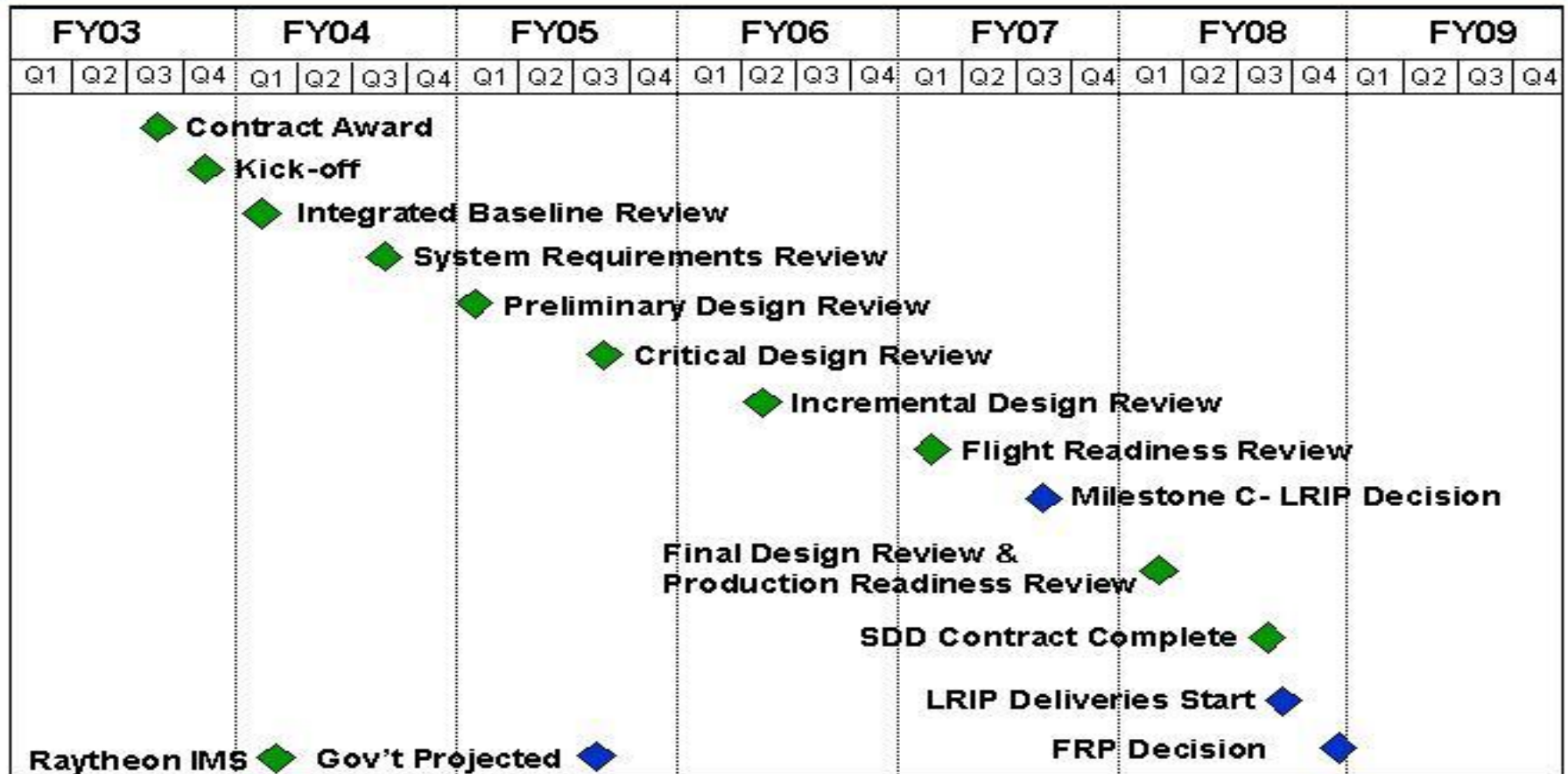
PROJECT NUMBER AND TITLE

8462 Airborne Electronic Attack



U.S. AIR FORCE

# MALD Overview Schedule



*Integrity - Service - Excellence*

Exhibit R-4, RDT&E Schedule Profile

DATE  
**February 2004**

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

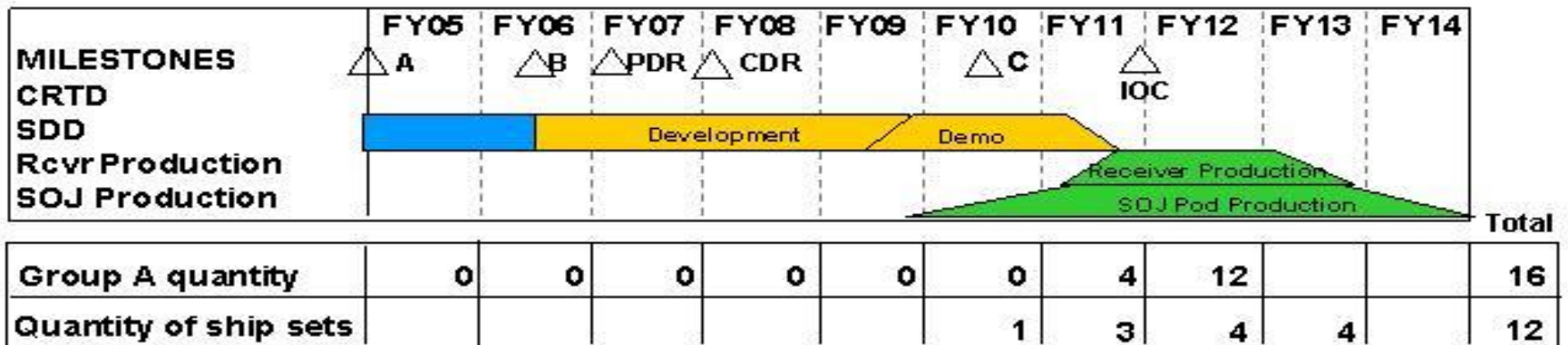
PE NUMBER AND TITLE  
**0604270F EW Development**

PROJECT NUMBER AND TITLE  
**8462 Airborne Electronic Attack**



**U.S. AIR FORCE**

**AEA / B-52 SOJ Schedule**



**Notes:**

**CRTD- Concept Refinement & Technology Development; SDD-Systems Development & Demonstration**

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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	<b>DATE</b> <b>February 2004</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>	<b>PROJECT NUMBER AND TITLE</b> <b>8462 Airborne Electronic Attack</b>
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	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <b>Schedule Profile</b>			
(U) MALD Contract Award	3Q		
(U) MALD Integrated Baseline Review		1Q	
(U) MALD Preliminary Design Review			1Q
(U) MALD Critical Design Review			3-4Q
(U) AEA Initial Capabilities Document Written	4Q		
(U) AEA B-52 SOJ MS A			1Q

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PE NUMBER: 0604280F  
 PE TITLE: JOINT TACTICAL RADIO SYSTEMS (JTRS)

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>								<b>DATE</b> <b>February 2004</b>	
<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>Cost (\$ in Millions)</b>	<b>FY 2003 Actual</b>	<b>FY 2004 Estimate</b>	<b>FY 2005 Estimate</b>	<b>FY 2006 Estimate</b>	<b>FY 2007 Estimate</b>	<b>FY 2008 Estimate</b>	<b>FY 2009 Estimate</b>	<b>Cost to Complete</b>	<b>Total</b>
Total Program Element (PE) Cost	13.667	38.096	49.856	122.650	103.363	45.777	30.732	Continuing	TBD
5068 Joint Tactical Radio System (JTRS)	13.667	38.096	49.856	122.650	103.363	45.777	30.732	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 visuals 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 interoperability. The Air Force (AF) established an acquisition office in late 2002 as the Service lead for developing JTRS Airborne Cluster radios for 75+ airborne platform types.

In Nov 03, after analyzing commonality, efficiency and interoperability considerations, the AF and Navy Service Acquisition Executives decided to collaboratively work together on the Air Force-led JTRS Airborne Cluster and Navy-led JTRS Maritime/Fixed Station Cluster development efforts. This joint development effort is called Airborne and Maritime/Fixed Station (AMF) JTRS. Under this arrangement, a joint Air Force and Navy team will manage the development of a common core radio system that will satisfy the combined JTRS Airborne, Maritime and Fixed Station 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 will be led initially by the AF with the lead and key managerial positions rotating at predetermined times during the acquisition. The JTRS Defense Acquisition Board approved the consolidation of the Airborne and Maritime/Fixed Station Clusters into AMF JTRS in Dec 03. This PE represents the AF contribution to the combined AMF JTRS development strategy and continues to represent the funds necessary to develop the JTRS Airborne Cluster.

Additional AF requirements for tactical communications (i.e., handhelds, vehicular, etc) will be met by collaborating with other JTRS Clusters.

This program is in budget activity 5 (System Development and Demonstration) because it supports development and integration of solutions.

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

DATE

February 2004

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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	17.358	48.814	51.951
(U) Current PBR/President's Budget	13.667	38.096	49.856
(U) Total Adjustments	-3.691	-10.718	
(U) Congressional Program Reductions	-0.213	-10.389	
Congressional Rescissions		-0.329	
Congressional Increases			
Reprogrammings	-3.478		
SBIR/STTR Transfer			

(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 JTRS Airborne Cluster. 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. FY05 funding will be used to complete the Pre-SDD effort and starts the System Development and Demonstration (SDD) phase of the program.

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

DATE

February 2004

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>			
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total	
5068 Joint Tactical Radio System (JTRS)	13.667	38.096	49.856	122.650	103.363	45.777	30.732	Continuing	TBD	
Quantity of RDT&E Articles	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 visuals 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 interoperability. The Air Force (AF) established an acquisition office in late 2002 as the Service lead for developing JTRS Airborne Cluster radios for 75+ airborne platform types.

In Nov 03, after analyzing commonality, efficiency and interoperability considerations, the AF and Navy Service Acquisition Executives decided to collaboratively work together on the Air Force-led JTRS Airborne Cluster and Navy-led JTRS Maritime/Fixed Station Cluster development efforts. This joint development effort is called Airborne and Maritime/Fixed Station (AMF) JTRS. Under this arrangement, a joint Air Force and Navy team will manage the development of a common core radio system that will satisfy the combined JTRS Airborne, Maritime and Fixed Station 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 will be led initially by the AF with the lead and key managerial positions rotating at predetermined times during the acquisition. The JTRS Defense Acquisition Board approved the consolidation of the Airborne and Maritime/Fixed Station Clusters into AMF JTRS in Dec 03. This PE represents the AF contribution to the combined AMF JTRS development strategy and continues to represent the funds necessary to develop the JTRS Airborne Cluster.

Additional AF requirements for tactical communications (i.e., handhelds, vehicular, etc) will be met by collaborating with other JTRS Clusters.

This program is in budget activity 5 (System Development and Demonstration) because it supports development and integration of solutions.

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) AMF (Airborne) JTRS Pre-SDD Contracts (AMF design, integration planning, and risk reduction)	0.000	25.231	20.135
(U) Planning of AMF (Airborne) JTRS System Engineering, Integration and Testing	10.138		
(U) Risk Analysis, Logistics Planning, Software Management and Support	3.529	4.883	5.435
(U) AMF (Airborne) JTRS System Engineering, Integration and Test		7.982	14.218
(U) AMF (Airborne) JTRS SDD Contract (design post PDR)			10.068
(U) Total Cost	13.667	38.096	49.856

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

DATE

February 2004

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) 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 2004**

<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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(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> Prior to FY 2003 Cost	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to Complete</u>	<u>Total</u> Cost	<u>Target</u> Value of Contract
				2003	2003	2004	2004	2005	2005			
(U) <u>Product Development</u>												
Airborne Network Laboratory	C/FFP	MIT Lincoln Lab, Bedford, MA	0.000	2.900	Nov-02	2.000	Jan-04	2.500	Dec-04	Continuing	TBD	
System Engineering	C/FFP	MITRE, Bedford, MA	0.000	4.383	Nov-02	0.302	Jan-04	3.400	Oct-04	Continuing	TBD	
Cross-Platform Functional Analyses	C/FFP	ASC/AA, Wright-Patterson AFB, OH	0.000	0.986	Apr-03	1.500	Jan-04	1.700	Dec-04	Continuing	TBD	
Antenna Development	C/FFP	AFRL, Wright-Patterson AFB, OH	0.000	0.000		1.000	Feb-04	2.000	Jan-04	Continuing	TBD	
Various Contracts	C/FFP	Various	0.000	1.805		2.998		4.403		Continuing	TBD	
AMF JTRS Pre-SDD Contracts	C/CPFF	TBD	0.000	0.000		25.231	May-04	20.135	Oct-04	Continuing	TBD	
AMF JTRS SDD Contract	C/CPAF	TBD	0.000	0.000		0.000		10.068	Aug-05	Continuing	TBD	
Subtotal Product Development			0.000	10.074		33.031		44.206		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												
ESC ITSP Acquisition Support	C/FFP	Titan Corp., Odyssey Consulting Group, BTAS, Inc., Hanscom AFB, MA	0.000	2.083	Aug-03	2.150	Aug-04	2.150	Aug-05	Continuing	TBD	
ESC Specialized Cost Services Support	C/FFP	Tecolote Research, Hanscom AFB, MA	0.000	0.715	Aug-03	0.798	Aug-04	0.700	Aug-05	Continuing	TBD	
AFC2ISRC Contractor Support	C/FFP	Northrup Grumman, Langley AFB, VA	0.000	0.637	Feb-03	0.500	Mar-04	0.500	Mar-05	Continuing	TBD	
INFOSEC Design Support	C/FFP	NSA, FT Meade, MD	0.000	0.000		0.500	Mar-04	0.600	Mar-05	Continuing	TBD	
Subtotal Support			0.000	3.435		3.948		3.950		Continuing	TBD	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
Test Automation Equipment	MIPR	JITC	0.000	0.053	Mar-03	0.062	Jan-04	0.065	Jan-05	Continuing	TBD	

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis							DATE <b>February 2004</b>				
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>				
Test Agency Support	MIPR	Various	0.000		0.120	Feb-04	0.150	Feb-05	Continuing	TBD	
Subtotal Test & Evaluation			0.000	0.053		0.182	0.215		Continuing	TBD	0.000
Remarks:											
(U) <u>Management</u>											
AMF (Airborne) JTRS Program Office	C/Varies	ESC/NI4, Hanscom AFB, MA	0.000	0.105		0.935	1.485		Continuing	TBD	
Subtotal Management			0.000	0.105		0.935	1.485		Continuing	TBD	0.000
Remarks:											
(U) Total Cost			0.000	13.667		38.096	49.856		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

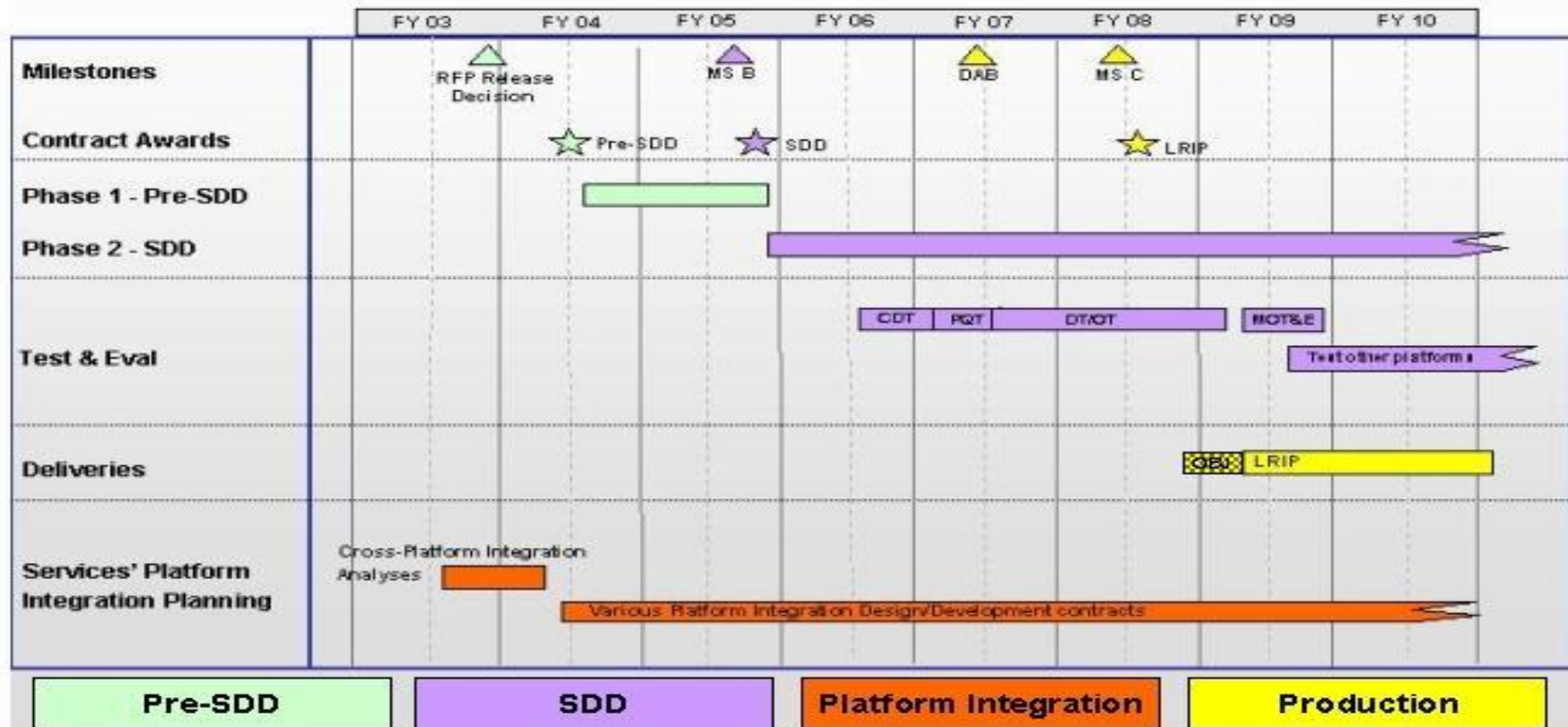
February 2004

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



<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2004</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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	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <b><u>Schedule Profile</u></b>			
(U) AMF JTRS Cluster (Pre-SDD) RFP Release		2Q	
(U) AMF JTRS Cluster (Pre-SDD) Contract Award		3Q	1Q
(U) AMF JTRS Cluster (SDD) RFP Release			3Q
(U) AMF JTRS Cluster (SDD) Contract Award			4Q



**UNCLASSIFIED**

PE NUMBER: 0604287F  
 PE TITLE: Physical Security Equipment

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2004</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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	7.199	9.744	11.093	7.971	2.229	3.187	0.000	0.000
5120 Physical Security Equipment - SD/ED	0.000	7.199	9.744	11.093	7.971	2.229	3.187	0.000	0.000

OSD PBD 203C transferred funding for this existing program from OUSD (AT&L) PEC 0603228D8Z to the Air Force PE 0604287F as well as PE 0603287F for management and execution, effective October 1, 2003.

**(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 Command, Control and Communications (ASD(C3I)), 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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	0.000	7.261	9.770
(U) Current PBR/President's Budget	0.000	7.199	9.744
(U) Total Adjustments	0.000	-0.062	
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer		-0.062	

**(U) Significant Program Changes:**

OSD PBD 203C transferred funding for this existing program, along with PE 0603287F, from OUSD(AT&L) PEC 0603228DZ to the Air Force for management and execution, effective October 1, 2003.

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

DATE  
**February 2004**

<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>				<b>PE NUMBER AND TITLE</b> <b>0604287F Physical Security Equipment</b>			<b>PROJECT NUMBER AND TITLE</b> <b>5120 Physical Security Equipment - SD/ED</b>			
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total	
5120 Physical Security Equipment - SD/ED	0.000	7.199	9.744	11.093	7.971	2.229	3.187	0.000	0.000	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

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

This program 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 Command, Control and Communications (ASD(C3I)), 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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) This is a new Air Force program element. Effective October 1, 2003, funding for this program transfers from OSD AT&L PE 0603228DZ. Please refer to that PE for FY 2003 plans.	0.000		
(U) FORCE PROTECTION/TACTICAL SECURITY EQUIPMENT -Begin EMD of the Platoon Early Warning Device II (PEWDII). -Conduct Milestone C Full Rate Production Decision. -Continue to manage, develop, evaluate, and test Delay/Denial products. -Continue to manage sensor and assessment product developments and tests. -Continue to research technological advances at DoD, DoE, University Labs, DARPA programs, within industry, etc., with PSE utility. -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.		0.999	
(U) FORCE PROTECTION/TACTICAL SECURITY EQUIPMENT -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.			3.024

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>February 2004</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>	<b>PROJECT NUMBER AND TITLE</b> <b>5120 Physical Security Equipment - SD/ED</b>
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<ul style="list-style-type: none"> <li>-Continue to manage sensor and assessment product developments and tests.</li> <li>-Continue to research technological advances at DoD, DoE, University Labs, DARPA programs, 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>					
(U) ROBOTIC SECURITY SYSTEMS INTEGRATION				6.200	
<ul style="list-style-type: none"> <li>-Begin EMD of Mobile Detection and Response System - Exterior (MDARS-E).</li> <li>-Complete fabrication and assembly of MDAR-E Patrol Units.</li> <li>-Complete Subsystem Integration of MDARS-E.</li> <li>-Begin Production Qualification Tests of MDARS-E.</li> </ul>					
(U) ROBOTIC SECURITY SYSTEMS INTEGRATION				4.520	
<ul style="list-style-type: none"> <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) 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)					
(U)					
(U) Total Cost			0.000	7.199	9.744

<b>(U) C. Other Program Funding Summary (\$ in Millions)</b>									
	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	Actual	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Complete	
(U) AF RDT&E									
(U) Other APPN									
Not Applicable									
(U) <b>D. Acquisition Strategy</b>									
Not Applicable									

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis										DATE <b>February 2004</b>		
BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>				PE NUMBER AND TITLE <b>0604287F Physical Security Equipment</b>				PROJECT NUMBER AND TITLE <b>5120 Physical Security Equipment - SD/ED</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> Prior to FY 2003 Cost	<u>FY</u> 2003 Cost	<u>FY</u> 2003 Award Date	<u>FY</u> 2004 Cost	<u>FY</u> 2004 Award Date	<u>FY</u> 2005 Cost	<u>FY</u> 2005 Award Date	<u>Cost to Complete</u>	<u>Total</u> Cost	<u>Target</u> Value of Contract
<u>(U) Product Development</u> PM-PSE (US Army) Subtotal Product Development Remarks:	MIPR		0.000	0.000		6.909	Dec-03	9.354		Continuing	TBD	
<u>(U) Support</u> Subtotal Support Remarks:			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
<u>(U) Management</u> Program Office Support Subtotal Management Remarks:			0.000	0.000		0.290		0.390		Continuing	TBD	
<u>(U) PM-PSE (US Army)</u> Subtotal PM-PSE (US Army) Remarks:			0.000	0.000		0.290		0.390		Continuing	TBD	0.000
<u>(U) Total Cost</u> Remarks:			0.000	0.000		7.199		9.744		Continuing	TBD	0.000

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

DATE

**February 2004**

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**

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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>		DATE <b>February 2004</b>
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BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0604287F Physical Security Equipment</b>	PROJECT NUMBER AND TITLE <b>5120 Physical Security Equipment - SD/ED</b>
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<b>(U) <u>Schedule Profile</u></b>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Begin EMD of BAIS		1Q	
(U) BAIS Milestone C Decision			2Q
(U) BAIS Production Verification Tests			3Q
(U) MDARS EMD		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

**UNCLASSIFIED**

PE NUMBER: 0604329F  
 PE TITLE: Small Diameter Bomb

Exhibit R-2, RDT&E Budget Item Justification								DATE February 2004	
BUDGET ACTIVITY 05 System Development and Demonstration (SDD)				PE NUMBER AND TITLE 0604329F Small Diameter Bomb					
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	56.292	125.373	76.489	85.525	87.257	77.760	56.490	0.000	378.360
5006 Small Diameter Bomb	56.292	125.373	76.489	85.525	87.257	77.760	56.490	0.000	378.360

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

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

DATE

February 2004

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604329F Small Diameter Bomb

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	53.118	126.447	67.685
(U) Current PBR/President's Budget	56.292	125.373	76.489
(U) Total Adjustments	3.174	-1.074	
(U) Congressional Program Reductions	0.000	0.000	
Congressional Rescissions	0.000	-1.074	
Congressional Increases	0.000	0.000	
Reprogrammings	3.999	0.000	
SBIR/STTR Transfer	-0.825	0.000	

(U) **Significant Program Changes:**

FY05-09: Adjustment takes advantage of a successful competitive downselect that acquires SDB at a less expensive cost. SDB is an incremental development weapon program that entered System Development and Demonstration phase of its first increment in FY04. This adjustment transferred procurement funding savings into R&D, funding development of the program's next increment. It also added \$9M to the baseline program in FY05, funding early and aggressive testing.



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

DATE  
**February 2004**

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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
5006 Small Diameter Bomb	56.292	125.373	76.489	85.525	87.257	77.760	56.490	0.000	378.360
Quantity of RDT&E Articles	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 Unmanned Combat Air Vehicle (UCAV). 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. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Complete Component Advanced Development (CAD) phase with two competing contractors.	45.388	0.000	0.000
(U) Continue CAD test support.	0.672	0.000	0.000
(U) Continue aircraft integration.	6.486	5.367	2.233
(U) Continue program office support.	3.048	3.742	4.936
(U) Continue mission support.	0.698	1.218	0.634
(U) Continue System Development and Demonstration (SDD) phase for fixed target variant.	0.000	105.605	61.504
(U) Continue SDD testing and continue test support.	0.000	9.441	7.182
(U) Total Cost	56.292	125.373	76.489

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

DATE

February 2004

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E (Lab 0603601F) App 3600	8.028	0.000	0.000	0.000	0.000	0.000	0.000	0.000	8.028
(U) Missile Procurement, AF, 0207327F, App 3020	0.000	0.000	29.257	59.011	112.075	102.864	138.385	994.577	1,436.169

(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.

**UNCLASSIFIED**

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

DATE

**February 2004**

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) <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>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to</u>	<u>Total</u>	<u>Target</u>
			<u>Prior to FY</u>	<u>2003</u>	<u>2003</u>	<u>2004</u>	<u>2004</u>	<u>2005</u>	<u>2005</u>	<u>Complete</u>	<u>Cost</u>	<u>Value of</u>
			<u>2003</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>			<u>Contract</u>
			<u>Cost</u>		<u>Date</u>		<u>Date</u>		<u>Date</u>			
(U) <u>Product Development</u>												
CAD Contract 1	FFP	Lockheed Martin, Orlando FL	31.533	22.522	Sep-01	0.000	N/A	0.000	N/A	0.000	54.055	54.055
CAD Contract 2	FFP	Boeing, St Louis MO	31.189	22.866	Sep-01	0.000	N/A	0.000	N/A	0.000	54.055	54.055
SDD Baseline Contract	CPAF	Boeing, St Louis MO	0.000	0.000	N/A	105.605	Oct-03	61.504	Oct-03	27.684	194.793	194.793
SDD Follow-on Increments	TBD	Boeing, St Louis MO	0.000	0.000	N/A	0.000	N/A	0.000	N/A	365.119	365.119	365.119
Subtotal Product Development			62.722	45.388		105.605		61.504		392.803	668.022	668.022
Remarks:												
(U) <u>Support</u>												
F-15 SPO	PO (In-House)	Wright Patterson AFB, OH	0.106	6.401	N/A	5.300	N/A	2.100	N/A	0.000	13.907	13.907
Other A/C SPOs	PO (In-House)	Wright Patterson AFB, OH	1.040	0.085	N/A	0.067	N/A	0.133	N/A	0.273	1.598	1.598
Sverdrup Inc.	C/CPAF	Eglin AFB, FL	1.871	2.132	Jun-01	1.684	Jun-01	2.058	Jun-01	8.727	16.472	16.472
Other	Misc	various	1.338	1.197	N/A	2.552	N/A	2.777	N/A	12.699	20.563	20.563
Subtotal Support			4.355	9.815		9.603		7.068		21.699	52.540	52.540
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
46 TW	PO (In-House)	Eglin AFB, FL	0.160	0.672	N/A	9.441	N/A	7.182	N/A	1.060	18.515	18.515
Subtotal Test & Evaluation			0.160	0.672		9.441		7.182		1.060	18.515	18.515
Remarks:												
(U) <u>Management</u>												
Madison Research	C/CPAF	Eglin AFB, FL	0.189	0.417	Jun-01	0.724	Jun-01	0.735	Jun-01	3.070	5.135	5.135
Subtotal Management			0.189	0.417		0.724		0.735		3.070	5.135	5.135
Remarks:												
(U) Total Cost			67.426	56.292		125.373		76.489		418.632	744.212	744.212

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE  
0604329F Small Diameter Bomb

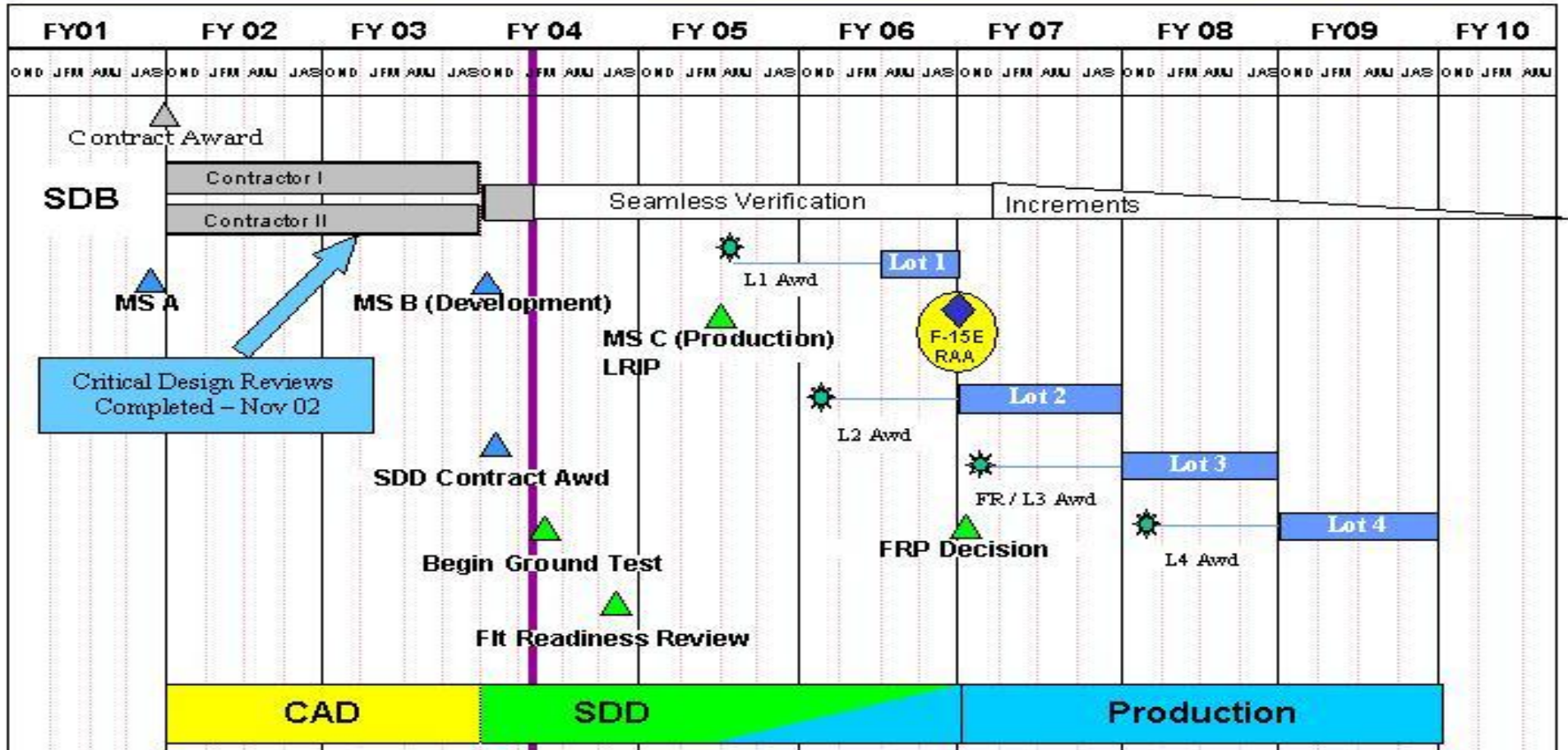
PROJECT NUMBER AND TITLE  
5006 Small Diameter Bomb

# SDB Program

*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 2004</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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <b><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) Flight Readiness Review		4Q	
(U) Milestone C			3Q
(U) Low Rate Initial Production (LRIP) Contract Award			3Q

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**UNCLASSIFIED**

PE NUMBER: 0604421F  
 PE TITLE: Counterspace Systems

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	<b>DATE</b> <b>February 2004</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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	37.077	81.629	75.863	27.753	32.746	28.909	77.140	Continuing	TBD
A001 Counter Satellite Communications System	10.664	9.494	6.240	6.338	6.517	6.693	6.834	Continuing	TBD
A002 Counter Surveillance Reconnaissance System	20.455	65.579	53.224	4.971	14.156	9.813	3.732	Continuing	TBD
A003 Rapid Identification Detection and Reporting System (RAIDRS)	5.958	6.556	16.399	16.444	12.073	12.403	66.574	Continuing	TBD
A005 Offensive Counterspace (OCS) C2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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

This program supports the conduct of critical planning, technology maturation/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 systems (satellites, communications links, and supporting ground systems) from natural threats and from enemy attempts to negate or interfere with space operations. 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.

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2004</b>
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BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0604421F Counterspace Systems</b>
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<b>(U) <u>B. Program Change Summary (\$ in Millions)</u></b>		<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget		39.458	82.565	76.061
(U) Current PBR/President's Budget		37.077	81.629	75.863
(U) Total Adjustments		-2.381	-0.936	
(U) Congressional Program Reductions			-0.235	
Congressional Rescissions			-0.701	
Congressional Increases				
Reprogrammings				
SBIR/STTR Transfer		-2.381		
(U) <u>Significant Program Changes:</u>				
None				



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

DATE  
**February 2004**

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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
A001 Counter Satellite Communications System	10.664	9.494	6.240	6.338	6.517	6.693	6.834	Continuing	TBD
Quantity of RDT&E Articles	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 a mobile/transportable counter satellite communications system 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 a capability 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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments/Planned Program	0.000	0.000	0.000
(U) Continue to develop, integrate, test, and field a lightweight, transportable Counter Satellite Communications System	9.424	7.894	4.470
(U) Begin work on the next Block (Block 20) advanced counter communications system			0.600
(U) Program Office and other Technical Support	1.190	1.550	1.120
(U) Developmental Test/Operational Test (DT/OT) support	0.050	0.050	0.050
(U) Total Cost	10.664	9.494	6.240

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

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

**(U) D. Acquisition Strategy**

All contracts funded in this program element will be awarded using competitive procedures to the maximum extent possible.

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Exhibit R-3, RDT&E Project Cost Analysis										DATE February 2004		
BUDGET ACTIVITY 05 System Development and Demonstration (SDD)					PE NUMBER AND TITLE 0604421F Counterspace Systems				PROJECT NUMBER AND TITLE A001 Counter Satellite Communications System			
(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</u> <u>Prior to FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
(U) <u>Product Development</u> System Development & Future Capability Studies	MAPIC CPAF	Northrop Grumman, Redondo Beach, CA		9.424	Nov-02	7.894	Nov-03	5.070	Nov-04	Continuing	TBD	22.100
Subtotal Product Development			0.000	9.424		7.894		5.070		Continuing	TBD	22.100
Remarks:												
(U) <u>Support</u> System Program Office Support & Architecture Engineering	Various	SMC, El Segundo, CA		1.190	Oct-02	1.550	Oct-03	1.120	Oct-04	Continuing	TBD	
Subtotal Support			0.000	1.190		1.550		1.120		Continuing	TBD	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u> DT/OT	MIPR	AFOTEC, Albuquerque, NM	0.000	0.050	Nov-02	0.050	Oct-03	0.050	Nov-04	Continuing	TBD	
Subtotal Test & Evaluation			0.000	0.050		0.050		0.050		Continuing	TBD	0.000
Remarks:												
(U) <u>Management</u> Subtotal Management			0.000	0.000		0.000		0.000			0.000	0.000
Remarks:												
(U) Total Cost			0.000	10.664		9.494		6.240		Continuing	TBD	22.100

Exhibit R-4, RDT&E Schedule Profile

DATE

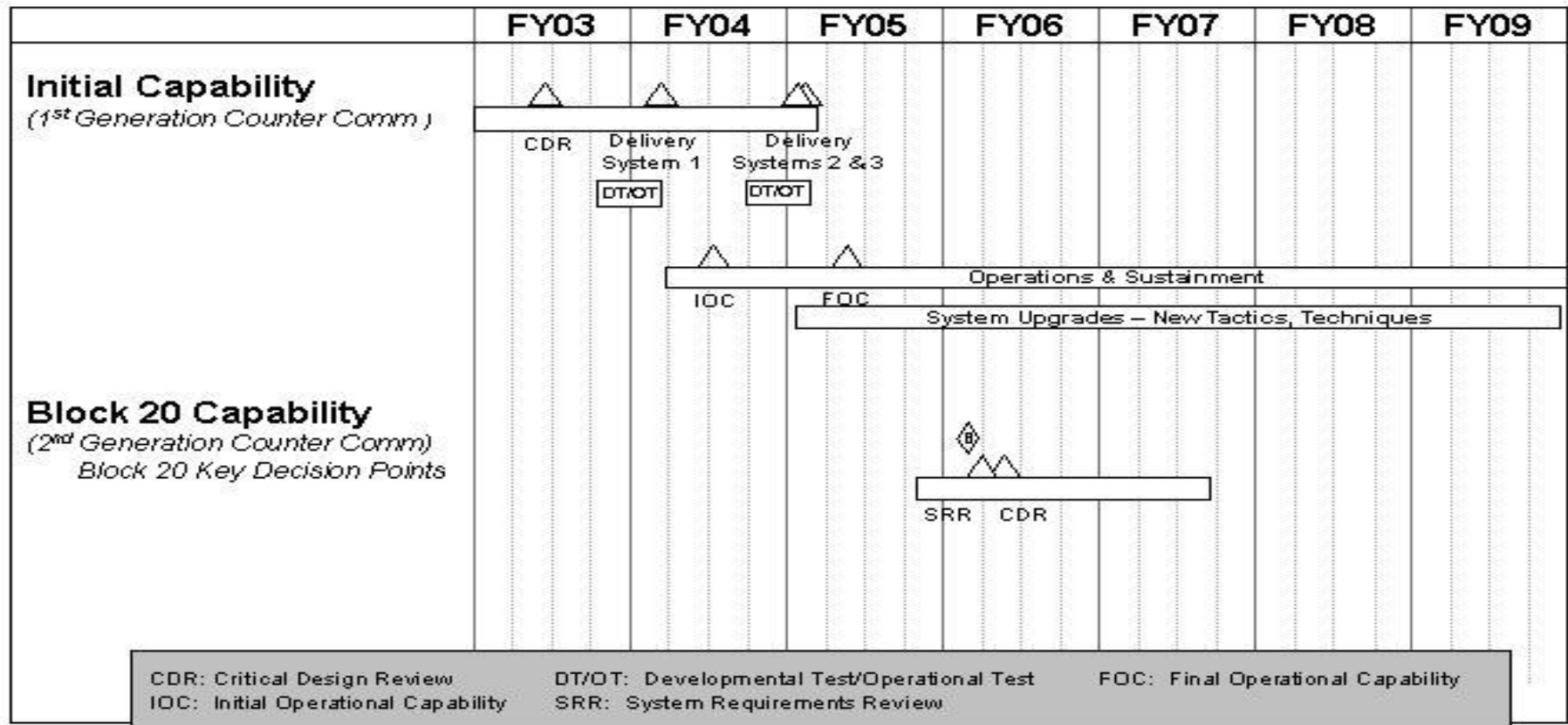
February 2004

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



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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2004</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>A001 Counter Satellite Communications System</b>
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	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <b><u>Schedule Profile</u></b>			
(U) CDR	2Q		
(U) 1st System Delivery		1Q	
(U) 1st System Development/Operational Test		1Q	
(U) System 2 & 3 delivery			1Q

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

DATE

February 2004

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)				PE NUMBER AND TITLE 0604421F Counterspace Systems			PROJECT NUMBER AND TITLE A002 Counter Surveillance Reconnaissance System		
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
A002 Counter Surveillance Reconnaissance System	20.455	65.579	53.224	4.971	14.156	9.813	3.732	Continuing	TBD
Quantity of RDT&E Articles	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 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 includes system hardware design and development, software design and integration, and testing and procurement to provide a capability to counter space based systems in response to USSTRATCOM requirements. This program continues systems integration and test studies, and related support activities necessary for the development of a counter surveillance reconnaissance system.

## 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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments/Planned Program	0.000	0.000	0.000
(U) Continue engineering and manufacturing development of a Counter Surveillance Reconnaissance System and associated command and control. Includes acquisition of an EMD unit.	13.509	48.264	35.889
(U) Continue specific technology and risk reduction development for the Counter Surveillance Reconnaissance System.	4.280	11.400	11.400
(U) Continue development and implementation of modeling and simulation codes specific to Counter Surveillance Reconnaissance threats. Includes vulnerability analysis of these threats.	0.800	2.300	2.700
(U) Support Component Field Testing	0.500	1.300	1.300
(U) Program Office and Other Technical Support	1.366	2.315	1.935
(U) Total Cost	20.455	65.579	53.224

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

	<u>FY 2003</u> <u>Actual</u>	<u>FY 2004</u> <u>Estimate</u>	<u>FY 2005</u> <u>Estimate</u>	<u>FY 2006</u> <u>Estimate</u>	<u>FY 2007</u> <u>Estimate</u>	<u>FY 2008</u> <u>Estimate</u>	<u>FY 2009</u> <u>Estimate</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) OPAF (PE 0604421F), Counterspace Systems				57.251	38.147	31.179	35.337	Continuing	TBD

(U) **D. Acquisition Strategy**

All contracts funded in this program element will be awarded using competitive procedures to the maximum extent possible.

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

DATE

**February 2004**

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
<b>05 System Development and Demonstration (SDD)</b>				<b>0604421F Counterspace Systems</b>				<b>A002 Counter Surveillance Reconnaissance System</b>				
<u>(U) Cost Categories</u>	<u>Contract Method</u>	<u>Performing Activity &amp;</u>	<u>Total</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to</u>	<u>Total</u>	<u>Target</u>
(Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>&amp; Type</u>	<u>Location</u>	<u>Prior to FY</u>	<u>2003</u>	<u>2003</u>	<u>2004</u>	<u>2004</u>	<u>2005</u>	<u>2005</u>	<u>Complete</u>	<u>Cost</u>	<u>Value of</u>
			<u>2003</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>			<u>Contract</u>
			<u>Cost</u>		<u>Date</u>		<u>Date</u>		<u>Date</u>			
<u>(U) Product Development</u>												
System Development	MAPIC CPAF	Northrop Grumman, Redondo Beach, CA	0.000	13.509	Nov-02	48.264	Nov-03	35.889	Nov-04	Continuing	TBD	
Technology & Risk Reduction	Various	AFRL, Albuquerque, NM	0.000	5.080	Nov-02	13.700	Nov-03	14.100	Nov-04	Continuing	TBD	
Subtotal Product Development			0.000	18.589		61.964		49.989		Continuing	TBD	0.000
Remarks:												
<u>(U) Support</u>												
Program Office Support for CSRS	Various	SMC, El Segundo, CA		0.775	Nov-02	0.840	Nov-03	0.960	Nov-04	Continuing	TBD	
Independent Program Assessment	TBD	TBD				0.500					0.500	
Program Office Support for CSRS	MIPR	AFRL, Albuquerque, NM	0.000	0.591	Oct-02	0.975	Nov-03	0.975	Nov-04	Continuing	TBD	
Subtotal Support			0.000	1.366		2.315		1.935		Continuing	TBD	0.000
Remarks:												
<u>(U) Test &amp; Evaluation</u>												
AFRL	MIPR		0.000	0.500		1.300		1.300		Continuing	TBD	
Subtotal Test & Evaluation			0.000	0.500		1.300		1.300		Continuing	TBD	0.000
Remarks:												
<u>(U) Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Total Cost</u>			0.000	20.455		65.579		53.224		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

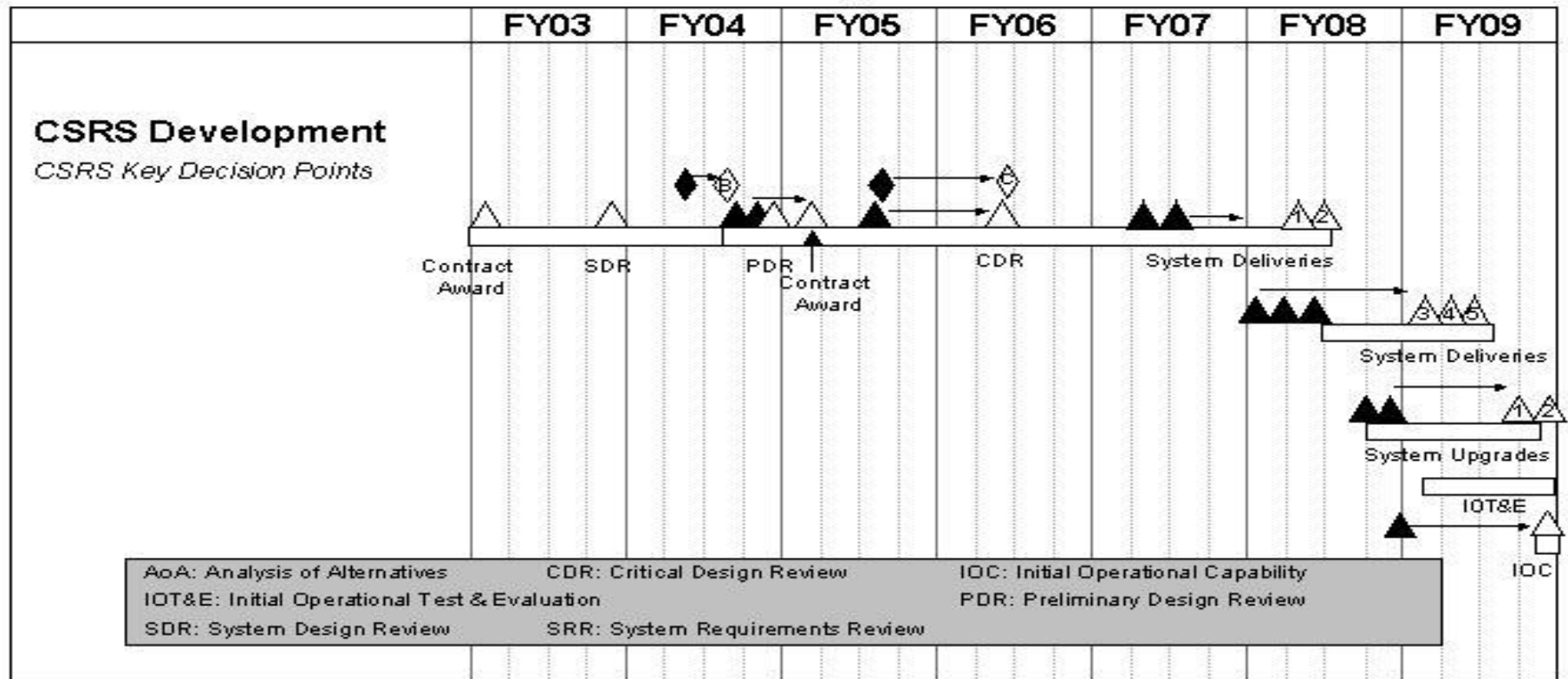
February 2004

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



UNCLASSIFIED

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2004</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>A002 Counter Surveillance Reconnaissance System</b>
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	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <b><u>Schedule Profile</u></b>			
(U) System Design Review	4Q		
(U) Updated Capability Development Document Completed		2Q	
(U) KDP B		3Q	
(U) Design Phase Contract Award			1Q
(U) Preliminary Design Review		4Q	



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

DATE  
**February 2004**

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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
A003 Rapid Identification Detection and Reporting System (RAIDRS)	5.958	6.556	16.399	16.444	12.073	12.403	66.574	Continuing	TBD
Quantity of RDT&E Articles	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. The concepts explored will investigate the technical architecture, operational concept, support concept development, 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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments/Planned Program	0.000	0.000	0.000
(U) Begin pre-acquisition demonstration, exercises, and experiments of possible RAIDRS technologies.	1.106		
(U) Continue concept definition, pre-acquisition architecture development and system development of a Rapid Attack Identification Detection and Reporting System.	3.124	4.290	12.999
(U) Continue architecture demonstration, risk reduction and technology development activities to support the RAIDRS development and mission area requirements.	1.125	1.662	2.000
(U) Program Office and Other Technical Support	0.603	0.604	1.400
(U) Total Cost	5.958	6.556	16.399

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) OPAF (PE 0604421F), Counterspace Systems					25.717	27.178	24.078	Continuing	TBD

**(U) D. Acquisition Strategy**

All contracts funded in this program element will be awarded using competitive procedures to the maximum extent possible.

UNCLASSIFIED

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

DATE

**February 2004**

BUDGET ACTIVITY			PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
<b>05 System Development and Demonstration (SDD)</b>			<b>0604421F Counterspace Systems</b>					<b>A003 Rapid Identification Detection and Reporting System (RAIDRS)</b>				
<u>(U) Cost Categories</u>	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to</u>	<u>Total</u>	<u>Target</u>
(Tailor to WBS, or System/Item Requirements) (\$ in Millions)			<u>Prior to FY</u>	<u>2003</u>	<u>2003</u>	<u>2004</u>	<u>2004</u>	<u>2005</u>	<u>2005</u>	<u>Complete</u>	<u>Cost</u>	<u>Value of</u>
			<u>2003</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>			<u>Contract</u>
			<u>Cost</u>		<u>Date</u>		<u>Date</u>		<u>Date</u>			
<u>(U) Product Development</u>												
Architecture Development & Systems Engineering	MAPIC CPAF	Northrop Grumman, Redondo Beach, CA	0.000	4.230	Nov-02	4.290	Dec-03	12.999	Oct-04	Continuing	TBD	
Risk Reduction	TBD	TBD	0.000	1.125		1.662		2.000	Jan-05	Continuing	TBD	
Subtotal Product Development			0.000	5.355		5.952		14.999		Continuing	TBD	0.000
Remarks:												
<u>(U) Support</u>												
Program Office Support for RAIDRS	Various	SMC, El Segundo	0.000	0.603	Oct-02	0.604	Oct-03	1.400	Oct-04	Continuing	TBD	
Subtotal Support			0.000	0.603		0.604		1.400		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>(U) Total Cost</u>			0.000	5.958		6.556		16.399		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

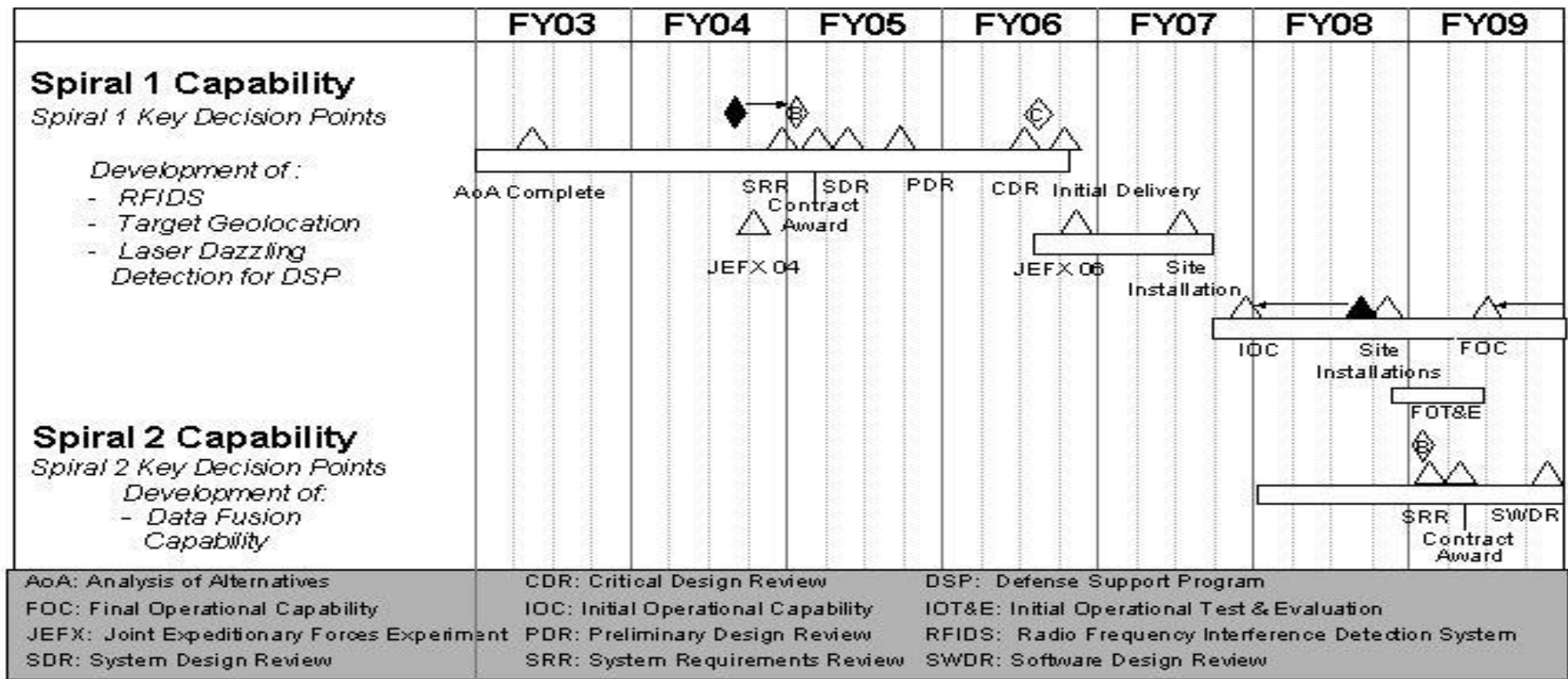
February 2004

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



**UNCLASSIFIED**

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2004</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>A003 Rapid Identification Detection and Reporting System (RAIDRS)</b>
---	---	--

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <b><u>Schedule Profile</u></b>			
(U) Acquisition Program New Start	1Q		
(U) Potential 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 Milestone Decision (KDP B)			1Q
(U) System Development and Demonstration Contract Award			2Q

**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 2004</b>	
<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>					
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	775.346	610.230	508.448	373.353	310.628	381.646	342.713	984.700	6,986.751
3616 SBIRS High Element EMD	775.346	610.230	508.448	373.353	310.628	381.646	342.713	984.700	6,986.751

**(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 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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	775.395	617.229	508.919
(U) Current PBR/President's Budget	775.346	610.230	508.448
(U) Total Adjustments	-0.049	-6.999	
(U) Congressional Program Reductions		-6.999	
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer	-0.049		
(U) <u>Significant Program Changes:</u>			

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

DATE

February 2004

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			
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total	
3616 SBIRS High Element EMD	775.346	610.230	508.448	373.353	310.628	381.646	342.713	984.700	6,986.751	
Quantity of RDT&E Articles	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 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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Continue EMD contracts for Space and Ground segment development (includes GFE, continued GEO satellite development, GEO 1&2 integration, assembly and test, HEO development/production, HEO 2 integration, assembly, and test, Ground System development, System Engineering and Program Management, Increment 1 Pre-operations support, Host SPO support, Combined Task Force (CTF) support activities, and continue systems integration and test studies, and related support activities).	736.070		
(U) Continue System Program Office Support.	13.772	7.508	8.849
(U) Continue technical analysis and independent verification and validation of contractor by FFRDC.	25.504	27.482	26.494
(U) Continue EMD contracts for Space and Ground segment development (includes GFE, continued GEO development, GEO 1&2 integration, assembly and test, HEO development/production/on-orbit support, HEO 2 integration, assembly and test, Ground System development, System Engineering and Program Management, Host SPO support, Technical Intelligence activities, CTF support activities, and continue systems integration and test studies, and related support activities).		575.240	473.105
(U) Total Cost	775.346	610.230	508.448

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

DATE

February 2004

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) 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 2004		
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) 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</u> Prior to FY 2003 Cost	<u>FY</u> 2003 Cost	<u>FY</u> 2003 Award	<u>FY</u> 2004 Cost	<u>FY</u> 2004 Award	<u>FY</u> 2005 Cost	<u>FY</u> 2005 Award	<u>Cost to Complete</u>	<u>Total</u> Cost	<u>Target</u> Value of Contract
(U) <u>Product Development</u>												
LMMS & Hughes (Pre-SDD)	C/CPFF		159.600							0.000	159.600	
LMMS (SDD)	C/CPAF	Lockheed Martin, Sunnyvale, CA	2,352.564	736.070	Oct-02	575.240	Oct-03	473.105	Oct-04	2,168.386	6,305.365	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			2,555.894	736.070		575.240		473.105		2,168.386	6,508.695	6,305.386
Remarks:												
(U) <u>Support</u>												
Aerospace Corp	MORD	Aerospace Corp, El Segundo CA	98.417	25.504	Oct-02	27.482	Oct-03	26.494	Oct-04	151.726	329.623	329.623
Prgm Mgmt Supt	Various	Various	45.376	13.772	Oct-02	7.508	Oct-03	8.849	Oct-04	72.928	148.433	153.542
Subtotal Support			143.793	39.276		34.990		35.343		224.654	478.056	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
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			2,699.687	775.346		610.230		508.448		2,393.040	6,986.751	6,788.551



Exhibit R-4, RDT&E Schedule Profile

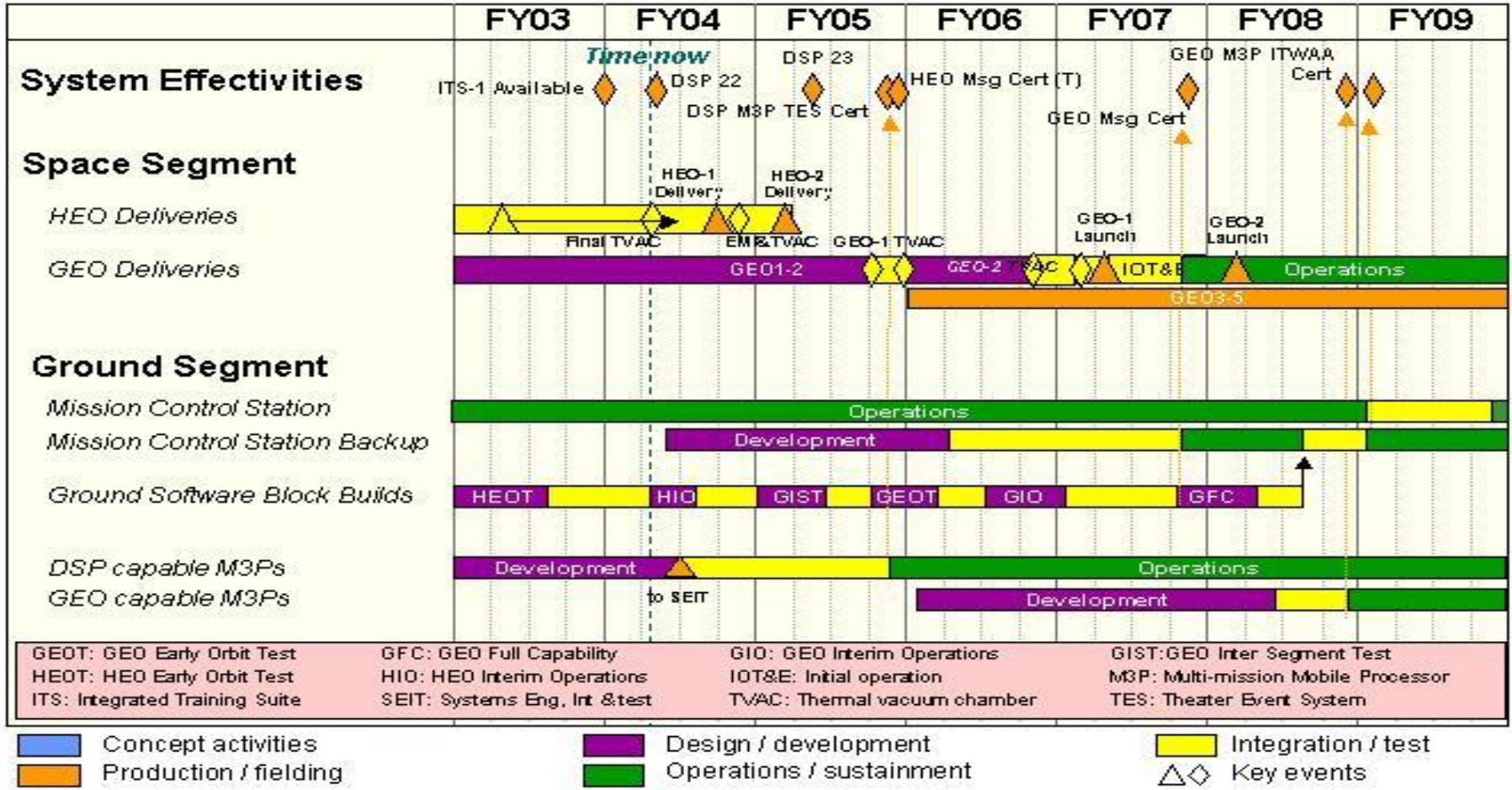
DATE

February 2004

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



<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2004</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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Effectivity 1 - Interim Mission Control Station - Backup (IMCS-B) Certification	1Q		
(U) Integrated Training System available	4Q		
(U) HEO sensor #1 delivery		4Q	
(U) DSP capable M3P to Systems engineering, integration & test team (SEIT)		2Q	
(U) HEO interim operations		2-3Q	
(U) HEO Sensor #2 Delivery			1Q
(U) Effectivity 3 HEO message certification			4Q
(U) Effectivity 4 - DM3P Theater Event System (TES) Certification			4Q

**UNCLASSIFIED**

PE NUMBER: 0604479F  
 PE TITLE: MILSTAR LDR/MDR Sat Comm

Exhibit R-2, RDT&E Budget Item Justification								DATE <b>February 2004</b>	
BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>				PE NUMBER AND TITLE <b>0604479F MILSTAR LDR/MDR Sat Comm</b>					
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	148.291	1.367	1.380	0.000	0.000	0.000	0.000	0.000	9,703.837
5010 Milstar Sat Comm Sys	148.291	1.367	1.380	0.000	0.000	0.000	0.000	0.000	9,703.837

(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 communication terminals for survivable, jam-resistant, worldwide, secure communications to strategic and tactical war fighters. 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. Milstar satellites 4 and 5 were launched successfully in 2001 and 2002, respectively. The final Milstar satellite was successfully launched on 8 Apr 2003 and was declared operational in Dec 2003. Milstar Terminals are funded under Program Element 0303601F. This program is in Budget Activity 5, System Development and Demonstration since it funds Milstar II development.

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	148.795	1.383	1.384
(U) Current PBR/President's Budget	148.291	1.367	1.380
(U) Total Adjustments	-0.504	-0.016	
(U) Congressional Program Reductions		-0.016	
Congressional Rescissions			
Congressional Increases			
Reprogrammings	-0.504		
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			
None.			

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

DATE  
**February 2004**

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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total	
5010 Milstar Sat Comm Sys	148.291	1.367	1.380	0.000	0.000	0.000	0.000	0.000	9,703.837	
Quantity of RDT&E Articles	1	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 communication terminals for survivable, jam-resistant, worldwide, secure communications to strategic and tactical war fighters. 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. Milstar satellites 4 and 5 were launched successfully in 2001 and 2002, respectively. The final Milstar satellite was successfully launched on 8 Apr 2003 and was declared operational in Dec 2003. Milstar Terminals are funded under Program Element 0303601F.

This program is in Budget Activity 5, System Development and Demonstration since it funds Milstar II development.

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Completed Milstar II contract effort includes Satellite 6 launch and on-orbit checkout and testing. Also completed component integration support (including Mission Control System service life extension) and implementation of ECPs as operationally required. Conducted Milstar MOT&E to meet IOC II.	59.443		
(U) Completed Milstar I/II Satellite Engineering contract effort includes launch/ pre-launch technical support for Satellite and maintains constellation availability for Satellites 1, 2, 4, 5 and 6. The constellation's increasing complexities in code and amounts of processors drives the importance of maintaining this line item. Note: This effort transitioned to 3400 in FY04.	60.656		
(U) Completed Communications Planning Element included software development and maintenance. -- Automated Communications Management System (ACMS) development, testing, training and certification -- Mission Communications Planning Tool (MCPT) maintenance	9.531		
(U) Continued Joint Integrated SATCOM Technology (JIST) development	5.392		
(U) Program Office Support	13.269	0.072	0.080
(U) Complete Milstar II contract effort which includes contract close out and the disposal of GFP		1.295	1.300
(U) Total Cost	148.291	1.367	1.380

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

DATE

February 2004

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) C. Other Program Funding Summary (\$ in Millions)(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 2004		
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) 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 2003 Cost</u>	<u>FY 2003 Cost</u>	<u>FY 2003 Award Date</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
LMSC (Milstar I) Sats 1,2,3L]	C/CPAF		4,727.752							0.000	4,727.752	
LMSC (Milstar II) [Sats 3M, 4, 5, 6]	SS/CPAF		3,812.703	59.443		1.295		1.300		0.000	3,874.741	
LMSC (Satellite Engineering)	SS/CPAF		161.467	60.656						0.000	222.123	
SPAWAR(ACMS)	SS/MIPR		165.406							0.000	165.406	
LINCOM	SS/CPAF		37.160							0.000	37.160	
Lincoln Lab	SS/MIPR		33.235							0.000	33.235	
Miscellaneous	Various		257.982	14.923						0.000	272.905	
Subtotal Product Development			9,195.705	135.022		1.295		1.300		0.000	9,333.322	0.000
Remarks:												
(U) <u>Support</u>												
Aerospace	SS/CPFF/AF		196.269							0.000	196.269	
Miscellaneous	Various		160.825	13.269		0.072		0.080		0.000	174.246	
Subtotal Support			357.094	13.269		0.072		0.080		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
Remarks:												
(U) <u>Management</u>												
None.											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			9,552.799	148.291		1.367		1.380		0.000	9,703.837	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

BUDGET ACTIVITY

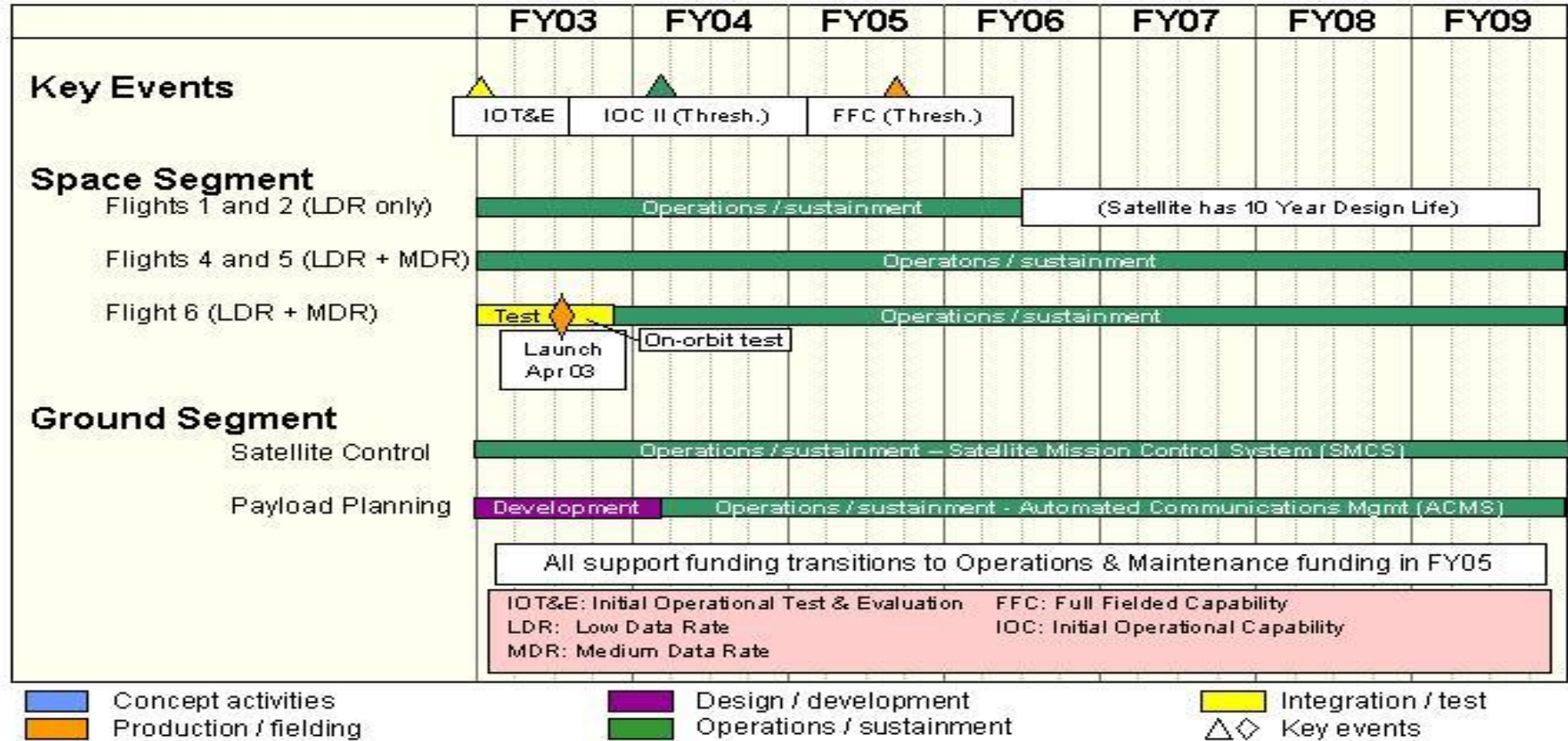
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604479F MILSTAR LDR/MDR Sat  
Comm

PROJECT NUMBER AND TITLE

5010 Milstar Sat Comm Sys



**UNCLASSIFIED**

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>		DATE <b>February 2004</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>	PROJECT NUMBER AND TITLE <b>5010 Milstar Sat Comm Sys</b>
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<b>(U) <u>Schedule Profile</u></b>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Satellite 6 Launch	3Q		
(U) Initial Operational Capability (IOC) II		1Q	
(U) Full Fielded Capability (replaced Final Operational Capability in current APB)			3Q



**UNCLASSIFIED**

PE NUMBER: 0604600F  
 PE TITLE: Munitions Dispenser Development

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2004</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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	3.363	17.499	28.048	21.992	0.000	0.000	0.000	0.000	65.985
1015 Wind Corrected Munitions Dispenser (WCMD) Kit	3.363	17.499	28.048	21.992	0.000	0.000	0.000	0.000	65.985

**(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-103 (soft and area targets and CBU-105 (anti-armor targets) dispensers. Wind Corrected Munitions Dispenser Extended Range (WCMD-ER) will increase the standoff range with GPS guidance, maintaining current weapon effectiveness on both bombers and fighters. 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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	3.463	15.849	24.621
(U) Current PBR/President's Budget	3.363	17.499	28.048
(U) Total Adjustments	-0.100	1.650	
(U) Congressional Program Reductions	0.000		
Congressional Rescissions	0.000	-0.150	
Congressional Increases	0.000	1.800	
Reprogrammings	0.000		
SBIR/STTR Transfer	-0.100		

**(U) Significant Program Changes:**

FY04 includes \$1.8M provided by Congress for the Passive Attack Weapon program.

FY05 increase was due to a ZBT from WCMD Production budget (PE 27600F).

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

DATE  
**February 2004**

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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
1015 Wind Corrected Munitions Dispenser (WCMD) Kit	3.363	17.499	28.048	21.992	0.000	0.000	0.000	0.000	65.985
Quantity of RDT&E Articles	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-103 (soft and area targets and CBU-105 (anti-armor targets) dispensers. Wind Corrected Munitions Dispenser Extended Range (WCMD-ER) will increase the standoff range with GPS guidance, maintaining current weapon effectiveness on both bombers and fighters. 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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments/Planned Program.	0.000	0.000	0.000
(U) Initiate WCMD-ER design contract.	3.283	0.000	0.000
(U) Initiate engineering/program office support.	0.000	0.000	0.000
(U) Initiate Passive Attack Weapon development.	0.000	1.800	0.000
(U) Continue WCMD-ER contract to design and procure test hardware.	0.000	12.361	18.568
(U) Continue aircraft integration and testing on F-16 and B-52 and	0.080	1.193	6.147
(U) Continue engineering support, program office support, and other government support.	0.000	2.145	3.333
(U) Total Cost	3.363	17.499	28.048

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
Procurement of Ammunition,									
(U) AF	94.638	71.876	58.670	47.263	65.724	60.408	72.884	266.459	737.922
P-1 Line Item 23									

**(U) D. Acquisition Strategy**

This program has been approved as a Lockheed-Martin pre-planned product improvement by the Secretary of the Air Force. The System Design and Development 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

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

DATE

**February 2004**

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**

production contracts.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis										DATE February 2004		
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		
(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</u> Prior to FY 2003 Cost	<u>FY</u> 2003 Cost	<u>FY</u> 2003 Award Date	<u>FY</u> 2004 Cost	<u>FY</u> 2004 Award Date	<u>FY</u> 2005 Cost	<u>FY</u> 2005 Award Date	<u>Cost to Complete</u>	<u>Total</u> Cost	<u>Target</u> Value of Contract
(U) <u>Product Development</u>												
Lockheed Martin	C/CPAF	Missile & Fire Control, Orlando, FL	0.000	3.283	Jun-03	12.361	Dec-03	18.568	Dec-04	9.385	43.597	43.597
Passive Attack Weapon (Contract Award TBD)	TBD	TBD	0.000	0.000		1.800					1.800	1.800
Subtotal Product Development			0.000	3.283		14.161		18.568		9.385	45.397	45.397
Remarks:												
(U) <u>Support</u>												
AAC/YH	Various	Eglin AFB, FL	0.000	0.000		1.796		2.983		3.071	7.850	
Support Contracts	Various	Eglin AFB, FL	0.000	0.000		0.349	Oct-03	0.350	Oct-04	0.450	1.149	
Subtotal Support			0.000	0.000		2.145		3.333		3.521	8.999	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
46 OG/OGML	REO	Eglin AFB, FL	0.000	0.010	Oct-02	0.997	Oct-03	2.802	Oct-04	6.526	10.335	
Aircraft Integration	AF 616	Tinker AFB, OK and WPAFB, OH	0.000	0.070	Nov-02	0.196	Nov-03	3.345	Nov-04	2.560	6.171	
Subtotal Test & Evaluation			0.000	0.080		1.193		6.147		9.086	16.506	0.000
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			0.000	3.363		17.499		28.048		21.992	70.902	45.397

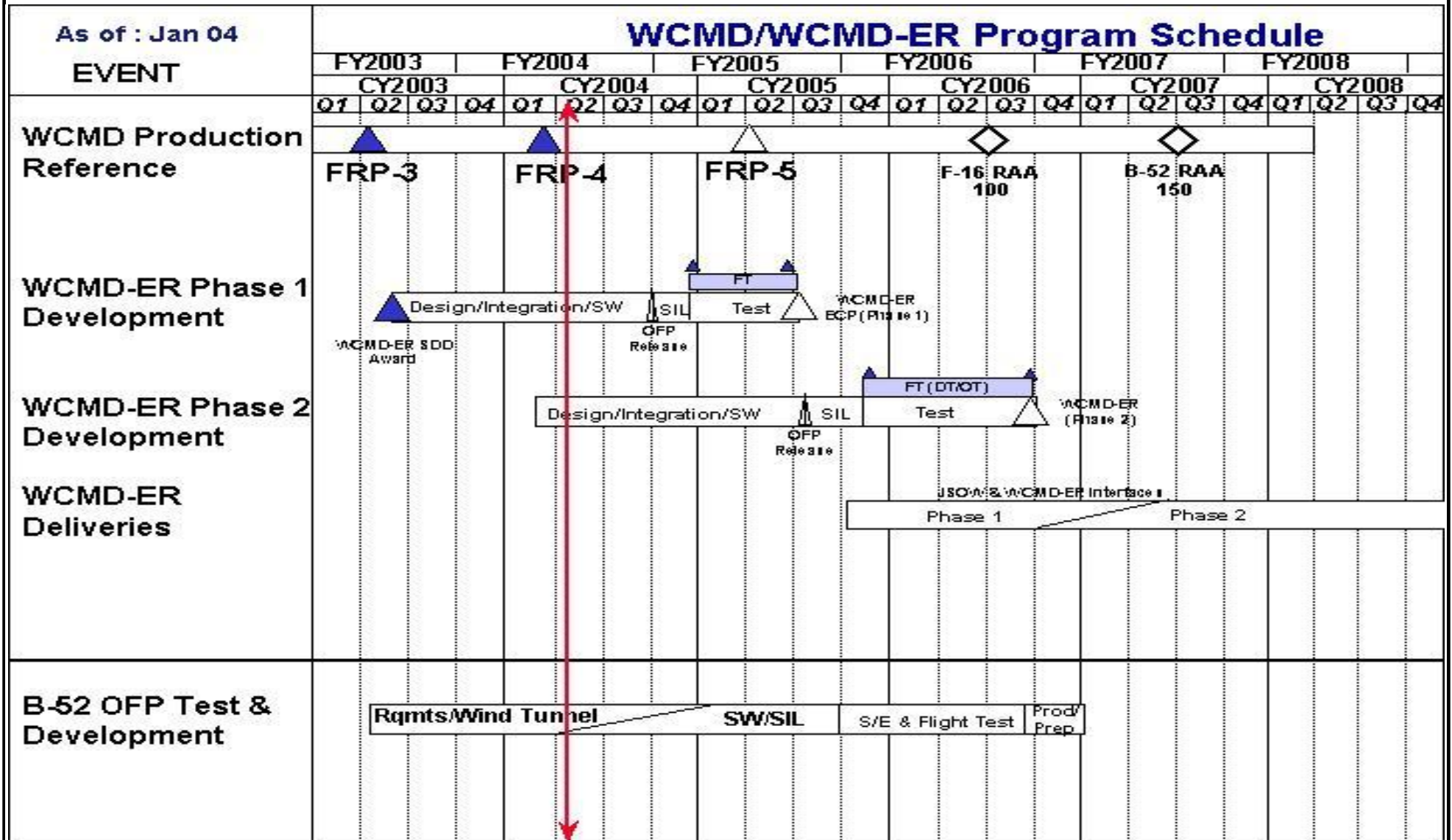
Exhibit R-4, RDT&E Schedule Profile

DATE  
February 2004

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



**UNCLASSIFIED**

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2004</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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	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <b>Schedule Profile</b>			
(U) SDD Contract Award/ Increment	3Q	1Q	
(U) System PDR		2Q	
(U) Phase 1 Flight Test Completion			4Q

**UNCLASSIFIED**

PE NUMBER: 0604602F  
 PE TITLE: Armament/Ordnance Development

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2004</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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	8.530	8.347	8.353	8.354	5.146	2.412	2.621	Continuing	TBD
3133 Bombs & Fuzes	7.245	6.973	6.936	6.924	3.690	0.933	1.014	Continuing	TBD
4696 Armament Standardization Program	1.150	1.238	1.275	1.285	1.305	1.326	1.441	Continuing	TBD
5613 Containers	0.135	0.136	0.142	0.145	0.151	0.153	0.166	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 and Insensitive Munitions (IM), an explosive fill 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.

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

DATE

February 2004

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604602F Armament/Ordnance Development

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	8.939	8.419	8.734
(U) Current PBR/President's Budget	8.530	8.347	8.353
(U) Total Adjustments	-0.409	-0.072	
(U) Congressional Program Reductions	0.000	0.000	
Congressional Rescissions	0.000	-0.072	
Congressional Increases	0.000	0.000	
Reprogrammings	-0.147	0.000	
SBIR/STTR Transfer	-0.262	0.000	
(U) <u>Significant Program Changes:</u>			
None			



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

DATE  
**February 2004**

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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
3133	Bombs & Fuzes	7.245	6.973	6.936	6.924	3.690	0.933	1.014	Continuing	TBD
	Quantity of RDT&E Articles	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) Joint Programmable Fuze (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. (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-2105B.

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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Complete Hard Target Smart Fuze Developmental Test and Evaluation (DT&E)	1.776	0.000	0.000
(U) Support Hard Target Smart Fuze Operational Utility Evaluation	0.269	0.000	0.000
(U) Continue Insensitive Munitions (IM) development effort. Conduct lab level performance tests, environmental tests, bomb case development performance tests, and prototype booster reliability tests	5.200	0.000	0.000
(U) Integrating the Joint Programmable Fuze on legacy weapons	0.000	0.940	0.486
(U) Formulate IM explosive development fill and integrate the fuze on IM filled bombs	0.000	2.697	0.858
(U) Conduct bomb case study and comparative testing	0.000	3.336	5.592
(U) Total Cost	7.245	6.973	6.936

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Procurement of Ammunition (AF), (PE 0208030F Joint Programmable Fuze)	2.750	5.143	11.447	34.744	44.899	44.169	43.291	Continuing	TBD

**(U) D. Acquisition Strategy**

Joint Programmable Fuze (JPF) acquisition strategy was full and open competition for Engineering and Manufacturing Development (EMD) with production options to perform specifications requirements for current and future munitions using the JPF. Acquisition strategy for Insensitive Munition is a competitive award for two contractors for concept technology development, then select one contractor for weapon qualification testing.

**UNCLASSIFIED**

Exhibit R-3, RDT&E Project Cost Analysis										DATE <b>February 2004</b>		
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>				
<u>(U) Cost Categories</u>	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
<u>(U) Product Development</u>												
Alliant (HTSF)	CPIF	Hopkins, MN	17.863	1.746	Aug-98	0.000	N/A	0.000	N/A	0.000	19.609	19.609
Air Force Research Lab/MN (IM)	In-house	Eglin AFB, FL	0.000	2.233	N/A	2.697	N/A	0.784	N/A	1.141	6.855	6.855
General Dynamics OTS (IM)	CPFF	Niceville, FL	0.000	1.026	May-03	0.568	May-03	1.855	May-03	0.772	4.221	4.221
AAC/WMO	In-house	Eglin AFB, FL	0.000	0.180	N/A	0.000	N/A	0.000	N/A	0.000	0.180	0.180
Subtotal Product Development			17.863	5.185		3.265		2.639		1.913	30.865	30.865
Remarks: AAC/WMO is part of the Program Office. CPIF = Cost Plus Incentive Fee; CPFF = Cost Plus Fixed Fee												
<u>(U) Support</u>												
TEAS/ TEAMS (HTSF)	FFP	Eglin AFB, FL	2.150	0.103	N/A	0.000	N/A	0.000	N/A	0.000	2.253	2.253
AAC/WMG (Fuzes)	In-house	Eglin AFB, FL	2.554	0.106	N/A	0.940	N/A	0.486	N/A	Continuing	TBD	TBD
AAC/WMG (IM)	In-house	Eglin AFB, FL	0.000	0.756	N/A	1.352	N/A	1.120	N/A	1.379	4.607	4.607
TEAS/TAMS (IM)	FFP	Eglin AFB, FL	0.000	0.730	N/A	0.614	N/A	0.685	N/A	1.099	3.128	3.128
Subtotal Support			4.704	1.695		2.906		2.291		Continuing	TBD	TBD
Remarks: TEAS/TAMS contractors provide support to the System Program Office (SPO) for technical (TEAS) and management/financial (TAMS) services. AAC/WMG is part of the Program Office. FFP = Firm Fixed Price												
<u>(U) Test &amp; Evaluation</u>												
46th Test Wing ( HTSF)	In-house	Eglin AFB, FL	1.575	0.060	N/A	0.000	N/A	0.000	N/A	0.000	1.635	1.635
46th Test Wing (IM)	In-house	Eglin AFB, FL	0.000	0.200	N/A	0.377	N/A	1.006	N/A	3.393	4.976	4.976
Navy, China Lake ( IM)	Navy	China Lake, CA	0.000	0.105	N/A	0.425	N/A	1.000	N/A	0.000	1.530	1.530
Subtotal Test & Evaluation			1.575	0.365		0.802		2.006		3.393	8.141	8.141
Remarks:												
<u>(U) Total Cost</u>			24.142	7.245		6.973		6.936		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

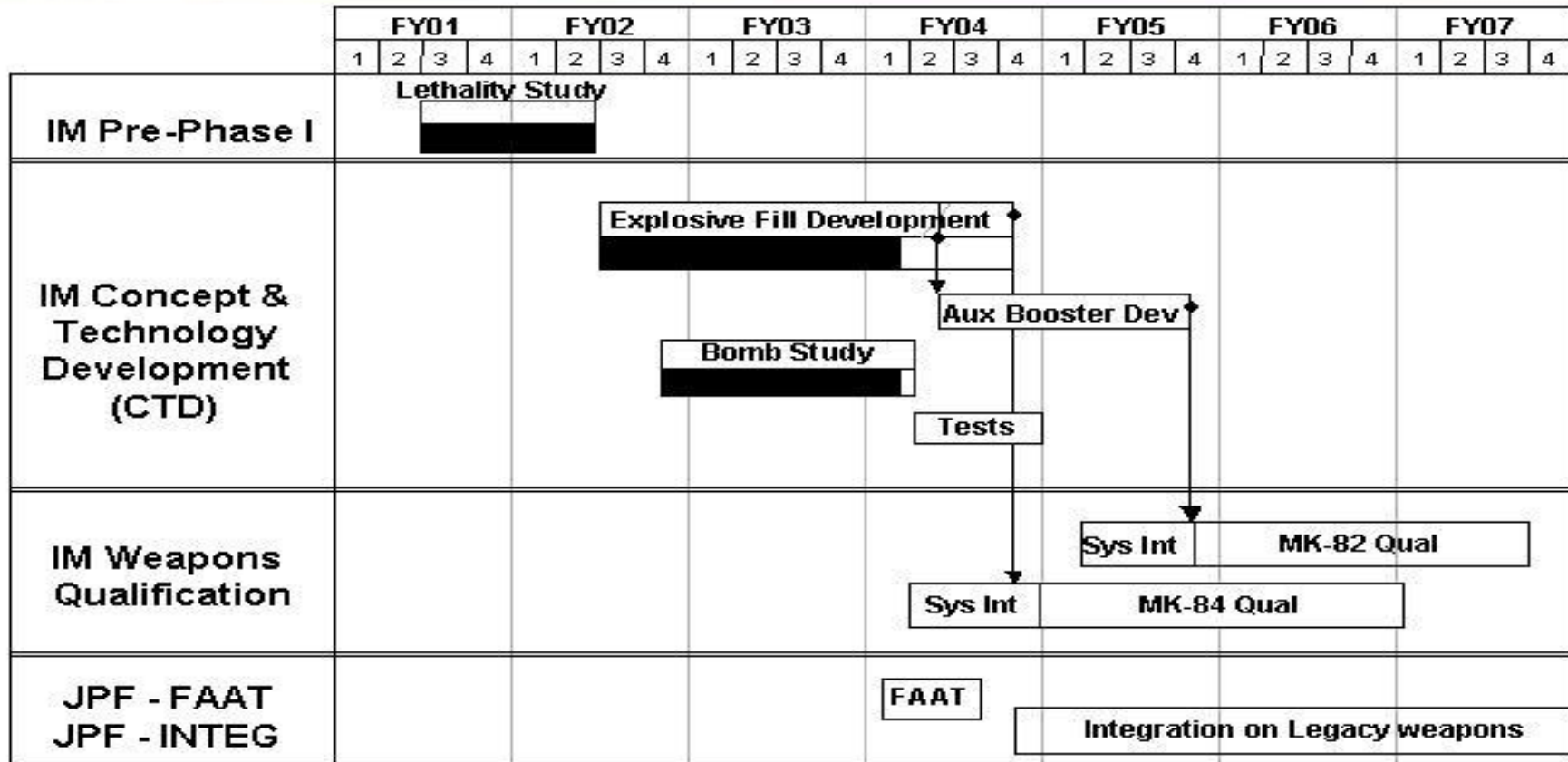
February 2004

BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE  
0604602F Armament/Ordnance  
Development

PROJECT NUMBER AND TITLE  
3133 Bombs & Fuzes

# In 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 2004</b>
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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>
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<u>(U) Schedule Profile</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) JOINT PROGRAMMABLE FUZE (JPF)			
(U) JPF First Article Acceptance Test (FAAT)		1-3Q	
(U) JPF Integration on Legacy Weapons		4Q	1-4Q
(U) INSENSITIVE MUNITIONS (IM)			
(U) IM Fill Development	1-4Q	1-3Q	
(U) IM Bomb Case Study/Test	1-4Q	1-2Q	
(U) Small-scale Sensitivity/Qual Testing		2-4Q	
(U) MK-84 IM System Integration/Weapons Qual		2-4Q	1-4Q
(U) MK-82 IM System Integration/Weapons Qual			2-4Q

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

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**February 2004**

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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
4696 Armament Standardization Program	1.150	1.238	1.275	1.285	1.305	1.326	1.441	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

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

Armament Standardization/Control/Munitions Material Handling Equipment (MMHE): This continuing project develops and improves the standardization and commonality of improved munitions handling and armament equipment to preclude duplication and proliferation. 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.

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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Design, prototype, and test various MMHE projects	1.150	1.238	1.275
(U) Total Cost	1.150	1.238	1.275

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

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

**(U) D. Acquisition Strategy**

MMHE is a continuing effort program with activities performed organically and/or contracted through Military Interdepartmental Purchase Requests (MIPR). Procurement will be performed and funded by the applicable equipment project.

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Exhibit R-3, RDT&E Project Cost Analysis										DATE <b>February 2004</b>			
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>			
<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>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>	
<u>(U) Support</u>													
TEAS/TAMS	FFP	Eglin AFB, FL	2.785	0.534	N/A	0.709	N/A	0.738	N/A	Continuing	TBD		
AAC/FM	In-house (RREO)	Eglin AFB, FL	0.611	0.063	N/A	0.070	N/A	0.077	N/A	Continuing	TBD		
64 SSUPS/LGS	In-house (RREO)	Eglin AFB, FL	0.226	0.290	N/A	0.294	N/A	0.298	N/A	Continuing	TBD		
EDSC	In-house (RREO)	Eglin AFB, FL	0.030	0.013	N/A	0.015	N/A	0.017	N/A	Continuing	TBD		
Subtotal Support			3.652	0.900		1.088		1.130		Continuing	TBD	0.000	
Remarks: TEAS/TAMS contractors provide support to the System Program Office (SPO) for technical (TEAS) and management/financial (TAMS) services. AAC/FM is part of the Program Office and 64 SSUPS/LGS and EDSC are other Govt (Defense) organizations. FFP = Firm Fixed Price; RREO = Reimbursable Order/Request for Support From other Agencies													
<u>(U) Test &amp; Evaluation</u>													
46th Test Wing	In-house (RREO)	Eglin AFB, FL	0.800	0.250	N/A	0.150	N/A	0.145	N/A	Continuing	TBD		
Subtotal Test & Evaluation			0.800	0.250		0.150		0.145		Continuing	TBD	0.000	
Remarks:													
<u>(U) Total Cost</u>			4.452	1.150		1.238		1.275		Continuing	TBD	0.000	

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

DATE

February 2004

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604602F Armament/Ordnance  
Development

PROJECT NUMBER AND TITLE

4696 Armament Standardization  
Program**Armament Standardization Program Schedule**

- Not Applicable

UNCLASSIFIED

Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2004

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604602F Armament/Ordnance  
Development

PROJECT NUMBER AND TITLE

4696 Armament Standardization  
Program

(U) Schedule Profile

FY 2003

FY 2004

FY 2005

(U) N/A



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

DATE  
**February 2004**

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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
5613 Containers	0.135	0.136	0.142	0.145	0.151	0.153	0.166	Continuing	TBD
Quantity of RDT&E Articles	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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Initiate/continue/complete design/development of various CDRS projects	0.006	0.006	0.006
(U) Provide container design expertise and technical support to programs such as Joint Standoff Weapon, Munitions Material Handling Equipment, and Small Diameter Bomb	0.006	0.006	0.006
(U) Manage and operate the CDRS database and support service	0.123	0.124	0.130
(U) Total Cost	0.135	0.136	0.142

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

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

**(U) D. Acquisition Strategy**

Not Applicable

UNCLASSIFIED

<b>Exhibit R-3, RDT&amp;E Project Cost Analysis</b>	DATE <b>February 2004</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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<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>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
<u>(U) Support</u>												
Sverdrup (TEAS)	FFP	Eglin AFB, FL	1.575	0.014	Jun-01	0.015	Jun-01	0.017	Jun-01	Continuing	TBD	
AAC/WMO	In-house	Eglin AFB, FL	0.811	0.121	N/A	0.121	N/A	0.125	N/A	Continuing	TBD	
Subtotal Support			2.386	0.135		0.136		0.142		Continuing	TBD	0.000
Remarks: AAC/WMO is part of the Program Office. FFP = Firm Fixed Price												
<u>(U) Total Cost</u>			2.386	0.135		0.136		0.142		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604602F Armament/Ordnance  
Development

PROJECT NUMBER AND TITLE

5613 Containers

**Containers Program Schedule**

- Not Applicable

UNCLASSIFIED

Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2004

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604602F Armament/Ordnance  
Development

PROJECT NUMBER AND TITLE

5613 Containers

(U) Schedule Profile

FY 2003

FY 2004

FY 2005

(U) Not Applicable

**UNCLASSIFIED**

PE NUMBER: 0604604F  
 PE TITLE: Submunitions

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	<b>DATE</b> <b>February 2004</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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
	Total Program Element (PE) Cost	4.376	4.677	4.824	5.444	5.627	5.717	5.806	Continuing	TBD
3166	Joint Smart Munitions Test and Evaluation	4.376	4.677	4.824	5.444	5.627	5.717	5.806	Continuing	TBD

**(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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	4.588	4.717	4.837
(U) Current PBR/President's Budget	4.376	4.677	4.824
(U) Total Adjustments	-0.212	-0.040	
(U) Congressional Program Reductions	0.000	0.000	
Congressional Rescissions	0.000	-0.040	
Congressional Increases	0.000	0.000	
Reprogrammings	-0.076	0.000	
SBIR/STTR Transfer	-0.136	0.000	
(U) <u>Significant Program Changes:</u>			
None			

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

DATE  
**February 2004**

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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
3166 Joint Smart Munitions Test and Evaluation	4.376	4.677	4.824	5.444	5.627	5.717	5.806	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

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

This program element provides 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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Continue weapon effectiveness evaluation and weaponization studies	1.225	1.296	1.275
(U) Develop, validate, and accredit improved models and simulation for assessment of alternatives and force on force studi	1.003	0.614	0.769
(U) Increase utility of lethality/vulnerability and signature database through addition of modern threat systems and secure datalink	0.400	0.429	0.445
(U) Plan and conduct captive carry flight tests and signature collection for seeker/sensor evaluations and algorithm development	1.143	1.850	1.829
(U) Characterize performance of advanced and programmable warheads to access potential for increasing lethality of weapons	0.313	0.244	0.253
(U) Perform vulnerability analysis of upgraded/advanced Suppression of Enemy Air Defense (SEAD) and Advanced Hardened Targets (AHT)	0.292	0.244	0.253
(U) Total Cost	4.376	4.677	4.824

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

DATE

February 2004

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****(U) C. Other Program Funding Summary (\$ in Millions)****(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 several small contracts supporting the program office.

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Exhibit R-3, RDT&E Project Cost Analysis										DATE February 2004		
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		
<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>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
<u>(U) Support</u> Sverdrup	CPIF	Technical Analysis and Test Support, Eglin AFB, FL	10.408	0.225	Jun-01	0.205	Jun-01	0.210	Jun-01	Continuing	TBD	TBD
Macaulay Brown/ANSTEC	FFP	Technical Analysis and Test Support, Eglin AFB, FL	1.428	0.220	Apr-02	0.095	Apr-02	0.098	Apr-05	Continuing	TBD	TBD
Other (A-Team)	CPIF	Technical/Cost Analysis, Eglin AFB, FL and Arlington, VA	0.000	0.119	Jan-00	0.127	Jan-04	0.130	Jan-04	Continuing	TBD	TBD
Subtotal Support			11.836	0.564		0.427		0.438		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> 46 OG/OGML	N/A	Conducting Tests and Analysis, Eglin AFB, FL	69.510	3.587	N/A	4.000	N/A	4.119	N/A	Continuing	TBD	TBD
Subtotal Test & Evaluation			69.510	3.587		4.000		4.119		Continuing	TBD	TBD
Remarks:	46 OG/OGML is the Program Office which conducts inhouse testing. Contract type and award date is N/A.											
<u>(U) Management</u> 46 OG/OGML	N/A	Planning and Conducting Tests, Eglin AFB, FL	6.138	0.225	N/A	0.250	N/A	0.267	N/A	Continuing	TBD	TBD
Subtotal Management			6.138	0.225		0.250		0.267		Continuing	TBD	TBD
Remarks:	46 OG/OGML is the Program Office which conducts inhouse testing. Contract type and award date is N/A.											
<u>(U) Total Cost</u>			87.484	4.376		4.677		4.824		Continuing	TBD	TBD



<b>Exhibit R-4, RDT&amp;E Schedule Profile</b>		DATE <b>February 2004</b>
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>

**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.

**UNCLASSIFIED**

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>		DATE <b>February 2004</b>
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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>
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<b>(U) <u>Schedule Profile</u></b>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Target/warhead evaluation/analysis, signature test, captive carry flight tests	1-4Q	1-4Q	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 2004</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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	7.870	13.360	10.053	8.976	8.814	8.926	9.037	Continuing	TBD
2895 CE Readiness	5.205	7.870	6.405	6.009	6.538	6.643	6.745	Continuing	TBD
4910 Aeromedical Readiness	2.665	5.490	3.648	2.967	2.276	2.283	2.292	Continuing	TBD

In FY05, Project 2895, Civil Engineering Readiness (CE), includes a new start effort.

**(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.

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

DATE

February 2004

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604617F Agile Combat Support

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	7.965	5.574	7.080
(U) Current PBR/President's Budget	7.870	13.360	10.053
(U) Total Adjustments	-0.095	7.786	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.114	
Congressional Increases		7.900	
Reprogrammings	0.139		
SBIR/STTR Transfer	-0.234		

(U) **Significant Program Changes:**

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 and Assessment Model (BOSAM).

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

DATE

February 2004

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>		
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
2895 CE Readiness	5.205	7.870	6.405	6.009	6.538	6.643	6.745	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

In FY05, Project 2895, Civil Engineering (CE) Readiness, includes a new start effort.

**(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 DESERT SHIELD/DESERT STORM, Provide Comfort, Restore Hope, Joint Endeavor, 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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments/Planned Program			
(U) Continue SDD for All-purpose Remote Transport System (ARTS)/Attachments	1.100	1.700	1.700
(U) Continue SDD for Rapid Parking Ramp Expansion (RPRE)	0.469	0.100	2.100
(U) Initiated and continued SDD for Large Shelter System (LSS) (formerly Large Air-Inflatable Shelter System)	1.215	1.339	0.500
(U) Continued SDD for Multimedia Training Systems (MTS)	1.720	0.984	0.800
(U) Continued SDD for Commercial Technology Exploitation (CTE)	0.701	0.747	0.705
(U) Initiate SDD for New Family of Environmental Control Systems (NFECS)	0.000	0.000	0.600
(U) Initiate Base Operating Support Assessment Model (BOSAM)	0.000	3.000	0.000
(U) Total Cost	5.205	7.870	6.405

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

DATE

February 2004

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604617F Agile Combat Support

PROJECT NUMBER AND TITLE

2895 CE Readiness

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

Many of the 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 off-the-shelf equipment is properly adapted for military purposes. The Base Expeditionary Airfield Resource (BEAR) Readiness Board evaluates laboratory and commercial technologies with application for modernization of BEAR assets, such as deployable shelters, power, waste treatment and airfield support systems. With board approval, the System Program Office (SPO) initiates SDD, and production funding is realigned from current product lines 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.

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Exhibit R-3, RDT&E Project Cost Analysis										DATE February 2004		
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</u> Prior to FY 2003 Cost	<u>FY</u> 2003 Cost	<u>FY</u> 2003 Award Date	<u>FY</u> 2004 Cost	<u>FY</u> 2004 Award Date	<u>FY</u> 2005 Cost	<u>FY</u> 2005 Award Date	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
ARTS/Attachments (new integrated contract)	FFP	Applied Research Associates, South Royalton, VT	3.967	1.100	Aug-02	1.700		1.700		0.900	9.367	7.404
Rapid Parking Ramp Expansion	FFP	TBD	0.225	0.469		0.100		2.100	Jun-05	0.600	3.494	3.500
Multimedia Training Systems (MTS)	FFP	Multiple	2.403	1.720		0.984		0.800		Continuing	TBD	TBD
Commercial Technology Exploitation (CTE)	FFP	Multiple	1.042	0.701		0.747		0.705		Continuing	TBD	TBD
Large Shelter System (LSS)	FFP	TBD	0.000	1.215		1.339	Apr-04	0.500		0.000	3.054	3.100
New Family of Environmental Control Systems (NFECS)	FFP	TBD	0.000	0.000		0.000		0.600		1.400	2.000	2.000
Base Operations Support Assessment Model (BOSAM)	FFP	TBD	0.000	0.000		3.000		0.000	Dec-04	0.000	3.000	3.000
Subtotal Product Development			7.637	5.205		7.870		6.405		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u>												
None.											0.000	
None											0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
Various	Various		0.000	0.000		0.000		0.000		Continuing	TBD	
None											0.000	
Subtotal Test & Evaluation			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
Remarks:												
(U) Total Cost			7.637	5.205		7.870		6.405		Continuing	TBD	TBD

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

DATE

**February 2004**

BUDGET ACTIVITY

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

PE NUMBER AND TITLE

**0604617F Agile Combat Support**

PROJECT NUMBER AND TITLE

**2895 CE Readiness**

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 2004

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

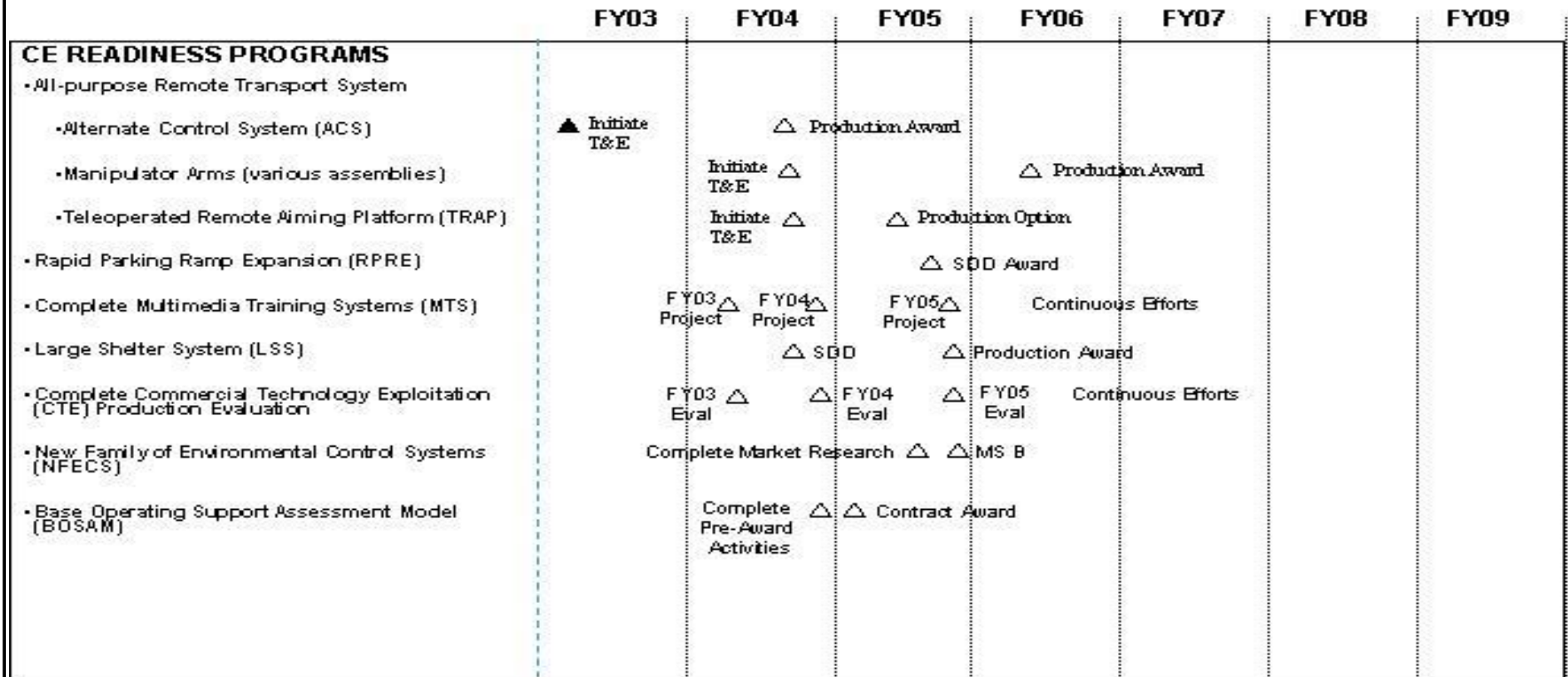
PE NUMBER AND TITLE

0604617F Agile Combat Support

PROJECT NUMBER AND TITLE

2895 CE Readiness

# CE Readiness Schedule



## UNCLASSIFIED

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

DATE

February 2004

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) <b>Schedule Profile</b>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	
(U) ALL-PURPOSE REMOTE TRANSPORT SYSTEM (ARTS)				
(U) Initiate Test and Evaluation for the Alternate Control System (ACS)	1Q			
(U) Award ACS Production Contract		3Q		
(U) Initiate T&E for Manipulator Arms		3Q		
(U) Initiate T&E for Teleoperated Remote Aiming Platform (TRAP)		3Q		
(U) Award TRAP Production Option			2Q	
(U) RAPID PARKING RAMP EXPANSION (RPRE)				
(U) Award SDD Contract				3Q
(U) MULTIMEDIA TRAINING SYSTEMS (MTS)				
(U) Complete FY03 Projects		2Q		
(U) Complete FY04 Projects		4Q		
(U) Complete FY05Projects				4Q
(U) COMMERCIAL TECHNOLOGY EXPLOITATION (CTE)				
(U) Complete FY03 Product Evaluation		2Q		
(U) Complete FY04 Product Evaluation		4Q		
(U) Complete FY05 Product Evaluation				4Q
(U) LARGE SHELTER SYSTEM (LSS)				
(U) Award SDD Contract		3Q		
(U) Award Production Contract				4Q
(U) NEW FAMILY OF ENVIRONMENTAL CONTROL SYSTEMS (NF ECS)				
(U) Complete Market Research				3Q
(U) Milestone B Decision				4Q
(U) BASE OPERATIONS SUPPORT ASSESSMENT MODEL (BOSAM) (CONGRESSIONAL				
ADD)				
(U) Complete Pre-Award Activities		4Q		
(U) Award Development Contract				1Q

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

DATE

**February 2004**

<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>				<b>PE NUMBER AND TITLE</b> <b>0604617F Agile Combat Support</b>			<b>PROJECT NUMBER AND TITLE</b> <b>4910 Aeromedical Readiness</b>			
Cost (\$ in Millions)		FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
4910	Aeromedical Readiness	2.665	5.490	3.648	2.967	2.276	2.283	2.292	Continuing	TBD
	Quantity of RDT&E Articles	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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Continue operation support, market research, and acquisition strategy for deployable oxygen systems	0.287	0.355	0.416
(U) Continue development of oxygen systems to meet deployable oxygen requirements	1.800	2.800	2.970
(U) Conduct foundational studies and analyses of Nano-Technology to produce sterile water	0.000	2.100	0.000
(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	0.578	0.235	0.262
(U) Total Cost	2.665	5.490	3.648

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Other Procurement, AF, PE 0208038F, Other Base Maintenance and Support Equipment (WSC 845060)	13.742	29.520	14.019	14.595	14.939	15.268	15.574	Continuing	TBD

**(U) D. Acquisition Strategy**

All major projects are awarded under best-value competitive solicitation.

**UNCLASSIFIED**

Exhibit R-3, RDT&E Project Cost Analysis										DATE <b>February 2004</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>(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>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
<u>(U) Product Development</u>												
Deployable Oxygen Systems (DOS)	FFP	Essex, MO; and Clever Fellow Innovation Corporation (CFIC), N.Y.	0.000	2.087	Jan-04	2.800		2.920		Continuing	TBD	
New Business	Various		17.477	0.000		0.000		0.000		Continuing	TBD	
Spinal Cord Injury Transport System (SCITS)	CPIF									Continuing	TBD	
Chemically Hardened Air Transportable Hospital (CHATH0 & Chemically Hardened Air Management Plant (CHAMP)	CPFF		3.609	0.000		0.000		0.000		Continuing	TBD	
Theater Medical Information Program, Air Force (TMIP-AF)	Various		1.763	0.000		0.000		0.000		Continuing	TBD	
Integrated Medical Information Technology System (IMITS)	N/A	University of Pittsburg Medical Center, PA	8.430	0.000		0.000		0.000		0.000	8.430	
Rural Low-Bandwidth Collaboration System	N/A	Nevada Institute of Research and Technology, NV	0.992	0.000		0.000		0.000		0.000	0.992	
Nano-Technology to produce sterile water	TIA	Seldon Labs, VT	0.000	0.000		2.100	May-04	0.000		0.000	2.100	
Subtotal Product Development			32.271	2.087		4.900		2.920		Continuing	TBD	0.000
Remarks:	DOS FY03 funds, which include a \$1.800 congressional add, were awarded in a Jan 04 to Essex and CFIC. They will develop prototypes for demonstration and compete for a single SDD contract. Operational requirements definition and acquisition strategy being developed for award of FY04 congressional add funds (\$2.800).											
<u>(U) Support</u>												
Technical Engineering And Management Support (TEAMS)	Delivery Order		3.061	0.356		0.340		0.338		Continuing	TBD	
Program Management Support & Operations	Various		3.767	0.180		0.200		0.340		Continuing	TBD	
None.											0.000	

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Exhibit R-3, RDT&E Project Cost Analysis						DATE <b>February 2004</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>4910 Aeromedical Readiness</b>			
Subtotal Support		6.828	0.536	0.540	0.678	Continuing	TBD	0.000
Remarks:								
(U) <u>Test &amp; Evaluation</u>								
DOS Test and Evaluation		0.140	0.042	0.050	0.050	Continuing	TBD	
None.								0.000
Subtotal Test & Evaluation		0.140	0.042	0.050	0.050	Continuing	TBD	0.000
Remarks:								
(U) <u>Management</u>								0.000
Subtotal Management		0.000	0.000	0.000	0.000	0.000	0.000	0.000
Remarks:								
(U) Total Cost		39.239	2.665	5.490	3.648	Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

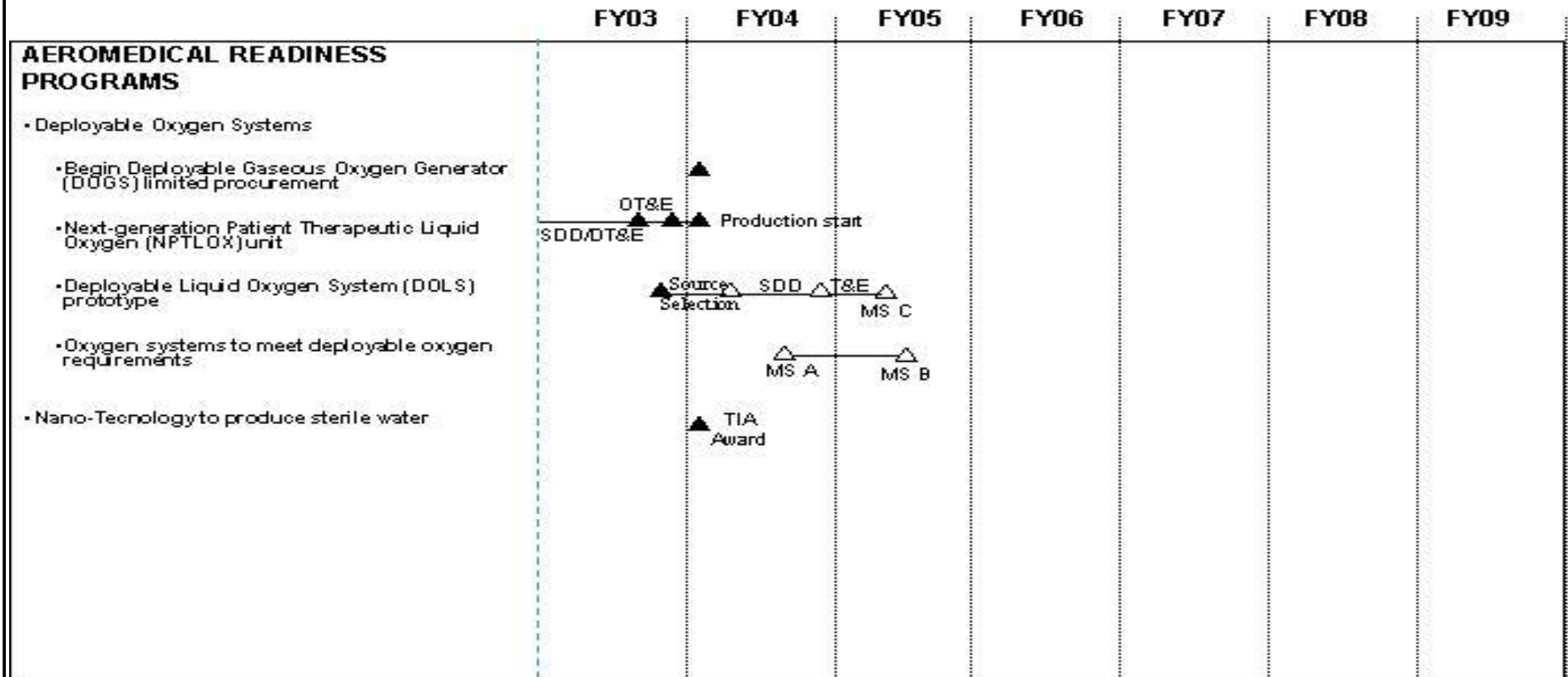
PE NUMBER AND TITLE

0604617F Agile Combat Support

PROJECT NUMBER AND TITLE

4910 Aeromedical Readiness

# Aeromedical Readiness Schedule



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

DATE

February 2004

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604617F Agile Combat Support

PROJECT NUMBER AND TITLE

4910 Aeromedical Readiness

(U) <u>Schedule Profile</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) DEPLOYABLE OXYGEN SYSTEMS			
(U) -Began Deployable Gaseous Oxygen Generator (DOGS) limited production		1Q	
(U) -Completed Next-generation Patient Therapeutic Liquid Oxygen (NPTLOX) system SDD/DT&E and begin OT&E	3Q		
(U) -Completed NPTLOX OT&E	4Q		
(U) -Began NPTLOX production		1Q	
(U) -Began Deployable Oxygen Liquification System (DOLS) prototype development		2Q	
(U) -Complete DOLS prototype development		4Q	
(U) -Conduct concept analyses and begin development of oxygen systems to meet deployment requirements		3Q	
(U) Begin Technology Insertion Agreement (TIA) of Nano-Technology to produce sterile water		1Q	

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PE NUMBER: 0604618F  
 PE TITLE: Joint Direct Attack Munition

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	<b>DATE</b> <b>February 2004</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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	17.021	35.159	0.000	0.000	0.000	0.000	0.000	0.000	409.589
3890 Joint Direct Attack Munitions	17.021	35.159	0.000	0.000	0.000	0.000	0.000	0.000	409.589

**(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 will be on the F/A-22, F-117A, A/OA-10, AV-8B, P-3, S-3, MQ-9 (Predator), F-35, 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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	16.244	34.061	
(U) Current PBR/President's Budget	17.021	35.159	
(U) Total Adjustments	0.777	1.098	
(U) Congressional Program Reductions	0.000		
Congressional Rescissions		-0.302	
Congressional Increases		1.400	
Reprogrammings	1.252		
SBIR/STTR Transfer	-0.475		

**(U) Significant Program Changes:**

Congressional add of \$1.4M in FY04 for the Tungsten Heavy Alloy Core Deep Penetration JDAM.

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

DATE

**February 2004**

<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>			<b>PROJECT NUMBER AND TITLE</b> <b>3890 Joint Direct Attack Munitions</b>		
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
3890 Joint Direct Attack Munitions	17.021	35.159	0.000	0.000	0.000	0.000	0.000	0.000	409.589
Quantity of RDT&E Articles	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 will be on the F/A-22, F-117A, A/OA-10, AV-8B, P-3, S-3, MQ-9 (Predator), F-35, 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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) JDAM software and hardware development to support SAASM integration effort and anti-jam development and integration.	15.812	0.000	
(U) Perform test effort on JDAM with integrated SAASM and anti-jam capabilities for the JDAM receiver.	0.705	6.637	
(U) Provide support and management tasks to coordinate the program activities of the prime contractor and various organizations.	0.504	1.811	
(U) JDAM software and hardware development to support SAASM integration effort and anti-jam development and integration. Also includes efforts for Tungsten Heavy Alloy Core Deep Penetration JDAM and future JDAM enhancements.	0.000	26.711	
(U) Total Cost	17.021	35.159	0.000

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Procurement of Ammunition, Air Force, JDAM,	476.800	424.446	521.782	421.799	317.712	110.891	105.402	Continuing	TBD

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>February 2004</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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(U) **C. Other Program Funding Summary (\$ in Millions)**

Appn. 3011, PE 0207583F

(U) Procurement of

(U) Ammunition, Air Force, Seek Eagle, Appn. 3011, PE 0207590F	0.297	0.143	0.000	0.000	0.103	0.000	0.000	Continuing	TBD
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(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 2004		
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) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2003 Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost to Complete	Total Cost	Target Value of Contract
<b>(U) Product Development</b>												
Prime Contractors Boeing and Lockheed Martin FY94/95 Only (Baseline JDAM, Mk-82, SAASM/Anti-Jam, Alternate Fuze Joint Programmable Fuze/Misc	C/CPAF/CPFF	Boeing (St Louis MO) and Lockheed Martin FY94/95 Only	210.204	15.812	Feb-03	26.711	Nov-03	0.000		0.000	252.727	252.727
	FPIF	Dayron/Kaman (Orlando, FL)	8.229								8.229	8.229
Conceptual Studies	Various		22.428							0.000	22.428	22.428
Subtotal Product Development			240.861	15.812		26.711		0.000		0.000	283.384	283.384
Remarks:												
<b>(U) Support</b>												
Engineering Support	CPAF	Eglin AFB, FL	14.579	0.478		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	18.389	0.026		0.930				0.000	19.345	19.345
Subtotal Support			38.158	0.504		1.811		0.000		0.000	40.473	40.473
Remarks: TAMS contractor provides management and financial support to the System Program Office (SPO).												
<b>(U) Test &amp; Evaluation</b>												
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	41.847	0.705		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			78.390	0.705		6.637		0.000		0.000	85.732	85.732
Remarks:												
(U) Total Cost			357.409	17.021		35.159		0.000		0.000	409.589	409.589

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

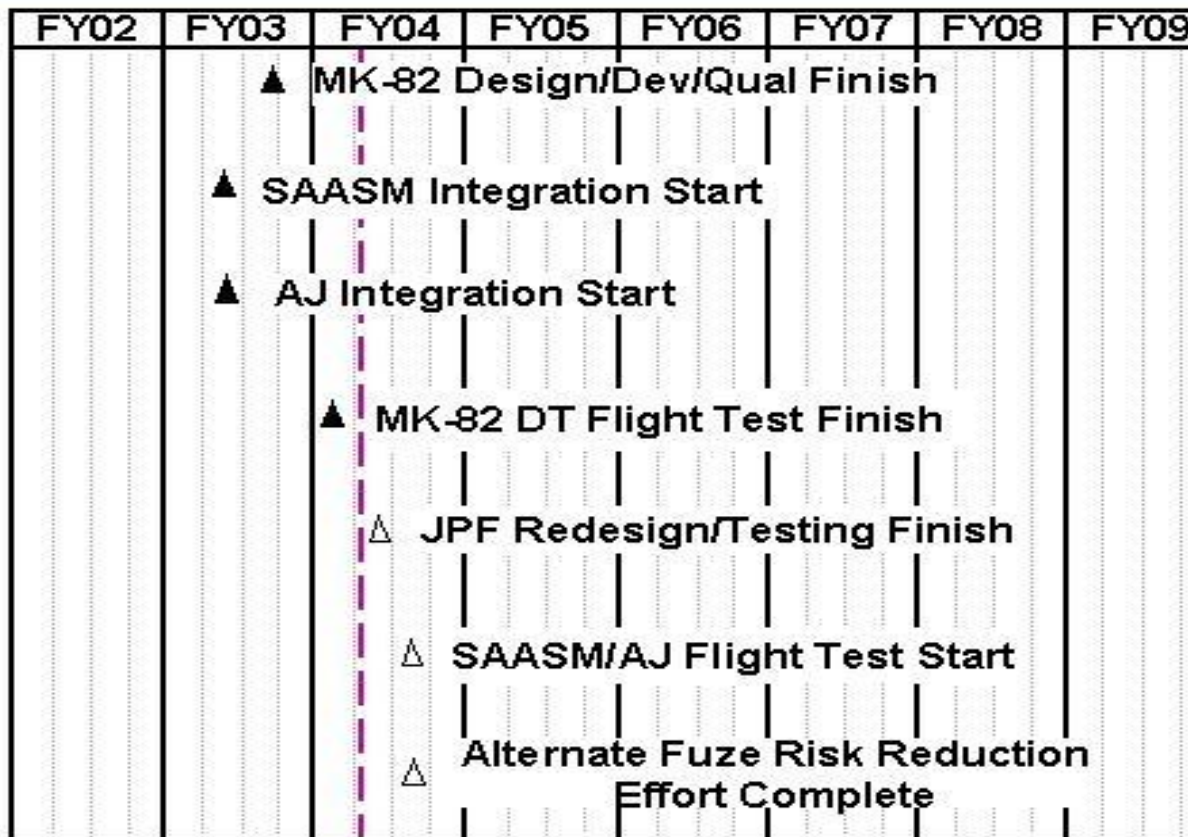
PE NUMBER AND TITLE

0604618F Joint Direct Attack Munition

PROJECT NUMBER AND TITLE

3890 Joint Direct Attack Munitions

# JDAM Schedule



As of: 28 Jan 04

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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2004</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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	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <b><u>Schedule Profile</u></b>			
(U) MK-82 Design/Develop/Qualification Finish	3Q		
(U) SAASM Integration Start	2Q		
(U) Anti-Jam Integration Start	2Q		
(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	

**UNCLASSIFIED**

PE NUMBER: 0604706F  
 PE TITLE: Life Support Systems

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>								DATE <b>February 2004</b>	
<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>				<b>PE NUMBER AND TITLE</b> <b>0604706F Life Support Systems</b>					
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	9.982	5.026	6.630	6.414	6.085	3.468	3.714	Continuing	TBD
412A Life Support Systems	9.982	5.026	6.630	6.414	6.085	3.468	3.714	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 equipment. There are four main projects in this PE. (1) The Aircrew Laser Eye Protection (ALEP) project provides aircrews with eye protection against a variety of laser devices which could cause temporary and permanent loss of vision. (2) The Fixed Aircrew Standardized Seat (FASS) Program seeks to evaluate and standardize seat systems and subsystems in non-ejection seat aircraft. (3) ACES II Ejection Seat improvements include Structural Upgrades, Digital Recovery Sequencer, and Preplanned Product Improvements (P3I). (4) Panoramic Night Vision Goggles (PNVG) provide a greatly enhanced field of view over current night vision goggles with spiral developments for ejection compatibility, display, and weapons cueing capability. 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: flight 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 tasks to assess deficiencies of currently fielded equipment, provide for the transition of new technology into SDD, and support all current life support projects. Program is in Budget Activity 5 because several projects are in Acquisition Phase B, SDD

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	7.732	0.269	0.262
(U) Current PBR/President's Budget	9.982	5.026	6.630
(U) Total Adjustments	2.250	4.757	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.043	
Congressional Increases		4.800	
Reprogrammings	2.276		
SBIR/STTR Transfer	-0.026		

**(U) Significant Program Changes:**

FY 2003 Congressional Adds: \$2.5M for FASS; \$2.4M for ACES II Ejection Seat Improvements; \$2.0M for Aircrew Distress Signaling Systems  
 FY 2004 Congressional Adds: \$4.8M for ACES II Modular Seat Development and Electromechanical Stability Control System

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

DATE  
**February 2004**

<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>				<b>PE NUMBER AND TITLE</b> <b>0604706F Life Support Systems</b>			<b>PROJECT NUMBER AND TITLE</b> <b>412A Life Support Systems</b>		
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
412A Life Support Systems	9.982	5.026	6.630	6.414	6.085	3.468	3.714	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

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

This program provides for development of life support equipment and subsystems to satisfy operational command requirements for improved life support equipment. There are four main projects in this PE. (1) The Aircrew Laser Eye Protection (ALEP) project provides aircrews with eye protection against a variety of laser devices which could cause temporary and permanent loss of vision. (2) The Fixed Aircrew Standardized Seat (FASS) Program seeks to evaluate and standardize seat systems and subsystems in non-ejection seat aircraft. (3) ACES II Ejection Seat improvements include Structural Upgrades, Digital Recovery Sequencer, and Preplanned Product Improvements (P3I). (4) Panoramic Night Vision Goggles (PNVG) provide a greatly enhanced field of view over current night vision goggles with spiral developments for ejection compatibility, display, and weapons cueing capability. 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: flight 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 tasks to assess deficiencies of currently fielded equipment, provide for the transition of new technology into SDD, and support all current life support projects. Program is in Budget Activity 5 because several projects are in Acquisition Phase B, SDD

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Congressional Add for FASS Development	2.480		
(U) Congressional Add for ACES II Ejection Seat Improvements	2.384	4.800	
(U) Congressional Add for Aircrew Distress Signaling Systems	1.973		
(U) Continue ALEP Block 1 SDD (Block 2 ALEP SDD begins FY 05)	2.703		6.403
(U) Conduct Anti-Gravity Suit Study	0.131		
(U) Continue development of other Life Support items and subsystems such as ejection seats, anti-gravity suits, F/A-22 integration, night vision devices, aircrew laser eye protection, and parachutes	0.100	0.110	0.110
(U) Program Management/Technical Support/Travel/Test & Evaluation Support	0.211	0.116	0.117
(U) Completed Lightweight Environmentally Sealed Parachute Assembly (LESPA) SDD; item did not meet user requirements			
(U) Total Cost	9.982	5.026	6.630

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Items Less Than \$5M (Safety Equipment) PE 0702833F BPAC	4.520	3.920	3.383		6.539	4.823		0.000	12.640



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

DATE

**February 2004**

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)**

842990: Aircrew Laser Eye Protection (ALEP) Warfighter Rapid Acquisition Program PE 0203761F BPAC	4.000		0.000	8.666					
(U) 674936: Panoramic Night Vision Goggles (PNVG) Development Items Less Than \$5M (Safety Equipment) PE 0702833F BPAC									
(U) 842140: Panoramic Night Vision Goggles--FYDP Requirements TBD Items Less Than \$5M (Safety Equipment) PE 0702833F BPAC	5.657	7.600	9.600	10.500	19.300	20.100	20.900	0.000	73.500
(U) 842990: Advanced Technology Anti-Gravity Suit (ATAGS)		0.800	0.800						

The PNVG project was selected for transition by the FY02 and FY03 Warfighter Rapid Acquisition Process (WRAP). WRAP (PE 0203761F) provides approval and rapid transition funding, up to 2 years, for the development and fielding of the results of highly successful competitive experiments, demonstrations, and innovative approaches to support the Expeditionary Air Force (EAF) and other warfighters. Subsequent to the two year transition period, all future enhancements for PNVGs are part of this PE.

**(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 2004		
BUDGET ACTIVITY 05 System Development and Demonstration (SDD)					PE NUMBER AND TITLE 0604706F Life Support Systems				PROJECT NUMBER AND TITLE 412A Life Support Systems			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2003 Cost	FY 2003 Cost	FY 2003 Award	FY 2004 Cost	FY 2004 Award	FY 2005 Cost	FY 2005 Award	Cost to Complete	Total Cost	Target Value of Contract
(U) <u>Product Development</u>												
UPCO-Inflatable Rest	SS/CPAF		2.157								2.157	
Entran Devices-ACES II	FFP		0.039								0.039	
Boeing-ACES II Struc Def	SS/CPFF		0.200								0.200	
ATA Sensors-ACES II	FFP		0.031								0.031	
Gemini Elect Co-ACES II	FFP		0.009								0.009	
Denton, Inc-ACES II	FFP		0.047								0.047	
First Tech Sys-ACES II	FFP		0.193								0.193	
Boeing-ACES II --Study	SS/CPFF		0.237								0.237	
Pioneer Aerospace-ACES II	FFP		0.009								0.009	
EME Corp-ACES II	FFP										0.000	
ITT-NVS	C/CPIF		14.081								14.081	
KRUG-ATAGS	SS/FFP		0.424								0.424	
Mustang-ATAGS	SS/FFP		0.499								0.499	
ALEP - (AL/Navy)	C/CPFF		4.552								4.552	
MDA-Enhanced Drogue	SS/CPFF		1.130								1.130	
MDA-ACES II Seats	SS/FFP		0.150								0.150	
SRL-ATAGS DT&E Support	SS/CPFF		0.150								0.150	
Boeing-ACES II Pre-SDD	SS/CPFF		0.250								0.250	
Brooks AFB, Supply	Supply Reqt		0.311								0.311	
Contax	SS/FFP		0.011								0.011	
Boeing-ACES II SDD	SS/CPIF		6.747								6.747	
Boeing-ACES II SDD (Structural)	SS/CPFF		0.412								0.412	
SEI - Vacuum Packed Parachute	SS/CPFF		0.122								0.122	
Pax River	AF 185										0.000	
Holloman AFB	AF 185										0.000	
ALEP CTD	CPFF		4.667								4.667	
Rockwell/Kaiser ALEP SDD	CFFP	Thousand Oaks, CA & Ann Arbor, MI		2.174	Aug-03			6.403			8.577	
Fixed Seats-SAIC	CCPFF	San Antonio, TX	0.900	2.055	Dec-03						2.955	

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Exhibit R-3, RDT&E Project Cost Analysis							DATE <b>February 2004</b>				
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>				
SAIC		San Antonio, TX				0.110 May-04	0.110 May-05		0.220		
Insight - PNVG SDD	CPIF	Londonderry, NH	2.350						2.350		
BF Goodrich - ACES II P3I	CFFP	Phoenix, AZ		0.647	Jul-03				0.647		
Distress Systems	CFFP	TBD		1.973	Oct-03				1.973		
DRS-ACES II	MIPR	Naval Surface Warfare Center-Indian Head, MD		1.186	Jun-03				1.186		
ACES II-FY 04 Congressional Increase	TBD	TBD				4.800			4.800		
Subtotal Product Development			39.678	8.035		4.910	6.513	0.000	59.136	0.000	
Remarks:											
<u>(U) Support</u>											
Program Management Support			3.247	0.530		0.100	0.100	Continuing	TBD		
Travel			0.716	0.200		0.016	0.017	Continuing	TBD		
Tech Eng & Acq			5.095	1.030				Continuing	TBD		
Subtotal Support			9.058	1.760		0.116	0.117	Continuing	TBD	0.000	
Remarks:											
<u>(U) Test &amp; Evaluation</u>											
Edwards Test Facility	AF 185								0.000		
FASS and ATAGS	PO and MIPR			0.055					0.055		
SDIRS	PO			0.001					0.001		
Air Combat Command Anti-G Suit Study	MIPR	AFRL		0.131				Continuing	TBD		
AFOTEC	Proj Ord-Variou		3.208						3.208		
Subtotal Test & Evaluation			3.208	0.187		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>(U) Total Cost</u>			51.944	9.982		5.026	6.630	Continuing	TBD	0.000	

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE  
0604706F Life Support Systems

PROJECT NUMBER AND TITLE  
412A Life Support Systems

Life Support Systems Schedule

Activity Name	FY 03				FY04				FY05				FY06			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
ACES II Digital Recovery Sequencer Phase II Testing				▲	▲		▲									
ACES II P3I CKU-5A and PNVG Testing					▲		▲									
ACES II Leg Restraint FDE (OT&E)	▲															▲
FASS DT&E			▲													▲
ALEP Block 1 Production				▲												
ALEP IOT&E					▲			▲								
ALEP CTD Block II									▲							▲
PNVG BlockI LRIP						▲										
PNVG BlockII IOT&E						▲	▲									
PNVG BlockIII & IV IOT&E									▲	▲						

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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2004</b>
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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>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <b>Schedule Profile</b>			
(U) ACES II Digital Recovery Sequencer Phase II Testing		3Q	
(U) ACES II P3I Task Completion for CKU-5A and PNVG		3Q	
(U) ACES II Leg Restraint Kit FDE (OT&E) Completion			4Q
(U) FASS DT&E			4Q
(U) ALEP Block 1 Production Award	4Q		
(U) ALEP IOT&E Completion		4Q	
(U) ALEP CTD Block II			2Q
(U) PNVG Block I LRIP		2Q	
(U) PNVG Block II IOT&E		3Q	
(U) PNVG Block III & IV OT&E			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 2004</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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	37.541	174.449	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5058 Unmanned Combat Air Vehicle (UCAV)	37.541	174.449	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

Note: FY04 program guidance established the Joint Unmanned Combat Air Systems (J-UCAS) Program Office and funding for both Air Force and Navy programs. Efforts previously conducted under the DARPA/Air Force Unmanned Combat Air Vehicle (UCAV) program and the DARPA/Navy Naval UCAV (UCAV-N) program have been combined into the J-UCAS program. FY05 program guidance directed FY05 and outyear funding for DARPA and both Services be transferred into a Defense-wide Program Element. A technical adjustment is currently being processed and will move BA05 funding into BA04 in FY04.

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

The Joint Unmanned Combat Air Systems (J-UCAS) program is a joint DARPA, Air Force, and Navy effort to develop and demonstrate unmanned combat capabilities for high-threat Suppression of Enemy of Air Defense (SEAD); Intelligence, Surveillance, and Reconnaissance (ISR); Electronic Attack (EA); and related strike missions within the emerging global command and control architecture.

The J-UCAS program combines 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, will reduce the risk of the system being developed for the operational assessment. The J-UCAS concept incorporates the Boeing X-45C/CN and Northrop Grumman X-47B air vehicles, together with a common architecture and subsystems (e.g. sensors, communications, and command & control software). These common system elements will maximize system flexibility and operational versatility, while reducing overall costs and maintaining schedule toward an Early Operational Assessment planned for the FY07-09 timeframe.

The J-UCAS Office integrates DARPA, Air Force, and Navy personnel, operating in close coordination with Service users and other components. The program is focused on achieving an Early Operational Assessment that supports both Services and enables an operational system development decision by the end of the decade.

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2004

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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	39.127	175.944	423.447
(U) Current PBR/President's Budget	37.541	174.449	0.000
(U) Total Adjustments	-1.586	-1.495	
(U) Congressional Program Reductions			
Congressional Rescissions	-1.586	-1.495	
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			

(U) **Significant Program Changes:**

Note: FY04 program guidance established the Joint Unmanned Combat Air Systems (J-UCAS) Program Office and funding for both Air Force and Navy programs. Efforts previously conducted under the DARPA/Air Force Unmanned Combat Air Vehicle (UCAV) program and the DARPA/Navy Naval UCAV (UCAV-N) program have been combined into the J-UCAS program. FY05 program guidance directed FY05 and outyear funding for DARPA and both Services be transferred into a Defense-wide Program Element. The Program is being restructured and future spirals are being defined.



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

DATE  
**February 2004**

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>		
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
5058 Unmanned Combat Air Vehicle (UCAV)	37.541	174.449	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	1	0	0	0		

Note: FY04 program guidance established the Joint Unmanned Combat Air Systems (J-UCAS) Program Office and funding for both Air Force and Navy programs. Efforts previously conducted under the DARPA/Air Force Unmanned Combat Air Vehicle (UCAV) program and the DARPA/Navy Naval UCAV (UCAV-N) program have been combined into the J-UCAS program. FY05 program guidance directed FY05 and outyear funding for DARPA and both Services be transferred into a Defense-wide Program Element. A technical adjustment is currently being processed and will move BA05 funding into BA04 in FY04.

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

The Joint Unmanned Combat Air Systems (J-UCAS) program is a joint DARPA, Air Force, and Navy effort to develop and demonstrate unmanned combat capabilities for high-threat Suppression of Enemy of Air Defense (SEAD); Intelligence, Surveillance, and Reconnaissance (ISR); Electronic Attack (EA); and related strike missions within the emerging global command and control architecture.

The J-UCAS program combines 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, will reduce the risk of the system being developed for the operational assessment. The J-UCAS concept incorporates the Boeing X-45C/CN and Northrop Grumman X-47B air vehicles, together with a common architecture and subsystems (e.g. sensors, communications, and command & control software). These common system elements will maximize system flexibility and operational versatility, while reducing overall costs and maintaining schedule toward an Early Operational Assessment planned for the FY07-09 timeframe.

The J-UCAS Office integrates DARPA, Air Force, and Navy personnel, operating in close coordination with Service users and other components. The program is focused on achieving an Early Operational Assessment that supports both Services and enables an operational system development decision by the end of the decade.

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments/Planned Program	0.000	0.000	
(U) Continuation of Spiral 0 and Spiral 1 of the Unmanned Combat Air Vehicle (UCAV) System Demonstration Program	33.495		
- 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			
- Requirements definition and development of advanced system software			
(U) Other Government Cost	4.046		
- Mission Support of the SPO; travel, computer costs, misc contracts, etc.			

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>February 2004</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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(U) Continuation of Joint Unmanned Combat Air System (J-UCAS) Demonstration Program	155.072		
- 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)	13.380		
(U) Other Government Cost	5.997		
- Mission Support of the SPO, travel, computer costs, misc contracts, test, etc.			
(U) Total Cost	37.541	174.449	0.000

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to Complete</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>		
(U) AF S&T (PE0603333F)	17.608								
(U) DARPA (PE0603765E)	0.000								
(U) DARPA (PE0603285E)	59.492	38.385	0.000						
(U) AF (PE0207256F)	0.000	2.372	2.911	2.865	2.860	0.000	0.396		TBD
(U) Navy RDT&E (PE0603114N)	0.000	117.865	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		TBD
(U) Navy RDT&E (PE0603111N)	0.000	2.350	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	3.377	1.537		TBD
(U) Defense-wide RDT&E (PE0603400D8Z)	0.000	0.000	285.000	77.900	0.000	0.000	0.000		TBD
(U) Defense-wide RDT&E (PE0604400D8Z)	0.000	0.000	423.447	668.356	380.800	1044.000	985.000	Continuing	TBD

Note: FY04 Navy funding in PE's 0604730N and 0604731N has been transferred into PE 0603114N.

**(U) D. Acquisition Strategy**

Near-term acquisition strategy is to continue the UCAV System Demonstration Program effort under the current DARPA/Air Force Other Transactions Authority (OTA) contract with Boeing Phantom Works, St. Louis, MO. The Spiral 1 option in the OTA was exercised by DARPA in August 2002 and will take the program through the 3rd quarter of FY07.

J-UCAS is a joint program that will demonstrate unmanned combat capabilities for high-threat Suppression of Enemy of Air Defense (SEAD); Intelligence, Surveillance, and Reconnaissance (ISR); Electronic Attack (EA); and related strike missions within the emerging global command and control architecture.

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Exhibit R-3, RDT&E Project Cost Analysis										DATE February 2004		
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)			
(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</u> <u>Prior to FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
(U) <u>Product Development</u> Boeing Phantom Works, St. Louis, MO.	Section 845, Other Transactions Authority (OTA) Agreement	Boeing Phantom Works, St. Louis, MO.		33.495	Jan-03	168.452	Dec-04			Continuing	TBD	TBD
Subtotal Product Development Remarks:			0.000	33.495		168.452		0.000		Continuing	TBD	TBD
(U) <u>Support</u> Various				4.046		5.997				Continuing	TBD	
Subtotal Support Remarks:			0.000	4.046		5.997		0.000		Continuing	TBD	0.000
(U) <u>Test &amp; Evaluation</u>  Subtotal Test & Evaluation Remarks:			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
(U) Total Cost			0.000	37.541		174.449		0.000		Continuing	TBD	TBD

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

DATE

**February 2004**

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)**

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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>		DATE <b>February 2004</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) <u>Schedule Profile</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Conduct Spiral 1 Mid-Term Review		1Q	
(U) Spiral 1 Final Design Review		3Q	
(U) X-45C Fabrication Start		3Q	

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Exhibit R-2, RDT&E Budget Item Justification								DATE February 2004	
BUDGET ACTIVITY 05 System Development and Demonstration (SDD)				PE NUMBER AND TITLE 0604735F Combat Training Ranges					
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	15.244	24.077	18.714	17.490	17.935	18.454	18.732	Continuing	TBD
2286 Combat Training Range Equipment	15.244	24.077	18.714	17.490	17.935	18.454	18.732	Continuing	TBD

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

Air Combat Training Systems (ACTS) provide 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 develops the electronic, telecommunications, instrumentation equipment/systems and standards for the training ranges. Air Force ACTS are interoperable with Navy Tactical Air Combat Training System (TACTS) ranges. ACTS provide capabilities to train aircrews in air-to-air and air-to-surface combat and electronic warfare. ACTS provide real-time monitoring and control of aircraft during large force exercises and small unit training, and record events for post-mission debrief and analysis. This program funds aircraft-to-pod interfaces and software interoperability among service ranges and aircraft platforms. It developed the Nellis Air Combat Training System (NACTS) Range Security Initiative (RSI), Range Security Upgrade (RSU) and Range Security Enhancement (RSE) to improve range/aircraft data link security and integration that supports Red Flag, Coalition Flag, USAF Fighter Weapons School training and tactics development. FY04 funding has been made available to continue these security and operational integration improvements to the NACTS. In FY03, this program funded the P5 Combat Training System (P5CTS) (formerly P4RC Plus). The P5CTS develops improved ACTS capabilities including: real-time monitoring, real-time kill notification, system security initiatives that will protect classified aircraft systems information, and no-drop weapon scoring. FY04 and FY05 funding provides for additional P5CTS development.

This program also funds development of range instrumentation standards that will facilitate live/virtual connectivity and standardization across all platforms to include the F/A-22 and Joint Strike Fighter (JSF). Development of a set of range instrumentation standards begins in FY04 as part of the Next-Generation Range Instrumentation (NEXRI) initiative. The NexRI initiative is using a business model approach and will produce standards that new range systems may be manufactured and integrated to that will result in interoperability of systems between ranges and services. The standards will also be used to upgrade legacy systems in order to achieve a seamless, joint interoperability capability between air, ground, and live instrumentation and with virtual and constructive training networks as well. FY05 continues NEXRI development.

This program develops and upgrades advanced threat emitters. In FY03, 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. The JTE program will complement existing range threat simulators by emulating signals that simulate the most advanced air defense and threat radars. In FY04 the Threat Reaction Analysis Indicator System (TRAINS) will undergo 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. FY05 funding provides additional JTE and TRAINS development.

Aerial Targets are used to determine air-to-air weapons systems accuracy and reliability by developing improved aerial target systems for Air Force weapons system test and

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

DATE

February 2004

BUDGET ACTIVITY

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

PE NUMBER AND TITLE

**0604735F Combat Training Ranges**

evaluation. This program element also funds development of full-scale and subscale aerial targets and target control systems. Specialized target payload subsystems are developed for requirements such as: missile scoring, electronic and infrared (IR) countermeasures, radar and IR signature augmentation, and chaff and flare dispensing. In FY04 the Air Force Subscale Aerial Target (AFSAT) program will begin to evaluate product improvement opportunities to support growth initiatives. Funding for Aerial Targets and AFSAT moves to PE 35116F 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 to increase the effectiveness of the training spectrum from individual aircrew skill training to large-scale exercises.

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	15.713	20.383	18.714
(U) Current PBR/President's Budget	15.244	24.077	18.714
(U) Total Adjustments	-0.469	3.694	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.206	
Congressional Increases		3.900	
Reprogrammings	-0.266		
SBIR/STTR Transfer	-0.203		
(U) <u>Significant Program Changes:</u>			
FY04: Congress added \$3.9M for Nellis Air Combat Training Range System Integration			



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

DATE  
**February 2004**

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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total	
2286 Combat Training Range Equipment	15.244	24.077	18.714	17.490	17.935	18.454	18.732	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

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

Air Combat Training Systems (ACTS) provide 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 develops the electronic, telecommunications, instrumentation equipment/systems and standards for the training ranges. Air Force ACTS are interoperable with Navy Tactical Air Combat Training System (TACTS) ranges. ACTS provide capabilities to train aircrews in air-to-air and air-to-surface combat and electronic warfare. ACTS provide real-time monitoring and control of aircraft during large force exercises and small unit training, and record events for post-mission debrief and analysis. This program funds aircraft-to-pod interfaces and software interoperability among service ranges and aircraft platforms. It developed the Nellis Air Combat Training System (NACTS) Range Security Initiative (RSI), Range Security Upgrade (RSU) and Range Security Enhancement (RSE) to improve range/aircraft data link security and integration that supports Red Flag, Coalition Flag, USAF Fighter Weapons School training and tactics development. FY04 funding has been made available to continue these security and operational integration improvements to the NACTS. In FY03, this program funded the P5 Combat Training System (P5CTS) (formerly P4RC Plus). The P5CTS develops improved ACTS capabilities including: real-time monitoring, real-time kill notification, system security initiatives that will protect classified aircraft systems information, and no-drop weapon scoring. FY04 and FY05 funding provides for additional P5CTS development.

This program also funds development of range instrumentation standards that will facilitate live/virtual connectivity and standardization across all platforms to include the F/A-22 and Joint Strike Fighter (JSF). Development of a set of range instrumentation standards begins in FY04 as part of the Next-Generation Range Instrumentation (NEXRI) initiative. The NexRI initiative is using a business model approach and will produce standards that new range systems may be manufactured and integrated to that will result in interoperability of systems between ranges and services. The standards will also be used to upgrade legacy systems in order to achieve a seamless, joint interoperability capability between air, ground, and live instrumentation and with virtual and constructive training networks as well. FY05 continues NEXRI development.

This program develops and upgrades advanced threat emitters. In FY03, 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. The JTE program will complement existing range threat simulators by emulating signals that simulate the most advanced air defense and threat radars. In FY04 the Threat Reaction Analysis Indicator System (TRAINS) will undergo 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. FY05 funding provides additional JTE and TRAINS development.

Aerial Targets are used to determine air-to-air weapons systems accuracy and reliability by developing improved aerial target systems for Air Force weapons system test and evaluation. This program element also funds development of full-scale and subscale aerial targets and target control systems. Specialized target payload subsystems are

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<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>February 2004</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>	<b>PROJECT NUMBER AND TITLE</b> <b>2286 Combat Training Range Equipment</b>
--	--	--

developed for requirements such as: missile scoring, electronic and infrared (IR) countermeasures, radar and IR signature augmentation, and chaff and flare dispensing. In FY04 the Air Force Subscale Aerial Target (AFSAT) program will begin to evaluate product improvement opportunities to support growth initiatives. Funding for Aerial Targets and AFSAT moves to PE 35116F 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 to increase the effectiveness of the training spectrum from individual aircrew skill training to large-scale exercises.

<b>(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments/Planned Program			
(U) Continue P5 CTS (formerly P4RC Plus) system development efforts, funding software and hardware upgrades to include new capabilities and Joint Tactical Radio System (JTRS) compliance (first year was FY03)	0.395	3.640	3.430
(U) Continue development and testing of aircraft/Pod integration for range applications and coordinating upgrades with aircraft program offices	0.637	1.760	2.164
(U) Continue interoperability improvements with existing Air Force and Navy ranges to include software, upgrades, and weapons simulation development	2.518	3.589	3.555
(U) Continue Range Instrumentation Technical Support efforts	0.145	0.155	0.155
(U) Continue CTR basic operating support, system acquisition, and engineering support for range and threat systems	6.327	3.099	3.410
(U) Continue Advanced Threat Emitter System (ATES) development to incorporate joint requirements and evolve to a Joint Threat Emitter (JTE) System	2.700	4.791	4.631
(U) Continue numerous upgrades to the Nellis Air Combat Training System (NACTS) including integration of tactical information and ground tracking	2.331	3.900	
(U) Continue Aerial Target basic operating support, system acquisition, and engineering support (funding in FY05 moves to PE 35116F)	0.191	0.774	
(U) Next Generation Range Initiative (NexRI) standards development (first year was FY04)		1.000	1.000
(U) Continue TRAINS improvements to expand the site database distribution network to add Electronic Countermeasure equipment performance data to address hardware problems (first year was FY04)		0.369	0.369
(U) Begin Air Force Subscale Aerial Target (AFSAT) Product Improvements (AFSAT PI) program. Funding will be used to evaluate product improvements to support AFSAT growth potential to satisfy objective requirements (funding in FY05 moves to PE 35116F)		1.000	
(U) Total Cost	15.244	24.077	18.714

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

DATE

February 2004

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) C. Other Program Funding Summary (\$ in Millions)(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 2004		
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) Cost Categories	Contract Method	Performing Activity &	Total	FY	FY	FY	FY	FY	FY	Cost to	Total	Target
(Tailor to WBS, or System/Item Requirements)	& Type	Location	Prior to FY	2003	2003	2004	2004	2005	2005	Complete	Cost	Value of
(\$ in Millions)			2003	Cost	Award	Cost	Award	Cost	Award			Contract
			Cost		Date		Date		Date			
(U) <u>Product Development</u>												
Cubic Defense (NACTS)	C/CPAF/FFP		31.149	2.331	Oct-03	3.900	Jul-04	0.000		Continuing	TBD	
Raytheon (JTCTS)	Navy Contr		2.500	0.000		0.000		0.000		0.000	2.500	
Sverdrup (RITS)	CPAF		2.385	0.145	Mar-03	0.155	Mar-04	0.155	Jan-05	Continuing	TBD	
Cubic Defense (P5CTS)	CPIF/FFP		0.000	0.395	Jun-03	3.640	Feb-04	3.430	Feb-05	Continuing	TBD	
Modern Technologies Corp (ATES/JTE )	CPAF		0.000	2.700	Mar-03	4.791	Mar-04	4.631	Mar-05	Continuing	TBD	
E W Systems (TRAINS)	FFP		0.000	0.000		0.369	May-04	0.369	Mar-05	Continuing	TBD	
Joint Interoperability	Navy Contract		3.429	2.518	Feb-03	3.589	Feb-04	3.555	Feb-05	Continuing	TBD	
Stanford Research International (NexRI)	FFP					1.000	Apr-04	1.000	Apr-05	Continuing	TBD	
Aircraft Interface	Through MOAs with ALCs & Aircraft SPO Contractors		1.035	0.637	Apr-03	1.760	Apr-04	2.164	Apr-05	Continuing	TBD	
Composite Engineering Inc. (AFSAT PI)	FFP		0.000	0.000		1.000	Apr-04	0.000		Continuing	TBD	
Subtotal Product Development			40.498	8.726		20.204		15.304		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												
OO/ALC/LH, Hill AFB, UT	Various		0.000	0.286		0.343		0.386		Continuing	TBD	
AAC/YBR, Eglin AFB, FL	Various		8.576	6.041		2.756		3.024		Continuing	TBD	
AAC/YAA, Eglin AFB, FL	Various		0.000	0.191		0.774		0.000		Continuing	TBD	
NAWC, China Lake, CA	Various		0.113	0.000		0.000		0.000		Continuing	TBD	
Subtotal Support			8.689	6.518		3.873		3.410		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		Continuing	TBD	
46 Test Wing, Eglin AFB FL	Various		0.640	0.000		0.000		0.000		Continuing	TBD	
Subtotal Test & Evaluation			2.045	0.000		0.000		0.000		Continuing	TBD	0.000
Remarks:												

Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2004

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) Total Cost

51.232 15.244 24.077 18.714 Continuing TBD 0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604735F Combat Training Ranges

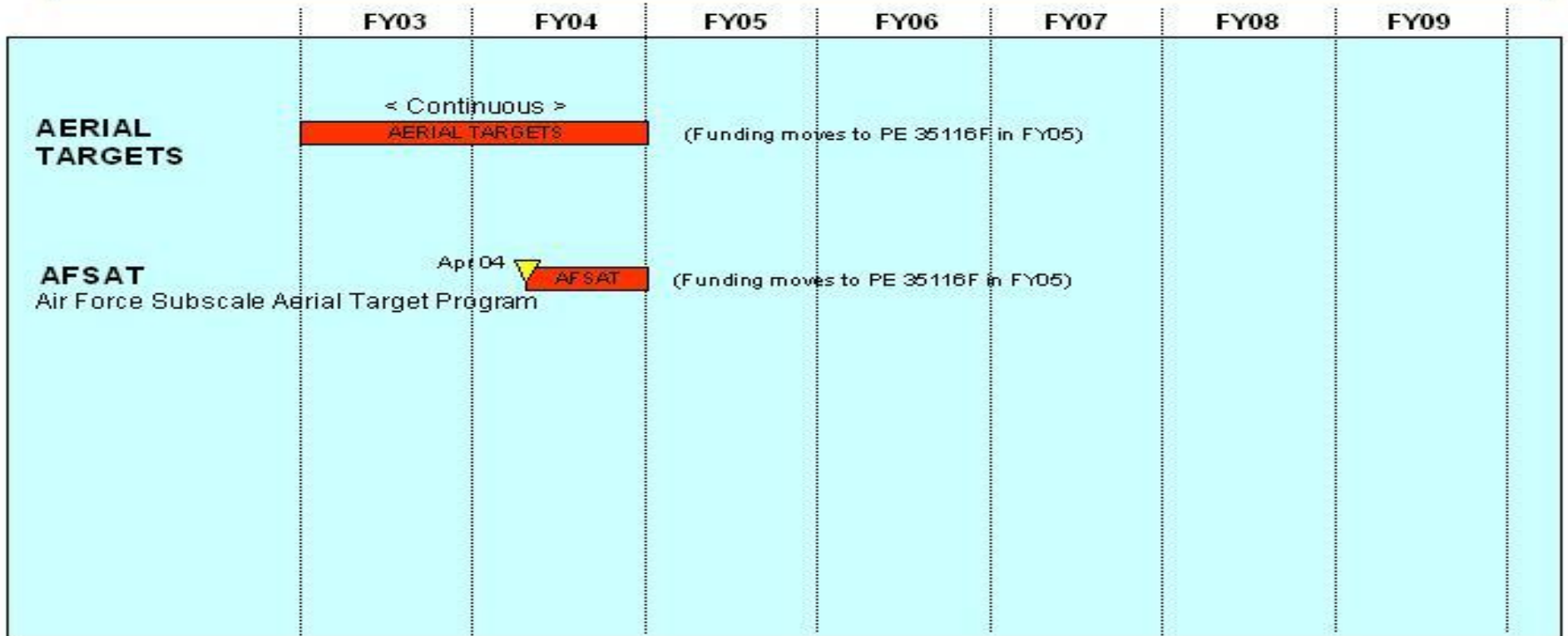
PROJECT NUMBER AND TITLE

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 2004

BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

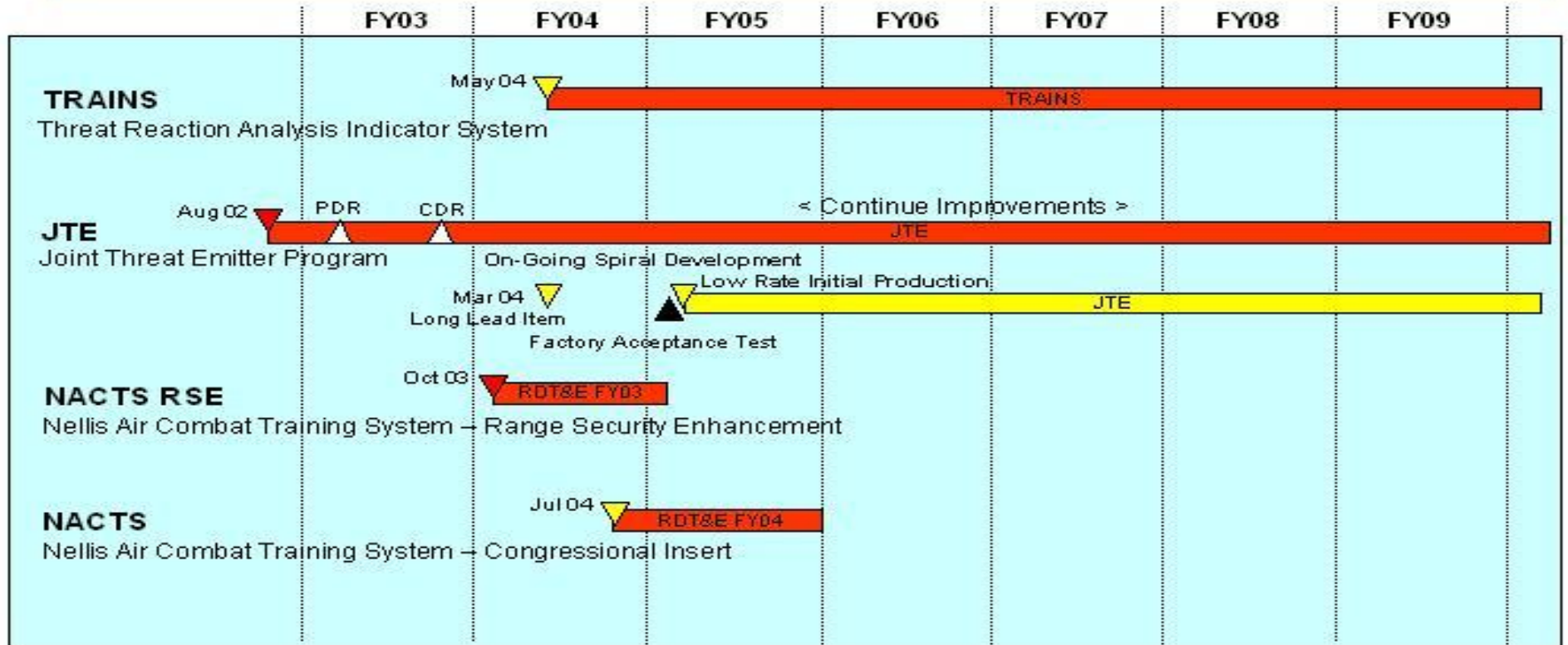
PE NUMBER AND TITLE  
0604735F Combat Training Ranges

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 2004

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604735F Combat Training Ranges

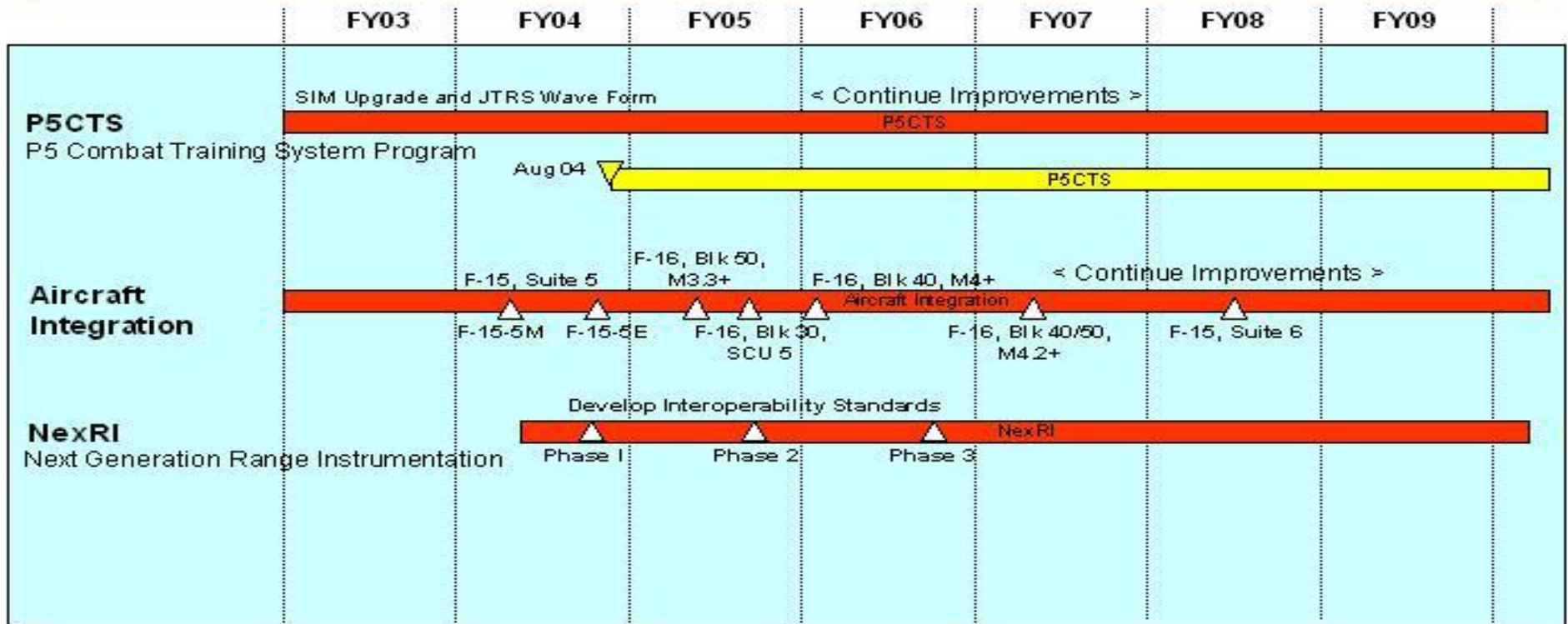
PROJECT NUMBER AND TITLE

2286 Combat Training Range Equipment



U.S. AIR FORCE

# CTR Schedule



Requirements Definition Actual Contract Award EMD Projected Contract Award Production Fielding Other Activity



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Exhibit R-4a, RDT&E Schedule Detail		DATE February 2004		
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>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <b>Schedule Profile</b>				
(U) P5CTS Development				
(U) -- Contract Award P5CTS First Article (NDI)		3Q		
(U) -- Start P5 CTS Spiral Development			2Q	
(U) -- Continue Joint Tactical Radio System (JTRS) Waveform Development		2-4Q	1-4Q	1-4Q
(U) Aircraft Integration Effort				
(U) -- F-15 5E Software Upgrade			4Q	
(U) -- F-15 5M Software Upgrade			2Q	
(U) -- F-16 M3.3+ Software Upgrade				2Q
(U) JTE Development				
(U) -- Long Lead Item Procurement			2Q	
(U) -- Factory Acceptance Test				1Q
(U) -- Low Rate Initial Production				1-2Q
(U) Nellis Air Combat Training Systems (NACTS) Range Security Enhancement (RSE)				
(U) -- Contract Award			1Q	
(U) -- NACTS Range Security activities (on-going)			1-4Q	
(U) -- Complete R&D				1Q
(U) Next Generation Range Instrumentation (NexRI)				
(U) -- Phase I Studies Complete			4Q	
(U) -- Phase II Studies Complete				4Q
(U) Threat Reaction Analysis Indicator System (TRAINS)				
(U) -- Contract Award			3Q	
(U) -- Software Delivery				1Q
(U) Air Force Subscale Aerial Targets (AFSAT) Program (Funding moves to PE 35116F in FY05)				
(U) -- Contract Award			3Q	

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PE NUMBER: 0604740F  
 PE TITLE: Integrated Command & Control Applications

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2004</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>
--	---

Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	12.573	11.105	0.258	0.259	0.264	0.272	0.276	Continuing	TBD
2523 Product Lines	0.226	0.239	0.258	0.259	0.264	0.272	0.276	Continuing	TBD
2524 Reuse and Component Support	12.347	10.866	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

In FY04, Congress added \$11.2 million for Distributed Mission Interoperable Toolkit (DMIT), Asset Source for Software Engineering Technology (Asset)/eWING (Electronic Wing), Visual Computing for Productive Collateral Damage, Interactive 3-D (Three Dimensional) Human Interface, and National Product Line Asset Center (NPLACE).

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

The goal of the IC2A Program is to reduce the development time, costs, and risks associated with the acquisition and development of an enterprise oriented C2 capability by defining a reference architecture to enhance a common application use and reuse. Project 2523 minimizes development cost and time by defining a C2 architecture approach, supporting Defense Information Infrastructure Common Operating Environment (DII COE) acceptance testing to ensure compliance and interoperability, and providing tested, reusable software components from mature programs. The use of common product line designs during development based on a C2 reference architecture can improve software quality, interoperability and reliability while reducing fielding times and overall life cycle costs. Project 2524, 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 DoD; and is developing a National Product Line Asset Center (NPLACE), a Congressional special interest item, to evaluate and analyze enterprise C2 system components 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.

Program is in Budget Activity 5 - System Demonstration and Development (SD&D) due to the nature of the effort.

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	0.226	0.239	0.258
(U) Current PBR/President's Budget	12.573	11.105	0.258
(U) Total Adjustments	12.347	10.866	
(U) Congressional Program Reductions	-0.025		
Congressional Rescissions	-0.140	-0.095	
Congressional Increases	12.514	11.294	
Reprogrammings	-0.002		
SBIR/STTR Transfer		-0.333	

**(U) Significant Program Changes:**

In FY03, Congress added \$12.5 million for ASSET, NPLACE, and AF Product Line Engineering (Reuse and Component Support).

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

DATE

**February 2004**

BUDGET ACTIVITY

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

PE NUMBER AND TITLE

**0604740F Integrated Command & Control Applications**

In FY04, Congress added \$11.2M for NPLACE, DMIT, ASSET/EWing, Iterative 3-D Human Interface, and Visual Computing for Productive Collateral Damage.

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

DATE  
**February 2004**

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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total	
2523 Product Lines	0.226	0.239	0.258	0.259	0.264	0.272	0.276	Continuing	TBD	
Quantity of RDT&E Articles	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 Defense Information Infrastructure Common Operating Environment (DII COE) principles 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.

Program is in Budget Activity 5 - System Demonstration and Development (SD&D) due to the nature of the effort.

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Qualify components for product lines	0.226	0.239	0.258
(U) Total Cost	0.226	0.239	0.258

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

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

**(U) D. Acquisition Strategy**

All major contracts within PE 0604740F were awarded after full and open competition.

**UNCLASSIFIED**

Exhibit R-3, RDT&E Project Cost Analysis										DATE <b>February 2004</b>			
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>			
<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> Prior to FY 2003 Cost	<u>FY</u> 2003 Cost	<u>FY</u> 2003 Award Date	<u>FY</u> 2004 Cost	<u>FY</u> 2004 Award Date	<u>FY</u> 2005 Cost	<u>FY</u> 2005 Award Date	<u>Cost to Complete</u>	<u>Total</u> Cost	<u>Target</u> Value of Contract	
<u>(U) Product Development</u>													
Hughes	C/CPFF	ESC Hanscom AFB, MA	0.453	0.000		0.000		0.000		Continuing	TBD		
Raytheon	C/CPFF	ESC Hanscom AFB, MA	1.000	0.000		0.000		0.000		Continuing	TBD		
AGCS	C/CPFF	ESC Hanscom AFB, MA	0.050	0.000		0.000		0.000		Continuing	TBD		
Unisys	C/CPFF	ESC Hanscom AFB, MA	0.030	0.000		0.000		0.000		Continuing	TBD		
Other	Various	ESC Hanscom AFB, MA	0.000	0.000		0.000		0.000		Continuing	TBD		
West Virginia High Technology Center	C/FFP	University of West Virginia	0.000	0.000		0.000		0.000		Continuing	TBD		
SAIC	C/FFP	ESC Hanscom AFB, MA	3.214	0.000		0.000		0.000		Continuing	TBD		
ProLogic	C/FFP	ESC Hanscom AFB, MA	1.294	0.000		0.000		0.000		Continuing	TBD		
Subtotal Product Development			6.041	0.000		0.000		0.000		Continuing	TBD	0.000	
Remarks:													
<u>(U) Support</u>													
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000	
Remarks:													
<u>(U) Test &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>													
Program Office Support/ITSP	Various	ESC Hanscom AFB,	0.874	0.226	Oct-03	0.239	Oct-04	0.258	Oct-05	Continuing	TBD		

**UNCLASSIFIED**

Exhibit R-3, RDT&E Project Cost Analysis							DATE <b>February 2004</b>			
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>			
	MA									
Subtotal Management				0.874	0.226	0.239	0.258	Continuing	TBD	0.000
Remarks:										
(U) Total Cost				6.915	0.226	0.239	0.258	Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604740F Integrated Command & Control Applications

PROJECT NUMBER AND TITLE

2523 Product Lines

Product Line Management Oversight for Congressional Programs

1 Oct 2003



30 Sep 2004

**Travel and Information Technology Services Program (ITSP) support  
are primary requirements in this funding line**



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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2004</b>
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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>
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<b>(U) <u>Schedule Profile</u></b>	<u>FY 2003</u>	<u>FY 2004</u>		<u>FY 2005</u>
(U) Qualify components for product lines	1-4Q	1-4Q		1-4Q

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

DATE  
**February 2004**

<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>		
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
2524 Reuse and Component Support	12.347	10.866	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

In FY04, Congress added \$11.2M.

**(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 tested, reusable software components from mature programs. A software reuse strategy for DoD was developed as part of this effort. Efforts are continuing with development of a Product Line Asset Center Software Reuse Repository to evaluate and analyze enterprise C2 system components based on primarily commercial off-the-shelf (COTS) products through the National Product Line Asset Center (NPLACE) cooperative agreement. NPLACE functions include the application of standards compliance testing to ensure greatest interoperability among C2 systems.

DMIT funding enables on-demand, trusted, interoperability among and between Command, Control, Communications, Computers, & Intelligence (C4I) systems and simulation models. ATIS (formerly 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 toolkit with interactive human interface capability. Specifically, it enables concept exploration and development of interactive 3-D human interface tools, such as: VROOM, STK and PowerScene to be incorporated into the toolkit. NPLACE funding enables the Air Force to continue the development of the NPLACE Software Reuse Repository.

Program is in Budget Activity 5 - System Demonstration and Development (SD&D) due to the nature of the effort.

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) ASSET, NPLACE, and Interactive Three Dimensional Human Interface	7.347	5.919	0.000
(U) Reengineering and Enabling Technology (RET)	1.000	0.000	0.000
(U) Distributed Mission Interoperability Toolkit (DMIT)	4.000	3.395	0.000
(U) Visual Computational Predictive Collateral Damage	0.000	1.552	0.000
(U) Total Cost	12.347	10.866	0.000

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

DATE

February 2004

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) C. Other Program Funding Summary (\$ in Millions)(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 2004		
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>(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> Prior to FY 2003 Cost	<u>FY</u> 2003 Cost	<u>FY</u> 2003 Award Date	<u>FY</u> 2004 Cost	<u>FY</u> 2004 Award Date	<u>FY</u> 2005 Cost	<u>FY</u> 2005 Award Date	<u>Cost to Complete</u>	<u>Total</u> Cost	<u>Target</u> Value of Contract
<u>(U) Product Development</u>												
NPLACE	C/FFP	West Virginia High Technology Center	0.000	3.630	Dec-02	2.220	Dec-03	0.000		Continuing	TBD	
SAIC	Information Technology Services Program (ITSP)-C/T&M	West Virginia High Technology Center	0.000	2.290	May-03	2.130	May-04	0.000		Continuing	TBD	
ProLogic	C/FFP	West Virginia High Technology Center	0.000	1.000	Apr-03	1.310	Apr-04	0.000		Continuing	TBD	
Gestalt	MIPR	Pennsylvania	0.000	3.340	Apr-03	2.900	Apr-04	0.000		Continuing	TBD	
SSG/GSA	MIPR	West Virginia High Technology Center	0.000	0.940	Apr-03	0.000		0.000		Continuing	TBD	
TBD	Various	Various	0.000	0.000	May-03	1.380	May-04	0.000		Continuing	TBD	
Subtotal Product Development			0.000	11.200		9.940		0.000		Continuing	TBD	0.000
Remarks:												
<u>(U) Support</u>												
Contractor Support	Information Technology Services Program (ITSP)-C/T&M	ESC Hanscom AFB, MA	0.874	1.147	Dec-02	0.926	Dec-03	0.000		Continuing	TBD	
Subtotal Support			0.874	1.147		0.926		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>												

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Exhibit R-3, RDT&E Project Cost Analysis					DATE <b>February 2004</b>			
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>2524 Reuse and Component Support</b>				
Subtotal Management	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Remarks:								
(U) <u>Not applicable.</u>								
(U) Total Cost	0.874	12.347	10.866	0.000	Continuing	TBD		0.000
Remarks:								

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

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

TASK NAME	2003				2004				2005			
	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4
<b>NPLACE</b>	▶											
<b>ATIS/eWing</b>	▶											
<b>ATIS/eWing transition to field</b>	▬											
<b>C2C Web Broker Support</b>	▬											
<b>3-D VIZ Technology Refinement Toolkit</b>	▶											
	▬											
<b>DMIT</b>	▶											
<b>Visual Computing for PCD</b>	▶											

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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>		DATE <b>February 2004</b>
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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>
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<b>(U) <u>Schedule Profile</u></b>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) NPLACE	1-4Q	1-4Q	
(U) ATIS (formerly ASSET)/eWing	4Q	1-4Q	
(U) 3-D Viz Texh Requirement	2-4Q	2-4Q	
(U) DMIT	4Q	1-4Q	
(U) Visual Compting for PCD		1-3Q	
(U) Reengineering and Enabling Technology	3-4Q		

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PE NUMBER: 0604750F  
 PE TITLE: Intelligence Equipment

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>								<b>DATE</b> <b>February 2004</b>	
<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>				<b>PE NUMBER AND TITLE</b> <b>0604750F Intelligence Equipment</b>					
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	1.277	2.290	1.349	1.362	1.387	1.409	1.431	Continuing	TBD
2053 National Air Intel Center	1.277	2.290	1.349	1.362	1.387	1.409	1.431	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 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 (NAIC), 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, and policy making. IE accelerates threat estimates and system descriptions to deployed operational forces (via Reachback). IE also provides clients with accurate, predictive, relevant, and timely intelligence that will support client processes, operational planning, and mission execution.) Both the NAIC and AFIWC organizations are tasked with providing detailed foreign technology intelligence information to a variety of DOD and non-DOD customers. In the past few years, customers' requirements have been 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 provides NAIC and AFIWC with the tools necessary to produce timely intelligence of foreign weapon systems and develops the tools to model and assess foreign air and space systems. 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 / information for HQ Air Combat Command (ACC), the Air Intelligence Agency (AIA) -- primarily their NAIC and AFIWC subordinates.

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	1.326	1.320	1.353
(U) Current PBR/President's Budget	1.277	2.290	1.349
(U) Total Adjustments	-0.049	0.970	
(U) Congressional Program Reductions	-0.009	-0.011	
Congressional Rescissions	-0.014	-0.019	
Congressional Increases		1.000	
Reprogrammings	-0.026		
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2004

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604750F Intelligence Equipment

Funding: Congressional \$1.0M add in FY04 for High Power Microwave Vulnerability Assessment (Follow on to FY02 Congressional Add for Radio Frequency Weapon Threat Assessment (RFWA) Program).

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

DATE  
**February 2004**

<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>				<b>PE NUMBER AND TITLE</b> <b>0604750F Intelligence Equipment</b>			<b>PROJECT NUMBER AND TITLE</b> <b>2053 National Air Intel Center</b>			
Cost (\$ in Millions)		FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
2053	National Air Intel Center	1.277	2.290	1.349	1.362	1.387	1.409	1.431	Continuing	TBD
	Quantity of RDT&E Articles	0	0	0	0	0	0	0		

FY04 \$1.0M Congressional Increase for High Powered Microwave Vulnerability Assessment

**(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 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 (NAIC), 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, and policy making. IE accelerates threat estimates and system descriptions to deployed operational forces (via Reachback). IE also provides clients with accurate, predictive, relevant, and timely intelligence that will support client processes, operational planning, and mission execution.) Both the NAIC and AFIWC organizations are tasked with providing detailed foreign technology intelligence information to a variety of DOD and non-DOD customers. In the past few years, customers' requirements have been 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 provides NAIC and AFIWC with the tools necessary to produce timely intelligence of foreign weapon systems and develops the tools to model and assess foreign air and space systems. 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 / information for HQ Air Combat Command (ACC), the Air Intelligence Agency (AIA) -- primarily their NAIC and AFIWC subordinates.

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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Continued High Speed Engine Propulsion Tools (Continue Phase 1: Pulsed-Detonation Engine Model)	0.180		
(U) Continued High Speed Engine Propulsion Tools (Continue Phase 2: Air-Turbo-Rocket Engine Model)	0.037		
(U) Suspended High Speed Engine Propulsion Tools (Continue Phase 3: Turbo-Ramjet Engine Model)	0.000		
(U) Continued Standard Visualization Solution (SVS) - IVIEW 2000 Upgrade/JView	0.130		
(U) Continued Missile System Upgrades (Phase 3: CRMPS [Computer Requirements Model for Payload Study])	0.180		
(U) Continued Missile System Upgrades (Phase 4: BRACE [Ballistic Reentry Vehicle Accuracy Estimate])	0.240		
(U) Continued Advanced Analysis Capabilities (AAC) -- Integrated Avionics Support (IAS)	0.380		
(U) Initiated Laser Weapons (LODUR) Threat Assessment Tool	0.130		
(U) Continue High Speed Engine Propulsion Tools (Continue Phase 1: Pulsed-Detonation Engine Model)		0.040	
(U) Continue High Speed Engine Propulsion Tools (Continue Phase 2: Air-Turbo-Rocket Engine Model)		0.050	
(U) Suspend High Speed Engine Propulsion Tools (Continue Phase 3: Turbo-Ramjet Engine Model)		0.000	

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>February 2004</b>
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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>
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(U) Continue Standard Visualization Solution (SVS) - IVIEW 2000 Upgrade/JView	0.050		
(U) Continue Missile System Upgrades (Phase 3: CRMPS [Computer Requirements Model for Payload Study])	0.130		
(U) Continue Missile System Upgrades (Phase 4: BRACE [Ballistic Reentry Vehicle Accuracy Estimate])	0.130		
(U) Continued Advanced Analysis Capabilities (AAC) -- Integrated Avionics Support (IAS)	0.160		
(U) Continue Laser Weapons (LODUR) Threat Assessment Tool	0.220		
(U) Initiate High Speed Engine Propulsion Tools (Phase 4: SCRAM Jet Engine Model)	0.260		
(U) Initiate Analysis & Exploitation of Underground Facilities / Hardened, Deeply- Buried Targets (UGF / HDBT)Using Hyperspectral and MASINT Tools	0.050		
(U) Initiate Terrain Map Comparison Tools for UGF/HDBT	0.050		
(U) Initiate Upgrade of Tel-Scope Tool with Enhanced Operational Capability (EOC)	0.150		
(U) Initiate High Power Microwave Vulnerability (HPMV) Assessment (Congressional Add FY04)	1.000		
(U) Complete Missile System Upgrades (Phase 3: CRMPS [Computer Requirements Model for Payload Study])			0.060
(U) Complete Missile System Upgrades (Phase 4: BRACE [Ballistic Reentry Vehicle Accuracy Estimate])			0.060
(U) Continue High Speed Engine Propulsion Tools (Phase 1: Pulsed-Detonation Engine Model)			0.010
(U) Continue High Speed Engine Propulsion Tools (Continue Phase 2: Air-Turbo-Rocket Engine Model)			0.010
(U) Re-Initiate High Speed Engine Propulsion Tools (Re-Initiate Phase 3: Turbo-Ramjet Engine Model)			0.010
(U) Continue High Speed Engine Propulsion Tools (Phase 4: Continue SCRAM Jet Engine Model)			0.210
(U) Continue Standard Visualization Solution (SVS) - IVIEW 2000 Upgrade/JView			0.039
(U) Continue Advanced Analysis Capabilities (AAC) -- Integrated Avionics Support (IAS)			0.100
(U) Continue Laser Weapons (LODUR) Threat Assessment Tool			0.150
(U) Continue Analysis & Exploitation of Underground Facilities / Hardened, Deeply- Buried Targets (UGF / HDBT)Using Hyperspectral and MASINT Tools			0.225
(U) Continue Terrain Map Comparison Tools for UGF/HDBT			0.225
(U) Continue Upgrade of Tel-Scope Tool with Enhanced Operational Capability (EOC)			0.250
(U) Total Cost		1.277	2.290
			1.349

<b>(U) C. Other Program Funding Summary (\$ in Millions)</b>									
	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	

(U) Not Applicable

**(U) D. Acquisition Strategy**  
All major contracts are awarded after full and open competition.

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Exhibit R-3, RDT&E Project Cost Analysis										DATE February 2004		
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)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2003 Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) <u>Product Development</u>												
Sterling Software, Inc. & Northrup-Grumman IT -- Phase 1: High Speed Propulsion / Pulsed Detonation	C/CPFF		0.185	0.180	Feb-03	0.040	Jul-04	0.010	Jul-05	0.010	0.425	0.425
SAIC -- Phase 2: High Speed Propulsion / C/IDIQ/CPFF Air Turbo Rocket (ATR)			0.250	0.037	Jul-03	0.050	Jul-04	0.010	Jul-05	0.010	0.357	0.357
Contractor TBD -- Phase 3: High Speed Propulsion / Turbo-Ramjet	C/CPFF		0.000	0.000		0.000		0.010	Jul-05	0.100	0.110	0.110
Pratt & Whitney -- Phase 4: High Speed Propulsion / Scram-Jet	C/CPFF		0.000	0.000		0.260	Dec-03	0.210	Dec-04	0.200	0.670	0.670
Northrup-Grumman IT -- Missile System / C/CPFF Phase 3: (CRMPS)			0.300	0.180	Nov-02	0.130	Nov-03	0.060	Nov-04	0.000	0.670	0.670
Northrup-Grumman IT -- Missile System / C/CPFF Phase 4: (BRACE)			0.300	0.240	Nov-02	0.130	Nov-03	0.060	Nov-04	0.000	0.730	0.730
PAR Government Systems & AFRL/IFSB (In-House) -- I-VIEW 2000 Upgrade/J-View SVS	C/CPFF		0.300	0.130	Nov-02	0.050	Nov-03	0.039	Nov-04	0.500	1.019	1.019
Northrup-Grumman IT -- Advanced Analysis Capability: Integrated Avionics Support Model	C/CPFF		0.200	0.380	Apr-03	0.160	Nov-03	0.100	Nov-04	0.500	1.340	1.340
Applied Science Laboratories (ASL) -- Laser Weapons (LODUR) Threat Assessment Tool	C/CPFF		0.000	0.130	May-03	0.220	Nov-03	0.150	Nov-04	0.250	0.750	0.750
MTL Systems Inc. -- Analysis & Exploitation. of Underground Facilities / Hardened, Deeply-Buried Targets (UGF/HDBT) Using Hyperspectral & MASINT Tools	C/CPFF		0.000	0.000		0.050	May-04	0.225	Nov-04	0.730	1.005	1.005
Sandia National Laboratory -- Terrain Map Comparison (UGF/HDBT) Tools	C/MIPR		0.000	0.000		0.050	May-04	0.225	Nov-04	0.700	0.975	0.975

**UNCLASSIFIED**

Exhibit R-3, RDT&E Project Cost Analysis							DATE <b>February 2004</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>			
Prediction Systems, Inc. -- Tel-Scope Enhanced Operational Capability (EOC)	C/FFP		0.000	0.000	0.150 Dec-03	0.250 Dec-04	0.750	1.150	1.150
Applied Sciences Laboratories, Inc. -- High Power Microwave Vulnerability Assessment Tool (Congressional Add FY04)	C/CPFF		0.000	0.000	1.000 May-04	0.000	0.000	1.000	1.000
Subtotal Product Development			1.535	1.277	2.290	1.349	3.750	10.201	10.201
Remarks:									
(U) Total Cost			1.535	1.277	2.290	1.349	3.750	10.201	10.201

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

BUDGET ACTIVITY

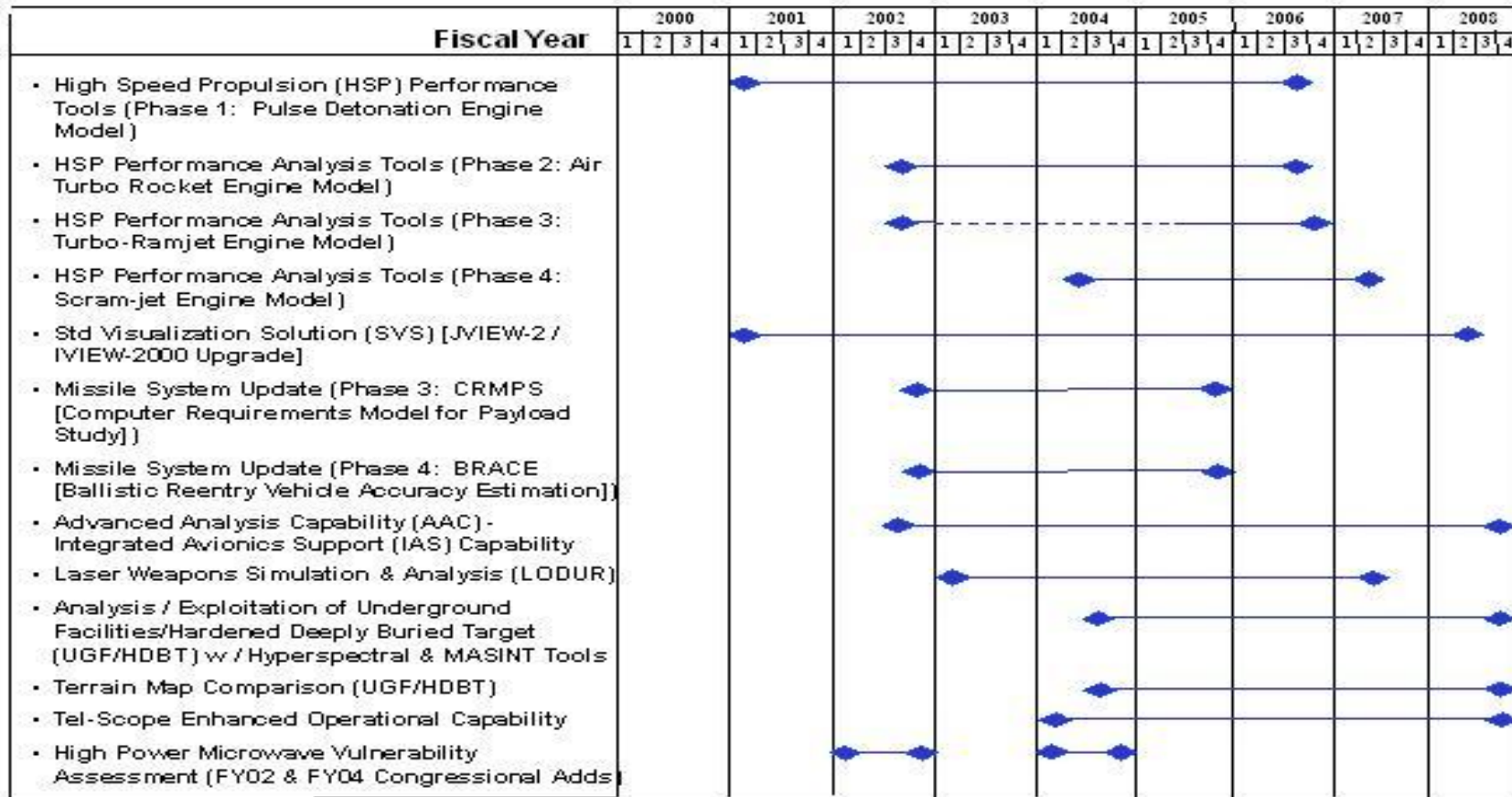
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604750F Intelligence Equipment

PROJECT NUMBER AND TITLE

2053 National Air Intel Center



**UNCLASSIFIED**

Exhibit R-4a, RDT&E Schedule Detail		DATE <b>February 2004</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>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <b>Schedule Profile</b>				
(U) Continue High Speed Propulsion (HSP) Engine Propulsion Tools (Phase 1: Pulsed Detonated Engine Model)		1-4Q	1-4Q	1-4Q
(U) Continue High Speed Propulsion (HSP) Engine Propulsion Tools (Phase 2: Air-Turbo-Rocket Engine Model)		1-4Q	1-4Q	1-4Q
(U) Re-Initiate High Speed Propulsion (HSP) Engine Propulsion Tools (Phase 3: Turbo-Ramjet Engine Model)				3Q
(U) Initiate High Speed Propulsion (HSP) Engine Propulsion Tools (Phase 4: SCRAM Jet Engine Model)			1Q	
(U) Continue High Speed Propulsion (HSP) Engine Propulsion Tools (Phase 4: SCRAM Jet Engine Model)				1-4Q
(U) Continue Standard Visualization Solution (SVS) I-VIEW 2000 Upgrade / J-VIEW		1-4Q	1-4Q	1-4Q
(U) Continue Missile System Upgrades (Phase 3: CRMPS [Computer Requirements Model for Payload Study] )		1-4Q	1-4Q	1-4Q
(U) Complete Missile System Upgrades (Phase 3: CRMPS [Computer Requirements Model for Payload Study] )				4Q
(U) Continue Missile System Upgrades (Phase 4: BRACE [Ballistic Reentry Vehicle Accuracy Estimate] )		1-4Q	1-4Q	1-4Q
(U) Complete Missile System Upgrades (Phase 4: BRACE [Ballistic Reentry Vehicle Accuracy Estimate] )				4Q
(U) Advanced Analysis Capabilities (AAC) -- Integrated Avionics Support (IAS)		1-4Q	1-4Q	1-4Q
(U) Initiate Laser Weapons (LODUR) Threat Assessment Tool		3Q		
(U) Continue Laser Weapons (LODUR) Threat Assessment Tool			1-4Q	1-4Q
(U) Initiate Analysis and Exploitation of UGF / HDBT with Hyperspectral & MASINT Tools			4Q	
(U) Continue Analysis and Exploitation of UGF / HDBT with Hyperspectral & MASINT Tools				1-4Q
(U) Initiate Terrain Map Comparison (UGF / HDBT)			4Q	
(U) Continue Terrain Map Comparison (UGF / HDBT)				1-4Q
(U) Initiate Tel-Scope Expanded Operational Capability (Space Communications Using Terrestrial Links)			1Q	
(U) Continue Tel-Scope Expanded Operational Capability (Space Communications Using Terrestrial Links)				1-4Q
(U) Initiate / Complete High Power Microwave Vulnerability Assessment (Congressional Add FY04)			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>	DATE <b>February 2004</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>
--	--

Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	14.550	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
4749 Link 16 System Integration	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
4992 Family of Interoperable Operational Pictures (FIOP)	0.000	14.550	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

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.

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.

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 user when operating under rapidly changing operational conditions. TDL terminals are used by the Air Force, Army, Navy, and Marine Corps 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.

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2004</b>
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BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0604754F Tactical Data Link Integration</b>
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<b>(U) <u>B. Program Change Summary (\$ in Millions)</u></b>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget		14.675	24.720
(U) Current PBR/President's Budget	0.000	14.550	0.000
(U) Total Adjustments	0.000	-0.125	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.125	
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			
FY05 funding transferred to PE0207443F (FIOP), #675137, as part of the FIOP funding consolidation.			

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

DATE  
**February 2004**

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>		
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
4992 Family of Interoperable Operational Pictures (FIOP)	0.000	14.550	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

In FY05, 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**

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 2003</u>	<u>FY 2004</u>	<u>FY 2005</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	
--(U) Develop two products: a Situational Awareness System Interface Control Document and a COE Situational Awareness Gateway Software Segment.			
(U) Develop Network Based Services		6.760	

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>February 2004</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>
--	--	--

--(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) Total Cost	0.000	14.550	0.000
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(U) **C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) RDT&E, AF									
(U) 0207434F (Link 16 Sup & Sus)	50.535	70.481	141.012	218.743	228.009	161.909	153.606	Continuing	TBD
(U) 0207438F (TBMC4I)	33.304	32.505	37.210	37.990	34.079	34.579	32.287	Continuing	TBD
(U) 0603850F (Integrated Broadcast System)	0.000	8.415	2.294	0.000	0.000	0.000	0.000	0.000	10.709

(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 February 2004		
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)		
(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</u> Prior to FY 2003 Cost	<u>FY</u> 2003 Cost	<u>FY</u> 2003 Award Date	<u>FY</u> 2004 Cost	<u>FY</u> 2004 Award Date	<u>FY</u> 2005 Cost	<u>FY</u> 2005 Award Date	<u>Cost to Complete</u>	<u>Total</u> Cost	<u>Target</u> Value of Contract
(U) <u>Product Development</u>												
Joint Precision Fire Support	MIPR	MARCORSYSCOM, 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				6.760	Feb-04			Continuing	TBD	
Subtotal Product Development			0.000	0.000		14.550		0.000		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												0.000
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												0.000
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u>												0.000
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			0.000	0.000		14.550		0.000		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

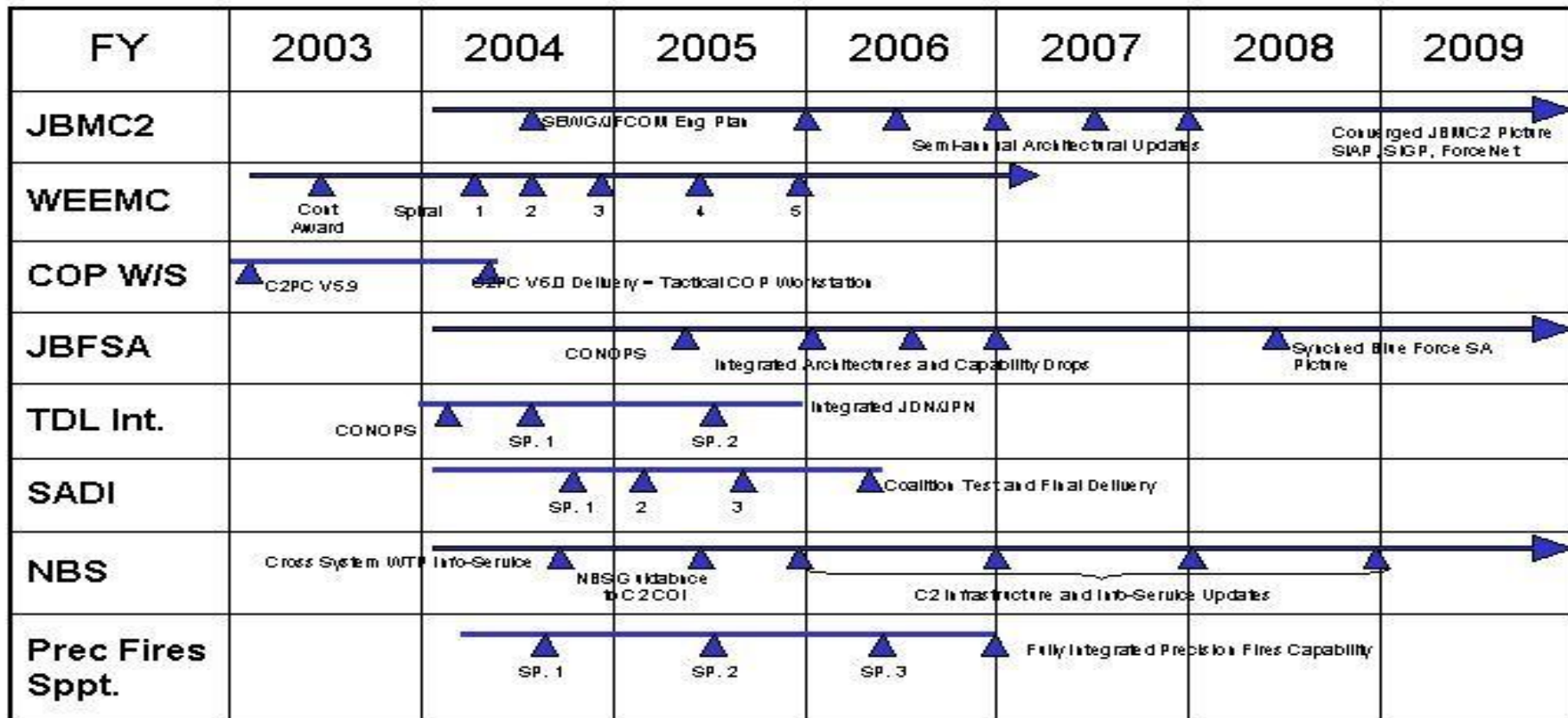
February 2004

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)

# FIOP Milestone Schedule



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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2004</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 2003</u>	<u>FY 2004</u>	<u>FY 2005</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	

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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 2004</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>
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Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	4.695	6.941	10.303	8.646	0.000	0.000	0.000	Continuing	TBD
4683 Common Low Observable Verification System	4.695	6.941	10.303	8.646	0.000	0.000	0.000	Continuing	TBD

**(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 Unmanned Combat Air Vehicle (UCAV). 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 -Engineering, Manufacturing and Development (EMD) because this program develops the Common Low Observable Verification System (CLOVerS).

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	4.730	7.000	0.000
(U) Current PBR/President's Budget	4.695	6.941	10.303
(U) Total Adjustments	-0.035	-0.059	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.059	
Congressional Increases			
Reprogrammings	0.112		
SBIR/STTR Transfer	-0.147		

**(U) Significant Program Changes:**

FY03 moved \$0.3M from TEWS Upgrade, PE64270F/Project 653945 for completion of contracted effort related to Cart 3

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

DATE  
**February 2004**

<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>	
Cost (\$ in Millions)		FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
4683	Common Low Observable Verification System	4.695	6.941	10.303	8.646	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles		0	0	0	0	0	0	0		

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

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 Unmanned Combat Air Vehicle (UCAV). 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 -Engineering, Manufacturing and Development (EMD) because this program develops the Common Low Observable Verification System (CLOVerS).

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Continue Cart 3/4/5 development. Continue ancillary equipment development. Conduct field testing.	4.097	6.137	9.318
(U) Program Office Support	0.357	0.707	0.806
(U) Govt. System Test & Eval Support	0.241	0.097	0.179
(U) Total Cost	4.695	6.941	10.303

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
BP12 - PE27145F:Appn: Aircraft Procurement, AF (APAF) Budget Activity:									
(U) Aircraft (A/C) Procurement/Common Support Equipment, Program Title: Common Low Observable Verification System (CLOVerS)	0.000	0.444	0.000	0.000	19.505	19.919	31.510	72.313	143.691
(U) BP16 - PE27145F: Appn: Spares for Common Low	0.000	0.170	0.000	0.000	0.943	0.965	1.571	7.183	10.832

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	<b>DATE</b> <b>February 2004</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) C. Other Program Funding Summary (\$ in Millions)**

Observable Verification System (CLOVerS)										
Operational & Support Funding (3400) for Common Low Observable Verification System (CLOVerS)	0.000	0.000	0.839	0.873	1.495	1.600	2.000	42.257	49.064	

**(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 EMD program out to Sep 06.

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Exhibit R-3, RDT&E Project Cost Analysis										DATE <b>February 2004</b>		
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>				
<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> Prior to FY 2003 Cost	<u>FY</u> 2003 Cost	<u>FY</u> 2003 Award	<u>FY</u> 2004 Cost	<u>FY</u> 2004 Award	<u>FY</u> 2005 Cost	<u>FY</u> 2005 Award	<u>Cost to Complete</u>	<u>Total</u> Cost	<u>Target</u> Value of Contract
<u>(U) Product Development</u>												
Develop CLOVerS EMD Unit	CPFF	Boeing Co., St Louis	26.993	4.097		6.137		9.318		Continuing	TBD	
Subtotal Product Development			26.993	4.097		6.137		9.318		Continuing	TBD	0.000
Remarks:												
<u>(U) Support</u>												
JSC Support to obtain electromagnetic licensing (EML) requirement	MIPR	Joint Spectrum Center, 2004 Turbot Landing, Annapolis, MD 21402	0.366	0.235		0.090		0.170		Continuing	TBD	
88CG - Radar frequency management support (req'd to obtain EML)	MORD	88th Comm Group, 2435 5th St., WPAFB, OH 45433	0.015	0.000		0.007		0.007		Continuing	TBD	
AFRL - Ancillary Equipment/Shroud Support	AF Form 616	AFRL, 2591 K Street, Bldg 254, WPAFB, OH 45433	0.110	0.006		0.000		0.002		Continuing	TBD	
Subtotal Support			0.491	0.241		0.097		0.179		Continuing	TBD	0.000
Remarks:	This element includes detailed planning, support, data reduction and reports (excluding the Contract Data Requirements List data) from such technical services											
<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>												
FBXC - Mission Support Requirements	Various	ASC/FBXC and ASC/FB, 2725 C. St, Bldg 553, WPAFB, OH 45433	1.453	0.357		0.707		0.806		Continuing	TBD	
Subtotal Management			1.453	0.357		0.707		0.806		Continuing	TBD	0.000
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 (including Advisory & Assistance Services (A&AS) contracts), program management assessments (PMA) and communication expenses.											

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

DATE

**February 2004**

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**

(U) Total Cost

28.937	4.695	6.941	10.303	Continuing	TBD	0.000
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Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

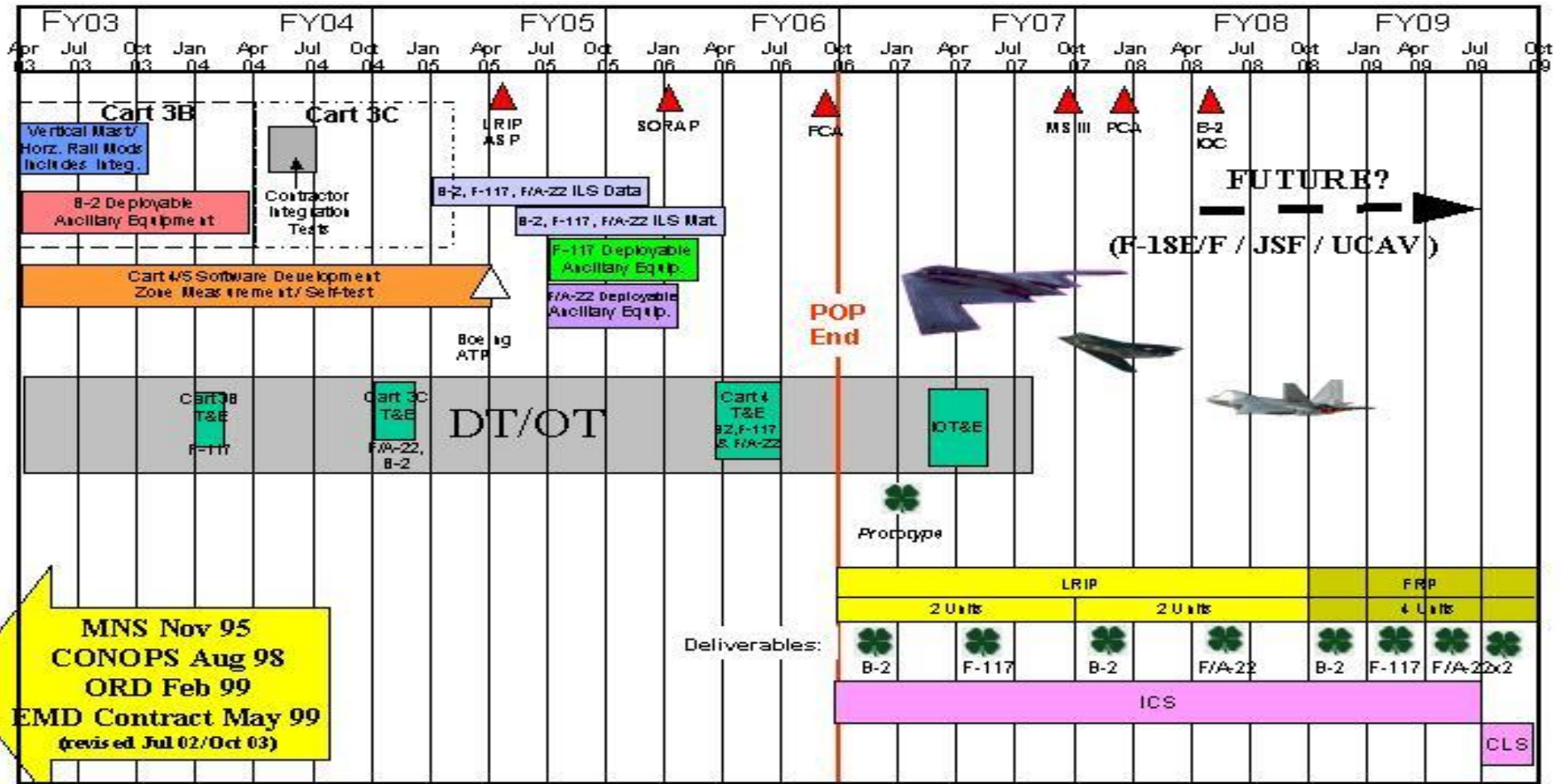
BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE  
0604762F Common Low Observable  
Verification Sys

PROJECT NUMBER AND TITLE  
4683 Common Low Observable  
Verification System

# CLOVerS Schedule

EMD & ECP



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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>		DATE <b>February 2004</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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<b>(U) <u>Schedule Profile</u></b>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Cart 3B Test and Evaluation		2Q	
(U) Cart 3C Test and Evaluation			1Q
(U) Cart 4/5 Software Development			3Q

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PE NUMBER: 0604800F  
 PE TITLE: Joint Strike Fighter EMD

Exhibit R-2, RDT&E Budget Item Justification								DATE <b>February 2004</b>	
BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>				PE NUMBER AND TITLE <b>0604800F Joint Strike Fighter EMD</b>					
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	1,612.826	2,092.547	2,307.420	2,489.848	2,203.446	2,051.881	1,686.684	Continuing	TBD
3831 Joint Strike Fighter	1,612.826	2,092.547	2,307.420	2,489.848	2,203.446	2,051.881	1,686.684	Continuing	TBD

THIS PROGRAM ELEMENT (PE) CONTINUES DEVELOPMENT EFFORTS BUDGETED IN PE 0603800F PRIOR TO FISCAL YEAR 2002.

**(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. 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 14 AF and DoN RDT&E articles (6 in FY 2006, 8 in FY 2007) reflects flight test articles; 8 ground test articles are also budgeted in SDD.

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	1,697.810	2,194.087	2,242.485
(U) Current PBR/President's Budget	1,612.826	2,092.547	2,307.420
(U) Total Adjustments	-84.984	-101.540	
(U) Congressional Program Reductions		-55.000	
Congressional Rescissions		-18.202	
Congressional Increases			
Reprogrammings	-33.006	-28.338	
SBIR/STTR Transfer	-51.978		

**(U) Significant Program Changes:**

Schedule: Approximate 1-year schedule extension is expected.

Technical: Additional design work is required to overcome airframe structural issues.

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

DATE  
**February 2004**

<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>			<b>PROJECT NUMBER AND TITLE</b> <b>3831 Joint Strike Fighter</b>			
Cost (\$ in Millions)		FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
3831	Joint Strike Fighter	1,612.826	2,092.547	2,307.420	2,489.848	2,203.446	2,051.881	1,686.684	Continuing	TBD
Quantity of RDT&E Articles		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. 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 14 AF and DoN RDT&E articles (6 in FY 2006, 8 in FY 2007) reflects flight test articles; 8 ground test articles are also budgeted in SDD.

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) FY02 commenced execution of System Development and Demonstration (SDD) for Air System with Lockheed Martin including International Commonality Effort (ICE). FY03, FY04 and FY05 will continue SDD execution of the Air System including airframe, vehicle systems, mission systems, autonomic logistics, systems engineering and integrated test efforts.	2,478.456	3,686.640	3,859.000
(U) FY02 commenced execution of System Development and Demonstration (SDD) for F135 Propulsion System with Pratt & Whitney including International Commonality Effort (ICE). FY03, FY04 and FY05 continue SDD execution of the F135 Propulsion System, including engine testing, autonomic logistics, integration, and performing technology maturation efforts.	833.127	694.114	921.000
(U) FY02, FY03, FY04, and FY05 continue the General Electric F136 development for a second, interchangeable, JSF engine for competition in production (previously begun in associated program elements 0603800F and 0603800N). Efforts include technology maturation, engine testing, autonomic logistics and integration.	220.817	123.632	233.000
(U) FY02 commenced SDD Systems Engineering (SE) and Mission Support activities, including modeling, simulation and analysis (MS&A) efforts, risk reduction activities and program office functions. FY03, FY04, and FY05 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.	167.705	269.128	315.277
(U) Total Cost	3,700.105	4,773.514	5,328.277

## 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>0604800F Joint Strike Fighter EMD</b>	<b>3831 Joint Strike Fighter</b>

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

(U) TURKEY	25.700	28.700	31.200	31.000	22.100	11.900	6.500	Continuing	TBD
(U) AUSTRALIA	14.950	28.150	39.720	29.740	14.430	8.010	5.000	Continuing	TBD
(U) Other APPN									
(U) USAF 0207142F PROCUREMENT				173.377	1165.341	1232.999	2241.388	Continuing	TBD
(U) USN 0204146N PROCUREMENT				61.564	680.509	2715.237	4791.696	Continuing	TBD
(U) Other Program Funding									
(U) USAF 0207142F MILCON		19.060	9.965	0.000	0.000	85.402	79.998	Continuing	TBD
(U) USAF 91211F MILCON		1.000	0.900					Continuing	TBD
(U) USN 24146N MILCON		24.370						Continuing	TBD
(U) USN Spares and Repair Parts				0.000	30.754	150.527	342.425	Continuing	TBD

Note: This is a joint program with no executive service. Program Element 0604800N continues USN development efforts budgeted in 0603800N prior to FY 2002. The United Kingdom and other International countries are participants in the SDD phase of JSF.

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 \$118,006; 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 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 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 FY 2000.

A sizable technology maturation effort was conducted to reduce risk and life cycle cost (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

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Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

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validate performance and life cycle cost 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 Land (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.

Procurement is planned to begin in FY 2007 with advance procurement for Lot 1 in FY 2006.

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

DATE

**February 2004**

BUDGET ACTIVITY			PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
<b>05 System Development and Demonstration (SDD)</b>			<b>0604800F Joint Strike Fighter EMD</b>					<b>3831 Joint Strike Fighter</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</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
<u>(U) Product Development</u>												
Lockheed Martin	C/CPAF	Ft. Worth, TX	851.537	2,478.4 56	Oct-02	3,686.6 40	Oct-03	3,859.0 00	Oct-04	Continuing	TBD	19,645.4 66
Pratt & Whitney	SS/CPAF	Hartford, CT	771.554	833.127	Oct-02	694.114	Oct-03	921.000	Oct-04	Continuing	TBD	4,827.78 5
General Electric	SS/CPAF	Cincinnati, OH	26.921	220.817	Oct-02	123.632	Oct-03	233.000	Oct-04	Continuing	TBD	453.497
Subtotal Product Development			1,650.012	3,532.4 00		4,504.3 86		5,013.0 00		Continuing	TBD	24,926.7 48
Remarks:	Dec 2002 SAR reflected total SDD cost of \$33B; current estimate TBD pending approval of revised Acquisition Program Baseline and Dec 2003 SAR. The GE Target Value of Contract reflects the negotiated value of the current Phase IIIb; follow-on contract for continued GE F136 development is TBD.											
<u>(U) Support</u>												
System Eng/Mission Support	Various	Field Sites	79.778	139.391	Oct-02	236.127	Oct-03	285.934	Oct-04	Continuing	TBD	
Sverdrup/Anteon	C/CPAF	Arlington, VA	3.150	4.975	Dec-02	5.224	Dec-03	5.278	Dec-04	Continuing	TBD	
LSI/Veridian	SS/CPFF	Patuxent River, MD	5.256	6.809	Dec-02	7.055	Dec-03	7.127	Dec-04	Continuing	TBD	
Miscellaneous	Various	Miscellaneous	5.775	5.255	Oct-02	5.200	Oct-03	5.400	Oct-04	Continuing	TBD	
Subtotal Support			93.959	156.430		253.606		303.739		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>												
Stanley	SS/CPFF	Arlington, VA	3.834	8.955	Oct-02	12.211	Oct-03	9.076	Oct-04	Continuing	TBD	
Aegis	SS/CPFF	Arlington, VA	1.541	2.320	Dec-02	3.311	Dec-03	2.462	Dec-04	Continuing	TBD	
Subtotal Management			5.375	11.275		15.522		11.538		Continuing	TBD	0.000
Remarks:												
<u>(U) Total Cost</u>			1,749.346	3,700.1 05		4,773.5 14		5,328.2 77		Continuing	TBD	24,926.7 48

Exhibit R-4, RDT&E Schedule Profile

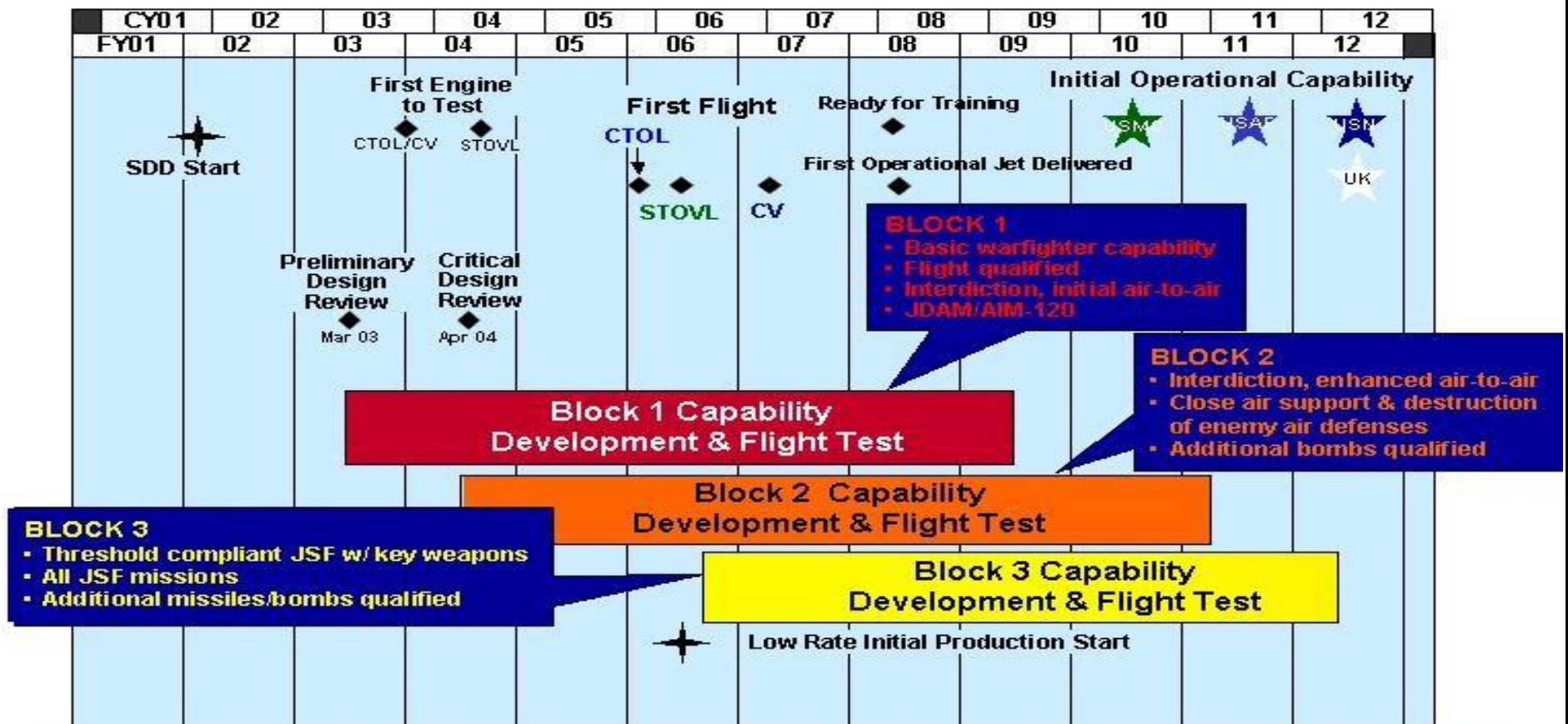
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BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE  
0604800F Joint Strike Fighter EMD

PROJECT NUMBER AND TITLE  
3831 Joint Strike Fighter

# System Development and Demonstration (SDD) Schedule



Note: Under review by DoD and TBD pending approval of revised Acquisition Program Baseline (APB)

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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>		DATE <b>February 2004</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>	<b>PROJECT NUMBER AND TITLE</b> <b>3831 Joint Strike Fighter</b>
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	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <b><u>Schedule Profile</u></b>			
(U) Milestone B and Award of SDD Contract			
(U) Air System Requirements Review (ASRR)			
(U) Integrated Baseline Reviews (IBRs) at Lockheed Martin, P&W and GE			
(U) Preliminary Design Review for Air System	3Q		
(U) CTOL Critical Design Review		3Q	
(U) STOVL Critical Design Review (TBD)			
(U) CV Critical Design Review (TBD)			
(U) CTOL First Flight (3 Qtr FY 2006)			
(U) STOVL First Flight (TBD)			
(U) CV First Flight (TBD)			
(U) 1st Operational Aircraft Delivered (TBD)			
(U) USMC Initial Operational Capability (IOC)			
(U) USAF IOC			
(U) USN IOC			
(U) Milestone C Decision for Full Rate Production			
Note: TBD pending approval of revised Acquisition Program Baseline (APB).			

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PE NUMBER: 0604851F  
 PE TITLE: ICBM - EMD

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	<b>DATE</b> <b>February 2004</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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	119.689	172.713	91.687	32.245	0.000	0.000	0.000	0.000	510.221
133B Rapid Execution & Combat Targeting (REACT)	19.274	22.225	16.244	0.000	0.000	0.000	0.000	0.000	71.679
4371 Safety Enhanced Reentry Vehicle (SERV) Program	59.586	64.783	53.373	26.426	0.000	0.000	0.000	0.000	240.015
4788 PSRE Life Extension Program	19.619	6.839	0.000	0.000	0.000	0.000	0.000	0.000	66.805
4823 ECS Replacement Program	7.293	13.375	16.404	0.000	0.000	0.000	0.000	0.000	37.072
5007 GPS Metric Tracking Capability	5.264	12.263	0.000	0.000	0.000	0.000	0.000	0.000	21.284
5037 Support Equipment	8.653	36.247	0.000	0.000	0.000	0.000	0.000	0.000	44.900
5080 ICBM Security	0.000	16.981	5.666	5.819	0.000	0.000	0.000	0.000	28.466

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

ICBM modernization efforts will ensure the extension of the operational life of the Minuteman III 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

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2004

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604851F ICBM - EMD

test capabilities.

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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	119.689	184.193	91.928
(U) Current PBR/President's Budget	119.689	172.713	91.687
(U) Total Adjustments	0.000	-11.480	
(U) Congressional Program Reductions		-10.000	
Congressional Rescissions		-1.480	
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			

(U) **Significant Program Changes:**

Congress reduced the President's Budget request by \$10M in FY2004 for execution..

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

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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>133B Rapid Execution &amp; Combat Targeting (REACT)</b>	
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total	
133B Rapid Execution & Combat Targeting (REACT)	19.274	22.225	16.244	0.000	0.000	0.000	0.000	0.000	71.679	
Quantity of RDT&E Articles	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 (WSCC) and the 19 other trainer and test facilities which support the MM III Weapon System. Hardware changes include upgrading the Embedded Memory Array Dynamic (EMAD) Card, replacing the Video 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.

This program is in Budget Activity 05 because this program is being developed for the Air Force but has not yet received complete production approval.

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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	17.004	18.179	13.564
(U) Continue NSCCA on COP software, complete in 2005	1.752	3.469	2.193
(U) Provide other government support	0.518	0.577	0.487
(U) Total Cost	19.274	22.225	16.244

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Other APPN Missile Procurement - AF (PE 0101213F, Minuteman Squadrons, MM III Modifications, REACT, Mod #3413) (BA-03, P-011) BP21	15.167	13.539	13.907	0.119	0.000	0.000	0.000	0.000	42.732

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**

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Exhibit R-2a, RDT&E Project Justification

DATE

February 2004

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)

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 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 2004**

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>(U) Cost Categories</u>	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to</u>	<u>Total</u>	<u>Target</u>
(Tailor to WBS, or System/Item Requirements) (\$ in Millions)			<u>Prior to FY</u>	<u>2003</u>	<u>2003</u>	<u>2004</u>	<u>2004</u>	<u>2005</u>	<u>2005</u>	<u>Complete</u>	<u>Cost</u>	<u>Value of</u>
			<u>2003</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>			<u>Contract</u>
			<u>Cost</u>		<u>Date</u>		<u>Date</u>		<u>Date</u>			
(U) <u>Product Development</u>												
ICBM Prime Integration Contract	CPAF	Northrop Grumman, Clearfield, UT	13.037	17.004	Apr-03	18.179	Dec-03	13.564	Jan-05	0.000	61.784	
None											0.000	
Subtotal Product Development			13.037	17.004		18.179		13.564		0.000	61.784	0.000
Remarks:												
(U) <u>Support</u>												
NSCCA	CPAF	Logicon (Northrop Grumman), San Pedro, CA	0.742	1.752	Jun-03	3.469	Dec-03	2.193	Jan-05	0.000	8.156	
SPO/Other Program Support	Various	ICBM Program Office, Hill AFB, UT	0.157	0.518	N/A	0.577	N/A	0.487	N/A	0.000	1.739	
None											0.000	
Subtotal Support			0.899	2.270		4.046		2.680		0.000	9.895	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
None								0.000			0.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u>												
None								0.000			0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			13.936	19.274		22.225		16.244		0.000	71.679	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

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

	FY02				FY03				FY04				FY05				FY06				FY07			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
<b>Milestone B</b>			▲																					
<b>System Design/Development</b>							▲																	
<b>Contract Award</b>																								
<b>COP Test Readiness Review</b>												△												
<b>COP Functional Config Audit (FCA)</b>												△								△				
<b>VDU Interim Design Reviews 1 &amp; 2</b>											▲													
<b>VDU FCA</b>																				△				
<b>EMAD IDRs 1 &amp; 2</b>							▲				▲													
<b>EMAD Prod Go-Ahead</b>											▲													
<b>Head Disk Assembly (HDA) IDRs 1 &amp; 2</b>							▲				▲													
<b>HDA Prod Readiness Review</b>																△								

COP = Console Operations Program  
 EMAD = Embedded Memory Array Dynamic  
 VDU = Video Display Unit

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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>		DATE <b>February 2004</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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) VDU Interim Design Review 1 (IDR)	4Q		
(U) VDU IDR 2		3Q	
(U) COP Test Readiness Review (TRR)		4Q	
(U) VDU Functional Configuration Audit (FCA)			1Q
(U) COP Functional Configuration Audit (FCA)			4Q
(U) EMAD IDR2	3Q		
(U) HDA IDRs	2Q	2Q	
(U) HDA Production Readiness Review (PRR)		4Q	

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

DATE  
**February 2004**

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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
4371 Safety Enhanced Reentry Vehicle (SERV) Program	59.586	64.783	53.373	26.426	0.000	0.000	0.000	0.000	240.015
Quantity of RDT&E Articles	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 this program is being developed for the Air Force but has not yet received production approval.

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Continue design of the MM III airborne vehicle equipment (AVE) hardware and software needed for the MK21 RV	10.787	21.969	14.155
(U) Continue development of the MM III command and launch equipment software needed for the MK21 RV	22.313	7.295	7.350
(U) Continue NSCCA on SERV software	5.576	7.127	5.620
(U) Continue design of the MM III support equipment needed for the MK21 RV	9.039	15.324	1.691
(U) Continue system test and evaluation for all newly designed/developed hardware/software	11.333	10.286	12.181
(U) Continue development of trainers/training needed for employing the MK21 RV on the MM III	0.388	2.482	2.971
(U) Conduct initial flight testing	0.000	0.000	9.205
(U) Provide other government support	0.150	0.300	0.200
(U) Total Cost	59.586	64.783	53.373

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Other APPN									
Missile Procurement - AF (PE									
(U) 0101213F, Minuteman	8.600	21.131	47.902	47.727	43.233	34.452	0.000	0.000	194.445
Squadrons, MM III									



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

DATE

February 2004

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-011)

All FY2003 dollars are for warhead containers and are not included in total.

**(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 2004		
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) 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</u> <u>Prior to FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
(U) <u>Product Development</u> ICBM Prime Integration Contract	CPIF/AF	Northrop Grumman, Clearfield, UT	31.045	53.860	Jan-03	57.356	Jan-04	38.348	Jan-05	17.329	197.938	
Subtotal Product Development			31.045	53.860		57.356		38.348		17.329	197.938	0.000
Remarks:												
(U) <u>Support</u> NSCCA	CPAF	Logicon, San Pedro, CA	3.402	5.576	Jan-03	7.127	Jan-04	5.620	Jan-05	0.000	21.725	
SPO/Other Program Support	Various	ICBM Program Office, Hill AFB, UT	1.400	0.150		0.300	N/A	0.200	N/A	0.250	2.300	
Subtotal Support			4.802	5.726		7.427		5.820		0.250	24.025	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u> Vandenberg AFB	Project Order	Air Force test team at Vandenberg AFB CA (AFOTEC,AFSPC, 576th Flight Test Sq, DOE)	0.000	0.000		0.000	N/A	9.205	N/A	8.847	18.052	
None												0.000
Subtotal Test & Evaluation			0.000	0.000		0.000		9.205		8.847	18.052	0.000
Remarks:												
(U) <u>Management</u>												0.000
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			35.847	59.586		64.783		53.373		26.426	240.015	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

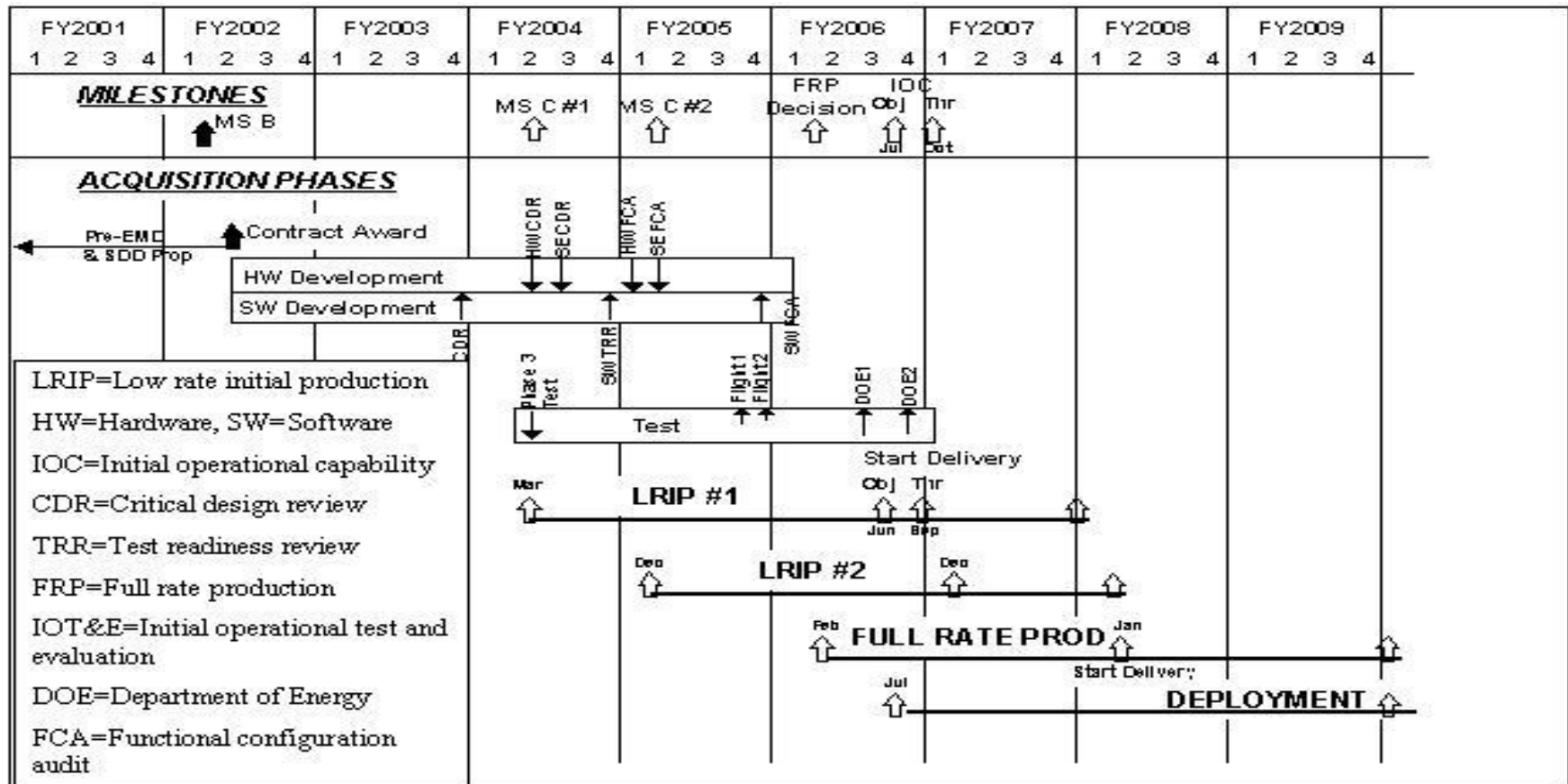
February 2004

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



**UNCLASSIFIED**

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2004</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>4371 Safety Enhanced Reentry Vehicle (SERV) Program</b>
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<b>(U) <u>Schedule Profile</u></b>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Hardware and Software Preliminary Design Review (PDR)	2Q		
(U) Software Critical Design Review (CDR)	4Q		
(U) Software Test Readiness Review (TRR)		4Q	
(U) Airborne Vehicle Equipment (AVE) CDR		2Q	
(U) Phase 3 Test Execution		2Q	
(U) Support Equipment PDR	1Q		
(U) Support Equipment CDR		3Q	
(U) AVE Functional Configuration Audit			2Q
(U) Flight test #1			3Q
(U) Flight test #2			4Q

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

DATE  
**February 2004**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>				PE NUMBER AND TITLE <b>0604851F ICBM - EMD</b>			PROJECT NUMBER AND TITLE <b>4788 PSRE Life Extension Program</b>			
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total	
4788 PSRE Life Extension Program	19.619	6.839	0.000	0.000	0.000	0.000	0.000	0.000	66.805	
Quantity of RDT&E Articles	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.

This program is in Budget Activity 05 because this program is being developed for the Air Force but has not yet received production approval.

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Continued Initial Production Readiness Review of system, refurbished two qualification PSREs, planned support of dynamics test firings, continued vendor qualification	10.600		0.000
(U) Begin development of Emergency Response efforts and transportation build	2.350		0.000
(U) Perform Dynamics and Qualification Testing	2.000		0.000
(U) Continue to provide technician labor activities to include disassembly/re assembly of PSRE and selected subsystems; maintenance and repair of program unique depot support equipment, special test equipment program office support; an related activities	4.469		0.000
(U) Provide other government support	0.200		0.000
(U) Complete dynamics test firings results, Functional Configuration Audit and Production Readiness Review		4.327	0.000
(U) Complete various activities: technician labor activities to include disassembly/re assembly of PSRE and selected subsystems: maintenance and repair of program unique depot support equipment, special test equipment, and program office support		2.412	0.000
(U) Finish other government support		0.100	0.000
(U) Total Cost	19.619	6.839	0.000

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

DATE

**February 2004**

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)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Other APPN Missile Procurement - AF (PE 0101213F, Minuteman Squadrons, MM III									
(U) Modifications, PSRE Life Extension, Mod #5768) (BA-03, P-011)	0.000	13.799	13.651	19.106	19.711	20.514	20.762	58.685	166.228

**(U) D. Acquisition Strategy**

The PSRE Life Extension Program will be 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 2004		
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) 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 2003 Cost</u>	<u>FY 2003 Cost</u>	<u>FY 2003 Award Date</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> ICBM Prime Integration Contract	CPAF	Northrop Grumman, Clearfield, UT	33.019	10.600	Jan-03	4.327	Jan-04	0.000		0.000	47.946	
Subtotal Product Development			33.019	10.600		4.327		0.000		0.000	47.946	0.000
Remarks:												
(U) <u>Support</u> SPO/Other Program Support	WR	ICBM SPO and Depot, Hill AFB, UT	7.328	7.019	Jan-03	2.512	N/A	0.000			16.859	
Subtotal Support			7.328	7.019		2.512		0.000		0.000	16.859	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u> White Sands Test Facility (WSTF)	Project Order	US Army, White Sands, NM	0.000	2.000	N/A	0.000	N/A	0.000		0.000	2.000	
Subtotal Test & Evaluation			0.000	2.000		0.000		0.000		0.000	2.000	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			40.347	19.619		6.839		0.000		0.000	66.805	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

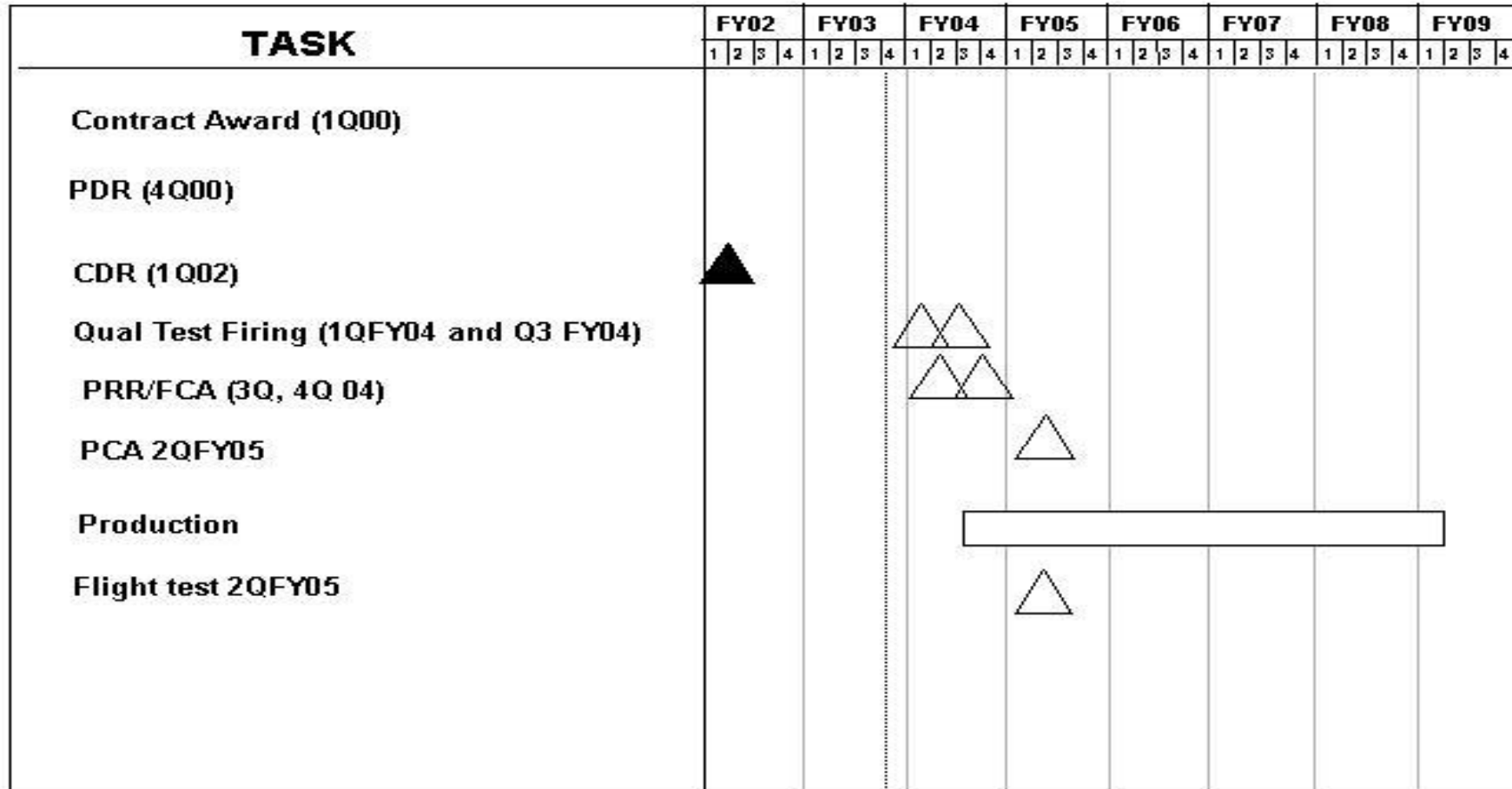
PE NUMBER AND TITLE

0604851F ICBM - EMD

PROJECT NUMBER AND TITLE

4788 PSRE Life Extension Program

## Propulsion System Rocket Engine





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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2004</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>4788 PSRE Life Extension Program</b>
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	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <b>Schedule Profile</b>			
(U) Production Decision		2Q	
(U) Test Readiness Review	4Q		
(U) Qualification Test Fire #1		1Q	
(U) Qualification Test Fire #2		3Q	
(U) Functional Configuration Audit		3Q	
(U) Physical Configuration Audit			2Q
(U) Production Readiness Review		4Q	
(U) Flight Test			2Q

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

DATE  
**February 2004**

<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>4823 ECS Replacement Program</b>			
Cost (\$ in Millions)		FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
4823	ECS Replacement Program	7.293	13.375	16.404	0.000	0.000	0.000	0.000	0.000	37.072
	Quantity of RDT&E Articles	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.

This program is in Budget Activity 05 because this program is being developed for the Air Force but has not yet received production approval.

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Begin design/development, qualification and testing of Environmental Control System (ECS) components	5.173		
(U) Begin identification/compilation/revision of system data requirements	1.520		
(U) Provide other government support	0.600	0.698	0.700
(U) Continue design/development, qualification and testing of ECS components		6.500	
(U) Design and fabricate test components		4.085	
(U) Continue 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	7.293	13.375	16.404

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Other APPN									
Missile Procurement - AF (PE									
0101213F, Minuteman									
Squadrons, MM III									
(U) Modifications, Environmental	0.000	0.000	0.000	33.908	58.843	62.552	61.599	59.177	276.079
Control System Modification,									
Mod #5739) (BA-03, P-011)									

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

DATE

February 2004

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 will be conducted under the ICBM Prime Integration Contractor (IPIC). The IPIC will conduct and manage the acquisition effort to determine the best value to the Government. It is anticipated that the development 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 2004**

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</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to</u>	<u>Total</u>	<u>Target</u>
			<u>Prior to FY 2003</u>	<u>2003</u>	<u>2003</u>	<u>2004</u>	<u>2004</u>	<u>2005</u>	<u>2005</u>	<u>Complete</u>	<u>Cost</u>	<u>Value of</u>
			<u>Cost</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Contract</u>
					<u>Date</u>		<u>Date</u>		<u>Date</u>			
(U) <u>Product Development</u> ICBM Prime Integration Contract	CPAF	Northrop Grumman, Clearfield, UT	0.000	6.693	Feb-03	12.677	Jan-04	15.704	Jan-05	0.000	35.074	
											0.000	
Subtotal Product Development			0.000	6.693		12.677		15.704		0.000	35.074	0.000
Remarks:												
(U) <u>Support</u> SPO/Other Program Support	Various	ICBM Program Office, Hill AFB, UT	0.000	0.600	N/A	0.698	N/A	0.700	N/A	0.000	1.998	
											0.000	
Subtotal Support			0.000	0.600		0.698		0.700		0.000	1.998	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u> None				0.000							0.000	
None											0.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
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	7.293		13.375		16.404		0.000	37.072	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

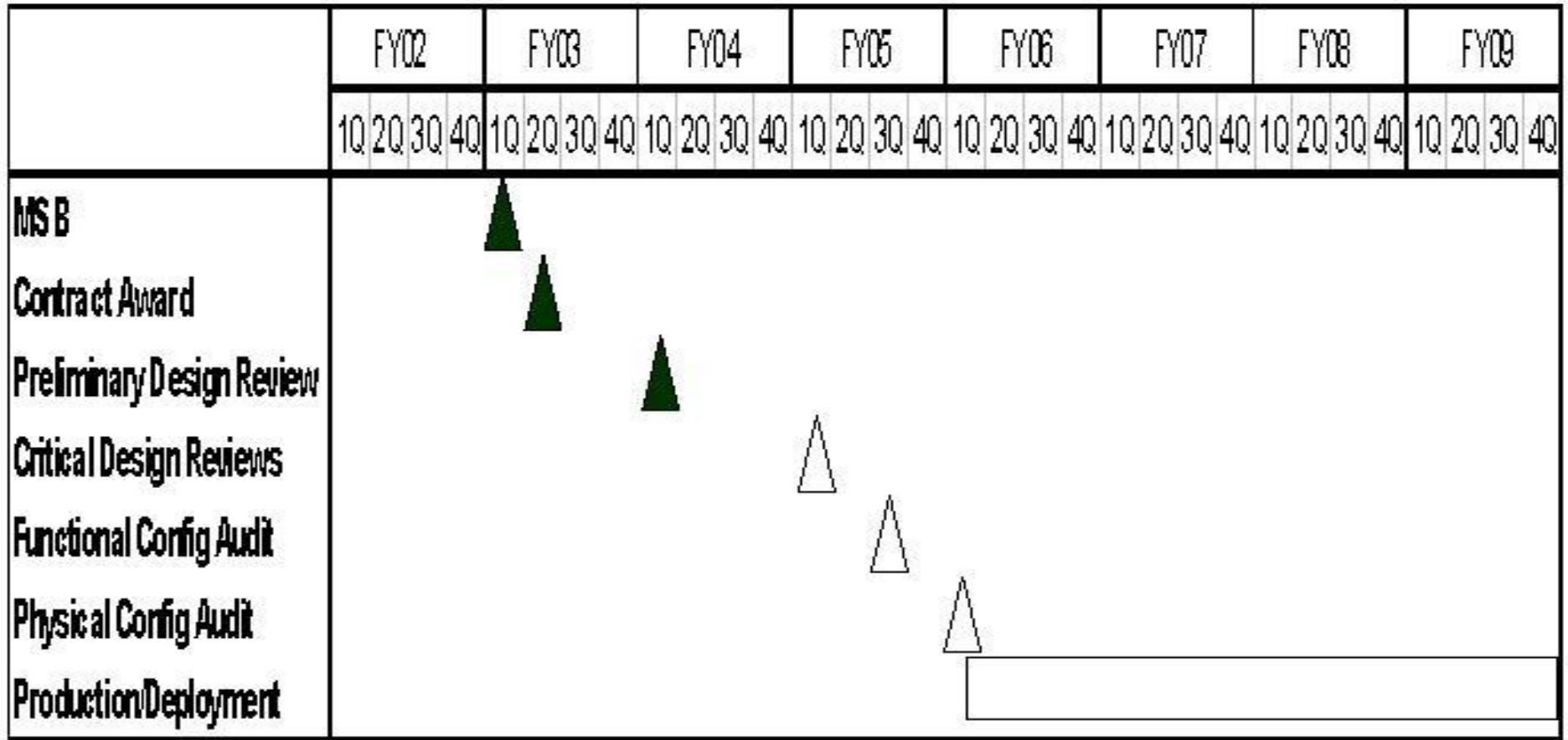
PE NUMBER AND TITLE

0604851F ICBM - EMD

PROJECT NUMBER AND TITLE

4823 ECS Replacement Program

**ICBM Environmental Control System**



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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	<b>DATE</b> <b>February 2004</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>4823 ECS Replacement Program</b>
--	--	--

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <b><u>Schedule Profile</u></b>			
(U) Milestone B	1Q		
(U) System Development and Demonstration (SDD) Contract Award	2Q		
(U) Preliminary Design Review		1Q	
(U) Critical Design Review			1Q
(U) Functional Configuration Audit			3Q

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

DATE  
**February 2004**

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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
5007 GPS Metric Tracking Capability	5.264	12.263	0.000	0.000	0.000	0.000	0.000	0.000	21.284
Quantity of RDT&E Articles	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.

This program is in Budget Activity 05 because this program is being developed for the Air Force but has not yet received production approval.

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Continued the design and development of the hardware/software needed to provide Minuteman III with a GPS-based metric tracking capability	4.498		0.000
(U) Provide other government support	0.766		0.000
(U) Complete design and development of GPS MT hardware and software and design related support equipment		10.198	0.000
(U) Complete other government support		2.065	0.000
(U) Total Cost	5.264	12.263	0.000

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Other APPN Missile Procurement - AF (PE 11213F, Minuteman Squadrons,									
(U) MM III Modifications, GPS Metric Tracking Program, Mod #5799) (BA-03, P-011)	3.348	3.636	0.480	0.000	0.000	0.000	0.000	0.000	7.464

**(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 2004		
BUDGET ACTIVITY 05 System Development and Demonstration (SDD)				PE NUMBER AND TITLE 0604851F ICBM - EMD				PROJECT NUMBER AND TITLE 5007 GPS Metric Tracking Capability				
(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> Prior to FY 2003 Cost	<u>FY</u> 2003 Cost	<u>FY</u> 2003 Award Date	<u>FY</u> 2004 Cost	<u>FY</u> 2004 Award Date	<u>FY</u> 2005 Cost	<u>FY</u> 2005 Award Date	<u>Cost to Complete</u>	<u>Total</u> Cost	<u>Target</u> Value of Contract
(U) <u>Product Development</u> ICBM Prime Integration Contract	CPAF	Northrop Grumman, Clearfield, UT	3.097	4.498	Feb-03	10.198	Jan-04	0.000		0.000	17.793	
Subtotal Product Development			3.097	4.498		10.198		0.000		0.000	17.793	0.000
Remarks:												
(U) <u>Support</u> SPO/Other Program Support	Various	ICBM Program Office, Hill AFB, CA	0.660	0.050	N/A	0.065	N/A	0.000		0.000	0.775	
Subtotal Support			0.660	0.050		0.065		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)	0.000	0.716	Feb-03	2.000	Jan-04	0.000		0.000	2.716	
Subtotal Test & Evaluation			0.000	0.716		2.000		0.000		0.000	2.716	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			3.757	5.264		12.263		0.000		0.000	21.284	0.000



Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

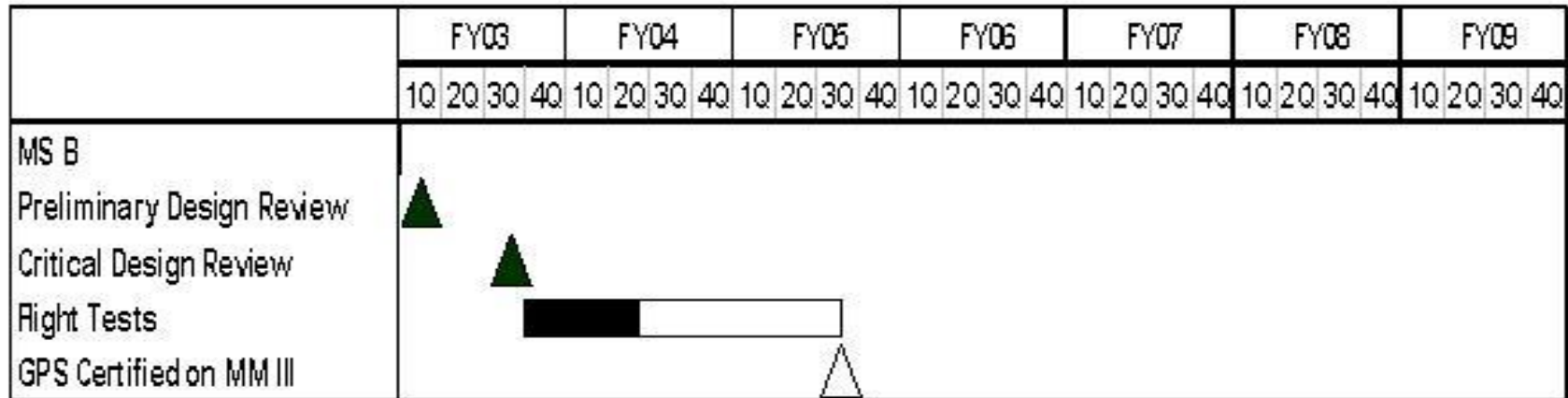
PE NUMBER AND TITLE

0604851F ICBM - EMD

PROJECT NUMBER AND TITLE

5007 GPS Metric Tracking Capability

GPS Metric



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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2004</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>
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	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <b>Schedule Profile</b>			
(U) Program Preliminary Design Review	1Q		
(U) Program Critical Design Review	3Q		
(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 2004**

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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total	
5037 Support Equipment	8.653	36.247	0.000	0.000	0.000	0.000	0.000	0.000	44.900	
Quantity of RDT&E Articles	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 five 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.

This program is in Budget Activity 05 because this program is being developed for the Air Force but has not yet received production approval.

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Continue and complete design and development activities for the GSP Fine Balance and GI-T1-B test sets	8.488	21.034	0.000
(U) Provide other government support	0.165	0.105	0.000
(U) Design, develop, plan test and qualification for the guidance repair stations (instrument build).		11.855	0.000
(U) Begin and complete design and development for Surge Protection equipment		1.338	
(U) Begin design on Reentry Vehicle Test Set Low Frequency Instrument Console (LFIC)		1.915	
(U) Total Cost	8.653	36.247	0.000

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Other APPN 3020 Funds, Missile Procurement-AF (PE 0101213F) , BP2100, Minuteman III	0.000	1.860	3.843	4.822	4.841	2.886	0.000	0.000	18.252
(U) Modifications, Minuteman Surge Protection, Mod # 5912 (BA-03, P-011)									

**(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 2004**

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>(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>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
<u>(U) Product Development</u>												
ICBM Prime Integration Contract	CPAF	Northrop Grumman Clearfield, UT	0.000	8.488	Feb-03	34.227	Jan-04	0.000	N/A	0.000	42.715	
			0.000							0.000	0.000	
LFIC	CPFF	Lockheed Martin, Valley Forge, PA	0.000	0.000	N/A	1.915	Mar-04	0.000			1.915	
			0.000							0.000	0.000	
											0.000	
Subtotal Product Development			0.000	8.488		36.142		0.000		0.000	44.630	0.000
Remarks:												
<u>(U) Support</u>												
SPO/Other Program Support	Various	ICBM Program Office, Hill AFB, UT	0.000	0.165	N/A	0.105	N/A	0.000	N/A	0.000	0.270	
None											0.000	
Subtotal Support			0.000	0.165		0.105		0.000		0.000	0.270	0.000
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
Remarks:												
<u>(U) Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Total Cost</u>			0.000	8.653		36.247		0.000		0.000	44.900	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

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		▬					

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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2004</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>5037 Support Equipment</b>
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	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <b><u>Schedule Profile</u></b>			
(U) SDD Contract Award for GSP FB and GI-T1-B test sets	2Q		
(U) GSP FB test set Critical Design Review (CDR)		2Q	
(U) GI-T1-B test set CDR		3Q	
(U) Contract Award for, Surge Protect, and Guidance Repair		2Q	
(U) Surge Protection CDR		4Q	
(U) Guidance Repair Station Preliminary Design Review		3Q	
(U) Guidance Repair Station CDR		4Q	
(U) Award LFIC contract		3Q	

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

DATE  
**February 2004**

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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
5080 ICBM Security	0.000	16.981	5.666	5.819	0.000	0.000	0.000	0.000	28.466
Quantity of RDT&E Articles	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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Component design, development and evaluation		16.804	5.506
(U) Provide other government support		0.177	0.160
(U) Total Cost	0.000	16.981	5.666

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
Missile Procurement AF, PE 0101213F, Minuteman									
(U) Squadrons, MMIII Modifications, ICBM Security, Mod 5914 (BA-03, P-011)	0.000	0.605	48.140	47.324	81.768	71.119	70.794	93.876	413.626

**(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 2004**

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</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to</u>	<u>Total</u>	<u>Target</u>
			<u>Prior to FY</u>	<u>2003</u>	<u>2003</u>	<u>2004</u>	<u>2004</u>	<u>2005</u>	<u>2005</u>	<u>Complete</u>	<u>Cost</u>	<u>Value of</u>
			<u>2003</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Contract</u>
			<u>Cost</u>	<u>Date</u>	<u>Date</u>	<u>Date</u>	<u>Date</u>	<u>Date</u>	<u>Date</u>			
(U) <u>Product Development</u> ICBM Prime Integration Contract	CPAF	Northrop Grumman, Clearfield, UT	0.000	0.000		16.804	Jan-04	5.506	Jan-05	5.659	27.969	
											0.000	
Subtotal Product Development			0.000	0.000		16.804		5.506		5.659	27.969	0.000
Remarks:												
(U) <u>Support</u> SPO/Other Program Support	Various	ICBM Program Office, Hill AFB, UT	0.000	0.000		0.177	N/A	0.160	N/A	0.160	0.497	
Subtotal Support			0.000	0.000		0.177		0.160		0.160	0.497	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>			0.000	0.000							0.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u>											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			0.000	0.000		16.981		5.666		5.819	28.466	0.000



Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

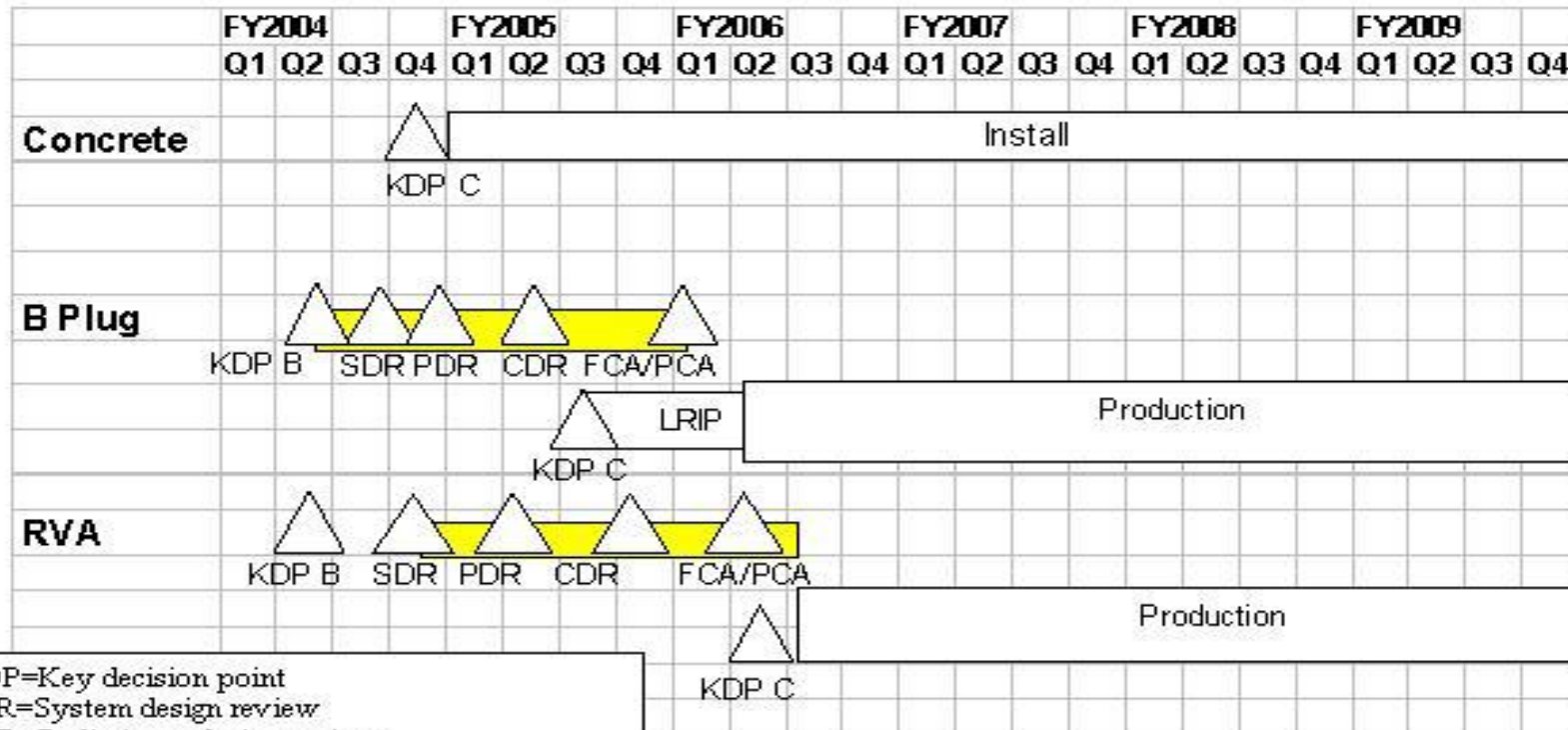
PE NUMBER AND TITLE

0604851F ICBM - EMD

PROJECT NUMBER AND TITLE

5080 ICBM Security

# ICBM Security



KDP=Key decision point  
 SDR=System design review  
 PDR=Preliminary design review  
 CDR=Critical design review  
 FCA/PCA=Functional/Physical configuration audit  
 LRIP=Low rate initial production  
 RVA=Remote visual assessment

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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2004</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>5080 ICBM Security</b>
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	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <b><u>Schedule Profile</u></b>			
(U) Contract Award B-Plug		2Q	
(U) Contract Award RVA		4Q	
(U) Preliminary Design Review B Plug		4Q	
(U) Critical Design Review B Plug			2Q
(U) Preliminary Design Review Remote Visual Assessment (RVA)			1Q
(U) Critical Design Review RVA			4Q

**UNCLASSIFIED**

PE NUMBER: 0604853F  
 PE TITLE: Evolved Expendable Launch Vehicle - EMD

Exhibit R-2, RDT&E Budget Item Justification								DATE February 2004	
BUDGET ACTIVITY 05 System Development and Demonstration (SDD)				PE NUMBER AND TITLE 0604853F Evolved Expendable Launch Vehicle - EMD					
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	55.782	7.909	27.000	17.153	17.963	0.000	0.000	0.000	1,412.406
0004 Evolved Expendable Launch Vehicle	55.782	7.909	27.000	17.153	17.963	0.000	0.000	0.000	1,412.406

**(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 will satisfy the government's National Launch Forecast (NLF) requirements, reduce the cost of space launch by at least 25%, and satisfy 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, 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 via commercial launch services, including those currently 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. A HLV demonstration test article is scheduled for launch in FY04.

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.

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

DATE

February 2004

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604853F Evolved Expendable Launch Vehicle - EMD

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	56.954	8.000	15.000
(U) Current PBR/President's Budget	55.782	7.909	27.000
(U) Total Adjustments	-1.172	-0.091	
(U) Congressional Program Reductions		-0.091	
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer	-1.172		

(U) **Significant Program Changes:**

FY05 funding for the GPS Metric Tracking Booster Capability Integration effort was increased based on in-depth contractor assessments reflecting clarified Operational Requirements Document requirements and government cost estimates.

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

DATE  
**February 2004**

<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>		
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
0004 Evolved Expendable Launch Vehicle	55.782	7.909	27.000	17.153	17.963	0.000	0.000	0.000	1,412.406
Quantity of RDT&E Articles	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 will satisfy the government's National Launch Forecast (NLF) requirements, reduce the cost of space launch by at least 25%, and satisfy 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, 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 via commercial launch services, including those currently 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. A HLV demonstration test article is scheduled for launch in FY04.

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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Completed System Development/Analysis	7.469		
(U) Other Support Costs (fully transferred to 3020 starting in FY04)	9.121		
(U) Continue GPS Metric Tracking Booster Capability Integration	6.566	0.909	13.000
(U) Completed HLV Demonstration Integration; Accomplish Demonstration Article Launch and Delivery/Review	32.626		
(U) Assured Access initiatives		7.000	14.000
(U) Total Cost	55.782	7.909	27.000

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

DATE

February 2004

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) 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 approximately \$1B. Simultaneous with 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 will develop a Vandenberg AFB launch facility by mid CY05.

The acquisition approach maintains competition throughout the life of the program, leverages the commercial launch market, 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 reliability and reduce both the contractors' and government's total operating costs.

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Exhibit R-3, RDT&E Project Cost Analysis										DATE February 2004		
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) 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</u> Prior to FY 2003 Cost	<u>FY</u> 2003 Cost	<u>FY</u> 2003 Award	<u>FY</u> 2004 Cost	<u>FY</u> 2004 Award	<u>FY</u> 2005 Cost	<u>FY</u> 2005 Award	<u>Cost to Complete</u>	<u>Total</u> Cost	<u>Target</u> Value of Contract
(U) <u>Product Development</u>												
Prime Contractor Boeing	OTA/ILS		641.067	40.673		7.454		13.500		17.558	720.252	
Prime Contractor Lockheed Martin	OTA/ILS		530.968	5.988		0.455		13.500		17.558	568.469	
Subtotal Product Development			1,172.035	46.661		7.909		27.000		35.116	1,288.721	0.000
Remarks:												
(U) <u>Support</u>												
SPO/CTF Range Mission Spt	Various		33.337	7.990							41.327	
FFRDC	SS/CPAF		67.214								67.214	
Other Cntr Spt	Various		14.013	1.131							15.144	
Subtotal Support			114.564	9.121		0.000		0.000		0.000	123.685	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			1,286.599	55.782		7.909		27.000		35.116	1,412.406	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

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

Key Program Events





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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2004</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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) 1st Commercial Delta IV Launch	1Q		
(U) GPS Metric Tracking Project Planning & Requirements Analysis	3-4Q	1-3Q	
(U) 1st Government Delta IV Launch	2Q		
(U) HLV Demonstration Launch		4Q	
(U) GPS Metric Tracking Project Planning & Requirements Integration		4Q	1Q
(U) 1st Government Operational HLV Launch			2Q
(U) Continue GPS Metric Tracking Integration			1-4Q

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PE NUMBER: 0605011F  
 PE TITLE: RDT&E For Aging Aircraft

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>								<b>DATE</b> <b>February 2004</b>	
<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>					
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	32.081	40.615	15.665	24.922	25.387	25.794	26.194	0.000	0.000
4685 Aging Aircraft	32.081	40.615	15.665	24.922	25.387	25.794	26.194	0.000	0.000

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

This program develops technologies to extend the service life, ensure flight safety, control the rapidly rising sustainment costs, and retains the operational capability of the aging aircraft fleet. Using business case analyses, cross-cutting opportunities to reduce total ownership costs and improve productivity, reliability, availability, and maintainability are identified. The program develops tools to facilitate the sharing of aging aircraft information, knowledge, technology, and solutions among the Air Logistics Centers, Product Centers, System Program Offices, other Services and government agencies, and industry. The program provides senior Air Force decision makers with a common, comprehensive understanding of program areas such as corrosion, wiring, etc. The program also analyzes and recommends changes to existing sustainment processes such as field and depot repair processes. Note: In FY 2003, Congress added \$1.8 million for Aging Aircraft Enterprise Knowledge Portal and \$1.8 million for Viable Combat Avionics Initiative.

This program is in Budget Activity 5, System Demonstration and Development, because projects/capabilities will be developed in this program, then made available for procurement by already operational systems.

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	32.894	24.063	15.806
(U) Current PBR/President's Budget	32.081	40.615	15.665
(U) Total Adjustments	-0.813	16.552	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.348	
Congressional Increases		16.900	
Reprogrammings	-0.042		
SBIR/STTR Transfer	-0.771		
(U) <u>Significant Program Changes:</u>			
Not applicable.			

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

DATE  
**February 2004**

<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>		
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
4685 Aging Aircraft	32.081	40.615	15.665	24.922	25.387	25.794	26.194	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

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

This program develops technologies to extend the service life, ensure flight safety, control the rapidly rising sustainment costs, and retains the operational capability of the aging aircraft fleet. Using business case analyses, cross-cutting opportunities to reduce total ownership costs and improve productivity, reliability, availability, and maintainability are identified. The program develops tools to facilitate the sharing of aging aircraft information, knowledge, technology, and solutions among the Air Logistics Centers, Product Centers, System Program Offices, other Services and government agencies, and industry. The program provides senior Air Force decision makers with a common, comprehensive understanding of program areas such as corrosion, wiring, etc. The program also analyzes and recommends changes to existing sustainment processes such as field and depot repair processes. Note: In FY 2003, Congress added \$1.8 million for Aging Aircraft Enterprise Knowledge Portal and \$1.8 million for Viable Combat Avionics Initiative.

This program is in Budget Activity 5, System Demonstration and Development, because projects/capabilities will be developed in this program, then made available for procurement by already operational systems.

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) MAJOR THRUST: Aging Aircraft Structures Projects -- This project transitions crosscutting technologies for aircraft structures to weapon systems, field and depot maintainers, and air logistics center engineers and managers that will ensure continued airworthiness, control sustainment cost growth, and improve aircraft availability.	10.265	11.686	9.154
(U) In FY 2003: Completed initial corrosion maintenance improvements. Developed corrosion abatement techniques, procedures, and temporary repairs. Expanded the range of available repair technologies for eliminating aircraft structural corrosion. Reduced the cost and man-hours associated with corrosion maintenance actions by providing automated corrosion detection technologies. Completed development and integration of software and analytical tools to support corrosion management workload prediction. Shortened detection time for flaws and damage due to fatigue cracking, corrosion, composite material delaminations, and trapped moisture. Sponsored technology advancements to enable early damage detection. Completed work on non-destructive inspection techniques to detect cracks without removing fasteners to reduce inspection time and eliminate the potential for further damage by removing fasteners. Broadened the application of ultrasonic inspection techniques to detect fatigue cracks in internal wing structure from the outside of the aircraft to eliminate fuel tank entry requirements and potential damage caused by rivet removal.			
(U) In FY 2004: Continue corrosion maintenance improvements. Continue to develop and transition corrosion abatement techniques, procedures, and temporary repairs. Expand the range of available repair technologies for eliminating aircraft structural corrosion. Continue to reduce the cost and man-hours associated with corrosion maintenance actions and minimizing aircraft downtime by providing automated corrosion detection technologies. Continue development and			

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>February 2004</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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integration of software and analytical tools to support corrosion management workload prediction (e.g., environmental exposure models and corrosion damage analyses). Continue work on improved non-destructive inspection techniques, deployment of corrosion and crack detection capabilities, and ongoing evaluation of new and more cost-effective techniques. Continue work to shorten detection time for flaws and damage due to fatigue cracking, corrosion, composite material delaminations, and trapped moisture. Continue sponsoring technology advancements to enable early damage detection. Continue to develop and refine the Depot Technology Modernization Plan process and implement this process. The plan will be integrated into the Air Force Long-Range Depot Strategy.

(U) In FY 2005: Identify common requirements and develop implementation strategies for delivery of crosscutting 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. Advance 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 & Analysis Software project), freeform fabrication of replacement structural components (includes laser additive manufacturing project), material substitution guidelines for multiyear delivery, and evaluation of ten year-old composite repair patches to determine if patch bond process adjustments are necessary: Enhance fatigue and corrosion prevention and control techniques. Provide new or improved products and processes that delay or suppress onset of structural damage (corrosion, fatigue, etc.) (includes retrogression and re-aging project). Deliver an advanced aircraft corrosion protection system that will transition an environmentally benign, long-life aircraft coating system with chromate-free surface preparation. Transition next generation fatigue life enhancement techniques (laser shock processing, plastic burnishing) for delivery.

(U) MAJOR THRUST: Aging Aircraft Avionics Projects -- 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 programs' life cycle planning. Planned investments will establish enabling crosscutting solutions that can facilitate the affordable insertion of mission enabling capabilities into fielded systems, extending their useful operational life and ensuring their combat

	2.916	4.568	1.100
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<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>February 2004</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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superiority.

(U) In FY 2003: Completed initial work on technologies to maintain the structural integrity of aging weapon systems to ensure continued flight safety. Leveraged viable combat avionics work into common integrated aging avionics solutions (e.g., modular open systems architectures).

(U) In FY 2004: Continue work on technologies to maintain the structural integrity of aging weapon systems to ensure continued flight safety. Continue techniques to incorporate bonded repairs into legacy airframes.

(U) In FY 2005: Maximize (VCA) tool sets through two initiatives: the development of an Integrated Change Roadmap (ICR) crosscutting 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. Initiative will enable the VCA program to advance towards establishing a strategic capabilities investment process, integrating the ICR crosscutting tool that identifies common 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.

(U)

(U) MAJOR THRUST: Aging Aircraft Subsystems Projects -- Extend the service life, control the rapidly rising sustainment costs, and retain the operational capability of the aging aircraft fleet through aircraft subsystems improvement. Crosscutting opportunities which will reduce total ownership costs are identified using business case analyses.	2.465	2.118	4.441
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(U) In FY 2003: Developed a tool that analyzes electrical signatures of aircraft electrical components to allow technicians monitor changes that signify impending failure, and replace components before failure thus avoiding further damage. Air Force Wire Integrity Program -- Provided wiring system integrity diagnostic/prognostic equipment and predictive analysis capability. Developed maintenance procedures for preventing and abating corrosion of aircraft fuel tanks caused by contaminants. Hydraulic Fluid Purification project. Developed hydraulic fluid purification standards to reduce waste and mobility footprint.

(U) In FY 2004: 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. Evaluate replacement materials identified in the project to increase component life-cycle. Research and collect data on aircraft fuel systems to identify warfighter needs and drive technology improvement in the aircraft fuel leak detection and repair process. Continue work on identifying and analyzing aging wiring problems in fighter, cargo and tanker aircraft fleets to minimize diagnostic and repair time improving aircraft availability. Develop an Air Force Wire Integrity project to enable early detection and classification of failing aircraft wiring. Enhance current database system to enable capture of all maintenance actions on aircraft wiring systems. Foster 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. Provide wiring system awareness training

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>February 2004</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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across all maintenance disciplines. Continue to develop viable procedures to correct the delamination of aging integral fuel tank coatings for improved corrosion protection and elimination of wing skin replacements. Continue efforts to evaluate material improvement in crack detection support tools.

(U) In FY 2005: Universal Electrical Signature Analysis System -- Third year of a three-year project to develop electronic signatures of various aircraft electrical components to monitor changes that signify impending failure, the allowing for the replacement of components before failure. Provide five production units to the warfighter to collect real-time data operating weapon systems. Provide training and user manuals on the equipment.

(U)

(U) MAJOR THRUST: Enterprise Knowledge Management -- Utilize and enhance the advanced collaborative tools embedded in the Enterprise Knowledge Management (EKM) program. Facilitate 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 agencies, and industry. Provide a knowledge capture/management system with collaboration capability for understanding the overall scope of aging aircraft problem developing an integrated strategic plan for corrective actions, and using decision tools for the aging aircraft fleet. Support 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. Provide participants the ability to quickly see the impact of funding decisions on Warfighting capability.

(U) In FY 2003: Developed partnerships with government and commercial industry to foster shared technologies and processes and developed an information/knowledge portal tool to share aging aircraft technology and solutions across the aeronautical community. Identified existing databases which contain aging aircraft information, and connected the to a single web portal. Developed web-based data mining views that turn the raw data into information to facilitate strategic planning and trend analysis for reducing total ownership costs.

(U) In FY 2004: Continue 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. Continue identifying existing databases which contain aging aircraft information, and continue connecting them to a single web portal. Continue web-based data mining views that turn the raw data into information to facilitate strategic planning and trend analysis for reducing total ownership costs. Continue to leverage knowledge of existing/legacy avionics issues (diminishing manufacturing sources, software languages, unique military interfaces, etc). Analyze the gathered data and initiate/continue cross-cutting solutions in data acquisition/recorders, displays, expanded aircraft internal data transfer techniques, and other similar efforts. Develop business strategies to address Aging Aircraft subsystem issues. Perform business case analyses to support subsystem design integrity decisions. Develop suite of analysis tools for predicting imminent failure of aircraft systems. Develop analysis tool to support diminishing manufacturing source issues and analysis, identification and management of cross-cutting issues. Develop data mining tool specifically designed to extract and analyze crosscutting issues data from existing data systems. Foster cross

	3.293	5.487	0.970
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<b>Exhibit R-2a, RDT&amp;E Project Justification</b>		<b>DATE</b> <b>February 2004</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>program sharing of information within both Department of Defense and industry.</p> <p>(U) In FY 2005: Cross enterprise support and knowledge capture. Support Fleet Viability Board with automated Economic Service Life Study. Provide a system to enable an integrated approach to support the rapid identification, development integration, coordination, implementation, and evaluation of crosscutting solutions, systems-of-systems architectures, and common system requirements within the Aeronautical Enterprise, the major commands, and higher headquarters.</p> <p>(U)</p> <p>(U) CONGRESSIONAL ADD: Aging Landing Gear Life Extension. <span style="float:right">9.664</span> <span style="float:right">1.487</span> <span style="float:right">0.000</span></p> <p>(U) In FY 2003: Developed and completed engineering tasks associated with Aging Landing Gear Life Extension program such as redesigning the KC-135 main landing gear piston to preclude a recurring sudden extension problem.</p> <p>(U) In FY 2004: Develop and complete additional engineering tasks associated with Aging Landing Gear Life Extension program.</p> <p>(U) In FY 2005: Not Applicable.</p> <p>(U)</p> <p>(U) CONGRESSIONAL ADD: Aircraft Enterprise Knowledge Portal. <span style="float:right">1.739</span> <span style="float:right">0.000</span> <span style="float:right">0.000</span></p> <p>(U) In FY 2003: Developed and completed efforts associated with Aging Aircraft Enterprise Knowledge Portal such as automating Air Combat Command's monthly maintenance performance indicator report to reduce cycle time.</p> <p>(U) In FY 2004: Not Applicable.</p> <p>(U) In FY 2005: Not Applicable.</p> <p>(U)</p> <p>(U) CONGRESSIONAL ADD: Viable Combat Avionics Initiative. <span style="float:right">1.739</span> <span style="float:right">0.000</span> <span style="float:right">0.000</span></p> <p>(U) In FY 2003: Developed and completed efforts associated with the Viable Combat Avionics Initiative. Developed, tested, and implemented a Best Value Methodology template into the source selection process. Developed an Integrated Change Roadmap discipline for fielded systems. Automated and established an on-line, real-time capability for all 88 fielded avionics systems. Merged Legacy Viable Combat Avionics toolset data with planned avionics upgrades to create a total platform Integrated Change Roadmap that addresses both sustainment and acquisition.</p> <p>(U) In FY 2004: Not Applicable.</p> <p>(U) In FY 2005: Not Applicable.</p> <p>(U)</p> <p>(U) CONGRESSIONAL ADD: Academic Center for Aging Aircraft (ACAA) <span style="float:right">0.000</span> <span style="float:right">4.164</span> <span style="float:right">0.000</span></p> <p>(U) In FY 2003: Not Applicable.</p> <p>(U) In FY 2004: Establish 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 will facilitate new partnerships with agencies and organizations to work aging fleet needs. This effort will be two-fold: 1) Catalyze the development of a self-sustaining infrastructure and academic network which can serve the aging aircraft community into the future, and 2) focus on delivery of products in narrow problem areas which act as pilot programs to exercise and prove out the infrastructure a</p>			
Project 4685	R-1 Shopping List - Item No. 92-7 of 92-13	Exhibit R-2a (PE 0605011F)	



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<b>Exhibit R-2a, RDT&amp;E Project Justification</b>		<b>DATE</b> <b>February 2004</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>	
methodologies established by the ACAA institutions.institutions.			
(U) In FY 2005: Not Applicable.			
(U)			
(U) CONGRESSIONAL ADD: Enterprise Availability and Cost Optimization System.		0.000	1.190
(U) In FY 2003: Not Applicable.			0.000
(U) In FY 2004: Implement a standardized approach to identifying and optimizing aircraft modernization and sustainment program investments with the Enterprise Availability and Cost Optimization System; will focus on investment plans for the modernization and sustainment of the aging aircraft fleet.			
(U) In FY 2005: Not Applicable.			
(U)			
(U) CONGRESSIONAL ADD: Fleet Capability Assessment Process.		0.000	1.983
(U) In FY 2003: Not Applicable.			0.000
(U) In FY 2004: Develop methodology to assess the current, programmed, and planned capabilities of the aeronautical fleet. The assessment will provide information on current problem areas, future aging issues, and cross-cutting opportunities that support modernization and sustainment planning within the aeronautical enterprise. The tool will determine the risks in effectiveness, availability, deployability, sustainability, and readiness of the aeronautical fleet, and assess impacts on planned or proposed operations.			
(U) In FY 2005: Not Applicable.			
(U)			
(U) CONGRESSIONAL ADD: Air Vehicle Health Management Improved Fleet Readiness.		0.000	5.949
(U) In FY 2003: Not Applicable.			0.000
(U) In FY 2004: Improvements to fleet readiness will be made in the areas of fleet management/structural analysis, non-destructive inspection and health management, prevention, and repair/replacement by accomplishing the following: 1) enhance risk assessment capability for the fleet; 2) evaluate state-of-the-art non-destructive inspection equipment for assessment of damage in buried structure; 3) evaluate environmentally-friendly coating systems; and assess/utilize modern design practices for depot implementation on legacy aircraft.			
(U) In FY 2005: Not Applicable.			
(U)			
(U) CONGRESSIONAL ADD: Advanced Technology Into Legacy Avionics Systems.		0.000	1.983
(U) In FY 2003: Not Applicable.			0.000
(U) In FY 2004: Affordable aerospace weapon systems require avionics possessing inherent features that can affordably accommodate change and rapidly exploit emerging technology opportunities. Funded investments will establish: 1) software verification and re-verification methods and tools; 2) methodologies and capabilities that can facilitate tighter coupling with commercial practices, processes, and technology, thus reducing incurred avionics cycle upgrade times; and 3) leading edge "design for change" capabilities and tools that will help facilitate long-term avionics viability.			

Exhibit R-2a, RDT&E Project Justification

DATE

February 2004

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) In FY 2005: Not Applicable.

(U) Total Cost	32.081	40.615	15.665
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(U) **C. Other Program Funding Summary (\$ in Millions)**

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

(U) AF RDT&E

(U) Other APPN

(U) Related Activities:

(U) PE 0708026F, Productivity/Reliability/Availability/Maintainability.

(U) **D. Acquisition Strategy**

Funding may be executed internally within the Aeronautical Enterprise SPO 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 Engineering Program (DEP) contract or full and open competition, to accomplish the project.

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Exhibit R-3, RDT&E Project Cost Analysis										DATE February 2004		
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) 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</u> <u>Prior to FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
(U) <u>Product Development</u>												
ARINC/Boeing	T&M		0.000	0.700						0.700	1.400	
Boeing	T&M		1.100	0.950						0.000	2.050	
Southwest Research	T&M		0.250	0.350		0.150				0.000	0.750	
SAIC/Boeing	FFP		0.300	0.400						0.000	0.700	
SAIC	T&M		0.300	0.300						0.000	0.600	
UDRI/S&K Tech	TBD		0.000	0.000						3.720	3.720	
S&K Tech			5.200	9.500		6.979		9.154		0.900	31.733	
UDRI	T&M		0.000	1.000		0.350				0.250	1.600	
UDRI/NASA	T&M		1.190	0.300		0.300				0.000	1.790	
GARCIA	T&M		0.000	0.000						0.000	0.000	
Aging Landing Gear Life Extension	TBD		10.076	8.794		1.500				0.000	20.370	
Aging Wiring and Corrosion Treatment for Aging Aircraft	TBD		6.717	0.000						0.000	6.717	
Aging Propulsion Systems Life Extension	TBD		1.920	0.000				4.441		0.000	6.361	
Aging Aircraft Knowledge Portal	TBD		1.920	1.800		5.528		0.970		0.000	10.218	
Numerous	Various		10.272	6.187		21.657				Continuing	TBD	
Affordable Avionics	Various		1.325	1.800		4.151		1.100			8.376	
None											0.000	
Subtotal Product Development			40.570	32.081		40.615		15.665		Continuing	TBD	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
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

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

DATE

**February 2004**

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE
<b>05 System Development and Demonstration (SDD)</b>	<b>0605011F RDT&amp;E For Aging Aircraft</b>	<b>4685 Aging Aircraft</b>

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	40.570	32.081	40.615	15.665	Continuing	TBD	0.000	

Exhibit R-4, RDT&E Schedule Profile

DATE  
February 2004

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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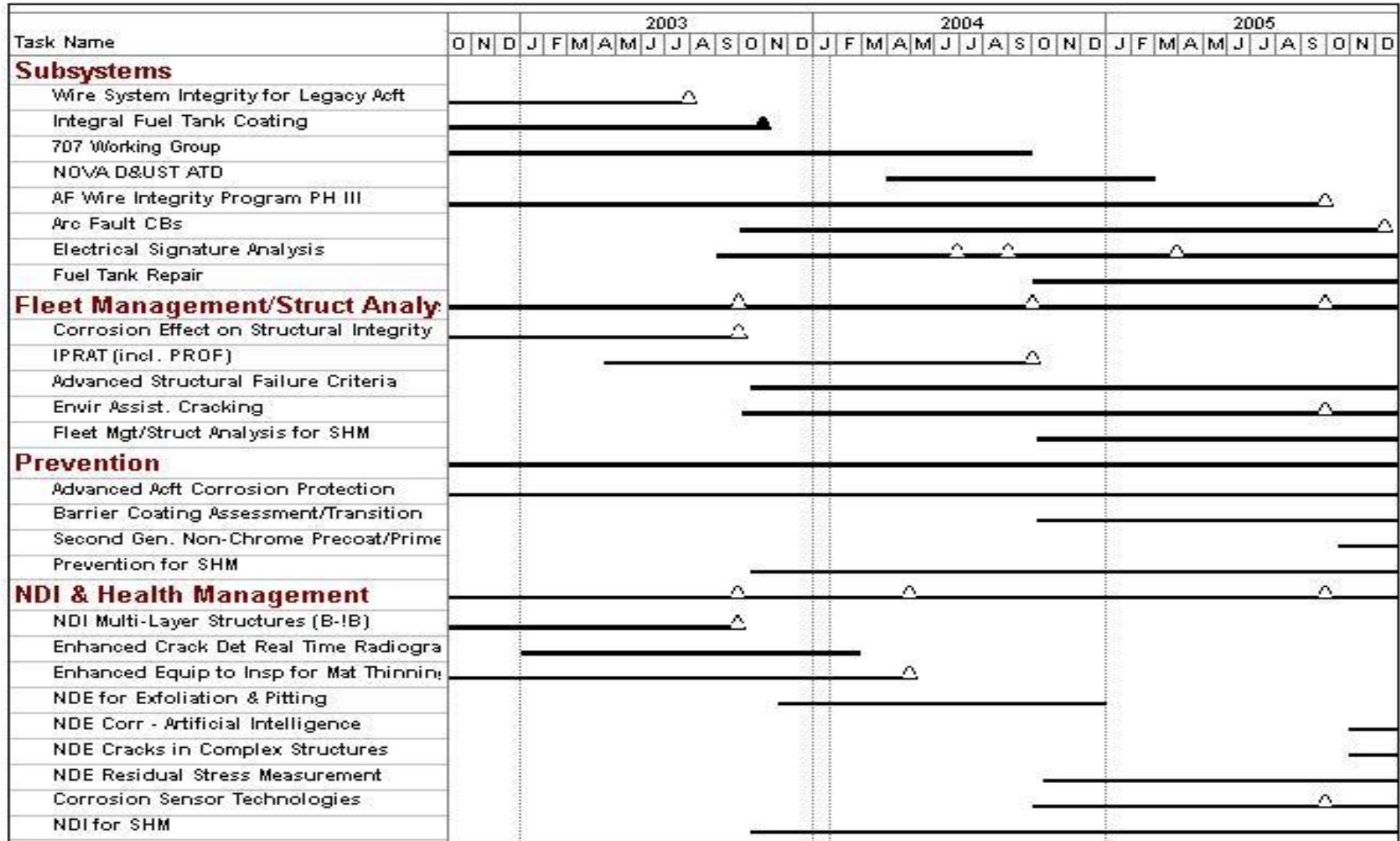
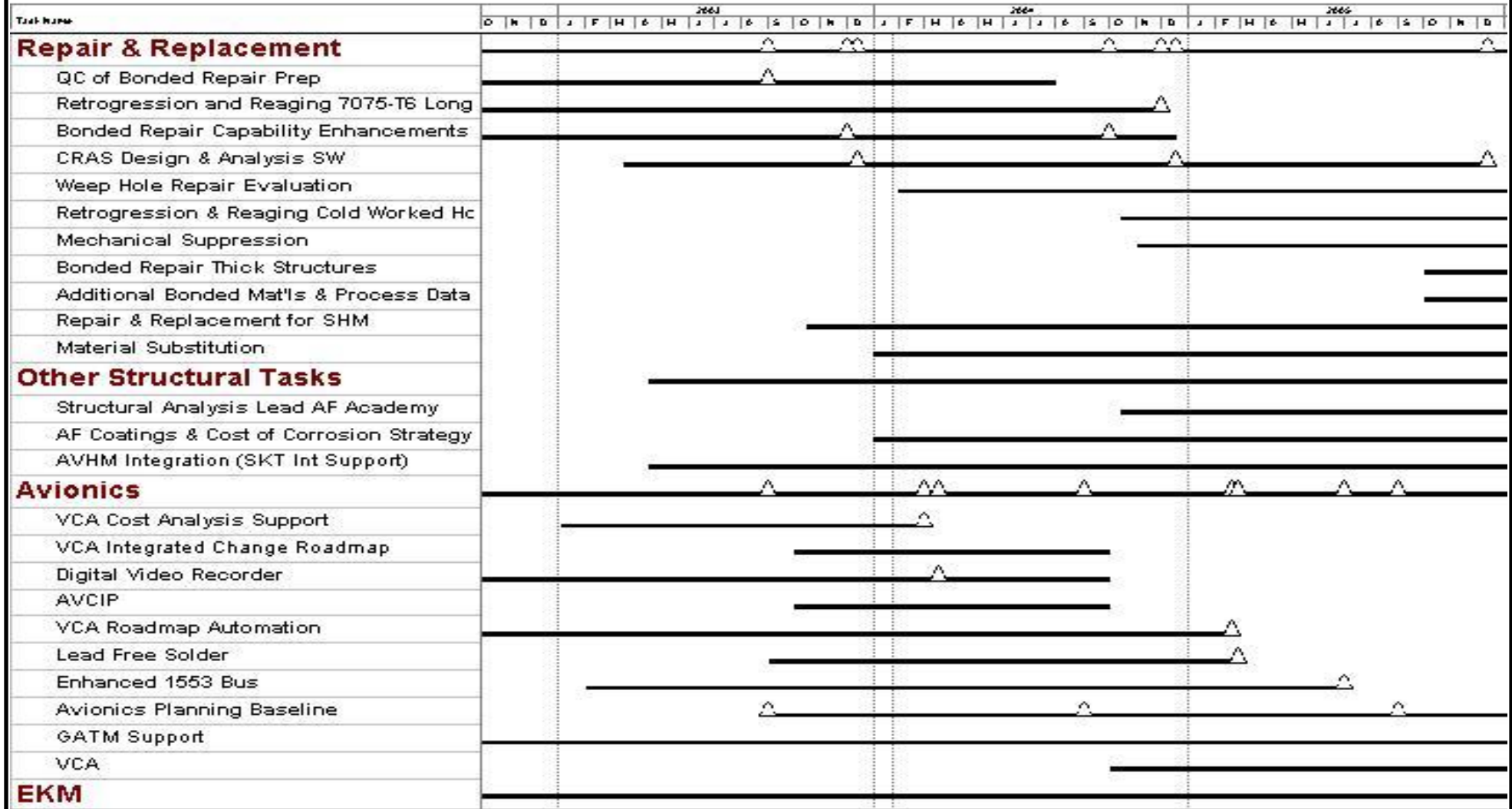


Exhibit R-4, RDT&E Schedule Profile

DATE  
**February 2004**

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

DATE

**February 2004**

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) Schedule Profile**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Aging Aircraft Structures Health Management	1-4Q	1-2Q	2Q
(U) Aging Aircraft Subsystems Health Management		2-3Q	2-3Q
(U) Enhanced Avionics Management		2-3Q	2-3Q
(U) Knowledge Management Tools		1-4Q	1-4Q
(U) Depot Technology Modernization Plan		3Q	
(U) Academic Center for Aging Aircraft			4Q

**UNCLASSIFIED**

PE NUMBER: 0305116F  
 PE TITLE: AERIAL TARGETS

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2004</b>
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<b>BUDGET ACTIVITY</b> <b>06 RDT&amp;E Management Support</b>	<b>PE NUMBER AND TITLE</b> <b>0305116F AERIAL TARGETS</b>
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Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	0.000	5.178	5.106	5.143	5.202	5.237	Continuing	TBD
5136 Target Systems Development	0.000	0.000	5.178	5.106	5.143	5.202	5.237	Continuing	TBD

Prior year (FY03 & FY04) RDT&E funding for Aerial Targets was in PE 64735F/BPAC 652286.

Note: R1 Report incorrectly shows this program as BA 7; the correct BA is 6.

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

Full-scale and subscale targets assure warfighters that weapon systems will perform adequately against real-world enemy fighters and cruise missiles. Aerial targets help satisfy public law Title 10, Section 2366 that requires major systems and munitions programs to conduct survivability testing and lethality testing before full-scale production. The Aerial Targets program provides drones to satisfy "Live Fire/Lethality" developmental/operational test requirements. Target drones are used to validate operational missile/weapon system effectiveness and fighter operational flight program (OFP) updates. Target drones are also essential for development testing/operational testing for all air-to-air and ground-to-air missiles, and for the F/A-22, F-16, F-15, etc., aircraft. The objective is to provide realistic targets for missile testing to enable the development of air defense systems capable of defeating changing airborne threats. This funding improves/updates aerial target systems to ensure aerial targets represent enemy threat airborne systems. This program element also funds development of full-scale/subscale aerial targets and target control systems. Specialized target payload subsystems are developed for requirements such as: missile scoring, electronic attack and infrared (IR) countermeasures, radar and IR signature augmentation, and chaff and flare dispensing systems. In FY05, the Air Force Subscale Aerial Target (AFSAT) program will evaluate product improvement opportunities that will identify areas of needed enhancements to the performance, payload capability, and payload capacity to support growth initiatives which will continue throughout the Future Years Defense Program (FYDP). FY05 will also fund system acquisition and engineering support for the QF-4 including studies and analysis for the QF-4 replacement.

This program is in budget activity 6 - RDT&E Management Support because it provides aerial targets, target payloads and target control systems in support of RDT&E testing.



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

DATE

February 2004

BUDGET ACTIVITY

06 RDT&amp;E Management Support

PE NUMBER AND TITLE

0305116F AERIAL TARGETS

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	0.000	0.000	5.178
(U) Current PBR/President's Budget	0.000	0.000	5.178
(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>			
Prior year (FY03 & FY04) funding for Aerial Targets was in PE 64735F/BPAC 652286.			

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

DATE

**February 2004**

BUDGET ACTIVITY <b>06 RDT&amp;E Management Support</b>				PE NUMBER AND TITLE <b>0305116F AERIAL TARGETS</b>			PROJECT NUMBER AND TITLE <b>5136 Target Systems Development</b>		
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
5136 Target Systems Development	0.000	0.000	5.178	5.106	5.143	5.202	5.237	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

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

Full-scale and subscale targets assure warfighters that weapon systems will perform adequately against real-world enemy fighters and cruise missiles. Aerial targets help satisfy public law Title 10, Section 2366 that requires major systems and munitions programs to conduct survivability testing and lethality testing before full-scale production. The Aerial Targets program provides drones to satisfy "Live Fire/Lethality" developmental/operational test requirements. Target drones are used to validate operational missile/weapon system effectiveness and fighter operational flight program (OFP) updates. Target drones are also essential for development testing/operational testing for all air-to-air and ground-to-air missiles, and for the F/A-22, F-16, F-15, etc., aircraft. The objective is to provide realistic targets for missile testing to enable the development of air defense systems capable of defeating changing airborne threats. This funding improves/updates aerial target systems to ensure aerial targets represent enemy threat airborne systems. This program element also funds development of full-scale/subscale aerial targets and target control systems. Specialized target payload subsystems are developed for requirements such as: missile scoring, electronic attack and infrared (IR) countermeasures, radar and IR signature augmentation, and chaff and flare dispensing systems. In FY05, the Air Force Subscale Aerial Target (AFSAT) program will evaluate product improvement opportunities that will identify areas of needed enhancements to the performance, payload capability, and payload capacity to support growth initiatives which will continue throughout the Future Years Defense Program (FYDP). FY05 will also fund system acquisition and engineering support for the QF-4 including studies and analysis for the QF-4 replacement.

This program is in budget activity 6 - RDT&E Management Support because it provides aerial targets, target payloads and target control systems in support of RDT&E testing.

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Prior year (FY03 & FY04) RDT&E funding for Aerial Targets was in PE 64735F/BPAC 652286.			
(U) Continue Aerial Targets basic operating support.			0.200
(U) Continue system acquisition and engineering support to include studies and analysis involving QF-4 replacement, upgrades for the target control system, the weapon scoring system, payload systems and other aerial targets support systems			1.578
(U) Continue product improvement program for the Air Force Subscale Aerial Target (AFSAT) program to include payload/propulsion improvements, provide air-launch capability, and other objective requirements/enhancements.			3.400
(U) Total Cost	0.000	0.000	5.178

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

DATE

February 2004

BUDGET ACTIVITY <b>06 RDT&amp;E Management Support</b>	PE NUMBER AND TITLE <b>0305116F AERIAL TARGETS</b>	PROJECT NUMBER AND TITLE <b>5136 Target Systems Development</b>
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(U) **C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
PE35116F: Appn: Aircraft									
(U) Procurement, AF(APAF), Program Title: Aerial Targets	29.640	55.169	74.143	78.878	79.968	82.240	86.282	Continuing	TBD
(U) Initial Spares	0.820	0.758	0.403	0.469	0.471	0.484	0.494	Continuing	TBD
(U) Munitions	0.197	0.000	3.374	3.550	3.696	3.802	3.910	Continuing	TBD

(U) **D. Acquisition Strategy**

The acquisition strategy is competitive, with cost plus and fixed price contracts.

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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 2004</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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	28.836	36.283	34.517	34.496	38.887	39.109	39.467	Continuing	TBD
2907 Electronic Combat Intel Support	1.760	1.355	2.008	2.026	2.064	2.096	2.128	Continuing	TBD
3321 Electronic Warfare Ground Test Resources	20.117	27.853	25.179	25.069	29.290	29.360	29.568	Continuing	TBD
7500 Foreign Material Acquisition/Exploitation	6.959	7.075	7.330	7.401	7.533	7.653	7.771	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, management budgetary, 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.

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

DATE

February 2004

BUDGET ACTIVITY

06 RDT&amp;E Management Support

PE NUMBER AND TITLE

0604256F Threat Simulator Development

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	29.694	36.595	36.507
(U) Current PBR/President's Budget	28.836	36.283	34.517
(U) Total Adjustments	-0.858	-0.312	
(U) Congressional Program Reductions		-0.312	
Congressional Rescissions			
Congressional Increases			
Reprogrammings	-0.271		
SBIR/STTR Transfer	-0.587		
(U) <u>Significant Program Changes:</u>			

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

DATE  
**February 2004**

<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>2907 Electronic Combat Intel Support</b>			
Cost (\$ in Millions)		FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
2907	Electronic Combat Intel Support	1.760	1.355	2.008	2.026	2.064	2.096	2.128	Continuing	TBD
	Quantity of RDT&E Articles	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 2003</u>	<u>FY 2004</u>	<u>FY 2005</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.	1.310	1.105	1.233
(U) Funds mobility/special operations transport/helicopter testing for foreign materiel operational exploitation. Extensive evaluations and reporting of blue system effectiveness to be accomplished.	0.400	0.200	0.700
(U) Funds classified operational assessments for foreign materiel operational exploitation. Extensive evaluations and reporting to be accomplished.	0.050	0.050	0.075
(U) Total Cost	1.760	1.355	2.008

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E									
(U) Other APPN									
None									

**(U) D. Acquisition Strategy**

Not applicable.

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

DATE  
**February 2004**

<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>3321 Electronic Warfare Ground Test Resources</b>		
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
3321 Electronic Warfare Ground Test Resources	20.117	27.853	25.179	25.069	29.290	29.360	29.568	Continuing	TBD
Quantity of RDT&E Articles	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 will lead 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 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) 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 Installed Test Integration Program (ITIP) capitalizes on the capabilities developed by Electronic Combat Integrated Test (ECIT) and begins development of 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)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments/Planned Program:			
(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.	0.734	0.850	1.064
(U) EW T&E M&S. Develop and deploy the V&V process for scalable integration with simulations to support developmental and operational testing and training. Develop simulation based EW T&E tools and methodologies in	1.627	2.954	2.731

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Exhibit R-2a, RDT&E Project Justification		DATE <b>February 2004</b>	
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE	
<b>06 RDT&amp;E Management Support</b>	<b>0604256F Threat Simulator Development</b>	<b>3321 Electronic Warfare Ground Test Resources</b>	
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.		2.468	1.704
(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, enhancements of the Missile Warning System Lab, 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 model 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.		3.443	5.127
(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.		2.321	3.044
(U) ITIP. Integration of ATIC RF and IR stimulators to replicate an EW battlespace to support testing of advanced weapon 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.		9.216	12.229
(U) AWMS. Integrating EW capabilities into flight simulator modernization reconfigurable cockpits 1 and 2. Requirement 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.		0.308	1.945
(U) Total Cost		20.117	27.853
Project 3321	R-1 Shopping List - Item No. 101-5 of 101-7	Exhibit R-2a (PE 0604256F)	



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

DATE

February 2004

BUDGET ACTIVITY

06 RDT&amp;E Management Support

PE NUMBER AND TITLE

0604256F Threat Simulator  
Development

PROJECT NUMBER AND TITLE

3321 Electronic Warfare Ground Test  
Resources(U) C. Other Program Funding Summary (\$ in Millions)(U) D. Acquisition Strategy

Contracts funded from this program are predominately awarded on the basis of full and open competition.

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

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<b>BUDGET ACTIVITY</b> 06 RDT&E Management Support				<b>PE NUMBER AND TITLE</b> 0604256F Threat Simulator Development			<b>PROJECT NUMBER AND TITLE</b> 7500 Foreign Material Acquisition/Exploitation		
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
7500 Foreign Material Acquisition/Exploitation	6.959	7.075	7.330	7.401	7.533	7.653	7.771	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

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

This project's 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)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments/Planned Program:			
(U) Funds the acquisition of Foreign Materiel IAW the prioritized Air Force Foreign Materiel Acquisition list; subject to assets availability.	3.200	3.139	3.400
(U) Funds the exploitation of acquired Foreign Materiel IAW prioritized lists and specific exploitation plans.	2.759	2.936	3.130
(U) Funds the operations and maintenance of the specialized Foreign Materiel assets.	1.000	1.000	0.800
(U) Total Cost	6.959	7.075	7.330

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E									
(U) Other APPN									
None.									

**(U) D. Acquisition Strategy**

Not applicable.

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PE NUMBER: 0604759F  
 PE TITLE: Major T&E Investment

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2004</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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	58.331	60.992	58.933	56.551	59.963	62.877	64.969	Continuing	TBD
4597 Air Force Test Investments	58.331	60.992	58.933	56.551	59.963	62.877	64.969	Continuing	TBD

In FY 2005, Project 4597, Air Force Test Investments, includes a new start effort

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

This PE provides planning, improvements, and modernization for test capabilities at three 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), 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 effort (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.

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 (AAII) provides standardized airborne test instrumentation to enhance interoperability and commonality. C4I Advanced Simulation and Test Environment (CASTE) will provide connectivity to existing

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

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BUDGET ACTIVITY

**06 RDT&E Management Support**

PE NUMBER AND TITLE

**0604759F Major T&E Investment**

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) 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 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 AMRAAM, JDAM, ASRAAM, AGM-130, JTIDS, JSTARS, Combat Talon, etc.

AEDC, located at Arnold AFB, TN, provides ground environmental test support for DoD aeronautical, missile, and space programs. The center has 53 test facilities providing: aerodynamic testing of scale model aircraft, missile, 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 Enhanced Turbine Engine Installation and Productivity (formerly JSF STOVL Engine Test Cells Upgrade) will modernize the sea level test cell 3 (SL3) transferred from Trenton NAS under BRAC and installed at AEDC. This cell will be utilized for environmental and structural endurance testing of the Joint Strike Fighter (JSF) and other aircraft engines, F119/F120 derivatives. The cell will be upgraded for the size of the JSF engines and for the testing of the STOVL features of the engines. 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.

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, parachutes delivery/recovery/systems, and cargo handling systems. The Flight Simulation Modernization (FSM) project will upgrade 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 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 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 COTS equipment, upgrading software to provide

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BUDGET ACTIVITY

06 RDT&E Management Support

PE NUMBER AND TITLE

0604759F Major T&E Investment

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.

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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	59.971	50.215	59.606
(U) Current PBR/President's Budget	58.331	60.992	58.933
(U) Total Adjustments	-1.640	10.777	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.523	
Congressional Increases		11.300	
Reprogrammings	-0.078		
SBIR/STTR Transfer	-1.562		

(U) **Significant Program Changes:**

Congressional Action, FY04 plus up of \$11.300: 3 Data Sensor System, \$1.000; Advanced Range Communications System, \$1.700; B-52 Flight Test Instrumentation, \$1.700; Holloman High Speed Test Track (HHSTT) Upgrade, \$3.500; Instrumentation Loading, Integration, Analysis, and Documentation (ILIAD), \$3.400.

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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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total	
4597 Air Force Test Investments	58.331	60.992	58.933	56.551	59.963	62.877	64.969	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

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**06 RDT&E Management Support**

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**0604759F Major T&E Investment**

PROJECT NUMBER AND TITLE

**4597 Air Force Test Investments**

Compatibility Support (WICS) will provide upgrades to support post System Development and Demonstration (SDD) 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 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 AMRAAM, JDAM, ASRAAM, AGM-130, JTIDS, JSTARS, Combat Talon, etc.

AEDC, located at Arnold AFB, TN, provides ground environmental test support for DoD aeronautical, missile, and space programs. The center has 53 test facilities providing: aerodynamic testing of scale model aircraft, missile, 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 Enhanced Turbine Engine Installation and Productivity (formerly JSF STOVL Engine Test Cells Upgrade) will modernize the sea level test cell 3 (SL3) transferred from Trenton NAS under BRAC and installed at AEDC. This cell will be utilized for environmental and structural endurance testing of the Joint Strike Fighter (JSF) and other aircraft engines, F119/F120 derivatives. The cell will be upgraded for the size of the JSF engines and for the testing of the STOVL features of the engines. 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.

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, parachutes delivery/recovery/systems, and cargo handling systems. The Flight Simulation Modernization (FSM) project will upgrade 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 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 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 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



<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>February 2004</b>
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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>
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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.

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) <u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments/Planned Program:			
(U)			
(U) 46 Test Wing, Air Armament Center			
(U)			
(U) Advanced GPS Hybrid Simulation (AGHS). Develop new GPS simulator with hybrid capability for both conventional Radio Frequency (RF) GPS receivers and new Digital Receiver Modules (DRM). Procure, receive, and install hardware and software required to simulate the new GPS signal structure. Perform verification and validation efforts on new simulator.	0.928	1.009	1.197
(U) Weapon Integration Compatibility Support (WICS). F-22 flutter, loads, stability and control M&S. Eglin-Edwards, Eglin-AEDC, Eglin-Patuxent River NAS high-speed encrypted data link for near real-time data analysis.	1.695	2.844	3.136
(U) Armament and Munitions Digital Modeling and Simulation. Development and coordination of Modeling and Simulation Master Plan and Modeling and Simulation activities.	0.435	2.667	1.843
(U) Advanced Airborne Instrumentation Integration (AAII). Acquisition and integration of state-of-the-art airborne instrumentation such as Advanced Common Airborne Instrumentation System (CAIS) and CTEIP developed ARTM. Acquire ground support equipment to support pre/post flight operations.	1.184	1.779	2.443
(U) Scene Characterization and Reconstruction for Advanced Munitions (SCRAM). Acquisition of instrumentation to support scene characterization and reconstruction for T&E of EO/IR, RF/MMW, and GPS seeker/sensors.	4.140	4.591	5.164
(U) Test Control & Visualization. Upgrades to TM systems and network infrastructure to handle higher data rates. Acquire and integrate real time computing servers, data recorders, and video displays.	1.123	1.678	1.926
(U) C4I Advanced Simulation and Test Environment (CASTE). Acquisition of equipment, instrumentation, hardware, software, and connectivity.	1.348	1.504	2.060
(U) OPFACs for Link 16 Weapon-Platform Integration (formerly Link-16 Support). Acquisition of platform simulators and related datalink equipment.	2.752	2.756	2.362
(U) Climatic Lab Upgrade. Upgrades to instrumentation systems, climatic simulation equipment and facility equipment.	0.903	1.000	1.038
(U) Airborne Separation Video System. Procure high speed digital video systems to support Seek Eagle munitions test	1.062		

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requirements on B-1 aircraft. (FY03 Congressional Insert)			
(U) Holloman High Speed Test Track. Extend Maglev guideway foundation and girder. Demonstrate magnetic levitation test sled at higher velocities on the extended guideway. (FY03 and FY04 Congressional Insert)		2.415	3.470
(U) 3 Data Sensor System. Install an operating laser and integrate software for ranging. Modify software for range input/output. Improve tracking capabilities. (FY04 Congressional Insert)			0.991
(U)			
(U) Air Force Flight Test Center			
(U)			
(U) Flight Simulation Modernization (FSM). Fabricate second and third console sets (Joint Strike Fighter), provide multip simulation networking hardware and linking software. Provide capability to simulate flight of two-ship configuration i 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. Provide capability for separable simulations in a secure (Secret and higher) facility over a secure network.		1.562	0.189
(U) MASTER (Modeling and Simulation Test and Evaluation Resource). Develop on-line comparisons of predictions with flight trajectories and the resolution of anomalies between predictions and flight. Document the result of F/A-22 simulation and re-usable code validation. Develop 4th Generation information distribution interface and automated model-based fault detection and diagnostic capability for ground and flight test. Enhanced capabilities of fluid-structu technology to ground and flight test requirements will also be provided. Develop the facility management, configurati management and data management capabilities providing control of pre-test, test, and post test operations. The initial operational capability enabling collaboration between AFFTC and AEDC engineers will also be developed. Develop and validate enhanced capabilities of Fluid-Structural Technology to Ground and Flight Test requirements at the AFFTC. Execution of code validation plan and place validated codes and data in MASTER repository as well as the documented results of simulations and re-usable code validation. Develop collateral and top secret/special compartmented information systems to provide configuration, data and facility management. Develop, store, and transition models in the MASTER repository to support current and future test programs. Enhance the 4th Generation Propulsion Analysis System's information distribution interfaces and automated model-based fault detection and diagnostic capabilities for ground and flight test. Validate towed device cable model using flight data.		2.885	2.616      3.127
(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 suppo ground stations based on roadmap.		2.527	5.341      3.602

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<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 GPS Range Sensors (AGRS). Produce the first iteration of the Modular Affordable GPS IMU Receiver (MAGIR I) that integrates a miniature Inertial Measurement Unit (IMU) into a compact GPS internal mount instrumentation unit. Upgrade and deliver high-accuracy kinematic GPS TSPI processing software. Initiate low cost commercial spectrum datalink effort. Provide 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) Integrate the second iteration of the MAGIR I into next generation software receiver GPS instrumentation. Purchase Enhanced Range Applications Program (EnRAP) equipment. Integrate low cost GPS/IMU and low cost real-time GPS Deliver user interface for TSPI processing software upgrades.	1.123	1.572	1.346
(U) Data Processing Multi-Stage Improvement Program (DPMSIP). Deploy the first telemetry processor upgrade to support higher data rates and large data formats. Develop second telemetry processor upgrade kit to improve data transfer between systems. Develop a PC based common display system. Develop the first control room display upgrade kit. Develop additional standard post-test analysis software to support avionics flight-testing. Deploy common display system at three mission control centers.	1.303	2.185	3.787
(U) Next Generation Test Instrumentation. Integrate new measurement technology into multiple aircraft and support labs. Provide enhancements and improvements to the Internet based Instrumentation Management Information Systems to improve modification cost accounting and program management. Expand the capabilities of ILIAD to program multiple vendor hardware suites and preflight test articles and airframes. Develop airborne instrumentation components to address new sensor interfaces. Purchase instrumentation components to upgrade obsolete and unreliable instrumentation components. Replace obsolete data systems (ATIS, Metraplex) and unreliable data recorders on Test aircraft, support fleet, and Test Pilot School aircraft.	1.419	2.235	1.897
(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
(U) Instrumentation Loading, Integration, Analysis, and Decommuration (ILIAD). Develop enhanced capabilities to program, load, operational check, and troubleshoot airborne data acquisition systems installed on test and evaluation vehicles. Modernize flight line ground support unit and engineering support unit hardware to current technological specification. Perform InterRange Instrumentation Group (IRIG) 106, Chapter 10 core upgrades as well as the MicroNET and Operating System upgrades. Provide 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)	2.511	3.371	
(U) Electronic Countermeasures Upgrades for the Generic Radar Target Generator. Provides injected simulated radar targets as a part of the electronic warfare battlespace at the Benfield Anechoic Facility. (FY03 Congressional Insert)	1.931		
(U) Advanced Range Communications System. Procurement of the next generation digital voice communication system to support AFFTC Flight Test Range customers. Provide an enhanced digital voice capability with special emphasis placed on		1.686	
Project 4597	R-1 Shopping List - Item No. 102-9 of 102-11	Exhibit R-2a (PE 0604759F)	

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on software controls, supportability and commonality for AFFTC customers. (FY04 Congressional Insert)			
(U) B-52 Flight Test Instrumentation. Upgrade current flight data recorders to solid state technology. Build pallets to integrate the solid state recorders to the B-52. Establish a long term digital data archive for the flight data. Upgrade decom hardware/software to support flight test activities. (FY04 Congressional Insert)		1.686	
(U)			
(U) Arnold Engineering Development Center			
(U)			
(U) PWT Upgrades. Finalize installation and checkout of electric motor upgrades. Finalize installation and checkout of plant control systems. Acquisition planning of flow quality improvements.	9.925	1.728	
(U) Improve Turbine Engine Structural Integrity. Develop the Non-Intrusive Stress Measurement System (NSMS) software and hardware systems. Final software validation and fabrication of the second NSMS. Procurement of a dynamic data system. Upgrade of the NSMS optical system. Improve C cells on-line dynamic data monitoring/processing bandwidth capability. Develop inlet flow distortion generator for High Cycle Fatigue (HCF) studies.	1.668	2.629	2.577
(U) Enhanced Turbine Engine Installation and Productivity (formerly JSF STOVL Engine Test Cells Upgrade). Design, procurement, and fabrication efforts for sea level (SL3) upgrades for JSF, F-22, F-15, F-16, F-18, and other programs. Design environmental systems (icing, steam, sand, corrosion). Install and checkout SL3 Thrust Stand, Inlet, and Service Systems. Design and fabricate thrust stand and design electrical distribution system for SL2.	2.667	2.344	1.335
(U) Real Time Display and Analysis System. Design, procurement, installation, check-out and turnover of the J2 Test Unit Supervisory Systems (TUSS), 4T Test Article Control System, SL2 TUSS, C1 TUSS, 4T Pretest System, 4T Operator Center, and partial SL3 TUSS. Installation and checkout of the 4T Test System. Integrated checkout and turnover of the 4T Data Acquisition Processing Systems (DAPS). Design and procurement activities for the 4T Plant Automation effort.	2.956	2.704	2.845
(U) Propulsion Consolidation and Streamlining (PC&S). Jet engine test facility investment efforts to improve plant and test cell reliability, increasing test cell capability, and streamlining test processes.		5.267	13.030
(U) Laser Induced Surface Improvement (LISI) Technology. Expansion of LISI process to DoD components and development of LISI prototype processing facility for selected DoD target applications. (FY03 Congressional Insert)	0.966		
(U) MARIAH II Hypersonic Wind Tunnel. Experiments to prove enabling technologies for the wind tunnel concept in the areas of ultra high pressure air supply, supersonic energy addition, high Reynolds number boundary layer characterization, and nozzle survivability. (FY03 Congressional Insert. In FY04, the Congressional Insert was moved Army PE 0602303A)	5.794		
(U)			
(U) Other Projects			
(U) T&E Board of Directors Support. Coordinate tri-service investment efforts. Coordinate joint Reliance documents.	0.305	0.150	0.150
(U) Technology Insertion & Risk Reduction (TIRR). First TIRR subproject, Flight Safety System (FSS), developed 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.	0.804	1.000	0.500

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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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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. Additional subprojects are planned for initiation in FY04 and/or FY05

(U)

(U)

(U) Total Cost	58.331	60.992	58.933
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(U) **C. Other Program Funding Summary (\$ in Millions)**

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

(U) AF RDT&E

(U) Other APPN

Related 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, Facility Sustainment and Support; and PE 0605976F, Facility Restoration and Modernization.

(U) **D. Acquisition Strategy**

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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PE NUMBER: 0605101F  
 PE TITLE: RAND Project Air Force

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>								<b>DATE February 2004</b>	
<b>BUDGET ACTIVITY 06 RDT&amp;E Management Support</b>				<b>PE NUMBER AND TITLE 0605101F RAND Project Air Force</b>					
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	29.460	24.377	24.970	26.101	26.650	27.077	27.496	0.000	0.000
1110 Project Air Force	29.460	24.377	24.970	26.101	26.650	27.077	27.496	0.000	0.000

**(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. Results and analytical findings impact senior management deliberations 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 assistance 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, integrating the ISR mix, terrorism and homeland defense, tailoring and reducing infrastructure to meet new force requirements, and improved weapon system costing.

(U) FY02 research themes were developed to achieve greater focus on transformation efforts, and several research efforts (related to counter-terrorism and homeland defense) were initiated. The research effort concentrated on an integrated mix of: manned and unmanned ISR and strike forces; establishment and sustainment of space capabilities; recapitalizing the USAF wide-body fleet; cost-effective timing and platform strategies; how best to develop Air Force leaders; officer and enlisted retention issues; command and control architecture for agile combat support (to include lessons learned from Operation Enduring Freedom); improved supply chain management; innovative adaptation of business practices; and managing a global consolidated aerospace industry.

(U) FY03 research themes were structured to increase focus on new threats and environments that impact air and space operations to include continued research on China and Asian security and counter-terrorism strategy initiated in the wake of 9/11. Force employment research emphasized integration of capabilities (e.g., ISR, strike, manned and unmanned), concepts of operation for expeditionary air forces, the expanding role of information in warfare, and real time command and control. Lessons from OEF and ONA were factored into this research. Work was extended on developing Air Force leaders; integrating manpower and personnel functions; and dealing with chronically undermanned skill types. Resources analysis continued to focus on cost analysis, acquisition strategies, managing an aging aircraft fleet, agile combat support sustainment initiatives, and adaptation of modern business practices.

(U) The FY04 research program was developed to increase emphasis on strategic and transformational options for the future force structure and capabilities, including examining linkages between strategy and force structures. Research is investigating regional stability and threats, joint expeditionary operations, and counter-terrorism.

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Force development analysis is emphasizing innovative and transformational operational concepts, and the force structures and capabilities to realize these. Manpower studies include defining the personnel mix (Active/Reserve/National Guard/Civilian/Contractor) and their appropriate training, development, and utilization in order to effectively meet future requirements and operations tempo. Senior leader planning, development and management research will continue. Resources research is focused on maturing agile combat support and force sustainment concepts to efficiently support global joint operations, and assessing the cost and viability of current and possible future force elements. Integrative research continues to examine the survivability of aerospace capabilities while operating in severe threat environments and examines the congressionally requested analytical support for aerial refueling aircraft fleet management. These studies will continue to take into consideration the Global War on Terrorism, including engagements in Afghanistan, Iraq and elsewhere.

(U) The FY05 research program will continue to build upon research foundations, examining the evolving security environment; emerging threats; national and military strategy; transformation to include capability trades and investment strategies to respond to changing DoD budgets; operational concepts to meet evolving missions and exploit advanced technologies and capabilities; agile combat support; developing AF military and civilian leaders and managing personnel. Future efforts will focus on support to senior 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) PAF research spans functional and organization 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 spins 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 individuals and activities.

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	25.192	24.586	25.035
(U) Current PBR/President's Budget	29.460	24.377	24.970
(U) Total Adjustments	4.268	-0.209	
(U) Congressional Program Reductions		-0.209	
Congressional Rescissions			
Congressional Increases			
Reprogrammings	4.268		
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			
N/A			



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BUDGET ACTIVITY 06 RDT&E Management Support				PE NUMBER AND TITLE 0605101F RAND Project Air Force			PROJECT NUMBER AND TITLE 1110 Project Air Force		
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
1110 Project Air Force	29.460	24.377	24.970	26.101	26.650	27.077	27.496	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

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

(U) This 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. Results and analytical findings impact senior management deliberations 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 assistance 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, integrating the ISR mix, terrorism and homeland defense, tailoring and reducing infrastructure to meet new force requirements, and improved weapon system costing.

(U) FY02 research themes were developed to achieve greater focus on transformation efforts, and several research efforts (related to counter-terrorism and homeland defense) were initiated. The research effort concentrated on an integrated mix of: manned and unmanned ISR and strike forces; establishment and sustainment of space capabilities; recapitalizing the USAF wide-body fleet; cost-effective timing and platform strategies; how best to develop Air Force leaders; officer and enlisted retention issues; command and control architecture for agile combat support (to include lessons learned from Operation Enduring Freedom); improved supply chain management; innovative adaptation of business practices; and managing a global consolidated aerospace industry.

(U) FY03 research themes were structured to increase focus on new threats and environments that impact air and space operations to include continued research on China and Asian security and counter-terrorism strategy initiated in the wake of 9/11. Force employment research emphasized integration of capabilities (e.g., ISR, strike, manned and unmanned), concepts of operation for expeditionary air forces, the expanding role of information in warfare, and real time command and control. Lessons from OEF and ONA were factored into this research. Work was extended on developing Air Force leaders; integrating manpower and personnel functions; and dealing with chronically undermanned skill types. Resources analysis continued to focus on cost analysis, acquisition strategies, managing an aging aircraft fleet, agile combat support sustainment initiatives, and adaptation of modern business practices.

(U) The FY04 research program was developed to increase emphasis on strategic and transformational options for the future force structure and capabilities, including examining linkages between strategy and force structures. Research is investigating regional stability and threats, joint expeditionary operations, and counter-terrorism. Force development analysis is emphasizing innovative and transformational operational concepts, and the force structures and capabilities to realize these. Manpower studies include defining the personnel mix (Active/Reserve/National Guard/Civilian/Contractor) and their appropriate training, development, and utilization in order to

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1110 Project Air Force

effectively meet future requirements and operations tempo. Senior leader planning, development and management research will continue. Resources research is focused on maturing agile combat support and force sustainment concepts to efficiently support global joint operations, and assessing the cost and viability of current and possible future force elements. Integrative research continues to examine the survivability of aerospace capabilities while operating in severe threat environments and examines the congressionally requested analytical support for aerial refueling aircraft fleet management. These studies will continue to take into consideration the Global War on Terrorism, including engagements in Afghanistan, Iraq and elsewhere.

(U) The FY05 research program will continue to build upon research foundations, examining the evolving security environment; emerging threats; national and military strategy; transformation to include capability trades and investment strategies to respond to changing DoD budgets; operational concepts to meet evolving missions and exploit advanced technologies and capabilities; agile combat support; developing AF military and civilian leaders and managing personnel. Future efforts will focus on support to senior 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) PAF research spans functional and organization 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 spins 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 individuals and activities.

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

(U) Accomplishments/Planned Program  
 (U) Strategy and Doctrine  
 (U) Aerospace Force Development  
 (U) Manpower, Personnel, and Training  
 (U) Resource Management  
 (U) Integrative Research/Direct Support  
 (U) Total Cost

FY 2003FY 2004FY 2005

4.800

5.105

3.600

6.940

5.105

5.200

6.230

4.978

5.000

8.390

7.147

8.900

3.100

2.042

2.270

29.460

24.377

24.970

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

DATE

February 2004

BUDGET ACTIVITY

06 RDT&amp;E Management Support

PE NUMBER AND TITLE

0605101F RAND Project Air Force

PROJECT NUMBER AND TITLE

1110 Project Air Force

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

A comprehensive review of RAND/Project AIR FORCE has been completed and a new, 5-year (FY01-FY05) Cost Plus / Fixed Fee contract was awarded on 30 Sep 00.

**UNCLASSIFIED**

PE NUMBER: 0605306F  
 PE TITLE: Ranch Hand II Epidemiology Study

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>								DATE <b>February 2004</b>	
BUDGET ACTIVITY <b>06 RDT&amp;E Management Support</b>				PE NUMBER AND TITLE <b>0605306F Ranch Hand II Epidemiology Study</b>					
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	10.074	4.652	4.813	4.167	0.000	0.000	0.000	0.000	0.000
2767 Ranch Hand II Epidemiology Study	10.074	4.652	4.813	4.167	0.000	0.000	0.000	0.000	0.000

**(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.

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

DATE

February 2004

BUDGET ACTIVITY

06 RDT&amp;E Management Support

PE NUMBER AND TITLE

0605306F Ranch Hand II Epidemiology Study

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	11.029	4.692	
(U) Current PBR/President's Budget	10.074	4.652	4.813
(U) Total Adjustments	-0.955	-0.040	
(U) Congressional Program Reductions	-0.141	-0.040	
Congressional Rescissions			
Congressional Increases			
Reprogrammings	-0.440		
SBIR/STTR Transfer	-0.374		
(U) <u>Significant Program Changes:</u>			
None.			

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

DATE  
**February 2004**

<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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total	
2767 Ranch Hand II Epidemiology Study	10.074	4.652	4.813	4.167	0.000	0.000	0.000	0.000	0.000	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

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

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 2003</u>	<u>FY 2004</u>	<u>FY 2005</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.	7.701	2.338	1.674
(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.	1.265	1.182	1.554
(U) Continue to process and document examination data. Continue archiving previous cycles' examination data and digitiz	1.108	1.132	1.585

Exhibit R-2a, RDT&E Project Justification

DATE

February 2004

BUDGET ACTIVITY

06 RDT&E Management Support

PE NUMBER AND TITLE

0605306F Ranch Hand II  
Epidemiology Study

PROJECT NUMBER AND TITLE

2767 Ranch Hand II Epidemiology  
Study

and archive the Cycle 6 data as received. Conduct medical records coding and verification of examination database an  
Cycles 1 through 6 coding. Perform annual mortality analysis support. Conduct data analysis for journals and reports  
Congress. Continue maintenance of Ranch Hand II LAN.

(U) Total Cost 10.074 4.652 4.813

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

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

(U) Not Applicable.

(U) **D. Acquisition Strategy**

Not Applicable.

**UNCLASSIFIED**

PE NUMBER: 0605712F  
 PE TITLE: Initial Operational Test & Evaluation

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>								<b>DATE</b> <b>February 2004</b>	
<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>					
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	36.320	34.343	28.839	32.776	33.331	33.641	34.069	Continuing	TBD
0191 Initial Operational Test & Eval	36.320	34.343	28.839	32.776	33.331	33.641	34.069	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/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.



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

DATE

February 2004

BUDGET ACTIVITY

06 RDT&amp;E Management Support

PE NUMBER AND TITLE

0605712F Initial Operational Test &amp; Evaluation

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	26.483	34.646	26.896
(U) Current PBR/President's Budget	36.320	34.343	28.839
(U) Total Adjustments	9.837	-0.303	
(U) Congressional Program Reductions		-0.303	
Congressional Rescissions			
Congressional Increases			
Reprogrammings	9.837		
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			
FY03 \$9.837 BTR to meet IOT&E requirement shortfalls			
FY04 Decrease due to funding of other AF priorities			

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

DATE

February 2004

BUDGET ACTIVITY		PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
06 RDT&E Management Support		0605712F Initial Operational Test & Evaluation					0191 Initial Operational Test & Eval			
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total	
0191 Initial Operational Test & Eval	36.320	34.343	28.839	32.776	33.331	33.641	34.069	Continuing	TBD	
Quantity of RDT&E Articles	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/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) (U) CATEGORY: AIR SYSTEMS. Plan, execute, and report IOT&E activities, to include:

FY 2003FY 2004FY 2005

19.063

27.697

18.759

FY03

- F/A-22: Conduct IOT&E
- Airborne Laser (ABL): Write OA plan; continue advance planning IOT&E.
- ALR-69 Radar Warning Receiver (RWR) Capability Improvement (ALR-69 RWR CI): Conduct IOT&E.
- B-1B Conventional Mission Upgrade Program (CMUP) BLK E: Complete final test report.
- B-1B CMUP Block F: Detailed planning for IOT&E.
- B-52 Avionics Mid-Life Improvement (AMI): Plan and conduct IOT&E.
- C-17 Global Air Traffic Management (GATM): Conduct Block 14 IOT&E.

Exhibit R-2a, RDT&E Project Justification		DATE February 2004
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>- Compass Call: Advance planning for Blk 35 IOT&amp;E.</li> <li>- CV-22: Plan for and conduct CV-22 IOT&amp;E.</li> <li>- F-15 Fiber Optic Towed Decoy (F-15 FOTD): Brief OA Results; advanced planning for IOT&amp;E.</li> <li>- F-16 Common Configuration Improvement Program (CCIP): Conduct IOT&amp;E.</li> <li>- Global Hawk High Altitude Vehicle (HAV) Unmanned Aerial Vehicle (UAV): Participation in real-world events; detailed planning for IOT&amp;E.</li> <li>- Joint Strike Fighter (JSF): Advanced planning for IOT&amp;E.</li> <li>- Large Aircraft InfraRed Counter Measure (LAIRCM): Plan and conduct IOT&amp;E.</li> <li>- Mobile Approach Control System (MACS): Plan and conduct IOT&amp;E.</li> </ul> <p>FY04</p> <ul style="list-style-type: none"> <li>- Airborne Electronic Attack (AEA): Early involvement.</li> <li>- ALR-69 RWR Capability Improvement (ALR-69 RWR CI): Conduct IOT&amp;E.</li> <li>- Advanced Strategic and Tactical Infrared Expendable (ASTE): Complete Transport Phase IOT&amp;E and final report.</li> <li>- B-1B CMUP BLK F: Complete IOT&amp;E and write test report.</li> <li>- B-52 AMI: Plan and conduct IOT&amp;E.</li> <li>- C-130X Aircraft Modernization Program (AMP): Conduct test planning.</li> <li>- C-17 GATM: Conduct Block 14 IOT&amp;E</li> <li>- Compass Call: Conduct DT/OT on Block 35.</li> <li>- CV-22: Continue DT/OT and OA. Complete advanced planning for OAs, DT/OT and IOT&amp;E.</li> <li>- F-15 FOTD: Conduct advanced planning.</li> <li>- F-16 CCIP: Conduct and report IOT&amp;E.</li> <li>- F/A-22: Conduct IOT&amp;E.</li> <li>- Global Hawk HAE UAV: Conduct OA and planning for IOT&amp;E.</li> <li>- Joint Strike Fighter (JSF): Advanced planning for IOT&amp;E.</li> <li>- LAIRCM: Conduct and report IOT&amp;E.</li> <li>- MACS: Complete OA and IOT&amp;E and wrtie final report.</li> <li>- MQ-9: Participate in seamless verification of Pathfinder program.</li> <li>- Panoramic Night Vision Goggles (PNVG): Conduct and report IOT&amp;E.</li> <li>- Unmanned Combat Aerial Vehicle (UCAV): Participate in seamless verification of Pathfinder program.</li> </ul> <p>FY05</p> <ul style="list-style-type: none"> <li>- AOA-10A Precision Engagement (AOA-10A PE): Early Involvement.</li> <li>- AEA: Early involvement.</li> </ul>		
Project 0191	R-1 Shopping List - Item No. 106-4 of 106-9	Exhibit R-2a (PE 0605712F)

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>February 2004</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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- ALR-69 RWR CI: Conduct C-130 IOT&E.
- B-2 Radar Modernization Program (RMP): Early Involvement.
- B-52 AMI: Conduct IOT&E phase 2.
- C-130X AMP: Early Involvement.
- CV-22: Continue DT/OT.
- F-15 FOTD: Early Involvement.
- F-22: Conduct FOT&E.
- Global Hawk HAE UAV: Conduct DT/OT and planning for IOT&E.
- JSF: Conduct OT 2B and 2C. Planning for IOT&E.
- Advanced AFSOC Air Mobility Program (M-X): Early Involvement.
- MQ-9: Conduct OA.
- AC-130U Gunship Replacement (SOF A-X): Early Involvement.
- Other systems.

(U)

(U) (U) CATEGORY: SPACE SYSTEMS. Plan, execute, and report IOT&E activities, to include: 1.760                      1.499                      2.272

FY03

- Advanced EHF Satellite Communications (Advanced EHF): Advance planning for IOT&E.
- Global Broadcast System (GBS): Plan and conduct FOT&E.
- Global Positioning Satellite (GPS): Plan and conduct OA2.
- MILSTAR II: Complete MOT&E; write Final Report.
- National Polar-Orbit Ops Environment Satellite System (NPOESS): Planning for OA2 and IOT&E.
- Space Based InfraRed System (SBIRS): Perform Operational Utility Evaluations (OUE) to support Increment 2 ground system upgrades; participate in MP3 MOT&E.
- Wideband Gap Filler System (WGS): Participate in combined DT/OT.

FY04

- Advanced EHF: Advanced planning for IOT&E.
- GBS: Plan and conduct DT/OT. Plan for FOT&E.
- GPS: Plan and conduct OA2 and OA3.
- NPOESS: Conduct and report OA1. Plan for OA2 and IOT&E.
- SBIRS: Plan for Increment 2 OUE and IOT&E.
- WGS: Conduct DT/OT and plan for MOT&E.

**UNCLASSIFIED**

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>February 2004</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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<p>FY05</p> <ul style="list-style-type: none"> <li>- Advanced EHF: Conduct OA.</li> <li>- Combat Commanders Integrated Command &amp; Control System (CCIC2S) Missile Warning Release (MWR): Publish final report.</li> <li>- GBS: Conduct MOT&amp;E.</li> <li>- GPS: Conduct OA.</li> <li>- NPOESS: Early Involvement.</li> <li>- SBIRS: Conduct OUE.</li> <li>- Space Based Radar (SBR): Early Involvement.</li> <li>- Space Based Space Surveillance (SBSS): Early Involvement.</li> <li>- Transformational Communications MILSATCOM (TCM): Early Involvement.</li> <li>- WGS: Conduct MOT&amp;E.</li> <li>- Other systems</li> </ul> <p>(U)</p> <p>(U) (U) CATEGORY: WEAPONS. Plan, execute, and report IOT&amp;E activities, to include:</p> <p>FY03</p> <ul style="list-style-type: none"> <li>- AIM-9X Air-to-Air Missile : Complete MOT&amp;E and write final report.</li> <li>- Joint Air-to-Surface Standoff Missile (JASSM): Complete MOT&amp;E and write final report.</li> <li>- Joint Direct Attack Munition (JDAM) MK 82: Conduct combined DT/OT; advanced planning for IOT&amp;E.</li> <li>- Joint Stand-Off Weapon (JSOW BLU-108): Complete MOT&amp;E and FOT&amp;E.</li> </ul> <p>FY04</p> <ul style="list-style-type: none"> <li>- AIM-9X Air-to-Air Missile: Conduct FOT&amp;E</li> <li>- Minuteman (MM) III Safety Enhanced Reentry Vehicle (ICBM-SERV): Test Planning.</li> <li>- Joint Air-to-Surface Standoff Missile JASSM: Conduct test planning for JASSM-ER.</li> <li>- JDAM MK 82: Test Planning.</li> <li>- Joint Direct Attack Munition MK 83(JDAM MK 83): Publish final report.</li> </ul> <p>FY05</p> <ul style="list-style-type: none"> <li>- MM III ICBM-SERV: Conduct IOT&amp;E.</li> <li>- JASSM: Conduct test planning for JASSM-ER.</li> <li>- Small Diameter Bomb (SDB): Conduct OA-2.</li> <li>- Wind Corrected Munitions Dispenser Extended Range (WCMD-ER): Conduct OA-2.</li> </ul>	13.199	2.269	3.092
<p>Project 0191 <span style="float: right;">R-1 Shopping List - Item No. 106-6 of 106-9</span> <span style="float: right;">Exhibit R-2a (PE 0605712F)</span></p>			

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) - Other systems (U) (U) CATEGORY: COMMMAND, CONTROL, COMMUNICATIONS, COMPUTERS, AND INTELLIGENCE (C) Plan, execute, and report IOT&E activities, to include:		1.420                      1.725                      3.191
FY03 - Deliberate Crisis Action Planning and Execution System (DCAPES): Complete Increment 2 IOT&E - Integrated Broadcast System (IBS): Complete OA and participate in CTF activities. - Joint STARS Blk 30: Conduct OA and continue Test Planning. - Joint Tactical Terminal (JTT): Complete IOT&E - NORAD_USSPACECOM Warning Surveillance System (N_UWSS): Planning for OA and IOT&E. - Theater Battle Management - Core Systems (TBM-CS): Complete MOT&E of version 2.0		
FY04 - Air Operations Center as a Weapons System (AOC): Test planning and Execution throughout spiral development. (Includes TBMCS and TCT) - Combined Air Operations Center Experimental (CAOC-X): Support CTF - DCAPES: Conduct IOT&E and publish report. - Family of Advanced Beyond Line Of Sight Terminals (FAB T): Participate in combined DT/OT. Conduct OA and publish report. Test Planning. - Global Combat Support System Air Force (GCSS AF): Conduct IOT&E and publish report. - Ground Multi-band Terminal (GMT): Conduct IOT&E and publish final report. - Global Transportation Network 21 (GTN 21): Participate in combined DT/OT. Test planning. - Integrated Broadcast System (IBS): Participate in combined DT/OT. Conduct MOT&E and publish report. - Joint STARS Blk 30: Plan and participate in CTF OUE and write report. - N_UWSS: Early Involvement. Planning in support of additional mission capabilities.		
FY05 - AOC: Conduct OUE. - Advanced Point Mensuration Tool (APMT): Early Involvement - Airborne Signals Intelligence Payload (ASIP): Early Involvement. - FAB T: Conduct OA2. - GCSS AF: Conduct DT/OT. - Ground Element Minimum Essential Emergency Communications Network System (GEMS): Early Involvement.		
Project 0191	R-1 Shopping List - Item No. 106-7 of 106-9	Exhibit R-2a (PE 0605712F)

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>		
<ul style="list-style-type: none"> <li>- IBS: Planning for FOT&amp;E.</li> <li>- Joint Command and Control Capability (JC2): Early Involvement.</li> <li>- Joint Tactical Radio System (JTRS): Conduct DT/OT.</li> <li>- Multi-Platform Common Data Link (MP CDL): Conduct DT/OT and OA.</li> <li>- Other systems</li> </ul>		
(U)		
(U)	(U) CATEGORY: COMBAT SUPPORT. Plan, execute, and report IOT&E activities, to include:	0.878 1.153 1.525
FY03		
<ul style="list-style-type: none"> <li>- Common Low Observable Verification System (CLOVeRS): Conduct IOT&amp;E.</li> <li>- Combat Survivor Evader Locator (CSEL): Plan and conduct FOT&amp;E.</li> <li>- Integrated Logistics System - Supply (ILS-S): Conduct CTF events. Advance Planning for IOT&amp;E.</li> <li>- Joint Computer Aided Acquisition and Logistics Support (JCALS): Conduct SWP 3.3 OT.</li> <li>- Joint Mission Planning System (JMPS): Conduct IOT&amp;E on release 1.0.</li> <li>- Joint Precision Approach &amp; Landing system (JPALS): Participate in Combined DT/OT events; detailed planning for MOT&amp;E.</li> <li>- Joint Tactical Combat Training System (JTCTS): Detailed Planning for MOT&amp;E.</li> </ul>		
FY04		
<ul style="list-style-type: none"> <li>- CLOVeRS: Conduct planning for IOT&amp;E</li> <li>- CSEL: Plan and conduct FOT&amp;E.</li> <li>- ILS-S: Conduct CTF events. Planning for IOT&amp;E.</li> <li>- JCALS: Plan and conduct FOT&amp;E.</li> <li>- JMPS: Conduct IOT&amp;E on release 1.0.</li> <li>- JPALS: Participate in Combined DT/OT events; detailed planning for MOT&amp;E.</li> <li>- JTCTS: Detailed Planning for MOT&amp;E.</li> </ul>		
FY05		
<ul style="list-style-type: none"> <li>- CLOVeRS: Conduct planning for IOT&amp;E</li> <li>- ILS-S: Conduct DT/OT.</li> <li>- JMPS: Conduct F-15 mission planning environment IOT&amp;E.</li> <li>- Laser Warning and Detection (Laser WARDET): Early Involvement.</li> <li>- Miniture Air Launched Decoy (MALD): Conduct OA1.</li> <li>- Mark XIIA Mode 5 IFF (MODE 5): Early Involvement.</li> </ul>		
Project 0191	R-1 Shopping List - Item No. 106-8 of 106-9	Exhibit R-2a (PE 0605712F)

Exhibit R-2a, RDT&E Project Justification

DATE

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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

- Other systems.

(U) B. Budget Activity Justification

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) Total Cost

36.320

34.343

28.839

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

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

(U) N/A

(U) **D. Acquisition Strategy**

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 2004</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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	382.938	326.918	356.266	348.751	361.321	416.730	429.056	0.000	0.000
06TG 46 Test Group	20.342	23.370	23.812	24.242	22.918	25.459	26.693	0.000	0.000
06TS Test and Evaluation Support	362.596	303.548	332.454	324.509	338.403	391.271	402.363	0.000	0.000

(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 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). Beginning in FY04 \$49.8M was realigned to program elements established to separately identify the facilities sustainment (PE 0605978F) and facilities restoration/modernization (PE 0605976F).

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	381.170	336.720	350.597
(U) Current PBR/President's Budget	382.938	326.918	356.266
(U) Total Adjustments	1.768	-9.802	
(U) Congressional Program Reductions	0.000	-7.000	
Congressional Rescissions	0.000	-2.802	
Congressional Increases			
Reprogrammings	1.768		
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			

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

DATE  
**February 2004**

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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
06TG 46 Test Group	20.342	23.370	23.812	24.242	22.918	25.459	26.693	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

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

This 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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments/Planned Program:	0.000	0.000	
(U) Provide infrastructure to support testing of DoD, FMS and commercial weapon systems.	0.000	0.000	
(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 ar 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) I 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.	2.549	2.360	4.670
(U) Maintenance and repair for test unique infrastructure. FY03 projects include Track Facilities Window Refurbishment	0.433		

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>February 2004</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>06TG 46 Test Group</b>
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Track Antenna Relay System, Track (ARC) Building and Track Data Center (TDC) Control Room Renovation, Building 1085 Facility Repairs (XP, Plans & Resources Division Building), Building 1265 Safety Repairs (746th Test Squadron Hq Building), Building 1074 Roof Repairs (586th FLTS Hq Building), Data Processing Computer Upgrades and System -3R (Electronic Discharge Machine) Tooling Maintenance and Upgrades. FY04 and beyond maintenance and repair projects are funded in PEs 0605976F, Facility Restoration and Modernization - T&E, and PE 0605978F, Facility Sustainment - T&E Support.

(U) Contractor Services (in-house contract support activities)	10.341	11.942	10.543
(U) T&E Civilian Pay	7.019	9.068	8.599
(U) Total Cost	20.342	23.370	23.812

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

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

(U) 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&E Project Justification**

DATE

**February 2004**

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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
06TS Test and Evaluation Support	362.596	303.548	332.454	324.509	338.403	391.271	402.363	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

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

**UNCLASSIFIED**

Exhibit R-2a, RDT&E Project Justification		DATE <b>February 2004</b>	
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>	
(U) Accomplishments/Planned Program:		0.000	0.000
(U) Provide infrastructure to support testing of DoD, FMS and commercial weapon systems.		0.000	0.000
(U) ARNOLD ENGINEERING AND DEVELOPMENT CENTER (AEDC)		0.000	0.000
(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, F4 F118, F119, and Tunnel 9).		2.492	3.894 5.970
(U) Utilities and maintenance and repair for test unique infrastructure. FY03 maintenance and repair projects which revitalize the reliability and availability of aged equipment include Exhaust Compressor (ETF XS-1) Changeout, Repa C-Plant Control Valves, Replace Plenum Evacuation System (PES) Expansion Joints, Refurbish A/B/C Model Injectio System, Replace Hypersonics Data Systems and Maintenance and Repair planning and design. FY04 and beyond maintenance and repair projects are funded in PEs 0605976F, Facility Restoration and Modernization - T&E, and PE 0605978F, Facility Sustainment - T&E Support.		41.736	7.200 6.982
(U) Contractor Services (in-house contract support activities).		91.338	88.792 95.748
(U) T&E Civilian Pay.		13.145	14.965 13.155
(U) AIR FORCE FLIGHT TEST CENTER (AFFTC)		0.000	0.000
(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.), and classified programs as well as the operation of the Test Pilot School in FY04 and FY05. Significant increase to FY05 includes projected A76 competitions.		1.482	15.321 41.555
(U) Utilities and Maintenance and Repair for test unique infrastructure. FY03 maintenance and repair projects include the repair drainage on Runway 04, Upgrade Benefield Anechoic Facility (BAF) Electrical (Bldg 1030) and repair Uninterrupted Power Supply Ridley Mission Control Center (Bldg 1441) and design of planned FY04 projects. FY04 and beyond maintenance and repair projects are funded in PEs 0605976F, Facility Restoration and Modernization - T& and PE 0605978F, Facility Sustainment - T&E Support.		5.385	1.027 3.080
(U) Contractor services (in-house contract support activities)		25.231	9.244 7.731
(U) T&E Civilian Pay		70.743	69.986 56.102
(U) Aircraft flying hour costs (to include the operation of the USAF Test Pilot School in FY03, FY04 and beyond documented above) 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.		37.396	23.432 28.203
(U) AIR ARMAMENT CENTER (AAC) 46th Test Wing (TW)		0.000	0.000
(U) Continue institutional test infrastructure support for non-nuclear air armaments (JASSM, SEEK EAGLE, WCMD, F-2		7.361	4.702 9.725
Project 06TS	R-1 Shopping List - Item No. 107-6 of 107-7		Exhibit R-2a (PE 0605807F)

**UNCLASSIFIED**

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>February 2004</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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AIM 9X, AMRAAM, ASRAAM, Hellfire, PATRIOT, DIRCM, AAV, UCAV, etc.); C2 (TMBCS, Link 16, BISS, and aircraft software upgrades (AFMSS)).			
(U) Utilities and maintenance and repair for test unique infrastructure. FY03 maintenance and repair projects include Add Heat to GWEF Test Facility, Climatic Laboratory Suppression System, Repair Seawall Test Site A-13, Repairs, Replace Fence, Demo Fence and Install A/C S Lean-To at the Climatic Laboratory. FY04 and beyond maintenance and repair projects are funded in PEs 0605976F, Facility Restoration and Modernization - T&E, and PE 0605978F, Facility Sustainment - T&E Support.	6.429	5.986	4.277
(U) Contractor Services (in-house contract support activities).	19.241	14.606	11.576
(U) T&E Civilian Pay	29.485	34.027	31.340
(U) Aircraft flying hours costs include: pilot proficiency flying for sustained readiness; deferred and projected programme depot maintenance (PDM); engine overhauls; petroleum, oils, and lubricants (POL); depot level repairables (DLR); fuel and fuel price increases; and related support. Funds proficiency flying to minimum levels allowing AAC 46TW to meet proficiency flying goals.	11.132	10.366	17.010
(U) Total Cost	362.596	303.548	332.454

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Not Applicable									
(U) 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>	<b>DATE</b> <b>February 2004</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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	28.731	22.976	7.984	14.811	15.282	15.508	15.725	Continuing	TBD
1023 Rocket System Launch Program (RSLP)	28.731	22.976	7.984	14.811	15.282	15.508	15.725	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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	30.576	9.673	11.905
(U) Current PBR/President's Budget	28.731	22.976	7.984
(U) Total Adjustments	-1.845	13.303	
(U) Congressional Program Reductions		-0.197	
Congressional Rescissions			
Congressional Increases		13.500	
Reprogrammings			
SBIR/STTR Transfer	-1.845		

**(U) Significant Program Changes:**

FY04: \$13.5M Congressional add to fund Ballistic Missile Range Safety Technology (BMRST) upgrades and Eastern Range certification  
 FY05: \$3.9M reallocated to higher DoD priorities.



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

DATE  
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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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total	
1023 Rocket System Launch Program (RSLP)	28.731	22.976	7.984	14.811	15.282	15.508	15.725	Continuing	TBD	
Quantity of RDT&E Articles	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 2003</u>	<u>FY 2004</u>	<u>FY 2005</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	11.485	8.000	6.705
(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	2.146	1.476	1.279
(U) Complete development of GPS Metric Tracking capability integration for use on RSLP launch vehicles	0.500		
(U) Provide an additional suite of Ballistic Missile Range Safety Technology (BMRST) equipment and certify it for RSLP use	12.000		
(U) Upgrade the three BMRST units and certify them for Eastern Range use		13.500	
(U) Complete the design and build of the payload for a Missile Technology Demonstration launch	2.600		
(U) Continue providing launch assets and technical assistance for DoD RDT&E launches (Funded by users)	0.000	0.000	0.000
(U) Total Cost	28.731	22.976	7.984

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	Actual	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Complete	
(U) None									

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

DATE

February 2004

BUDGET ACTIVITY

06 RDT&amp;E Management Support

PE NUMBER AND TITLE

0605860F Rocket Systems Launch  
Program (RSLP)

PROJECT NUMBER AND TITLE

1023 Rocket System Launch Program  
(RSLP)(U) D. Acquisition Strategy

Not Required.

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	<b>DATE</b> <b>February 2004</b>
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<b>BUDGET ACTIVITY</b> <b>06 RDT&amp;E Management Support</b>	<b>PE NUMBER AND TITLE</b> <b>0605864F Space Test Program</b>
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Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	46.175	38.579	44.521	45.100	46.094	57.378	58.239	Continuing	TBD
2617 Free-Flyer Spacecraft Missions	46.175	38.579	44.521	45.100	46.094	57.378	58.239	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 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/ISS
- 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.

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2004

BUDGET ACTIVITY

06 RDT&E Management Support

PE NUMBER AND TITLE

0605864F Space Test Program

STP is in Budget Activity 6, RDT&E Management Support, because it supports RDT&E satellite launches.

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	49.141	42.909	44.638
(U) Current PBR/President's Budget	46.175	38.579	44.521
(U) Total Adjustments	-2.966	-4.330	
(U) Congressional Program Reductions		-4.330	
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer	-2.966		
(U) <u>Significant Program Changes:</u>			
None.			

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

DATE

**February 2004**

BUDGET ACTIVITY <b>06 RDT&amp;E Management Support</b>				PE NUMBER AND TITLE <b>0605864F Space Test Program</b>			PROJECT NUMBER AND TITLE <b>2617 Free-Flyer Spacecraft Missions</b>		
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
2617 Free-Flyer Spacecraft Missions	46.175	38.579	44.521	45.100	46.094	57.378	58.239	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

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

UNCLASSIFIED

Exhibit R-2a, RDT&E Project Justification							DATE <b>February 2004</b>			
BUDGET ACTIVITY			PE NUMBER AND TITLE			PROJECT NUMBER AND TITLE				
<b>06 RDT&amp;E Management Support</b>			<b>0605864F Space Test Program</b>			<b>2617 Free-Flyer Spacecraft Missions</b>				
(U)	Accomplishments/Planned Program									
(U)	Conducted piggyback/secondary payload, mission planning, and risk reduction, provide technical support, mission and program support					8.680				
(U)	Conducted Space Shuttle payload integration, analysis, pre- and post-launch processing, and on-orbit support					1.972				
(U)	Initiated space missions (including planning and source selection activities) using experiments from the current SERB list					4.594				
(U)	Continued space experiment missions from the current and prior SERB lists					30.929				
(U)	Initiate, develop and continue piggyback/secondary payload missions and associated hardware, spaceflight partnership planning and risk reduction; and program support						16.200			
(U)	Initiate, develop and continue DoD-sponsored human spaceflight (Shuttle/ISS) payloads and associated hardware, spaceflight partnerships; planning and risk reduction; and program support						0.880			
(U)	Initiate, develop and continue Small Launch Vehicle Class missions and associated hardware, spaceflight partnerships planning and risk reduction; and program support						8.155			
(U)	Initiate, develop and continue Medium Launch Vehicle Class missions and associated hardware, spaceflight partnerships; planning and risk reduction; and program support						13.344			
(U)	Provide program support for piggyback/secondary, Small Launch Vehicle, Medium Launch Vehicle, and manned spaceflight missions								10.178	
(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								4.519	
(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								19.533	
(U)	Initiate, develop, and continue first year operations and operations planning for piggyback/secondary, Small Launch Vehicle, Medium Launch Vehicle, and manned spaceflight missions								5.447	
(U)	Conduct studies to explore future launch opportunities/risk reduction activities and mission planning								4.844	
(U)	Total Cost					46.175	38.579		44.521	
(U)	<b><u>C. Other Program Funding Summary (\$ in Millions)</u></b>									
		<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U)	Related Procurement: Not Required									
(U)	<b><u>D. Acquisition Strategy</u></b> Not Required									

**UNCLASSIFIED**

PE NUMBER: 0605976F

PE TITLE: Facility Restoration and Modernization - T&E

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	<b>DATE</b> <b>February 2004</b>
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<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>
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Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	33.652	58.936	59.359	57.352	60.092	60.847	0.000	0.000
06MC Facility Restoration and Modernization - T&E	0.000	33.652	58.936	59.359	57.352	60.092	60.847	0.000	0.000

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

Prior to FY04 this effort was accomplished in PE 0605807F, Test and Evaluation (T&E) Support. Provides resources for restoration and modernization of an Air Force Materiel Command (AFMC) inventory of T&E facilities. 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 also 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.

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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	0.000	33.940	59.091
(U) Current PBR/President's Budget	0.000	33.652	58.936
(U) Total Adjustments	0.000	-0.288	
(U) Congressional Program Reductions		-0.288	

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

**(U) Significant Program Changes:**

Beginning in FY04, the AF identified a unique program element for facilities restoration/modernization. These funds were previously within PE 0605807F, Test and Evaluation Support.



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

DATE  
**February 2004**

<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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
06MC Facility Restoration and Modernization - T&E	0.000	33.652	58.936	59.359	57.352	60.092	60.847	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

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

Prior to FY04 this effort was accomplished in PE 0605807F, Test and Evaluation (T&E) Support. Provides resources for restoration and modernization of an Air Force Materiel Command (AFMC) inventory of T&E facilities. 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 also 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.

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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments/Planned Program:		0.000	
(U) Restoration and modernization funds were previously within PE 0605807F, T&E Support and restoration and modernization planning and design.		0.000	
(U) 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, Secure Phone Replacement and Building 1265 (746th Test Squadron Hq Building) Facility Repairs and restoration and modernization planning and design.		0.389	
(U) 46TG: Restoration/modernization of test unique infrastructure at the 46th Test Group. Projects include Kranko drive upgrade at NRTF for \$219K; main site power validation/repair at NRTF for \$250K and repave camera pad/connector roads at 846th TS for \$700K.			1.149
(U) Restoration/modernization of test unique infrastructure at the 46th Test Wing (TW), located at Eglin AFB, FL. Restoration projects include Repair Piping Climatic Lab, Install Additional Cooling in Test Hangar, Repair Roof of Armament Research Test Facility (Bldg 463), Repair Roof of Gun Test Facility (Bldg 410), Repair Fire Detection-Ala		2.814	

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Exhibit R-2a, RDT&E Project Justification		DATE <b>February 2004</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>System in the Climatic Laboratory, Repair Roof of Test Facility, Replace Chain Link Fence at Bldg 410, Replace Compressed Air Lines at Test Facilities, Repair Roof at Radar Facility, Repair Roof at Armament Research Facility and Repair Fence in Test Area A-24 and restoration and modernization planning and design.</p>		
<p>(U) 46TW: Restoration/modernization of test unique infrastructure at the 46th Test Wing (TW), located at Eglin AFB, FL. The 46th Test Wing has an excess of 200 restoration/modernization projects effecting T &amp; E facilities to include but not limited to the following categories: Roofing, Windows &amp; Doors, Roads, Fire Protection, Erosion, and HVAC. Some of these restoration/modernization projects include Bldg 8320-replace seawall, Bldg 8550-replace HVAC, Bldg 9270-replace seawall, Bldg 9292-replace soil around building foundation, Bldg 12722-replace septic tank, Bldg 12722-replace AC, Bldg 9403-inspect and replace tower bolts, Climatic Laboratory (Bldg 440) - repair roof leaks, Climatic Laboratory (Bldg 440) - replace existing asphalt Roadway, Climatic Laboratory (Bldg 440) - refurbish two main chamber doors, Climatic Laboratory (Bldg 440) - Replace corrosion piping for air makeup #1, Bldg 955-repair Range Road 234, Bldg 68-repair/replace windows, Range Site-renovate control Bldg, Range Site-provide &amp; install NEC Infrastructure Com Power.</p>		4.411
<p>(U) 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 Repair Tunnel A Actuators, Replace Low and High Pressure Dryer Filters, Replace C-Plant Heater Fuel Pipe, Replace T3 High Pressure Air Valves, Replace Vacuum Systems Control Panel (G) and restoration and modernization planning and design.</p>		27.921
<p>(U) AEDC: Restoration/modernization of test unique infrastructure at the Arnold Engineering and Development Center (AEDC), located at Arnold AFB, TN. Projects to revitalize the reliability and availability of aged equipment integral to the test capabilities such as: Engine Test Facilities, Propulsion Wind Tunnels, Von Karman Test Facilities, Space and Missile chambers and facilities, and supporting plant facilities. The increased funding is required for large-scale, well-documented R&amp;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.</p>		51.006
<p>(U) 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), Repair Radio Frequency Personnel Doors (Bldg 1030), Replace Network Communications Cable (Bldg 1440) and Replace Control Room Floor (Bldg 145) and restoration and modernization planning and design.</p>		2.528
<p>(U) AFFTC: Restoration/modernization of test unique infrastructure at the Air Force Flight Test Center (AFFTC), located Edwards AFB, CA. Restoration 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, and repair radio frequency shielded personnel doors at Bldg 1030 Benefield Anechoic Facility (BAF); design for future facility modifications to IFAST and BAF; replace control room floor (Bldg 145); replace roof (Bldg 4795); modify control rooms 248/249/250 phase 1 (Bldg 1440); replace UPS (Bldg 5790); install utility meters (Bldgs 1830 &amp; 1440);</p>		2.370

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>February 2004</b>
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<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>
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pave drainage ditch between spurs 3 & 4 (airfield); abate and resurface hangar floor (Bldgs 1630 & 1635); install tiedowns pad 29 (airfield); repaint taxi lines ramp 12; and restoration and modernization planning and design.

(U) Total Cost	0.000	33.652	58.936
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(U) **C. Other Program Funding Summary (\$ in Millions)**

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

(U) AF RDT&E

(U) Other APPN

Related 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) **D. Acquisition Strategy**

Not applicable

**UNCLASSIFIED**

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 2004</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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	15.636	23.067	23.097	25.204	25.102	24.726	0.000	0.000
06MR Facility Sustainment - T&E Support	0.000	15.636	23.067	23.097	25.204	25.102	24.726	0.000	0.000

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

Prior to FY04 this effort was accomplished in PE 0605807F, Test and Evaluation (T&E) Support. 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 also 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.

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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	0.000	15.770	23.127
(U) Current PBR/President's Budget	0.000	15.636	23.067
(U) Total Adjustments	0.000	-0.134	
(U) Congressional Program Reductions		-0.134	
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			

**(U) Significant Program Changes:**

Beginning in FY04, the AF identified a unique program element for facilities sustainment (PE 0605978F). These sustainment funds were previously within PE 06050807F.

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

DATE  
**February 2004**

<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>			<b>PROJECT NUMBER AND TITLE</b> <b>06MR Facility Sustainment - T&amp;E Support</b>		
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
06MR Facility Sustainment - T&E Support	0.000	15.636	23.067	23.097	25.204	25.102	24.726	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

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

Prior to FY04 this effort was accomplished in PE 0605807F, Test and Evaluation (T&E) Support. 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 also 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.

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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments/Planned Program:		0.000	
(U) Beginning in FY04, the AF identified a unique program element for facilities sustainment (PEC 0605978F). These sustainment funds were previously in PE 0605807F, T&E Support..		0.000	
(U) Sustainment of test unique infrastructure located at the 46th Test Group (TG), located at Holloman AFB, NM.		0.180	0.452
(U) Sustainment of test unique infrastructure at the 46th Test Wing (TW), located at Eglin AFB, FL.		1.306	1.721
(U) Sustainment of test unique infrastructure at the Arnold Engineering and Development Center (AEDC), located at Arno AFB, TN. Efforts include plant asset maintenance, manufacturing and fabricaion maintenance and management, test building maintenance and core and support facility maaintenance.		12.954	19.942
(U) Sustainment of test unique infrastructure at the Air Force Flight Test Center (AFFTC), located at Edwards AFB, CA.		1.196	0.952
(U) Total Cost	0.000	15.636	23.067

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

DATE

February 2004

BUDGET ACTIVITY

06 RDT&amp;E Management Support

PE NUMBER AND TITLE

0605978F Facility Sustainment - T&E  
Support

PROJECT NUMBER AND TITLE

06MR Facility Sustainment - T&E  
Support(U) C. Other Program Funding Summary (\$ in Millions)(U) D. Acquisition Strategy

Not applicable.

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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 2004</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>
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Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	0.000	1.596	0.997	0.998	1.000	1.002	Continuing	TBD
ACSI ACSI	0.000	0.000	1.596	0.997	0.998	1.000	1.002	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 acquisiton 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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	0.000	0.000	1.596
(U) Current PBR/President's Budget	0.000	0.000	1.596
(U) Total Adjustments	0.000	0.000	
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			



Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY <b>06 RDT&amp;E Management Support</b>				PE NUMBER AND TITLE <b>0702806F ACQUISITION AND MANAGEMENT SUPPORT</b>			PROJECT NUMBER AND TITLE <b>ACSI ACSI</b>		
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
ACSI ACSI	0.000	0.000	1.596	0.997	0.998	1.000	1.002	Continuing	TBD
Quantity of RDT&E Articles	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 indentificaiton and evaluation of the acquisiton 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. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Acquisition business process research.			1.596
(U)			
(U)			
(U) Total Cost	0.000	0.000	1.596

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

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

(U) **D. Acquisition Strategy**

Contracts will be awarded through full and open competition.

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2004</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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
	Total Program Element (PE) Cost	0.299	0.315	0.323	0.329	0.335	0.342	0.350	Continuing	TBD
4980	Research and Development of Computer Forensic Anaylst Tools	0.299	0.315	0.323	0.329	0.335	0.342	0.350	Continuing	TBD

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

The DoD Cyber Crime Center (DC3) is a service organization that provides state-of-the-art electronic forensic services and cyber investigative and operational support to customers within the Department of Defense (DoD). As a service organization, DC3 responds to the needs of its DoD customers by providing services they demand. DC3 also provides leadership as a center of excellence in its area of expertise, developing and prototyping new capabilities and strategies in response to customer needs and goals. 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, there is a DoD Cybercrime Institute (DCCI). The DCCI's mission is to develop 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 2004

BUDGET ACTIVITY

06 RDT&E Management Support

PE NUMBER AND TITLE

0804731F GENERAL SKILL TRAINING

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	0.310	0.318	0.324
(U) Current PBR/President's Budget	0.299	0.315	0.323
(U) Total Adjustments	-0.011	-0.003	
(U) Congressional Program Reductions		-0.003	
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer	-0.011		

(U) **Significant Program Changes:**

FY 2003 funding will establish RDT&E program at Department of Defense Cyber Crime Center (DC3), funding reductions prevented planned start in FY 2002.

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

DATE  
**February 2004**

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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
4980 Research and Development of Computer Forensic Anaylst Tools	0.299	0.315	0.323	0.329	0.335	0.342	0.350	Continuing	TBD
Quantity of RDT&E Articles	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 state-of-the-art electronic forensic services and cyber investigative and operational support to customers within the Department of Defense (DoD). As a service organization, DC3 responds to the needs of its DoD customers by providing services they demand. DC3 also provides leadership as a center of excellence in its area of expertise, developing and prototyping new capabilities and strategies in response to customer needs and goals. 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, there is a DoD Cybercrime Institute (DCCI). The DCCI's mission is to develop 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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplished/Planned Programs			
(U) Next Generation Electronic Media Analysis System	0.060		0.030
(U) Damaged Storage Device Data Recovery Tools	0.050		0.110
(U) Knowledge Management System	0.189		0.110
(U) Vulnerability Assessment Environment (V.A.E.)		0.158	

Exhibit R-2a, RDT&E Project Justification

DATE

February 2004

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 Analyst Tools</b>
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(U) Fused Analysis System/Data Analysis Tools	0.157	0.073
(U) Total Cost	0.299	0.315

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) General Information	0.262	0.267	0.548	0.277	0.282	0.580	0.293	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 2004</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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	20.000	36.125	100.000	0.000	0.000	0.000	0.000	Continuing	TBD
0JFR AC-130U CLAIM	20.000	36.125	100.000	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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	20.000	36.434	98.684
(U) Current PBR/President's Budget	20.000	36.125	100.000
(U) Total Adjustments	0.000	-0.309	
(U) Congressional Program Reductions	-0.211	-0.309	
Congressional Rescissions			
Congressional Increases			
Reprogrammings	0.211		
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			

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

DATE  
**February 2004**

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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
0JFR AC-130U CLAIM	20.000	36.125	100.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

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

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 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments/Planned Program			
(U) Reimburse Treasury Judgement Fund for AC-130U settlement	20.000	36.125	100.000
(U) Total Cost	20.000	36.125	100.000

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

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

**(U) D. Acquisition Strategy**

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 2004</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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	3.640	3.834	3.945	4.026	4.099	4.164	4.228	0.000	0.000
4645 International Cooperative Research & Development	3.640	3.834	3.945	4.026	4.099	4.164	4.228	0.000	0.000

**(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 Air Force Armaments Group (NAFAG) and NATO Research and Technology Organization (RTO).

This program is in Budget Activity 6, Management and Support, because the funding provides for general R&D Management support for all aspects of ICR&D activities in the USAF.



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

DATE

February 2004

BUDGET ACTIVITY

06 RDT&amp;E Management Support

PE NUMBER AND TITLE

1001004F International Activities

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	3.772	3.867	3.955
(U) Current PBR/President's Budget	3.640	3.834	3.945
(U) Total Adjustments	-0.132	-0.033	
(U) Congressional Program Reductions			
Congressional Rescissions	-0.064		
Congressional Increases			
Reprogrammings	-0.068	-0.033	
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			
N/A			

## UNCLASSIFIED

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

DATE

February 2004

BUDGET ACTIVITY 06 RDT&E Management Support				PE NUMBER AND TITLE 1001004F International Activities			PROJECT NUMBER AND TITLE 4645 International Cooperative Research & Development		
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
4645 International Cooperative Research & Development	3.640	3.834	3.945	4.026	4.099	4.164	4.228	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

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

The 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 Air Force Armaments Group (NAFAG) and NATO Research and Technology Organization (RTO).

This program is in Budget Activity 6, Management and Support, because the 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 2003</u>	<u>FY 2004</u>	<u>FY 2005</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
(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. In FY05, the USAF will have signed ESEP agreements with 16 countries and be in negotiation with at least 4 other countries. In FY05, the USAF will have signed APEP agreements with 2 countries and be in negotiatic with at least one other country.	0.200	0.220	0.200
(U) ICR&D - Funds USAF overseas R&D liaison offices. Funds management support and oversight of International Affairs Armaments Cooperation Division (SAF/IAPQ), AFMC and NATO Cooperative R&D Program. Funds USAF	2.420	2.589	2.690

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>		DATE <b>February 2004</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>

participation at the NATO Five-Power Forum, NAFAG, and its subgroups to promote NATO harmonization of requirements, standardization, and new cooperative R&D programs. Funds USAF participation at the US-Japan System and Technology Forum and Defense Cooperation Committee Meetings with Singapore and South Korea. Partially fund technical assessments and international agreements negotiation start-up costs associated with promising cooperative R&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 AFMC activities to identify, assess, develop, and report International Cooperative Agreements as required by statute for new and existing projects. Support AFMC activities for the International Cooperative R&D Program. 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. Funds periodic bilateral/multilateral meetings to define new areas of possible cooperation and exploratory visits to United Kingdom, Australia, Canada, Poland, Spain, Israel, Singapore, Sweden and other countries on new technology exchange projects. Funds the efforts of project engineers and scientists at AFMC subordinate units to identify, create, and staff new international cooperative agreements.

(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 FY04 and work will be initiated in the areas of: Reconnaissance and Surveillance; Global Positioning Satellites; SATCOM; Space Surveillance; Ground Based Relay Stations; Unmanned Combat Aerial Vehicles; Munitions; Airborne Radar; Early Warning Systems; Counter Air Weapons; Command and Control; Biological Warfare Protection; Distributed Simulation Technology; Laser Technology; Human Factors; Propulsion; and Wind Tunnel Design.	0.770	0.800	0.830
(U) NATO RTO - Funds USAF participation in the NATO RTO activities. The FY04/05 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) Test of Precision Airdrop Systems; 6) Information and Knowledge; 7) Mission Management; and 8) Sensors, Electronics, Processing and Components.	0.150	0.125	0.125
(U) Total Cost	3.640	3.834	3.945

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

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

(U) **D. Acquisition Strategy**

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

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

DATE

February 2004

BUDGET ACTIVITY

**06 RDT&E Management Support**

PE NUMBER AND TITLE

**1001004F International Activities**

PROJECT NUMBER AND TITLE

**4645 International Cooperative  
Research & Development**

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 funded by the program office.

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